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**Rural development analysis: direction identification measurement and interpretation for public policy purpose applied to four Tennessee counties**

Ying-Nan Lin

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To the Graduate Council:

I am submitting herewith a dissertation written by Ying-Nan Lin entitled "Rural development analysis: direction identification measurement and interpretation for public policy purpose applied to four Tennessee counties." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Agricultural Economics.

Charles L. Cleland, Major Professor

We have read this dissertation and recommend its acceptance:

M.B. Bodenhop, Luther H. Keller, H.A. Lasater

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

June 1974

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A. Alan Lasater

Accepted for the Council:

Stilton A. Smith  
Vice Chancellor  
Graduate Studies and Research

RURAL DEVELOPMENT ANALYSIS: DIRECTION IDENTIFICATION MEASUREMENT  
AND INTERPRETATION FOR PUBLIC POLICY PURPOSE APPLIED  
TO FOUR TENNESSEE COUNTIES

A Dissertation  
Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee

Ying-Nan Lin

June 1974

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## ABSTRACT

The widespread interest in rural development in recent years has led to programs and activities in rural areas but very limited evidence of success in resolving the problems for which they were designed. The present study presents an approach to identification of the needs of the people living in a rural area, objective measurement of the direction of change and current status of the areas identified as needing improvement, and an indication of the effect on other areas of living of the improvement in any one. Rural development is defined as the improvement of any one or more facets of rural living when there is no concomitant resultant deterioration of other facets.

The data base for the study included interviews from a random area sample of rural households in four Tennessee counties plus interviews from a purposely selected group identified as "knowledgeables" because of positions occupied and their long term residence in the county. In addition secondary data from the censuses of population, agriculture, housing and governments and selected state sources were utilized. Areas were identified as needing improvement if the sample respondents classified them as having gotten worse since 1960 or rated them as only fair or poor in 1972 or if the constructed indicators showed a downward trend.

Least squares regression analysis was applied to identify the interactional relationship between each facet and the socio-economic characteristics of rural people. A rate of change matrix

was constructed for each county based on the indicators developed for each facet of the socioeconomic environment and each socioeconomic characteristic of the county residents included in the study with entries other than zero being made only where significant relationships were found based on the sample survey. From the rate of change matrix the effect of improvement in any one facet on other facets was determined and identification made of the trade off and supplementary relationships between facets.

The results of the study provide a guide to those concerned with development in the study counties and a procedure which could be followed in any locality. The study also identified gaps in the data base needed for the construction of useful social indicators with the most glaring gaps relating to churches and religious involvement. Other data short areas included informal social participation, recreation and certain family characteristics such as health condition of family members and specific age structure within the household.

Comparison of the four study counties showed differing patterns of trade off and supplementary relations between the various facets of the socioeconomic environment which appeared to be related to the differing degrees of industrialization in the counties.

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## CHAPTER I

### INTRODUCTION

#### I. INTRODUCTION

The technological progress and farm structural changes which have occurred during the past several decades have caused a massive substitution of capital for labor and land in farming. The substitution has resulted in the geographical redistribution of various production resources. Such redistribution has put various limitations on socioeconomic opportunities for people in rural areas where the local traditional economy is based on direct utilization of natural resources. The reduction in the amount of labor input required in production processes has also brought about heavy out-migration from rural areas resulting in serious uneven geographic distribution of various human and man-made resources.<sup>1</sup> Such an uneven distribution of resources has created a great concern for rural development which is supposed to correct the imbalance. For example, the Congressional activities of the 92nd Congress in 1971 included consideration of more than 50 bills dealing with rural problems. Rural development has also been given both theoretical and empirical emphases in various fields of the social sciences including economics, sociology, rural sociology, political science, home economics, agricultural economics,

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<sup>1</sup>Orville Freeman, Communities of Tomorrow: Agriculture/2000 (Washington, D.C.: U.S. Department of Agriculture, November, 1967), p. 1.

and anthropology.<sup>2</sup> People in the underdeveloped or chronically depressed rural areas have also tried to improve their lot. They have attempted to obtain resources from outside to facilitate rural development in the local area or migrate to the area where they might take advantage of existing socioeconomic opportunities. Numerous instances of such effort by rural people are shown on the data sources used for rural development research in Tennessee.<sup>3</sup> Success, however, is often elusive, especially in rural areas with low income problems where impediments exist and alternative strategies for rural development are limited and sometimes difficult to identify. Thus, the study of the potential for rural development in underdeveloped or chronically depressed rural areas is an attractive challenge. As part of this potential, it is desirable to pinpoint those facets of the socio-economic environment and the aggregate levels of the socioeconomic

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<sup>2</sup> a. Community Development Services, Southern Illinois University at Carbondale, Community Development Newsletter.

b. Regional research projects: S-63, S-79, S-81, W-114, NE-77, NE-68, NC-102, NC-80, NC-90, NC-97, NC-86.

c. Arthur F. Wileden, Community Development (Totowa, N.J.: The Bedminster Press, 1970).

d. Edgar S. Dunn, Jr., Economic and Social Development (Baltimore and London: The Johns Hopkins Press, 1971).

e. Earl O. Heady, Benefits and Burdens of Rural Development (Ames, Iowa: The Iowa State University Press, 1970).

f. Neil J. Smelser and Seymour Martin Lipset, ed., Social Structure and Mobility in Economic Development (Chicago: Aldine Publishing Company, 1966).

g. Luther T. Wallace, Daryle Hobbs, and Raymond D. Valsin, eds., Selected Perspectives for Community Resources Development (Raleigh, N.C.: Agricultural Policy Institute, North Carolina State University, 1969).

h. Earl M. Kulp, Rural Development Planning (New York, Washington, and London: Praeger Publishers, 1969).

<sup>3</sup>From content of four Tennessee county newspapers published during the 1960's.

characteristics which need to be changed in order to facilitate (or obtain) desirable development.

## II. STUDY AREAS AND THE PROBLEMS

This research will involve Hancock, Houston, Humphreys, and Union counties which were selected to represent low income counties in 1950 in Tennessee according to level of living indices. The quality of life for local people in these counties has been miserable in comparison with that for people in developed or developing areas. Therefore, local people have been eager to obtain some resources from outside to improve their well-being and to facilitate rural development. Various governmental agencies working in these four counties have also been trying very hard to resolve the local socioeconomic problems but there is always a limit on the amount of various resources available for public policy implementation. Thus, the total amount of various available resources should be utilized effectively. In order to use various resources more effectively, the facets of socioeconomic environment which need to be modified by public policies should be identified by means of the general opinions of rural people and the available socioeconomic data. The effect on the other facets of the socioeconomic environment due to policy implementation in one facet of that environment also has to be taken into account. Sometimes, there is also a lack of linkage among public programs. Thus whether there is any supplementary or trade-off relationship between two facets of socioeconomic environment or not should be known. In order to facilitate rural development and to

adopt appropriate strategies in the four counties, the above issues should be ascertained before long term policy decisions are made.

### III. PURPOSE

The terms "community development," "social development," "resource development," and "rural development" are defined in various ways by different authors within the same discipline and by authors in different disciplines. Part of the variation in emphases in different rural development programs seems to be introduced by such differences in definition.

Until now, there is not any fully agreed upon definition for rural development. Thus, for present purposes rural development is assumed to be anything which may make a contribution to the improvement of local socioeconomic or physical conditions or in the aggregate levels of various socioeconomic characteristics of rural people. If the adopted strategies for rural development were appropriate during the process of development, changes in various facets of the local socioeconomic situation and in aggregate levels of the characteristics toward preferred conditions would occur. The results of such changes would increase the capacity of various facets of the socioeconomic environment to provide benefits for the rural people thereby improving their opportunities to participate in available socioeconomic activities. Provision of such benefits would be reflected in an increase in measures of rural levels of living and in improvement of the quality of rural life. Such improvement could be expected to affect the general opinions of local people concerning various aspects of the rural socioeconomy.

The socioeconomic environment is here defined as including diverse facets such as county government, local politics, education, the opportunity for education beyond high school, income for wage earners, employment opportunities, real income, law enforcement, public utilities, church and religious groups, recreational opportunities, agriculture and land use, welfare programs, provision of good housing, the physical setting, medical care and health services, roads and other transportation systems, as well as the situations and opportunities for the young and old. Local people's opinions about recent changes in and the current quality of these facets of the socioeconomic environment will provide the basis for deciding which facets need to be changed to bring about rural development. (Hereafter the phrase facet of the socioeconomic environment will be abbreviated to FOSE.)

The environment has a great effect on the quality of living but the residents' perceptions of that environment is equally important. Perceptions of the conditions of the community will be influenced by one's position in the community and the amount of benefits obtained from the community. Such position can be identified through various characteristics of that individual. The socioeconomic characteristics included in this study will be such things as age, educational achievement, income, North-Hatt occupational score, Anomia score, dependency index, capability to work index, material possession index, communication items score, the number of communication items and material items possessed, social participation score, as well as leisure-time participation intensity score. Since the socioeconomic characteristics of the individual may interact with the environmental situation to



produce favorable or unfavorable opinions about the various FOSE's, the approach to rural development might include attempts to change the aggregate levels of various socioeconomic characteristics which improve the quality of some FOSE's and/or increase the capability of local people to take advantage of existing opportunities.

In order to obtain a precise insight into the actual conditions of various FOSE's and the aggregate levels of the socioeconomic characteristics of rural people living in the area (hereafter referred to as ALSC's), there is a need for some indicators.

A social indicator, . . . may be defined to be a statistic of direct normative interest which facilitate concise, comprehensive, and balanced judgments about the conditions of major aspects of a society.<sup>4</sup>

The value of socioeconomic indicators rests on their usefulness, meaningfulness, and helpfulness in terms of implications which may be derived for program purposes, for comprehension of the actual quality of various phases of socioeconomic well-being at a particular point in time and the changes in the conditions of various FOSE's in rural areas during a specific period of time. The indicators should be constructed according to their intention which they try to show. In order to facilitate concise, comprehensive, balanced, and informed judgments about the actual situations of major FOSE's and ALSC's, the sensitivity of each constructed indicator to change must be emphasized. Many published statistics are very important and their meanings easily understood but they can not be considered as socioeconomic

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<sup>4</sup>U.S. Department of Health, Education, and Welfare, Toward a Social Report (Ann Arbor, Michigan: The University of Michigan Press, 1970), p. 97.

indicators if they do not show or explain the actual conditions of FOSE's, the various ALSC's, or the changes in either.

The terms "underdeveloped," "undeveloped," and "developed" differ from one another only in the rate of change in various FOSE's, in the ALSC's, and in the nature of changes in both during a particular period of time. Differences in the rates of change could be anticipated to affect the nature of the interactions between the various FOSE's and ALSC's. Such different interactions would influence the general perception of the local people regarding whether development in any degree had occurred or not in a particular area during a specific period of time.

It is difficult to evaluate the speed and direction of changes intuitively and immediately from a distance. However, indicators can assist in making such evaluations. From the indicators it would be possible to determine the actual condition of a particular FOSE or ALSC at a point in time.

A social report with a set of social indicators could not only satisfy our curiosity about how well we are doing, but it could also improve public policy-making in at least two ways. First, it could give social problems more visibility and thus make possible more informed judgments about the national priorities. Second, by providing insight into how different measures of national well-being are changing, it might ultimately make possible a better evaluation of what public programs are accomplishing.<sup>5</sup>

From the above, it is clear that socioeconomic indicators are very important. They help us to understand the present actual situation of various FOSE's, the current ALSC's of people in the area, as

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<sup>5</sup>Ibid., p. 32.

well as the rate of change in both. Although various economic statistics have provided a solid basis for an analysis of economic facets of the society, there is still a need for more basic measures (social indicators) of social well-being.

Meanwhile, some weak (in an unsatisfactory state) facets of the rural socioeconomic environment will be assumed to be identifiable by the reflections in the general opinions of the local rural people concerning such environment. Therefore, the general opinions of rural people in the study areas need to be ascertained. After such identification, the socioeconomic characteristics related to various FOSE's are to be determined for aid in the resolution of rural problems and for facilitating rural development.

#### IV. OBJECTIVES

The principal objectives of this study were to examine the direction of changes in various FOSE's which had occurred during the decade of the 1960's in each study county, to identify the FOSE's which need to be modified by public policies, to ascertain the socioeconomic characteristics related to each FOSE, and to design some socioeconomic indicators for evaluating actual conditions of each FOSE and the rate of change in such a FOSE. From the evaluated rate of change, we will determine what may happen in some FOSE's as the other FOSE's are improved by public policies.

The first concern will be determination of socioeconomic problems in the study counties from the data of general opinions concerning the direction of change in various FOSE's and their current quality.

The second concern will be identification of those socioeconomic characteristics related to various FOSE's.

The third is to design and construct socioeconomic indicators and to utilize them and already available indicators for evaluating the actual situation of every FOSE in 1960 and 1972.

The fourth objective is to form a rate of change matrix for each study county. From such matrix, the determination of what may happen in some FOSE's due to policy implementation in other FOSE's can be made.

#### V. SOURCES OF INFORMATION

The sources of data which will be utilized in this study will include the following:

1. 1960 and 1970 Censuses of Population and Housing.
2. Statistical series from state Department of Revenue, of Safety, and of Transportation.
3. Censuses of Agriculture for 1964 and 1969 as well as Tennessee Statistical Abstracts.
4. The data obtained from knowledge leaders and experts opinions in study counties.
5. The data obtained from household interviews conducted in 1960, 1966, and 1972 in the study counties. (The sampling procedure is described in Southern Regional Cooperative Series Bulletin No. 108, Scaling Social Data, pages 11-12.)
6. The data obtained from the Tennessee State Game and Fish Commission, Office of the Secretary of State, as well as local newspapers.

## 7. Censuses of Governments for 1962 and 1967.

## VI. SPECIAL TERMS

There are several terms which need to be explained since they are not widely used and understood. At present, the meanings of the following socioeconomic characteristics will be described briefly: North-Hatt Occupational Score, dependency index, Capability to work index score, material level of living scale score, communication level of living scale score, social participation score, leisure-time participation score, and anomia score.

The North-Hatt occupational score is one kind of occupational prestige measurement which was developed by the National Opinion Research Center. The range of such score is from zero to one hundred. The score was assigned according to the average value of the respondents' rating of the corresponding occupation.<sup>6</sup>

The dependency index is one measure of the degree of dependency within a family. The following formula was used in calculating the dependency index:

$$D = \frac{1 + X}{1 + Y + Z}$$

where X = the number of family members who were 14 through 64 years old,

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<sup>6</sup>Archibald O. Haller and Irwin W. Miller, The Occupational Aspiration Scale: Theory, Structure and Correlates, Technical Bulletin 288 (East Lansing, Michigan: Michigan State University, Agricultural Experiment Station, Department of Sociology and Anthropology, 1963).

Y = the number of family members who were under 14 years old, and

Z = the number of family members who were 65 years old and over.

The greater the index value, the less will be the degree of dependency of the corresponding family.

The capability to work index score is one relative measurement of the capacity of the adult members of the family to work. It ignores members of the family not of working age. This index score was calculated according to the following formula:

$$W = \frac{a + b/2}{a + b + c}$$

where a = number of adults 14 to 64 years of age who were fully able to work,

b = the number of adults 14 to 64 who had a limited permanent disability,

c = the number of adults 14 to 64 who were totally disabled, and

W = the capability to work index score.

The communication level of living scale score is tried to measure the accessibility of the corresponding family members to various communication items. The method of assigning score was developed according to Guttman scaling procedures (the detailed procedures are described in Scaling Social Data, pp. 14 through 29).

The method of assigning material level of living scale scores was also developed according to the procedures used for the communication

level of living scale score. It is intended to measure the accessibility of material items to the corresponding family.

The intent of the social participation scale score is to evaluate the degree of involvement in formal social activities such as parent-teacher organizations and Sunday school classes. The score is arrived at by assigning 1 for each membership in a social organization, 2 for each organization attended regularly, and 3 for each organization served as an officer or committee member. A maximum score of 6 is possible for any one organization. Sum score of all organizations participated in would be the social participation score for the corresponding individual.

The leisure-time participation intensity score is designed to measure the degree of family involvement in various leisure-time activities such as hunting, fishing, camping, boating, and other in-door and out-door activities. The score assignment was made according to the following procedures: for participation, assign 0 for "never," 1 for "seldom," 3 for "fairly often," 4 for "very often"; for owning equipment or subscribing to related magazine add 0.5 for either or 1.0 for both; for membership in organized group add 1.0; for holding office in club or group add 2.0. Then all of the assigned scores will be added together as the actual leisure-time participation intensity score for the corresponding family.

Knowledgeables (or position leaders) refer to those selected for interview who were supposed to know and be in a position to observe the detail of actual changes in the study counties. These included the heads of county government and municipal governments,

superintendents of schools, chairmen of boards of education, directors of welfare, health officials, county agricultural and home economic extension agents, leaders in local government or politics, persons who were very knowledgeable about schools and education, agricultural leaders other than extension agents, someone knowledgeable about roads and highways, the most important local economic leaders, religious leaders, persons who were knowledgeable about crime and law enforcement, leaders in the most prominent civic clubs, the adult leaders in important youth organizations, leaders in important women's organizations, manager or chief cog in local newspaper or radio/television station, and other community leaders. Some position leaders were selected according to their current or previous positions in local formal institutions while others were suggested by local people.

#### VII. ASSUMPTIONS

First, it is assumed that there are some interactional relationships among individuals' socioeconomic characteristics and their general opinions regarding the direction of changes in and the current quality of various FOSE's in the study counties. It is also assumed that the relationships are subject to analysis. Population size is one characteristic that is known to be related to virtually every institutional arrangement and population characteristic. Since censuses of population are normally taken at ten-year intervals, change in population size in a given area may be assumed to be at a constant instantaneous rate of growth during a specific decade even though it may be known that there probably were slight fluctuations. Following



this pattern, each FOSE and ALSC will also be assumed to have been changing at its own constant rate of change during a particular period of time without any change in the external influences which may affect all of them.

A second major assumption is that the general opinions of rural people concerning each FOSE are reflections of the interaction between their own characteristics and the corresponding facet. The actual condition of each FOSE is invariable at a given point in time, but the opinions of rural people regarding that FOSE may vary from one individual to another. Such variations arise from the fact that each individual's socioeconomic characteristics differ from those of each other individual and the influence of such differences causes variations in the amount of benefits derived from that particular FOSE. Individuals' characteristics will also affect their knowledge with regard to the present actual condition of and the change in each FOSE during a specific period. The variations in their knowledge level among individuals and in the amount of benefits received will result in part from their having differing criteria for evaluating the changes that have occurred and the current quality of the situations. Their knowledge level about each FOSE is also due to the effect of interaction between their socioeconomic characteristics and the corresponding FOSE.

All FOSE's in a given area are interacting and/or associated with the ALSC's for the entire population in that area at a particular point in time. The third major assumption, then, is that change in every FOSE and the changes in some ALSC's are associated with each

other in a given area during a specific period of time. Thus, it is also assumed that there is a similarity in the existence of interactional relationships between each FOSE and its related characteristics at the micro and aggregate (macro) levels even though the degree of the relationships may differ on the two levels. The micro level referred to is the relationships between the individual's opinion about each FOSE and the characteristics of that individual. The micro relationship will be found or pinpointed from cross-sectional analysis of data obtained in the 1972 household interviews. The macro relationship refers to the association of the ALSC's with their related FOSE's. Such association has long-run implication. It involves the time dimension and will be dealt with in the rate of change matrices. In some instances, researchers have assumed that the parameters linking macro and micro relationships are the same, but in the present analysis such an assumption will not be made.

The fourth major assumption is that the greater the improvement in each FOSE, the larger would be the number of rural people who would obtain benefits and/or the greater would be the amount of benefits derived by each person. The results would be that a greater proportion of people would give a "high" rating for the quality of that FOSE and feel that it had "improved" during a specific period of time. It can be assumed that the reverse relationship also holds. That is, that the greater the deterioration of each FOSE the smaller would be the number of rural people obtaining benefits and/or the smaller the amount of benefits which each person could get. Such a trend could be expected to increase the degree of disappointment of

rural people with the result that there would be an increase in the proportion of people giving that FOSE a low rating and feeling that it had gotten "worse" during a specific period of time. In other words, the greater the degree of change in each FOSE, the more congruent will be the general opinions concerning that FOSE. If this assumption is correct, the changes in various FOSE's during a particular period of time and their current quality can be determined by the general opinions of rural people about them. In addition, the general opinions of rural residents can be assumed to give appropriate directions for rural development even though the criteria upon which local people base their opinions may change with the passage of time.

#### VIII. PROCEDURES OF THIS RESEARCH

Frequency distributions for the general opinions concerning the nature of change in and the current quality of various FOSE's in the local area will be counted. The frequency differences in various general opinions regarding each FOSE may be caused by random fluctuations in sample selection. Therefore the determination of whether such differences were introduced by random fluctuation in the sample selection process or not will need to be made. Null and alternative hypotheses will be set up and statistical tests of the null hypothesis will be conducted.

Through the counting of frequencies for the different opinions and the conducting of statistical tests concerning each FOSE, identification will be made of those FOSE's which are inadequate and/or need to be improved in the rural development process. Those on which a

substantial proportion of rural people agree that the condition is inadequate will be designated the areas needing attention for rural development.

The next step will be to identify the interactional relationships between socioeconomic characteristics and the general opinions about the direction of change in each FOSE. That is, a score will be assigned to each kind of opinion, and after such assignment, the least squares regression analysis and statistical test will be applied to identify the interactional relationships.

If there is no appropriate indicator for a particular FOSE and/or various ALSC's to be included in the study, reasonable indicators will have to be constructed. In order to be familiar with the current situation of each FOSE and the related ALSC's as well as the rate of change in both, indicators which have already been developed and those designed for the study will be utilized in the analysis.

Once the indicators have been selected or developed, then according to the assumption that each FOSE or ALSC has changed at its own constant rate of change and the identified interactional relationships, the rate of change matrix will be formed. It is this rate of change matrix which will be utilized to analyze what may happen in other FOSE's with public policy implementation to improve the inadequate FOSE's.

## IX. PREVIOUS WORK AND CURRENT RESEARCH

There are many empirical and theoretical studies related to rural development which have been completed or are in process.<sup>7</sup> Their foci are different from one another and from this study. Some researchers have emphasized the change in economic facets of the society or in social structure; others have placed primary emphasis upon the linkage between social organizations and individuals, on social changes, on institutional changes, migration, occupational and educational alternatives. Although they have made a great contribution to rural development and provide valuable insight into the process of the rural development, the entire socioeconomic system of their study areas has not been taken into account. The basic factors, that of the general opinions of the rural people concerning various FOSE's are frequently ignored. There are two major factors which determine the improvement of the quality of life and the level of rural development; one is the content of all FOSE's in the areas; the second is the ALSC's of rural people. When both of these factors are taken into account, the search for possible short cuts to rural development will likely be productive.

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<sup>7</sup>Note the regional projects listed in b of footnote 2 above.

## CHAPTER II

### THE IDENTIFICATION OF SOCIOECONOMIC PROBLEMS BY MEANS OF THE RURAL RESIDENTS' GENERAL OPINIONS

#### I. INTRODUCTION

The primary objective of rural development is to increase the benefits which rural people have obtained. Therefore, rural development can be defined as anything which contributes to the improvement in various FOSE's and in the ALSC's of rural people. The improvement in various facets of institutional systems would provide more benefits for rural people and hence satisfy their wants directly and/or indirectly. So long as their satisfaction derived from any facet of rural life more fully achieved, they would feel that the facet had improved and their rating for that facet would be raised, however slightly. Therefore their rating of the current situation of every aspect of rural life and their general opinions concerning changes which have occurred in each FOSE would be one of the most important indications of the appropriate strategies for rural development.

The objective current situation with respect to each FOSE and the nature of the change that had taken place during the study period were simply matters of fact. But individuals may differ in their opinions about the nature of change as well as in their rating of the current quality. Such differences may be due to variations in individual socioeconomic circumstances. Differences in individuals' socioeconomic situation would affect their accessibility to the

delivery systems for various public services. The variations in their access to various public facilities would in turn tend to influence the amount of benefits received by them from the public facilities and hence their opinions concerning the nature of change which had occurred in each FOSE during the decade of 1960's as well as their evaluation of the current situation in each of those facets. Therefore the general opinions of rural people needed to identify appropriate strategies for rural development would be based upon frequencies calculated for different opinions regarding each socioeconomic facet of rural life.

Opinions on the following twenty-four areas of rural living (the FOSE's of this study) which have been obtained will be utilized as the bases for determination of which institutional areas must be improved in order to facilitate rural development: the quality of life for most people, the quality of county government, local politics and political parties, the quality of public schools, the opportunities for education and training beyond high school, the situation with regard to agriculture and land use, the quality of medical care and health services, welfare programs, the quality of life for the poor people, crime and law enforcement, the quality and availability of the roads and other transportation systems, the income for people who work for wages, job opportunities for the county residents, real income, churches and religions, recreational opportunities, public utilities, the quality of physical environment, provision of good housing, the situation and opportunity for young people, the situation and opportunity for the old people, as well as the quality of county as a place to

live. (The possible response categories and questionnaires for the general opinions will be shown in the Appendix.)

The greater the change in some FOSE's, the more congruous will be the general opinions of rural people regarding the facets and vice versa. Meanwhile the differences in the calculated frequency for different opinions concerning each FOSE might come from random fluctuation in sample selection, therefore the homogeneity among the frequencies for various opinions with respect to the facet must be tested. The following null hypothesis and alternative hypothesis will be set up for the statistical test:

$$H_0: r_1 = r_2 = \dots = r_n$$

$H_a$ : at least one of the frequencies is different from the others

where  $r_i$  is the frequency associated with the  $i$ -th category of opinion. After setting these two hypotheses, the null hypothesis test would be conducted. The probability distribution of occurrences of the different opinions concerning each facet is not binomial but multinomial, therefore normal, binomial, or Poisson distribution can not be applied to the null hypothesis test.  $\chi^2$ -test will be relied on. In the test, either 5% or 1% of significance level will be used. If the result of the test shows significant, it means that at least one of the frequencies associated with the different opinions is significantly different from the others. That is, there is congruence in general opinions concerning the FOSE. Otherwise, the null hypothesis should be accepted, which implies that the frequency differences may



be introduced by random fluctuations in sample selection and the frequency differences counted are not reliable.

After the counting of frequencies for the different opinions and the conducting of statistical test, the socioeconomic problems in each study county will be identified according to the general opinions of the rural residents concerning the nature of change in and the current quality of each FOSE.

The frequencies for the different opinions with regard to each FOSE, and the calculated  $X^2$ -values related to the hypothesis tests have been listed in Tables I, II, III, and IV for Hancock, Houston, Humphreys, and Union counties, respectively, in the Appendix.

## II. THE IDENTIFICATION OF SOCIOECONOMIC PROBLEMS IN HANCOCK COUNTY

In Hancock county, more than half of the open-country residents are generally of the opinion that the quality of life for most people living in the county has improved since 1960. Less than one-fourth of rural people felt that the quality of life had gotten worse.

Among those in the position of leadership, there was a nearly unanimous opinion that the quality of living had improved and that the primary cause was the improvement in the local economy. Other contributing causes often mentioned were the improvement in the local educational system and that governmental programs had helped to improve the quality. There was an indication that more than half of rural people have enjoyed the improved quality of life. This may be due to more off-farm job opportunities available for the local residents

at Morristown and Tazewell, more generous welfare programs, and the improvement in local educational system which better equips migrants from the county to compete with others in the labor market. But some knowledgeable were worried about the closing of zinc mining which may cause a reduction in job opportunities for the county residents.

The opinions of rural people about recent changes in the quality of county government and its current quality were nearly evenly distributed among all of the possible response categories.

Among those in the position to observe changes during the 1960's, there was a nearly equal division of opinions concerning the nature of change in the quality of county government; one is that the county government has improved, the other is that the quality is unchanged. According to the opinions of knowledgeable in Hancock County, the reduction in the county court size from 26 to 14 resulted in an increase in efficiency of the county government. Even though such improvement was only slight and a county-wide solid disposal program was turned down, some local people still have confidence that the improvement in the county government will be greater in the 70's than in the 60's according to the knowledgeable' opinions.

The opinions of rural people concerning the nature of change in the quality of local politics and political parties were almost evenly distributed among the possible response categories.

Among those in the position of knowledgeable, there was a good agreement that the quality of local politics and political parties had remained about the same as in 1960. The rural people felt that the current quality of local politics and political parties seemed

to be only fair or even poor. At present, the Republican party dominates in local politics, but there still exists some Democratic influence. Some local people complained about the nastiness of local politics.

As to the quality of local public schools, just under half of the rural people felt that the quality had improved during the decade of the 60's. Among those in the position of leadership, there was a tendency toward agreement that the quality of the local public schools had improved. The local schools were consolidated during the decade. The program of in-service training has improved the qualification of teachers. This program has been taking place with the cooperation of surrounding school districts. Upgraded teachers have been hired, more vocational courses have been offered at the high school, a new high school was built, and school buildings have been remodeled. The pre-school, Head Start, and kindergarten programs have been upgraded while there is still no vocational school or community college in the county, there is a new community college at Morristown which is not very far away.

Concerning the current quality of the local school system, around 60 percent of the rural people felt that the current quality is still only pretty good or fair. Among those who have been in the position of leadership, there was nearly unanimous opinion that its current quality had been only fair. According to the knowledgeable interviewer's report, the contributing factors for the current quality have been political influence in the school system and a lack of financial resources which may offset in part the effects of government programs.

About the opportunity for education beyond high school, the predominant opinion among the rural people is that the adequacy of the opportunity has improved since 1960. A substantial number felt that they were uncomfortable or disliked making any comment about the opportunity. Those who have been in a position to observe changes during the decade of the 60's had a general feeling that the opportunities had improved. There have been a regional vocational school and loans made available for people who would like to receive education beyond high school.

The rural residents' opinions concerning the current situation of the opportunity for getting education beyond high school were nearly evenly distributed among the possible response categories. It may be that there have been such educational opportunities but the local socioeconomic factors have prevented the county young people's taking advantage of them.

The open country people were generally of the opinion that the situation with regard to agriculture and land use had improved since 1960. Even so, nearly one-fifth of the rural residents felt that the situation had remained about the same. As to those in the position to watch changes during the 1960's, they felt generally that the situation either improved or remained about the same. There have been off-farm jobs available and some farmers found off-farm employment and changed from full-time farming to part-time farming operation. This situation seems to imply that a lot of farmers have stayed in the transitional stage of employment shifting. More modern farming skills have been learned by farmers. Strip-farming and

conservation practices have been adopted. Although the production of tobacco has been reduced, it is still the primary cash crop in the county. Beef cattle and fresh vegetable production have become more and more important in the local agricultural industry. The current situation with respect to agriculture and land use still remains pretty good.

Concerning the quality of medical care and health services in the county, rural people were about evenly split between the opinions that the quality had improved and that it had remained about the same since 1960. None felt that it had gotten worse. Among those in positions of leadership, there was nearly unanimous agreement that the quality of medical care and health services had improved since the beginning of the last decade. This unanimity was based on the availability of a new hospital and more medical care facilities. Federal and state programs have helped to improve the local situation regarding medical care and health services in terms of medical facilities. Health fairs have been taking place since 1968.

As to the current quality of local medical care and health services, the opinions of rural people were nearly evenly divided among all of the possible response categories. Most of those who have been in positions of leadership felt that the current quality was pretty good.

There was a great diversity of opinions regarding the nature of change in welfare programs and its current quality in the local area. Those who have been in positions of leadership were generally of the opinion that welfare programs had improved in the local area

since 1960, although some felt the programs had become worse. The county has been one of the poorest in the whole nation at least since 1950. More than half of the families in the county are qualified to be on welfare rolls. Welfare programs may have made a great contribution to improving the quality of life for the poor at least in terms of the material aspect of living. More money has been spent on welfare programs. A few people who are apparently able to work felt the cost of going to work at minimum wage levels was too great, so they remained on public assistance rolls. This situation may have brought about a conflict between traditional beliefs in the local area and the actual condition of welfare programs. A day care center, the food stamp program, medicaid and medicare programs, a low rent housing project, and retraining programs have become available in the county. More well trained caseworkers have been employed. Even though many improvements in welfare programs have been made since 1960, the degree of such improvement has been insufficient to bring about a unanimous opinion concerning welfare programs in the local area.

The open country residents were generally of the opinion that the quality of life for the poor had improved since 1960. Among those who have been in position to observe changes during the 1960's, there was also good agreement that the quality had improved and that there were fewer really poor people in the county in 1972 than in 1960. Some people complained that public assistance recipients able to work did not take a job when one was available.

Most of the rural people felt that the situation with regard to crime and law enforcement had gotten worse during the decade of the 60's. This contrasts with the majority of those in positions of leadership who felt that the situation had either improved or remained the same. More law enforcement equipment has been installed. More policemen and public prosecutors were added to the staff and trained. The differences observed here may be due to better law enforcement urban area than in rural areas.

The current situation with regard to obedience to law by all citizens seems to be pretty good. Those who have been in the position of leadership were generally of the opinion that the delinquency problem had been either "not very serious" or "little or no problem." Concerning the job done by law enforcement agencies and officers in the county, the opinions of local leaders were rather evenly divided among the possible categories. Some local leaders may feel that there is no serious crime but do not consider this a reflection of the effectiveness of the local law enforcement agencies.

As to the quality of roads and other transportation systems, the open country residents were generally of the opinion that the roads and the other transportation systems had improved since 1960. The opinion was not unanimous, however, because some felt that the quality had remained the same. Among those in positions to observe changes during the 1960's, there was good, though not perfect agreement that the quality of transportation systems had improved. A lot of rural roads have been paved but one state project was stopped half way through reportedly because not enough votes were cast for the

winning candidate in the most recent election. Highway 31 was built but heavy rains damaged the highways and rural roads. The maintenance of the rural roads and highways had not been sufficient to keep the rural roads and highways in good condition. The primary contributing cause may be lack of financial resources for road maintenance. There is no railroad in the county.

Concerning the current quality of the transportation systems, the opinions of rural people were rather evenly divided into all of the possible response categories.

About income for people who work for wages, the rural people generally felt that the situation with respect to this FOSE had improved. None of the rural people felt that it had gotten worse during the 1960's. Among those in positions of leadership, there was good agreement that those working for wages were doing better in 1972 than they did in 1960. Most of the rural people felt that the current situation regarding the income for wage earners was only "pretty good" or "fair."

The open country residents were generally of the opinion that the situation with respect to job opportunities for local people had improved since 1960. But there were a substantial number of rural people who felt the situation had remained about the same.

As to those in positions of leadership, their opinions were almost evenly distributed among the possible response categories.

Concerning the current situation with regard to employment opportunities for the local residents, the rural people were generally of the opinion that the current situation was poor. Among those who



have been in positions of leadership, there was near congruency in the opinion that the situation about the employment, business, and professional opportunities to keep young people and to attract some good people from outside had been poor. There was only one industry in Hancock county operating at the time of survey and it generally hired women. There was a zinc mine but it had been closed. About 300 men were laid off. According to knowledgeable interviewer's report, very few of those who were unemployed due to closing of the zinc mine have found comparable work. While some have moved from the county, others have found employment in neighboring counties.

In the economic aspect of the quality of life, real income will be the most important thing of concern. In this realm, the open country people were generally of the opinion that real income had improved since 1960. But there was still a substantial number of rural people who either felt that real income had remained the same or were hesitant to make any comment about it. The opinions of rural people concerning the current situation with respect to real income were fairly evenly divided among all of the possible response categories.

Many of those in positions of leadership were generally of the opinion that the real income situation for local people had improved. Nearly half, however, felt either that real income had gotten worse or that it had remained about the same.

Religious activities are one of the most important facets of social life in western culture. The rural people generally had an opinion about this aspect of the socioeconomic environment but they

were fairly evenly divided as to whether the churches had improved, remained about the same, or gotten worse. Among those in positions to watch changes during the 1960's, there was good agreement that the quality of local churches and religion had remained the same. Some church buildings have been remodeled or built and some churches had an increase in attendance but for others the attendance dropped. As to the current quality of local churches and religious groups, the general opinions were almost evenly divided among all of the possible response categories. According to the knowledgeable interviewer's report, churches in the county are extremely fundamental in character with Baptists being the principal denomination. The Baptist churches in rural areas appear to be different from those in the city of Sneedville. There has also been a major rift between rural and urban Baptist churches.

Most of the rural people felt that the situation with regard to recreational opportunities in the county had not gotten worse during the 1960's but there was some tendency to rate the current situation as only poor or fair.

Among those in positions to observe changes during the 1960's, none felt that the situation with respect to recreational opportunities had gotten worse. Their opinions were generally that the current opportunities for young people were either only fair or even poor. They also felt that young people, children, and old people had special need for recreation facilities. A new community center, swimming pool, and soft ball field had been made available, and various ball leagues organized and a recreational site purchased, but nothing had

been done with the land purchased so the increase in recreational opportunities had been limited relative to the expectations of the county residents.

Most of the rural people felt that the public utilities had improved or remained the same in the county since 1960. Their ratings of the current quality were nearly evenly divided among all of the possible rating categories. Among those who have been in positions of leadership, there was good agreement that the quality of local public utilities had improved. Waste disposal, sewage system, and water supply have been available only for the city of Sneedville but not for the entire county. It was a fact that the water consumed in the county had been tested and found generally unsafe except in a few places where the water has been chlorinated. Electricity supply and telephone services have been improved in the entire county but there is still no gas available in the local area. A proposal for a sanitary land fill couldn't get enough votes to obtain approval. So in spite of some progress, the improvement in the public utilities has been insufficient to satisfy the desires of all local people.

Most of the open-country people were of the opinion that the quality of the physical environment had either remained the same or gotten worse since 1960. The current quality was regarded as either pretty good or only fair. Among those in positions to observe changes during the 1960's, there was an even split in the opinions that the quality had either remained the same or improved. As to the current quality, those who have been the leaders in the local area felt that it was good (very good or pretty good). Soil conservation and forest

replanting had improved the quality of the physical surrounding but lack of a land fill program and having of neither a waste disposal nor a sewage system for the entire county caused an increase in various pollutants. Therefore, even though there was no serious pollution problem, the quality of the physical environment remained below the ideal standard.

None of the rural residents felt the situation with regard to provision of good housing in the county had gotten worse during the 1960's. There was still a substantial number of rural residents who felt they did not know enough to make any comment about the current situation with respect to the supply of good housing. A federal housing project through the Federal Housing Authority has provided low rent dwelling units for some of the county residents at the city of Sneedville but the number of housing units provided has been too small to give the rural residents sufficient confidence to make any comment about the current situation.

Very few of the open-country residents in Hancock County were of the opinion that the situation and opportunities for young people had gotten worse during the 1960's. Among those in positions to watch changes during the past decade, there was good agreement that the situation and opportunities had remained about the same. The open-country people were generally of the opinion that the current situation and opportunities for the youth were either poor or only fair. The job opportunities and chances for education beyond high school have apparently been comparatively limited according to the expectations of the local youth. Therefore the result has been a heavy out-migration of the youth.

The opinions of rural people were in general that the situation and opportunity for the elderly had improved or remained the same since 1960. Among those who have been in positions of leadership, there was good agreement that the situation and opportunity had remained the same. The rural residents generally felt that the current situation and opportunities for the local old people were pretty good or even only fair. Various welfare programs have helped the old people very much, but their socioeconomic circumstances are still less than ideal.

More than half of the rural people were of the opinion that the quality of the county as a place to live had improved since 1960. A substantial number of rural people felt that the quality had remained about the same since 1960. Those who have been in positions to observe changes during the 1960's were nearly unanimous in feeling that the quality had improved and none felt it had deteriorated. As to the current quality, the perception of most open-country people was that the quality was good.

According to the above analyses, the following FOSE's need to be improved because either the quality got worse or the current quality was only fair or poor: the quality of local politics and political parties, welfare programs, crime and law enforcement, job opportunity for the county residents, the quality of local churches, recreational opportunities, the quality of the physical environment, provision of good housing, and the situation and opportunities for young people.

### III. THE IDENTIFICATION OF SOCIOECONOMIC PROBLEMS

#### IN HOUSTON COUNTY

In Houston County, the open-country people were generally of the opinion that the quality of life for most local people had improved since 1960. There were still a substantial number of rural people who were hesitant to make any comment about the nature of change in the quality of life for most of the local people.

Among those in positions to observe changes during the 1960's, there was good agreement that the quality of living for most local people had improved and that the primary cause was the improvement in the economic facet of the local environment. Another contributing cause frequently mentioned was the improvement in housing provision. Several observers still felt the quality of life for most local residents had remained about the same.

The opinions of rural people concerning the nature of change in the quality of the county government was approximately evenly divided into all of the possible response categories. Among those local leaders, opinions were divided with one group feeling that the quality of county government had improved, while the other felt the quality had remained about the same as in 1960. Reapportionment had been carried out in the county and the old political base was gone. Well educated young people have become members of county court and the size of county court reduced which is an improvement according to the knowledgeable. More business men have involved in the county court and the school board. There was some strong feeling that the

current county judge was inappropriate for his position. His not attending a regional meeting contributed to this feeling. Some local leaders felt that the pay for the job was too low to get more qualified people to run for positions in the county government. Local people also need more services provided by the county government.

The opinions of the open-country residents regarding the current quality of the county government were nearly evenly distributed among all of the possible response categories except that none thought it was "very good."

The opinions of rural people about the nature of recent change in the local politics and political parties were divided into all of the possible response categories nearly evenly. Among the local leaders, their opinions about the nature of change in local political organizations and politics during the 1960's were principally divided into two kinds with some feeling that the change was toward improvement while the others felt the quality of local politics and political parties had remained about the same as in 1960. Political influence of political organizations on local people has apparently declined. Change in the local politics has been toward a two-party system with the Republican party becoming stronger and more active in the county. There remains the pattern of no black people who work in local elections.

The rural residents' ratings of the current quality of local political organizations and politics were rather evenly distributed among the possible rating categories but with some tendency toward clustering around the "fair" level.

Slightly less than half of the rural residents were of the opinion that the quality of local public schools has improved since 1960. A little more than one-fourth were hesitant to make comment about the nature of change in the quality while one-sixth felt that the quality of local public schools had remained about the same. Among those in the position to observe changes during the 1960's, opinion was divided with the majority feeling that the quality had improved while a substantial minority felt that the quality had remained about the same as in 1960. Three new schools were built during the decade. Better physical facilities have been made available in the local school system and more highly qualified teachers have been hired. A more varied curriculum has been offered in the local public schools. Most of the public schools have been consolidated but some were still felt to be overcrowded. Educational administration has been improved and local leaders felt they had a good superintendent even though local people were still playing politics in the local educational system. A head start program, adult programs, and a vocational training program have been made available in the county during the decade.

Concerning the current quality of the local public schools, rural people were generally of the opinion that the quality was either pretty good or only fair. A substantial number of open-country residents were hesitant to make any comment about the current quality of local public schools. The local leaders' opinions agreed quite closely with those of the rural residents.

The open-country residents were generally felt that the opportunities for education beyond high school had improved since 1960.



A substantial number of rural people were hesitant to make any comment about the nature of change in such educational opportunities.

Among those in positions to observe changes during the 1960's, there was good agreement that the educational opportunities beyond high school for local young people had improved. Even though most of these opportunities were outside the county boundaries, more educational loans and scholarships were made available for local youths interested in receiving an education beyond high school.

Even though there has been an improvement in such educational opportunities, the rural young people may find it difficult to take advantage of the chances due to their own socioeconomic circumstances. Therefore, the opinions of rural people concerning the current educational opportunities beyond high school were fairly evenly divided into each of the possible response categories with some skewing toward the "pretty good" rating.

Concerning the nature of change in the situation with respect to local agriculture and land use, about 47 percent of rural people felt that the situation had improved during the 1960's. A substantial number of the open-country people were hesitant to make any comment about the nature of change in the situation. The opinions of local leaders were generally of two types: one was that the situation with respect to local agriculture and land use had improved during the last decade, the other was that the situation had remained about the same as in 1960 with some preponderance toward the first. The number of farm operators declined while part-time farmers increased slightly. The number of full-time farmers dropped substantially. It appeared

likely that some of the full-time farmers changed to part-time operation and stayed in the transitional stage of an occupational shift between economic sectors. Some of farmers had already terminated their farming operation. Better techniques and more sophisticated equipment have been made available in the agricultural sector of the local economy. Some of the land was kept out of farming by soil bank program and more conservation practices were adopted. At the same time there was a shift toward more cattle and fewer row crops.

Very few rural people felt that the current situation with respect to agriculture and land use was "very good" in the county. Except for those few, opinions were approximately evenly divided among the other four possible response categories.

Among those willing to express themselves, the open-country residents of Houston County were nearly unanimous that the quality of local medical care and health services had improved since 1960. Among those in positions of leadership, there was also near unanimity that the quality of medical care and health services in the county had improved. A new hospital was built and more medical personnel were at work in the county health department than in 1960 even though two doctors in the county stopped their practices recently. More medical equipment was made available. Additions have included ambulance services as well as medicaid and medicare programs through the health department. A dentist and surgeon established practices in the county. These changes suggest that access to medical facilities in the county had improved tremendously since 1960.

As a result, none of the rural people or local leaders felt that the current quality of local medical care and health services

was poor. Some local leaders did feel that the number of physicians was too small and there was a lack of mental health facilities in the county.

Concerning the nature of change in the quality of welfare programs, the open-country residents tended either to be hesitant about making any comment regarding the nature of change or to feel that the quality had improved during the 1960's. Among the local leaders, there were two kinds of main opinions; the one most favored was that welfare program quality had improved, the other was that the quality had remained about the same as in 1960. A food stamp program has been available in the county since 1968. An Office of Economic Opportunity program had started to build low rent housing units. More people have been qualified for the welfare roll. A nutrition education program has been instituted. The Federal Housing Administration has provided assistance to low-income families to obtain good dwelling units. There was some criticism of the public assistance roll because some who were able to work didn't take any job. This conflict between welfare programs and rural traditional value system probably had some affect on local general opinions regarding welfare programs.

Concerning the current quality of welfare programs in the county, about two-fifths of the rural people were hesitant to make any comment, even though very few rural people felt the quality was poor.

As to the quality of life for the poor in the county, rural residents were generally of the feeling that the quality had improved

since 1960. A substantial number of open-country people were hesitant to make any comment about the nature of change in the quality of life for the local poor people. Among those in positions to observe changes during the 1960's, there was good agreement that the quality had improved. A majority of the local leaders also felt that at that time there were fewer really poor people in the county than there had been in 1960. Various welfare programs and housing projects may have improved the quality of life for poor people in the county.

About the nature of change in the situation with respect to crime and law enforcement, the opinions of rural people and the local leaders were approximately evenly divided into all of the possible response categories. There were more juvenile delinquency problems in the county. More law enforcement personnel have been employed. More law enforcement equipment has been installed but more is needed. Local politics may have influenced law enforcement officers to do their jobs more effectively. In general, the rural people felt that the current situation with respect to obedience to the law by all citizens was fair to pretty good. Even in this area one-fifth of rural residents were hesitant to make any comment about the current situation. The local leaders generally felt that the current delinquency problem in the county was not very serious but they were split on whether or not there was a drug problem.

There was little agreement among those in positions of leadership concerning the quality of job done by law enforcement agencies and officers. Their responses were nearly evenly distributed among all of the possible response categories.

Concerning the local transportation systems, the open-country residents generally felt that the quality of local roads and the other transportation systems had improved since 1960. A few rural people felt that the quality had remained about the same. A majority of the local leaders in general also felt that the quality had improved. It was not unanimous, however, for some were of the opinion that the situation regarding transportation and roads had gotten worse. Many local roads and bridges have improved but traffic has become much heavier and the highways more crowded. Highway 49 was resurfaced. Highway 13 was reconstructed toward Clarksville. The maintenance of roads and highways has been better than before and county highways have been kept in good shape but there was a feeling that another state highway was needed badly. As a result of these circumstances, the opinions of rural people concerning the current quality of the roads and the other transportation systems in the county were approximately evenly distributed among all of the possible response categories.

The rural people were generally of the feeling that income for wage earners had improved since 1960. One-fourth of the open-country residents however were hesitant to comment about the nature of change in such income. Among those in positions to watch changes during the 1960's, there was good agreement that in general wage earners were doing better than in 1960.

Very few of the rural people felt that the current situation with respect to the income for wage earners were poor. The opinions of the rest of the rural residents was approximately evenly distributed among the other four possible response categories.

Regarding job opportunities for the county residents, more than half of the open-country residents were of the feeling that the situation with respect to job opportunities for local people had improved since 1960. A substantial number of rural people were of the opinion that the situation had remained about the same as twelve years earlier but slightly more than one-fourth were hesitant to make any comment about the nature of change in the job opportunities for the county residents. Among those in positions of leadership, there was relatively good agreement that the job opportunities have increased relative to population size.

A number of events during the period have apparently had an influence on the perceptions about job opportunities. A shoe company closed its operation. A TVA steam plant was being constructed. A new garment factory and several businesses started operations. To take advantage of these operations, some local people have had to commute 30 to 40 miles every day. The coming of new industries and the associated influx of people has caused school overcrowding and a shortage of adequate housing. Even though Federal funds made a contribution to the alleviation of the housing and school problems, some local people were worried about the local government financial situation due to over capacity of providing such services after completion of the TVA steam plant.

The opinions of rural people concerning the current job opportunities for local residents were approximately evenly distributed among the possible response categories except very few rural residents felt the current opportunities to be "very good." Local knowledgeable

felt that the situation with regard to business, employment, and professional opportunities to hold young people as well as to attract some good people from outside was only fair or even poor. But they felt that the prospects with respect to business and employment in the county during the next ten years to be good.

The most important thing in the economic aspect of living is real income. Nearly two-fifths of the rural people were hesitant to make any comment about the nature of change in real income during the 1960's, a nearly equal proportion felt that the situation with respect to real income had improved. A slight majority of local leaders felt that the situation with respect to real income was better than in 1960 leaving a substantial number who felt that the situation had either remained about the same or gotten worse. None of the rural people felt that the current real income situation for local people was very good. Their opinions concerning real income were approximately equally divided into all of the other four possible response categories.

Nearly three-fourths of the rural people felt that the quality of local churches and religious groups either improved or remained about the same as in 1960. A substantial number, however, hesitated to make any comment about the nature of change in the quality. Among those in positions to observe changes during the 1960's, there was good agreement that the quality had remained about the same as twelve years ago. A number of specific comments provided a background for the opinions expressed. A new Church of Christ and a new Baptist Church were established during the decade. Religious groups had become involved in more social programs than twelve years ago. Black people

had attended two churches but invitations to participate were rarely extended. Young people's attendance at churches had diminished. Churches had more facilities to offer to local people but some felt their influence on local people was declining.

As to the current quality of local churches and religious groups, very few open-country people felt the current quality to be poor. The other opinions of rural people concerning the quality were approximately evenly divided among the other four possible response categories.

About the nature of change in situation with respect to local recreational opportunities during the 1960's, very few rural residents felt the situation had gotten worse but there was little agreement otherwise. Among those in positions of leadership, there was good agreement that the situation had remained about the same as twelve years ago. None of the local leaders felt the situation had gotten worse.

Some efforts for increasing local recreational opportunities had been made but the effect was apparently small in comparison with the expectations of local people. A tennis court, swimming pool, pool room, park, and golf course had been constructed. A lake recreational area had been made available. Fishing, boating, hunting, and horse riding had been initiated. Baseball, softball, and football leagues, golf association as well as an Irish Highland Recreation Club had been organized. In summer, there are various recreational programs and a horse show had taken place every year. But some people felt they needed a theatre.

The opinions of rural people regarding the current situation with respect to recreational opportunities were nearly evenly distributed



among the possible response categories. The local leaders in general felt that the constructive recreational opportunities for young people were poor. They also felt that the elderly and young people needed more recreational facilities.

The open-country residents generally felt that the quality of public utilities had improved. A substantial number of rural people hesitated to make any comment about the nature of change in the quality of public utilities possibly because of the limited length of their residence in the county. Among those in positions to observe changes since 1960, there was a nearly unanimous opinion that the quality had improved. The water supply area had been expanded. Electricity distribution lines had been extended and improved. A sewer treatment plant had been built and natural gas had been made available at the city of Erin. The waste disposal and sewage systems had been expanded but were not yet available for the entire county.

None of the rural residents felt the current quality of the public utilities to be poor. The opinions of rural people concerning the current quality were nearly evenly divided into the other four possible response categories.

Concerning the nature of change in the quality of physical environment during the 1960's, the opinions of rural people were approximately evenly distributed among all of the possible response categories. Among those local leaders, only very few felt its quality had gotten worse.

Here are some comments on the nature of the environmental change. More solid waste dumped on roads, less coal is used for

heating and industries. Timbering practices have been changed. A sanitary land fill program has been approved by county court. More conservation practices have been adopted. The county has made some effort to control the quality of the physical environment but a lack of financial resources kept some things that needed doing from being done such as county wide zoning, littering control, trash collection, and solid waste disposal for the entire county, and a sanitary land fill project.

Very few rural residents felt that the current quality of the physical environment was poor. The opinions of the rest of the rural people were almost evenly distributed among the other four possible response categories. Among those who have been in positions of leadership, there was general agreement that the current quality of the physical environment in local area was pretty good.

The open-country people were generally of the opinion that the situation with respect to provision of good housing had improved since 1960. Even though none of the rural people felt the situation had gotten worse, more than two-fifths hesitated to make any comment about the change in the housing situation.

Among those in positions to observe changes during the 1960's, the general feeling, even though far from unanimous, was that enough was being done in the county to provide good housing given the local financial situation. Personnel in Federal Housing Administration and Farm Home Administration have tried to improve the local housing supply situation but more public housing units are needed for the local poor. Some housing units need to be remodeled, rebuilt, or to have plumbing facilities installed.

Concerning the current situation with respect to the provision of good housing, the opinion of rural people was that the situation was "pretty good." There were also a substantial number of rural people who hesitated to make any comment about the current situation.

As to the situation and opportunities for local young people, in general, the opinion of local rural people was that the situation and opportunities had improved. Even so, nearly one-fourth of the open-country residents felt that the situation and opportunities had remained about the same while a like number were hesitant to make any comment about them. Among local leaders, the general feeling was that the situation and opportunities for the local youth had remained about the same since 1960. Some of the specific comment about the local situation were illuminated: the Rotary club and Junior Chamber of Commerce have tried to help young people obtain more education beyond high school. There has continued to be a shortage of beginning jobs for the youth contrast to the increase in number of the local youth. Local young people still need more recreational opportunities. They have been more active in every kind of activity. Even so, opinions concerning the current situation and opportunities for the youth were almost evenly distributed among the possible response categories.

When asked about the opportunities and situation for the elderly, most rural people felt that the situation and opportunities had improved during the decade of the 1960's. Nearly one-third were hesitant to make any comment about the nature of change while about one-ninth felt that the situation and opportunities had remained

about the same as twelve years ago. Among local leaders, the feeling was that the situation and opportunities had remained about the same.

More welfare programs had been made available for the elderly but in at least one area the concentration of widows was substantial, a condition which could influence the perceptions of some people and which welfare programs can do little about. In general, rural people felt that the current situation and opportunities were "pretty good." A substantial number (more than one-fifth) hesitated to make any comment about the current situation and opportunities for older people.

As to the quality of Houston County as a place to live, the open-country residents were generally of the opinion that the quality had improved since 1960. One-sixth felt the quality had remained about the same and one-fifth were hesitant to make any comment. Among local leaders, there was good agreement that the quality had improved but a few felt it remained about the same as twelve years ago.

As to the current quality of the county as a place to live, most rural people felt it was "pretty good." More than one-fourth, however, were hesitant to make any comment about it. This FOSE is a composite of the other facets, and while some facets may have improved others had either remained about the same as twelve years ago or gotten worse. So on balance, the magnitude of the improvement in all of the aspects which are the bases for this FOSE may have been too small to get more congruity in the general opinions about the quality of Houston County as a place to live.

From the above analyses, because either the quality got worse or the current quality was only fair or poor, the following facets should be focused upon: the quality of county government, local politics and political parties, crime and law enforcement, real income, recreational opportunities, the quality of the physical environment, and the situation and opportunities for the young people.

#### IV. THE IDENTIFICATION OF SOCIOECONOMIC PROBLEMS IN HUMPHREYS COUNTY

The open-country people of Humphreys County were generally of the opinion that the quality of life for most people living in the county had improved since 1960. A substantial number of rural people felt that they were uncomfortable or disliked to make any comment about this FOSE whatever their reasons might be.

Among those in positions to observe the changes during the decade of the 60's, there was good agreement that the quality of living had improved and that the principal cause was the improvement in economic conditions in the county. Another contributing cause frequently mentioned was the improved housing. Some observers felt that the quality of living for local people had not changed but there had been many in-migration to the county whose situations were quite different and created the appearance of improvement in the quality of life for most local people.

Most of the rural people felt they were not competent to express an opinion about the nature of change in county government, local politics, or political parties. At the same time a substantial

number of open-country residents felt the current quality of county government, local politics, and political parties was only fair. The appearance of more educated and younger political leaders associated with industrialization in the county had brought new ideas and thoughts which were somehow different from the traditional ones. Such new ideas and thoughts may have induced some young people to be active, involved in, and aggressive in local political affairs, but at the same time the interest of native people in local politics seems to have tended toward decline.

Among those in a position to know, there was good agreement that the quality of county government had improved and that the primary causes were more educated leaders, people being more willing to face real issues, and people in office being more aggressive.

Concerning the current quality of political organizations and local politics, the knowledgeable were divided with regard to the current quality. There has been a viable Republican party in the county for some time but it has recently gained strength.

About half of the rural people in the county were of the opinion that the quality of public schools had improved during the decade of the 60's. While a substantial number of rural residents were reluctant to express their opinions about the nature of change in the quality of local public schools, none rated the current quality of the public educational system as poor. There had apparently been some improvement in the quality. The primary causes for such improvement were larger budgets available for hiring of younger and better qualified educational personnel, the installation of better facilities, and improvement in the content of the curriculum.

Among those in positions to observe changes during the 1960's, there was good agreement that the quality of local public schools had improved. As to the current quality of public schools, the knowledgeable had a very high regard for the quality.

None of the rural people had the opinion that educational opportunities beyond high school had gotten worse. The majority felt that the opportunity had improved although many preferred not to make any comment about it. There was good agreement that the opportunity had improved among those in positions of leadership. The main cause may have been the establishment of a community college and an area vocational school within commuting distance of the county.

With respect to the nature of change in agriculture and land use as well as their current quality, there were many rural people who did not have confidence about their own ability to judge. The number of farm operators had remained stable since 1960. There seems to have been a tendency for local farmers to shift from full-time to part-time farming which has been helped along by an increase in the availability of advanced equipment and techniques for farming. The number of part-time farmers was greater than the number of full time farmers in 1970. The total acreage of land used for pasture or grazing had increased with more cattle being raised. Some land in the local agricultural sector had been retired from farming by the soil bank and conservation practices had been adopted.

Among those in the position of knowledgeable, most felt that the situation with respect to agriculture and land use had improved while a few felt it had deteriorated. As to the current situation

with regard to agriculture and land use, those rural people who expressed an opinion felt that the current situation was pretty good.

Opinion was divided concerning the nature of change in the quality of medical care and health services. At the same time a substantial number of rural people did not feel confident to judge the direction of change during the 1960's. Some rural people felt that the direction of change in the quality had been toward improvement. While a new hospital and more modern medical facilities had been made available, the number of medical personnel in the county had not been sufficient to satisfy the expectation of rural people. Evidence for this was the number of per special medical treatments that had to be obtained from other areas. Among those in positions to observe changes during the 1960's, most felt that the quality of medical care and health services had improved but a substantial number were of the opinion that the quality had gotten worse.

About the current quality of medical care and health services, there was no congruous opinion among those rural people but almost none thought it was very good. The knowledgeable felt that the current quality was only fair to pretty good.

The rural people in the county were generally of the feeling that they were unwilling to make any comment about the change in and the current situation with regard to welfare programs. This may have been the effect of a conflict between their values and the values exhibited by the welfare system. While the budgets of welfare programs had increased, more programs made available, and more welfare personnel



employed, some recipients of Aid to Families with Dependent Children program were felt to have been living under socially unacceptable circumstances. This kind of situation may have bothered some rural people. Among those in the positions of leadership, however, a substantial number felt the quality of welfare programs had improved.

More than half of the rural people felt that the quality of life for poor people had improved. There were still a lot of rural residents who did not feel confident to express an opinion or did not want to make a judgment about the quality of life for the poor. Among those who were in positions to observe changes during the last decade, there was rather good agreement that the number of poor people had declined. The industrialization which had occurred in the county may have provided more employment opportunities for the poor than before but their chance of obtaining high positions through the local labor market may have been limited by their own socioeconomic circumstances.

As to crime and law enforcement, many of the rural residents in the county generally disliked to express their opinions concerning the nature of any change that may have taken place. Of those willing to express an opinion, a substantial number felt that the situation with regard to crime and law enforcement had gotten worse since 1960 but that the current situation with respect to obedience to the law by all citizens was pretty good.

Among those in positions of leadership, there was a nearly unanimous agreement that the situation in the county had gotten worse. The primary cause was the return to the fee system for paying law

enforcement personnel according to the report of the knowledgeable interviewer. There had been an increase in petty larceny and juvenile delinquency in the county. In the urban area, law enforcement equipment had improved and more well trained personnel had been added to the staff by means of a federal grant. The knowledgeable were proud of such improvement in urban area.

There was a nearly unanimous opinion among the rural people that the quality of the roads and other transportation systems had improved during the decade of the 60's. Even in this seemingly noncontroversial area a substantial number of rural residents did not care to express their opinions.

Among those in positions of leadership there was good agreement that the quality of the transportation systems had improved since 1960. Street lights were modernized. Some bridges were rebuilt or repaired. Highways access to Kentucky Lake had been built. Rural roads were reworked. A new airport was constructed and financed by means of bond issue and the old airport property had been sold. The opening of Interstate Highway 40 had changed the traffic pattern in the county which resulted in some dissatisfaction with the highway system in the county. However, the local people had made their contributions to the improvement in transportation system in the local area even though the amount of attention being paid to the maintenance of the roads and highways was insufficient to satisfy the desire of all local people due to the limited availability of financial resources.

The rural people in the county were generally of the opinion that the situation with regard to income for those who work for wages

had improved since 1960. A substantial number of rural people did not feel they were in a position to make comment on the nature of change in the situation with regard to the income for wage earners. None of the rural people felt that the situation had gotten worse and almost all who expressed an opinion felt it had improved.

Among those who were in positions of leadership, there was nearly unanimous agreement that the men and women who work for wages were doing better than they had twelve years ago and that the primary causes were the increase in the number of industries and the expansion of others. Such increase and expansion created more job opportunities and hence brought about a rise in wage rates.

The current situation with respect to wage income seemed to be pretty good. A substantial number of rural people felt it was good or pretty good even though some rural residents did not care to judge it.

As to job opportunities for the county residents, the open-country people were generally of the opinion that such kinds of opportunities had improved since 1960. A substantial number of rural people felt uncomfortable or did not want to express their opinions about this FOSE.

Among those who were in positions of knowledgeable, there was good agreement that such job opportunities had increased with the main reason being industrialization in the county. DuPont has increased its investment. Foote Mineral Company, Consolidated Aluminum Company, Acme Boot Company, First Federal Savings & Loan Association, Southern Furniture Company, Union Bank, and Inland Container Corporation started their businesses in the county during the decade of the 60's.

Such industrialization has apparently created employment opportunities and raised wage rates for the local labor force.

As to real income, most rural people were uncomfortable or had no confidence to make any comment about its change but few of those expressing an opinion felt it had improved. There was a nearly unanimous opinion among the local leaders that the county residents were better off in terms of real income. The increase in the number in the local labor force and the rise in local general price level may have offset some part of economic benefits derived from the industrialization, therefore, the rural people may not have felt confident to judge the change in real income. None of the rural people felt that the current situation with respect to real income was very good. The current real income seemed to be only fair or even poor in comparison with that in the largest industrial areas in the United States.

Concerning churches and religious groups, the open-country residents in the county were generally either of the opinion that churches and religious groups had improved since 1960 or lacked confidence to make any comment about the nature of the change.

Among those in positions to observe changes during the decade of the 60's, there was good agreement that the effectiveness and quality of local churches and religious groups had not gotten worse. Some rural churches were consolidated and some new churches were established. Most of the churches have either built new buildings or remodeled their old buildings. More programs have been made available in churches for the youth. It seems to have had a tremendous

improvement in the quality and effectiveness during the past decade. While there was some agreement on the direction of change, the rural residents did not agree about the current situation with regard to the local churches and religious groups.

About recreational opportunities, none of the rural people was of the opinion that the opportunities had gotten worse since 1960. There were a lot of rural people who were reluctant to make any comment about this FOSE because they lacked sufficient knowledge concerning the recreational opportunities.

Among those who were in positions of leadership, many felt that the opportunities had improved since 1960 and none felt they had deteriorated. The recreation facilities which had been made available or improved included water sports facilities, boating area, tennis courts, swimming pool, hunting and fishing areas, parks, as well as new stadium, and so forth. A country club, various little leagues as well as boy and girl scout groups were organized. According to a local newspaper, the News-Democrat, the facilities for outdoor recreation were expanded in the Land Between Lakes area. A county fair, turkey shoot, horse show, an Irish picnic, band concerts, baseball campaign program, and a harvest festival had been taking place each year. In addition a circus had visited the county several times since 1960. Even so, the speed of increase in the opportunities had not been as rapid as the expansion in the expectation of the county population. As a result there was little unanimity in the perceptions of the current situation of local recreational opportunities by the local leaders.

There was little disagreement among the rural residents in the county that the quality of public utilities had improved since 1960. A substantial number refused to express their opinions about the nature of change in the quality.

The opinion of those who were in positions of leadership was completely unanimous that the quality of public utilities had been improved. A gas distribution system was created. An improved electricity network and a new county-wide water system was installed. There had also been improvements made in the sewage system, in waste disposal, and in the land fill program. Since improved public utilities services were made available to local people, they were deriving more benefits, even though the initial intentions of creation of and the improvement in various kinds of public utilities was for inducing industrialization in the county. As a result none of the rural people felt the current quality of public utilities was poor.

As to physical environment, the rural people were reluctant to express an opinion with regard to the change in this aspect of the socioeconomic environment. Among those who felt competent to make a comment about change in the quality of the physical environment, the distribution of their opinions was nearly divided.

The opinions of those who were in positions of leadership concerning the nature of change in this facet were very evenly divided. The industrialization in the county had caused pollution problems and the local people and leaders were very sensitive to such problems. Therefore some pressure had been applied and the industrial sector had undertaken to control pollutants. The worst polluter was TVA

which dispersed a tremendous amount of "fly ash" according to the knowledgeable interviewer's report but TVA tried to alleviate the dispersion. The sensitiveness of local people to pollution may lead to a reconsideration by the local leadership of the pressure for local industrialization. Forest replanting was done by TVA and Inland Container Corporation. This kind of action may reduce the seriousness of soil erosion.

Among those who were in the position of knowledgeable, none felt that the current quality of the local physical environment was poor. Many of the open-country residents were unwilling to express an opinion concerning the current quality. Those who felt competent to express an opinion about the current situation with respect to the physical environment tended to rate it "pretty good."

About the adequacy of providing good housing, more than half of the rural people would not express an opinion. Most of the rest felt the adequacy of housing had been improved. Among those in positions to observe changes during the decade of the 60's, there was a nearly unanimous agreement that enough was being done to provide good housing for everyone there or who wanted to live there.

An urban renewal project provided better housing for some of the poor people. The Federal Housing Administration, Farmers' Home Administration, and the First Federal Bank have been trying to increase the supply of good dwelling units, but the in-migration associated with the local industrialization may have offset the effect of their intention.

Concerning the situation and opportunities for young people, many of the rural residents would not express an opinion. Most of

those who felt competent to make some comment about the situation and opportunities for youth were of the opinion that it had improved since 1960. Among those who were in the position to watch changes during the decade of the 60's, there was a good agreement that the situation and opportunities were better than twelve years ago.

As to the situation and opportunities for the old people in the county, the rural people were generally of the opinion that the situation and opportunities had improved since 1960. There were still a substantial number of rural residents who disliked or were uncomfortable about making comment about this FOSE. Among the knowledgeable, there was general agreement that the situation and opportunities for the elderly had improved since 1960. None of the knowledgeable felt it had gotten worse.

Most of those willing to express their opinions about the current situation and opportunities for older people felt they were "pretty good." There was also a substantial number of rural people who would not express an opinion concerning the current situation and opportunities for older people. Medicare and more welfare programs were available for the local elderly and those had contributed to improving the circumstances of the older people.

The open-country residents in the county were generally of the opinion that the condition with regard to the county as a place to live had improved since 1960. There were also a lot of rural people who had no confidence about their ability to make any judgment about this multidimensional FOSE.



Those in positions of leadership were without dissent in their opinions that this aspect of the environment had improved since 1960. With respect to the current situation, none of the rural people felt it was "poor." This would be the effect of the improvement in some or all of the other FOSE's.

From the above analyses, because either the quality got worse or the current quality was only fair or poor, local people would have to place greater emphases and efforts on improving (1) the quality of county government, (2) the quality of local politics and political parties, (3) the quality of medical care and health services, (4) welfare programs, (5) crime and law enforcement, and (6) real income for county residents.

#### V. THE IDENTIFICATION OF SOCIOECONOMIC PROBLEMS IN UNION COUNTY

The rural people of Union County were generally of the feeling that the quality of life for most local people had improved since 1960. A substantial number still felt that the quality had remained about the same or were hesitant to make any comment about the nature of the change.

Those who had been in position to watch changes since 1960 were in general of the opinion that the quality of life for most people living in the county had improved and the principal cause was seen as improvement in the economic facet of the socioeconomic environment. Another contributing cause often mentioned was the improvement in the educational level of the county residents. The distribution

of general opinions about this FOSE indicates that around 56 percent of the open-country people had enjoyed an improved quality of life. This may have been due to more job opportunities available for the local residents in Knoxville or the surrounding areas.

Little agreement existed among the rural people of Union County concerning the nature of recent change in the county government. Among those who had been in positions of leadership, opinion was divided concerning the nature of the change with one group feeling that the quality had remained about the same during the decade of the 60's and the other feeling that the quality had improved. Those who felt the quality had not changed attributed the lack to the poorly educated people in county government and the unchanged local power structure.

The rural people generally felt that the current quality of the county government was either pretty good or only fair. About one-fourth of the rural residents were hesitant to make any comment about the current quality.

Concerning the nature of change in the quality of local politics and political parties as distinct from the local government there was little agreement among the open-country people. In contrast, none of the local leaders felt that local politics and political parties had gotten worse during the decade. At the time, the Republican party dominated local politics and it appeared that more people were interested in politics. Although more young people and highly educated people were becoming involved, the amount of change in the local political power structure may have been too slight to bring about a more consistent opinion by local rural people about the change.

There was also a lack of agreement among the rural residents concerning the current quality of the local politics and political parties. Their ratings were nearly evenly distributed among the possible response categories.

When asked about the nature of change in the quality of the local public schools, the rural people felt generally that it had improved during the 1960's. The opinion was not unanimous and a number of rural residents felt that the quality had remained about the same or were hesitant to make any comment about the nature of change in the quality. Among those in positions of leadership, nearly all agreed that the quality of the local public schools had improved.

The local public schools had been consolidated. Educational facilities had been improved and/or increased. More qualified teachers had been employed. More courses had been offered in the local public schools. But apparently local demand for the educational services had remained stronger than the capacity of the local educational system to provide such services.

Concerning the current quality of the local public schools, the rural people generally felt that it was either pretty good or only fair. Among those identified as knowledgeable, there was good agreement that the current quality of the public schools was only fair.

None of the open-country residents felt that the situation with regard to the opportunities for education beyond high school had gotten worse during the 1960's. Among those in the position to observe changes during the past decade, there were two kinds of opinions; one was that the opportunities for receiving education beyond high school had increased, the other was that the chances had remained about the

same as in 1960. The rural people generally felt that the current opportunities were fair to pretty good.

The opinions of the rural people regarding the nature of change in the situation with respect to local agriculture and land use were rather equally divided among all of the possible response categories. Among those who have been in the positions of leadership, none felt that the situation had gotten worse. Local farmers have raised more cattle. They also pay more attention to conservation practices. This kind of change in agriculture and land use was not dramatic enough to obtain a more uniform judgment from rural people. Some of the farmers had also shifted from full-time operation to part-time and had obtained off-farm jobs. The soil bank had kept some of the land out of farming during the decade of the 60's.

The rural people were generally of the opinion that the current situation with respect to agriculture and land use was fair to pretty good. There were also a substantial number of rural people who were hesitant to make any comment about the current situation.

As to the nature of change in the quality of local medical care and health services, rural residents were generally of the opinion that the quality had improved since 1960. There were also a substantial number of rural people who felt that the quality of local medical care and health services had remained about the same as that in 1960 or were hesitant to express their opinions. Among those in position to watch changes during the 1960's, there was a nearly congruous opinion that the quality had improved. Even though the local health department had to close once due to lack of financial resources, currently, more medical personnel had been hired. More medical equipment had been

made available in the local delivery system of health services but it was still inconvenient for some rural people to obtain medical care and health services. So the opinions of both the open-country people and the knowledgeable' concerning the current quality were approximately evenly divided into all of the possible response categories.

Concerning the nature of change in welfare programs, there was little agreement among the open-country people but with some tendency skewing toward "improved." Those who had been in position to watch change during the 1960's were in general of the opinion that the quality had improved, even though there were a few leaders who felt that the quality had remained about the same as in 1960. More funds had been made available for welfare programs. More people had become the clients of welfare programs. The OEO program had helped old people to get employment. The direct food distribution program had changed to a food stamp program in Union County and some people shifted from the other welfare programs to the food stamp program. More welfare workers had been employed. Since rural people value the idea that people have to stand on their own feet, the welfare programs may have conflicted with such traditional rural values. It is difficult to obtain a unanimous opinion from rural people concerning welfare programs, because some rural people have difficulty accepting some welfare regulations. This may explain in part why the opinions of total people with regard to the current quality of welfare programs were nearly evenly distributed among all of the possible response categories.

About the quality of life for the poor, rural people were generally of the opinion that the quality had improved since 1960. There were still a substantial number of rural residents who had the opinion that the quality had remained about the same as in 1960. Among those in position to observe changes during the 1960's, there were two kinds of opinions; one was that the quality had improved, the other was that the quality of life for the poor people had remained about the same. A few local leaders felt that currently, the proportion of the poor people was greater than in 1960. The major reasons for such perception seems to have been that more people were on public assistance and that more school children were getting free lunches.

Concerning the nature of change in the situation with regard to crime and law enforcement, the opinions of rural people were almost evenly divided into all of the possible categories. Among those who have been in position to watch changes during the decade of the 60's, there was a nearly unanimous opinion that the crime and law enforcement situation in the county had improved. The salaries for law enforcement personnel had been increased, more law enforcement equipment had been made available, and the sheriff and the other law enforcement officers were reportedly working harder than before. According to records, about one-third of delinquency cases had been resolved and there had been fewer juvenile delinquency problems.

In general, the rural people tended to feel that the current situation with regard to obedience to the laws by all citizens was either pretty good or only fair. Among those who had been in positions of leadership, there was a nearly uniform opinion that there was no

serious delinquency problem in the county. None of the leaders felt that the law enforcement agencies and officers in the county were doing a poor job. They also generally felt that there was no drug problem in the county.

About the nature of change in the quality of local roads and the other transportation systems, rural people generally felt that the quality had improved during the 1960's. A substantial number of open-country people were of the opinion that the quality had remained about the same as in 1960. Some of them were hesitant to make any comment about the nature of change in the local transportation systems during the past decade.

Among those who had been in a position to observe changes during the 1960's, there was a nearly unanimous opinion that the quality of the local transportation systems had improved since 1960. Highway 33 construction and the pavement of some rural roads had improved the local transportation systems very much. Since the opinions of the rural residents regarding the current quality of local transportation systems were approximately evenly divided into all of the possible response categories, there may be some rural roads were not in very good condition.

The open-country residents were generally of the opinion that incomes for wage earners had improved since 1960. There were still a substantial number of rural people who were hesitant to make any comment about the nature of change in such incomes during the 1960's. None of the rural people felt that the income for people who work for wages had gotten worse. Among those who had been in positions

of leadership, there was good agreement that the wage earners were doing better than they had in 1960. As to the current income for wage earners, none of the rural people felt that it was poor.

The opinion of the open-country people concerning the nature of change in job opportunities for the county residents was in general that such opportunities had improved since 1960. There were still a substantial number of rural residents who either felt that the opportunities had remained about the same or hesitated to make any comment about it. Among local leaders, there was a complete agreement that the amount of employment available to the county residents had increased in comparison with population size during the 1960's. They also felt that the situation with respect to job opportunities to hold young people or to attract good people had improved or remained about the same.

The opinions of rural people concerning the current job opportunities in local area were approximately evenly divided into all of the possible response categories. Among those who had been in positions of leadership, their opinion was in general that the employment, business, and professional opportunities had been too poor to keep the local young people in the county and to attract some good people from the outside.

Four factories had been operating in the county since 1960. Some employment opportunities were created by new factories, but the expansion of such opportunities may still have been slower than the increase in labor force within the county boundaries because there was a tendency for the proportion of people in labor force who were employed outside the county to continue to increase.



Concerning the nature of change in real income and the current real income, the opinions of rural people were nearly evenly distributed among those possible response categories. None of the local leaders felt that the current real incomes for the county residents were worse than in 1960. Their prospects for substantial improvement in the business and employment situation in the county during the next ten years were nearly evenly divided into all of the possible response categories.

About the nature of change in the quality and effectiveness of local churches and religious groups, most felt it had remained about the same while only few rural people felt that the quality and effectiveness had gotten worse during the 1960's. Among those in position to observe changes during the decade of the 60's, there was good agreement that the quality and effectiveness had remained about the same.

Young preachers had been assigned duty in the county. New church buildings had been built since 1960. There had been more programs for the young people. Churches were cooperating with each other for an increase in religious affiliation. Even though none of the rural people felt that the current quality of local churches and religious groups was poor, the opinions of rural residents were almost evenly divided into the other four possible response categories. The quality and effectiveness may have improved since 1960, but the degree of such improvement was insufficient to let most rural people feel that improvement had occurred during the 1960's.

Only about two out of one hundred rural people had the feeling that the local recreational opportunities had gotten worse during the

last decade. Among the local leaders, there were two kinds of opinions concerning the nature of change in recreational opportunities; one was that the opportunities had improved, the other was that such opportunities had remained about the same as in 1960. New parks had been built such as Hickory Star Park, Big Ridge Park, and county park. Various new sport organizations had been formed, and new sport facilities had been made available, but such improvements were insufficient to let rural people feel consistently that the local recreational opportunities had improved relative to their expectations.

Concerning the current quality of the local recreational opportunities, the opinions of rural people and local leaders were almost evenly distributed among all of the possible response categories. Those identified as knowledgeable felt that young people and the elderly had particular needs for recreation facilities.

The open-country people of Union County were generally of the opinion that the quality of public utilities had improved since 1960. Even though none of the rural people felt that the quality had gotten worse, some were hesitant to make any comment about the nature of the change. Among those in positions of local leadership, there was good agreement that the situation with regard to public utilities had improved since 1960. Rural electrification had been completed. Delivery systems of water and electricity had been improved and expanded. The waste treatment system had been expanded and improved in some areas especially in urban areas. While they appear to have been substantial, these improvements were apparently insufficient to satisfy the general demand of rural people for the local public utilities because the

opinions of rural residents concerning the current quality of public utilities were approximately evenly distributed among all of the possible response categories.

As to the nature of change in the quality of local physical environment, about half of the rural people had the opinion that the quality had remained about the same during the 1960's. At the same time a substantial number of rural people either felt that the quality had improved or were hesitant to make any comment about the nature of change. Among those in position to observe changes during the last decade, there was good agreement that the quality had remained about the same as in 1960. The use of boat houses had caused pollution in the lake, but this had been partially offset by reforestation conducted by TVA which had minimized soil erosion, and increased conservation practices.

As to the current quality of physical surrounding, few rural people felt that the current quality was poor. The opinions of the other rural residents were evenly distributed among all of the other four possible response categories. However, none of the local leaders felt that the current quality was poor. The leaders generally had the feeling that control of littering, enforcement of zoning laws, and the land fill program need to be emphasized.

About half of the rural people had the opinion that the situation with regard to provision of good housing for the poor in the county had improved during the 1960's. There were still a few rural residents who felt that the situation had gotten worse. Among those in position to observe changes during the decade of the 60's, there

was good agreement that not enough was being done in the county to provide good housing. They also had the general opinion that more public houses, subsidized housing units, and low rent dwelling units need to be made available for low-income people.

Rural people in general were hesitant to make any comment about the current situation with regard to the provision of good housing in the county but only few open-country people felt the current situation was very good.

About 59 percent of the rural residents were of the opinion that the situation and opportunities for the local young people had improved. A substantial number of rural people either felt that the situation and opportunities had remained about the same or were hesitant to make any comment about it. Among those in positions of leadership, there were two opinions; one, that the situation and opportunities for the youth had remained about the same, or the other, that the situation and opportunities had been improved.

There were a few rural people who felt that the current situation and opportunities for the local young people were very good. Opinions of the rest of the rural residents were approximately divided into the other four possible response categories, but there were a tendency skewing toward the "pretty good" or "only fair" rating.

More educational opportunities beyond high school had become available for the local youth. More young people had opportunities to be involved in local politics and to obtain jobs. More recreational opportunities had been made available for them but the improvement in the situation and opportunities was apparently no faster than the

growth of expectation of rural people because their rating of the current situation and opportunities was evenly divided into all of the possible response categories.

Concerning the situation and opportunities for the elderly, the rural people were generally of the opinion that the situation and opportunities had improved since 1960. There were still a substantial number of rural residents who either felt that the situation and opportunities had remained about the same or were hesitant to make any comment about both of them. In general, the local leaders did not feel that the situation and opportunities had gotten worse during the decade of the 60's. They noted that a medicare program currently available to take care of the health of the elderly and welfare programs may also have helped the old people. The opinions of rural people regarding the rating of the current situation and opportunities for the elderly were evenly divided into the various possible response categories.

The rural people of Union County were generally of the opinion that the quality of the county as a place to live had improved since 1960. There was none of the open-country people who felt the quality had gotten worse. Among those in position to observe changes during the 1960's, there was a good agreement that the quality had improved. The opinions of open-country residents regarding the current quality of Union County as a place to live were approximately evenly distributed among all of the possible response categories. This FOSE is multi-dimensional in character. In the county, some aspects of living had improved and the other aspects may have remained about the same or

even gotten worse. So totally, the magnitude of the improvement of the related FOSE's may be insufficient to yield a more congruous general opinion about the current quality of the county as a place to live.

From the above analyses, because either the quality got worse or the current quality was only fair or poor, the local political development has to be emphasized, more attention needs to be paid to roads and other transportation systems, real income, provision of good housing, the situation and opportunities for the youth and for the local elderly.

## CHAPTER III

### THE IDENTIFICATION OF INTERACTIONAL RELATIONSHIPS BETWEEN EACH FOSE AND VARIOUS SOCIOECONOMIC CHARACTERISTICS

#### I. INTRODUCTION

To effectively analyze the possible alternatives to be adopted during the rural development process, it is necessary to know the existence of interactional relationships between each FOSE and selected characteristics of local people. At present the only available means for identifying the existence of such relationships is through the use of the rural general opinions.

The nature of change in each FOSE is a qualitative variable, there are two methods to analyze the interactional relationships between every FOSE and its related socioeconomic characteristics, that is, discriminant analysis and regression analysis. At present, there have been two kinds of canned computer programs available for discriminant analysis, that is, BMD and SAS computer programs. BMD programs for discriminant analysis were developed under the assumption that there is homogeneity among the within group variance-covariance matrices. Even though the output of BMD programs will provide F-statistics for testing the statistical significance of the partial coefficient for each variable included in the discriminant function, sometimes the assumptions on which the BMD programs are based is not true according to the results of the  $X^2$ -test obtained from computer output of the SAS canned program. Under these conditions the author

felt it would be inappropriate to use the BMD canned programs. As to the SAS canned program, it would calculate the discriminant function according to the result of  $X^2$ -test but would not provide the complete set of statistics obtainable from discriminant analysis. Therefore it is impossible to identify the interactional relationships by means of SAS programs. It is estimated that it will take at least one and a half years to develop a program which will do all of the calculations according to the results of the  $X^2$ -test and provide the complete set of statistics. Therefore, at present, for identification of interactional relationship between each FOSE and various socio-economic characteristics reliance will be placed upon the least squares method of regression analysis.

In the regression analysis, age, educational achievement, capability to work index score, household dependency index, social participation score, North-Hatt occupational score, family income, material level of living scale score, communication level of living scale score, and the number of material items and communication items possessed by the rural family will be taken as independent variables. The dependent variable is the scale score for the perception of rural people concerning the nature of change in each FOSE. The scale score assigned for the perceptions are as follows: one for the response category indicating that the facet had gotten worse, two for the response indicating that the quality of the corresponding facet had remained about the same as in 1960, three for the response indicating that the quality had improved since 1960. For the identification of the existence of interactional relationship between each FOSE and some



of the selected socioeconomic characteristics, it will be assumed that if the scale score for the perception of the nature of change in each FOSE and the measurements of some socioeconomic characteristics are associated with each other, then there also exists an interactional relationship between the corresponding FOSE and the characteristics. Such an assumption implies that if the partial regression coefficient of any independent variable is significantly different from zero according to the results of the null hypothesis test, then there will be an interactional relationship between the corresponding facet and socioeconomic characteristics of rural people.

Stepwise regression will be utilized to calculate various statistics for analysis. The sequence of each independent variable to be included in the regression function will be determined by the computer according to the magnitude of the F-to-enter statistics at each step. In order to avoid the possibility of under-identification of interactional relationships, we will adopt the principle that the step which shows the largest number of regression coefficients which are statistically significant at 5 percent level will be accepted as the final step in the calculation process of various statistics for analysis. After determining that this step has been reached, the F-test concerning each partial coefficient in regression function will be conducted. To perform such test, the following hypotheses are set up:

$$H_0: \beta_i^2 = 0$$

$$H_a: \beta_i^2 \neq 0 \quad i = 1, 2, \dots, n.$$

The null hypothesis implies that there is no association between the nature of change in the FOSE corresponding to the dependent variable and the characteristics related to  $\beta_1$ . The alternative hypothesis is that the square of the tested parameter is different from zero. From the result of such test, the identification of the existing interactional relationship between each FOSE and its related characteristics will be made. Some socioeconomic characteristics may be strongly associated with various institutional areas in one county but not in the other counties. This may be due to the differences in the existing natural resources and surroundings of the study counties. However the analysis of causes which may result in different patterns of interactional relationship between each FOSE and its related socioeconomic characteristics among the four study counties is not the objective of this research. The calculated F-values, sample size, degrees of freedom, and critical values are listed in Tables V, VI, VII, and VIII in the Appendix.

## II. THE IDENTIFIED INTERACTIONAL RELATIONSHIPS BETWEEN VARIOUS FOSE'S AND SOCIOECONOMIC CHARACTERISTICS IN HANCOCK COUNTY

The quality of life for most people is a multidimensional phenomenon. The greater the degree of complexity of social structure in a given area, the larger will be the number of elements to construct the so-called measure of quality of life.

In Hancock County, the feeling of rural people concerning the nature of change in the general quality of life is associated with age of household heads, the rural homemakers' educational achievement,

both level of living scale scores, the anomia score, and the number of material items possessed by the rural family. The County is more rural oriented and isolated than the other three counties in this study. The age of head may affect his capability to obtain various kinds of resources for supporting family living and so will associate with the quality of life implicitly. The arrangement of rural family living may relate to the educational achievement of rural homemakers. The quality of life for individual family members may be associated with such living arrangements. The number of material items possessed by the family indicates the physical level of living for that family. In the long-run, such physical level of living may be associated with the material aspect of the quality of life and the perception of rural people concerning the nature of change in this FOSE. The anomia score is one measure of individual attitude relating to pessimism. Such attitude may associate with individual values, beliefs, and criteria to judge everything related to oneself. Therefore the perception of rural people regarding the nature of change in the general quality of life will be associated with their anomia score. The association between anomia score and the quality of life for most people suggests that the quality of life contains not only a material aspect but also an emotional one in Hancock County. According to the results of the sample survey and knowledgeable interviews, the quality of life for most people has improved since 1960 and the primary cause was the improvement in the economic FOSE. Other contributing causes frequently mentioned were the improvement in the local educational system and the increase in governmental programs. Therefore, the

association of the perception of rural people regarding the nature of change in the general quality of life with both level of living scale scores and the number of material items possessed is understandable.

The results of the null hypothesis test show that the feeling of rural people concerning the nature of change in the quality of county government are associated with the educational attainment of rural people, the occupational prestige of principal wage earners, the material level of living scale score, the number of material items possessed by the rural family, and the rural residents' anomia score. The educational achievement of rural people may be associated with their comprehension of the complexity of county governmental problems. Such comprehension would then become the basis on which they judge the nature of change in the quality of county government. The North-Hatt occupational score of the principal wage earners will relate to his or her social prestige. Such prestige will affect the degree of involvement in county government affairs by such individuals and therefore will affect the perception of rural people concerning the nature of change in this FOSE.

According to the knowledgeable interviewer, more than half of the families in the county are qualified to be on welfare rolls. The welfare programs are somehow related to county government. At the same time, as the material aspect of living reaches a certain level, then people can pay more attention to other facets of living. The material level of living scale score and the number of material items possessed by rural people may, therefore, be expected to be associated

with the perception of rural people concerning the nature of change in the quality of county government. The degree of their pessimism may be associated with their values and beliefs which are related to their idea about the quality of county government.

According to the results of the regression analysis, the feeling of rural people concerning the nature of change in the quality of local politics and political parties is associated with the anomia score of rural people and the number of material items possessed by the rural family. The number of material items possessed by the rural family shows the physical level of living for that family. When such level reaches a certain standard, then people may be more inclined to pay attention to local political affairs. This may explain in part, the association of the perception of rural people about the nature of change in this FOSE with the number of material items possessed by their families. Since the anomia score measures the degree of pessimism of individual attitude, it may associate with the individual incentive to be involved in local politics. Therefore the perception of rural people concerning the nature of change in the quality of local politics may associate with the anomia score of the rural residents.

The perception of rural people regarding the nature of change in the quality of public schools is associated with the dependency index of rural family and the anomia score according to the results of the regression analysis. The degree of difficulty the rural family has in taking advantage of what public schools have to offer may be associated with the dependency of that family. Therefore the perception of the rural residents may tend to associate with the dependency index

of their families. Since individual anomia score has to do with perception of things for which other people are responsible, the perception of rural people concerning the nature of change in the quality of public schools would be associated with their anomia scores.

From the results of the regression analysis, the feeling of rural people regarding the nature of change in the opportunity for education beyond high school is associated with the age of household heads, the educational achievement of rural homemakers, the anomia score of rural people, and the number of material items and communication items possessed by the rural family. The greater the age of household heads, the more may be their experience to treat their family affairs. The amount of such experience may associate with their capability to help their children deal with the problems of receiving high-level education. The rural homemakers' educational achievement may be related to their own values and beliefs concerning the educational opportunity. The degree of anomia which rural people have may effect their perception of their own socioeconomic and their criteria to judge such circumstances. Then, too, the possibility of taking advantage of existing high-level educational opportunities by their family members may be affected by their criteria to judge this FOSE and their perception regarding such opportunity. The number of material items possessed by the rural family may affect the degree of satisfaction which the family members obtain from their material aspect of living. Such degree may be associated with their desire to receive high-level of education. Therefore, the perception of rural people concerning the nature of change in this FOSE may be associated with those socioeconomic characteristics mentioned above.

The feelings of rural people about the nature of change in the situation regarding agriculture and land use were found to be associated with the age of heads, the dependency index of rural family, and both level of living scale scores. According to the sample survey, the local situation with regard to agriculture and land use has improved since 1960. More modern farming skills have been learned by the farmers. Beef cattle and fresh vegetable production have become increasingly important in the local agricultural sector. Both level of living scale scores may affect the degree of adoption of new techniques and the intensity of capital investment in agriculture and land use in local area as well as the awareness of situation outside the immediate area. The age of rural household heads may relate to their own values and beliefs concerning farming and land usage, thus the age of rural household heads may be associated with the perception of rural people regarding the nature of change in this FOSE. The dependency index of the rural family may affect the number of sources needed for making money to support the family living and hence influence the extent to which rural people have contact with local agriculture and land use. This may explain, in part, why the dependency index of rural family is associated with the perception of rural people concerning the nature of change in this FOSE.

According to the results of the regression analysis, the perception of rural people concerning the nature of change in the quality of medical care and health services is associated with the age and educational achievement of rural homemakers, the capability of family members to work index score and the rural residents' anomia score.

The age of rural homemakers may be associated with the perception because of the amount of their experience in consuming health services. Their educational level may associate with their own knowledge level regarding the nature of change in this FOSE and the amount of their medical knowledge. The capability of family members to work index score may conceivably be related to the magnitude of money income obtained by the rural families as well as to their need for medical services. At the same time, such magnitude may also associate with the available amount of financial resources for consuming health services. In turn the available financial resources will very possibly effect the amount of satisfaction derived from the consumption of medical care and health services. The anomia score of rural people may be associated with their own values and beliefs about medical care. At the same time, the sociopsychological conditions of rural residents may associate with the effectiveness of medical treatment received by them. Therefore their perception regarding the nature of change in this FOSE will very possibly be associated with the rural homemakers' educational achievement and age, and the capability of family members to work index score as well as with the rural residents' anomia score.

The results of regression analysis show that the age of homemakers' the educational achievement and social participation score of rural household heads, as well as the material level of living scale score are related to the perception of rural people concerning the nature of change in the quality of welfare programs during the 1960's. Hancock County has been one of the poorest counties in the United



States since 1950 and more than half of the families in the county have qualified to receive welfare benefits. Welfare programs have been expanded in the county during this period. In an isolated area such as Hancock County, there exists a strong traditional ideology which conflicts with the value exhibited by the welfare programs. The educational achievement of rural household heads may associate with their capability to accept the value on which the welfare programs are based. In the county, the problems related to welfare programs may be among the major local political issues. Thus the social participation score of rural household heads may associate with the degree of their awareness of the problems related to the welfare programs. Since the age of homemaker is associated with the total amount of benefits received from the welfare programs by the rural families, the increased benefits will relate to the perception of rural people regarding the nature of change in this FOSE. The improvement of welfare programs in terms of the increase in monetary resources available and the access to assistance programs by rural people may also have permitted a shift of individual financial resources to the acquisition of more material possessions and this is reflected in the material level of living scale score. Therefore, the association of the perception of rural people concerning the nature of change in this FOSE with the age of homemakers, the educational achievement and social participation score of rural household heads, as well as the material level of living scale score is quite reasonable.

The socioeconomic characteristics associated with the perception of rural people concerning the nature of change in the situation for

the poor include household capability to work and the anomia score of rural people. One of the most important dimensions of the quality of life for the poor is the availability of material resources. The degree of pessimism of rural people may associate with their having attempted to take advantage of various existing opportunities. The capability to work index score may associate with the rural residents' abilities to earn income. This may explain, in part, why the perception of rural people concerning the nature of change in the quality of life for the poor is related to the capability to work index and anomia scores.

The results of regression analysis show that the perception of rural people concerning the nature of change in the local situation with regard to crime and law enforcement is associated with the age of rural household heads and the leisure-time participation intensity score of the rural families. The degree of involvement in or exposure to criminal activities may relate to the extent of involvement in leisure-time activities. The amount of experience and knowledge which the rural household heads have may also be associated with their age. Therefore their opinions concerning the nature of change in this FOSE may be associated with the leisure-time participation intensity score and the age of rural household heads.

The association of the ages of rural people with their perception regarding the nature of change in the quality of roads and other transportation systems is shown in the results of the regression analysis. The greater their age, the more their experience in consuming the services provided by roads and other transportation systems.

Especially, in an area such as Hancock County with its limited industrialization the association between their perception and age may be stronger than in the more industrialized areas.

According to the results of the regression analysis, in Hancock County, the feeling of rural people about the nature of change in the income for wage earners during the decade of the 1960's is associated with the rural household heads' age, both level of living scale scores, and the anomia score of rural people. In the local area, there is a lack of business and professional opportunities available for the local residents, therefore, the primary qualification for obtaining a job may be experience (or kinship ties). The association between the age of household head and the perception of rural people concerning the nature of change in the income for wage earners is easily understood. There have been limited job opportunities within the county boundaries, thus the degree of pessimism of rural residents' attitude may be related to the small possibility obtaining hoped for jobs. Such a relation may be reflected in the association between their anomia score and perception concerning the nature of change in the local wage income level. The two level of living scale scores may be associated with the wage income which rural people obtained. Therefore the perception of rural people concerning the nature of change in the local wage income may be associated with the rural families communication and material level of living scale scores.

The perception of rural people concerning the nature of change in the job opportunity for county residents is associated with the age and social participation score of rural homemakers, the rural residents'

anomia score, and the number of communication items available to the rural family according to the results of the regression analysis. This suggests that homemaker's age and involvement in social activities affect her knowledge of existing employment opportunities and such knowledge in turn influences her and her family members' judgment concerning the nature of change in the job opportunities for local residents during the past decade. The number of communication items possessed by a family may determine the range of its communication with the larger community, thus affecting its knowledge level concerning employment opportunities. Such possession indirectly affects the judgment of rural people regarding the nature of change in job opportunities for the county residents. The degree of pessimism of rural people may affect the degree of their aggressiveness in taking advantage of available job opportunities so the association between the perception of rural people concerning the nature of change in the local employment opportunities during the decade of the 1960's and their anomia score is understandable.

The perception of rural people regarding the nature of change in local real income level is associated with the age of homemakers, the capability of family members to work index score, and the dependency index. The age of rural homemakers may influence their attitude toward spending money and that attitude may affect the judgment of rural people concerning the nature of change in this FOSE. The capability to work of family members will determine the strength of the family income stream and the dependency index may affect the family expenditure relative to the magnitude of family income available. So the

interactional relationship between these two socioeconomic characteristics and the perception of rural people concerning the nature of change in the local real income level is easily understood.

The results of the regression analysis show that the judgment of rural people regarding the nature of change in the quality of churches and religion during the decade is associated with the social participation score of homemakers and the communication level of living scale score. The quality of local churches and religious groups has remained about the same since 1960 according to the general opinions of knowledgeable in the county. Some of the churches have become suburbanized and provide various services which are unrelated to religious activities. Church activities may be a major part of rural homemakers' social participation, thus their direct experience may affect the rural residents' perception concerning the nature of change in this FOSE. The communication level of living scale score may associate with the awareness of rural people regarding the benefits that might be obtained from local churches and such knowledge may influence the amount of benefits obtained by rural people from the local religious institutions. Therefore, the interactional relationship between the perception of rural people with regard to the nature of change in this FOSE and the above two socioeconomic characteristics will clearly be perceived.

The recreational facilities in the county have been improved since 1960, but the degree of such improvement does not seem to be compatible with the expectation of rural people. According to the results of the regression analysis, the perception of rural people

regarding the nature of change in local recreational opportunities is associated with the age of homemaker, the material level of living scale score, and the number of material items possessed by the rural family. The accumulation of rural homemakers' experience and knowledge with respect to local socioeconomic conditions may be associated with their ages. Therefore, their ages may relate to the extent to which their families have taken advantage of available recreational opportunities. The availability of material items may be influential in the decision as to whether or not rural people feel they can entertain others. Therefore, the association of the perception of rural residents concerning the nature of change in this FOSE with the age of homemaker, the material level of living scale score, and the number of material items possessed by the rural family is quite reasonable.

The availability and utilization of public utilities may be very influential on the quality of services and goods produced within the family especially in the isolated rural area. The age of homemakers may also associate with the amount of her accumulated experience in having public utilities available. The availability of communication items possessed by the rural family may relate to the improvement in the utilization of such utilities by rural residents or be dependent on them in part. Therefore the association of their perception regarding the nature of change in the quality of public utilities with the above two socioeconomic characteristics is a very reasonable phenomenon.

The quality of the local physical environment is not easily perceived. The social participation score of rural homemakers and the rural families' leisure-time participation intensity score may associate

with the opportunities for learning of current concern from others and self-observation about this FOSE. Thus the association between the perception regarding the nature of change in the quality of the physical environment and these two socioeconomic characteristics of rural people is perceptible.

According to the results of the regression analysis, the perception of rural people concerning the nature of change in the provision of good housing in the county is associated with the educational achievement of household heads and the leisure-time participation intensity score of the rural family. The educational level of rural household heads may relate their own values regarding the provision of good housing and then possibly to their perceptions. The degree of involvement of rural people in leisure-time activities may associate with the opportunities to discuss with relatives and friends about the issues related to housing. Therefore, the perception of rural people regarding the nature of change in this FOSE may relate to the educational achievement of rural household heads and the leisure-time participation intensity score of rural family.

The association between the perception of rural people with respect to the nature of change in the situation and opportunities for young people as well as the age of rural homemakers is shown in the results of regression analysis. The employment opportunities, the opportunities for education beyond high school, and the recreational opportunities for the local youth have been limited comparatively with their anticipation. The age of homemakers may relate to the amount of their experience to treat the problems which young people

have, the degree of their awareness of such situations and opportunities and their values and beliefs related to this FOSE. Therefore, the perception of rural people concerning the nature of change in the situation and opportunity for the local youth may associate with the age of rural homemakers.

The perception of rural people concerning the situation and opportunity for the elderly is associated with the age of rural residents, the educational attainment of rural household heads, and the availability of material items within the rural family. The age of rural people may relate to their own values and beliefs about the quality of living for the old people, therefore, the age of rural people may associate with their perception concerning the nature of change in this FOSE. The educational achievement of rural household heads may relate to the degree of their relative deprivation at least in their feeling about the situation and opportunities for the old people after retirement. Such feelings of relative deprivation may be reflected in their perceptions of the change in this FOSE. The availability of material items within the rural family may associate with the criteria of the family members to judge the situation and opportunities for the local elderly. This may explain, in part, why the perception of rural people concerning the nature of change in the situation and opportunities for the elderly is associated with the material level of living scale score and the number of material items possessed by the rural family.

There is no association shown in the results of the regression analysis between the rural residents' perception of the nature of



change in the quality of the county as a place to live and any one of the selected characteristics of rural people. As mentioned earlier, Hancock County has been one of the most economically depressed counties in the nation and more rural than the other three counties in this study. Therefore, there have severe limits on various socioeconomic opportunities for rural people. They may need to obtain benefits from different institutional areas to support their living. In addition, it may require different qualification to obtain benefits from such diverse areas, with the result that there is no consistent tendency in the association between the perception of rural people concerning the nature of change in this FOSE and any one of the selected characteristics of rural people.

From the above analyses, it has been found that the degree of pessimism of rural residents' attitude, the age of rural people, and the availability of material items are strongly associated with perceptions of rural people concerning the nature of change in various FOSE's in the county. This may imply that the psychological conditions of rural people, their ages, and the material aspects of their living are very important for rural development in comparatively isolated rural areas.

### III. THE IDENTIFIED INTERACTIONAL RELATIONSHIPS BETWEEN VARIOUS FOSE'S AND SOCIOECONOMIC CHARACTERISTICS IN HOUSTON COUNTY

The perception of rural people concerning the nature of change in the general quality of life in Houston County is associated with their anomia scores and the leisure-time participation intensity scores

of the rural families according to the results of regression analysis. According to the general opinions of local knowledgeable, the causes which would contribute most to the improvement in the quality of general life, other than improvement in the local economic conditions, would be improvement in local housing provision. In the rural area of the county, such improvement may be more closely associated with the sociopsychological state of rural people and the degree of enjoyment they obtain from involvement in leisure-time activities. This may partially account for their perception regarding the nature of change in the quality of general life relating to their anomia scores and the leisure-time participation intensity scores of their families.

According to the results of the regression analysis, the perception of rural residents with regard to the nature of change in the quality of county government is associated with the educational achievement of household heads. In the county, the old political base has gone. Well educated young people have become members of county court and more businessmen have become involved in the affairs of local government. In this situation, the educational achievement of rural household heads may associate with the degree of their involvement in the county government affairs. Therefore, the perception of rural people concerning the nature of change in this FOSE may associate with the educational level of rural household heads.

The perception of the rural residents concerning the nature of change in the quality of local politics is associated with the household heads' educational achievement and the number of material items possessed by the rural family according to the results of the regression analysis.

The apparent influence of local political organizations on people has declined since 1960, but during this period the Republican party has become stronger and more active in the county. Local politics has changed toward a two-party system. These changes in the political aspect of the socioeconomic environment may have complicated matters so that only those household heads with more formal education could perceive the change in quality of the local political affairs. Therefore their educational achievement and the perception of rural people regarding the nature of change in the quality of local politics may associate with each other. The greater the number of material items possessed by the rural family, the less will be the attention of rural people paid to the material aspect of their own living, and the more may be their attention paid to local politics and the greater the intensity of their involvement in the local political affairs. Thus, the association between their perception concerning the nature of recent change in the quality of local politics and the number of material items possessed is quite understandable.

The perception of rural people concerning the nature of recent change in the local public schools is associated with the age and educational achievement of the rural homemakers and with the leisure-time participation intensity score of the rural family. The greater the homemakers' age and educational achievement, the more extensive their involvement in local public affairs and such direct involvement may affect the perception of rural people regarding the nature of change in the quality of local public schools. Therefore, such an association may be easily understood. Additional curricula have been

included in the public school offerings since 1960. Some of the programs offered may be related to leisure-time activities. The greater the degree of involvement in leisure-time activities by rural people, the larger may be the frequency of their contact with the local educational system. Therefore their perception and leisure-time participation intensity score of the rural family may associate with each other.

The association between the perception of rural people regarding the nature of change in the opportunity for education beyond high school and the capability of family members to work index score shows in the results of the regression analysis. The job opportunities for the local residents have increased relative to population size in the county since 1960. At the same time, some local people have had to commute 30 to 40 miles to work every day. Additional educational opportunities have been developed outside the county boundaries. Under these conditions, it is difficult for rural people to take advantage of employment opportunities and educational opportunities simultaneously. When they make a choice between these two kinds of opportunities, they would need to pay more attention to both kinds of opportunities and consider both very seriously. The higher the capability of family members to work index score, the greater the number of family members who are qualified to take advantage of both opportunities. Therefore, the capability of family members to work index score may associate with the perception of rural people regarding the nature of change in the opportunity for education beyond high school.

The results of regression analysis show that the feeling of rural people concerning the nature of change in the situation with

respect to agriculture and land use is associated with the occupational prestige of principal wage earners and the rural family income. Some of the full-time farmers have changed to part-time operation, better techniques and more modern equipment have become available in the local agricultural sector, some of the land has been shifted out of farming operation, and primary local farming industries have changed from row crops toward cattle raising. These changing conditions may have resulted in an increase in family income and a change in the occupational prestige of rural people. Such changes occurring in the agricultural sector have caused the rural people who benefited from changes in the local economic structure to feel that the situation with respect to local agriculture and land use has improved since 1960. Therefore, the fact that the perception of rural people concerning the nature of recent change in this FOSE is associated with family income and the North-Hatt occupational score of principal wage earners.

The regression analysis results show that the perception of rural people about the nature of change in the quality of local medical care and health services is associated with the communication level of living scale score and the number of communication items possessed by the rural family. The wider the exposure of family members to various communication channels, the greater may be the degree of modifying their own images and beliefs regarding their consumption of health services. Therefore, the rural residents' perception concerning the nature of change in this FOSE may be associated with their accessibility to communication channels.

If we accept the 5 percent significance level for the testing of the null hypothesis, there is no socioeconomic characteristic of

rural people associated with their perception of the change in the quality of welfare programs. There have been many welfare programs available in Houston County such as food stamp, low rent housing program, nutritional education program, OEO retraining program, as well as medicare and medicaid programs. Each program has its own requirements for people to be eligible as beneficiaries of public assistance. Such differences in requirements may cause the weakness of the association between the perception of rural people concerning the nature of change in this FOSE and their own socioeconomic characteristics. Then, the association would not show on the results of regression analysis. If we were willing to accept a 10 percent significance level for the statistical test, the perception of rural people concerning the nature of change in this FOSE could be said to be associated with their leisure-time participation intensity score according to the results of the regression analysis. This may imply that people who obtain benefits from welfare programs seem to have more time to be involved in leisure-time activities than the other people due to regulations which cause welfare beneficiaries to lose some of their income if they take jobs.

The results of regression analysis have shown that the feeling of rural people with regard to the nature of change in the quality of life for the poor is associated with the age of homemaker and the number of communication items possessed by the rural family. In the county, the number of really poor people has become smaller and smaller since 1960. At the same time, various welfare programs have been made available. As a result the poor have obtained more and more help,

at least in terms of economics. The greater the age of homemaker, the more will be the amount of her knowledge accumulated about the nature of change in the quality of life for the poor. Then, the amount of her knowledge may indirectly affect the perception of rural people concerning the nature of change in this FOSE. The number of communication items possessed reflects the breadth of the range of communication channels available for rural people. Such exposure may modify their values and beliefs. Therefore, the association between their perception regarding the nature of change in this FOSE and the number of communication items possessed is understandable.

The association between social participation score of the household head and the perception of rural people concerning the nature in the local situation with respect to crime and law enforcement is reflected in the results of regression analysis. The greater the involvement in social participation by the household head, the more would be the possible alternatives for his activities, the greater the sensitivity to the interests of others, the higher would also be the reluctance to be involved in criminality, therefore the smaller may be the exposure to opportunities for the commission of crime and/or to become a victim of crime either for himself or for his family members. Thus, the perception of rural people regarding the nature of change in the local situation with respect to crime and law enforcement may be associated with the social participation score of rural household heads.

From the results of regression analysis, it has been found that the judgment of rural people about the nature of recent change in the

quality of local roads and the other transportation systems is associated with the age of household head, the capability of family members to work index score, the social participation score of rural homemaker, and the communication level of living scale score. The greater the age of head, the more will be his experience in consuming services provided by roads and the other transportation systems, hence his experience may influence the perception of rural people concerning the nature of change in the local transportation systems. The greater the capability of family members to work index score, the more may be the monetary resources available for the family to consume transportation services. During the processes of consuming such services, rural people may obtain some experience and benefits from this FOSE. The magnitude of experience and benefits they obtained would be associated with their perception of recent change in the quality of local transportation systems. The higher the communication level of living scale score, the wider may be the exposure of the family members to various communication channels. Such exposure may make them aware of the transportation conditions elsewhere as well as locally. Therefore, the association between their perception concerning the nature of recent change in the local transportation systems and the communication level of living score is reasonable. During the processes of involvement in social participation by homemakers, they may obtain some knowledge regarding the nature of change in this FOSE and may need to consume some of the transportation services and get some benefits due to consuming this kind of services. Their knowledge with regard to the nature of change in this FOSE and such benefits obtained by them may be associated with the perception of rural people.



The perception of rural people regarding the nature of change in the income for wage earners is associated with the dependency index of their families according to the results of regression analysis. The dependency of the rural family may be associated with the sufficiency of their wage income to support the family living. Thus, the association between their perception and the dependency index of their families is understandable.

There exists no association between the perception of rural people concerning the nature of recent change in job opportunity for the county residents and any socioeconomic characteristic according to the results of regression analysis. In Houston County, there has been an increase in employment opportunity due to the establishment and/or expansion of various businesses. The increased employment opportunities in different businesses which required recruitment of personnel with diverse qualifications may partially explain the lack of association between the perception of rural people concerning the nature of change in this FOSE and any of their socioeconomic characteristics.

The fact that the perception of rural people regarding the nature of current change in the local real income level is associated with the educational achievement of household head and their anomia scores has been shown in the results of regression analysis. The degree of pessimism of individuals' attitude may associate with their aggressiveness to make money. If there are enough job opportunities relative to individuals' anticipation for making money in local labor market, the higher the educational achievement of household heads, the

more favorable would be the feeling of their family members with regard to the nature of change in real income. Otherwise, the feeling and educational achievement might be negatively associated with each other. Therefore, the perception of rural residents concerning the nature of current change in this FOSE may be associated with the educational level of household head and the rural residents' anomia score.

The perception of open-country people concerning the nature of change in the quality of local churches and religious groups is associated with the age of rural homemakers, the capability of family members to work index score, and the number of material items possessed by the rural family according to the results of the regression analysis. The local leaders are generally of the opinion that the quality of local churches has remained about the same as in 1960 but religious groups have been involved in more social programs and local churches have offered more facilities to local people than before. There may be some change in the distribution of benefits offered by local churches. The greater the age of homemakers, the more may be their experience in dealing with religious social relationships. Such experience may be associated with the amount of benefits obtained from this FOSE. The greater the capability of family members to work index score, the more may be the satisfaction derived by rural people from the economic facet of rural life. Then, they may be in a position to pay more attention to their own spiritual life and be involved in more church activities. Therefore, the capability of family members to work index may indirectly interact with the perception of rural people

regarding the nature of change in this FOSE. The number of material items possessed is related to the durable goods consumption of the rural family. The amount of attention paid to the durable goods consumption by rural people may be associated with the degree of emphasis put on their spiritual life. Therefore, there may exist an indirect interactional relationship between the number of material items possessed and the perception of rural people concerning the nature of change in this FOSE.

There exists an interactional relationship between the perception of rural people concerning the nature of recent change in the local recreational opportunity as well as the age and educational achievement of rural homemakers according to the results of the regression analysis. In Houston County, some effort to increase local recreational opportunities has been made, but the effect is still small relative to the expectation of local people. There may have been some change in the distribution of benefits obtained by local people from this FOSE during the decade of the 60's. The greater the age of homemakers, the more will be their experience in arranging for their own families to take advantage of local available recreational opportunities. Therefore, the association between the age of rural homemakers and the perception of rural people is reasonable. The higher the educational achievement of rural homemakers, the greater may be their abilities to make arrangement for their own family living. Therefore, their educational level may interact with the amount of satisfaction obtained by their family members due to involvement in recreation. Such interaction may effect the perception of rural people concerning the

nature of recent change in the availability and/or quality of local recreational opportunity.

From the results of regression analysis, it has been found that the feeling of rural people concerning the nature of recent change in the quality of public utilities is associated with the age of rural homemakers, the family income, and the anomia score of rural residents. The greater the age of the homemakers, the more will be their experience in consuming public utilities. Thus, the feeling of the rural residents with regard to the nature of change in this FOSE may be associated with the age of the homemakers. The rural family income may tend to regulate the magnitude of various utilities consumed by the rural family. The perception of rural people may be associated with such magnitude. Thus, the association between the perception of rural people regarding the nature of change in this FOSE and the rural family income is quite understandable. Since anomia score refers to the relative measurement of individual sociopsychological state of his (or her) attitude, the anomia score of rural people may be associated with their values and beliefs related to their own consumption of public utilities. Such association has apparently effected their own perception regarding the nature of recent change in the quality of public utilities.

According to the results of the regression analysis, the perception of rural people concerning the nature of recent change in the quality of local physical environment is associated with the social participation score of rural people, the leisure-time participation intensity scale score, and the material possessions scale score of the

rural family. The quality of the physical surrounding is not easily visualized. For most people, the quality can be perceived either by means of their own contact with such environment or by learning of the current concerns from others. Therefore, their social participation scores and the leisure-time participation intensity score of the rural family will tend to influence their perception of recent change in the local physical environment. The material level of living scale score may be associated with the extent of the rural residents' involvement in social and/or leisure-time activities and hence the degree of the rural residents' contact with the local physical environment and of their learning of current concerns from others. Thus, the association between their feeling regarding the nature of change in the local physical environment and the material possessions scale score of the rural family seems reasonable.

The perception of rural people concerning the nature of change in the local situation with respect to provision of good housing is associated with the capability of family members to work index score and family income according to the results of the regression analysis. In Houston County, enough effort has been made to provide good dwelling units in comparison with the amount of local financial resources available but there is some feeling that more public housing units are still needed for the poor. This situation implies that individual family income source is quite important for obtaining good housing due to the competition in the local housing market. The capability of family members to work index score indicates the relative potential amount of labor which can be offered from the family. Therefore, the

perception of rural people regarding the local housing situation may be associated with their family incomes and the capability of their family members to work.

According to regression analysis results, the perception of rural residents with regard to the nature of recent change in the situation and opportunity for the local youth is associated with the educational achievement of homemakers. In Houston County, there has been an increase in employment opportunities for local people but the increase in beginning jobs is still insufficient to hold the young people who want to stay within the county. Some local social organizations have tried to create a greater number of educational opportunities for local youth. As to the recreational opportunity for the youth, there has been an indication that the local young people still need more recreational opportunities. The educational achievement of homemakers may be related to their ability to assist their own young children in taking advantage of various kinds of opportunities. Therefore, such educational achievement may be associated with the perception of rural people concerning the nature of change in this FOSE.

According to the results of the regression analysis, the perception of rural residents regarding the nature of recent change in the situation and opportunity for the local elderly is associated with the age of household heads, the capability of family members to work index score, the rural families' communication items scale, and the anomia score of rural people. The age of head may relate to the degree of his concern about the local situation and opportunity for the old

people. Thus, the association between the perception of rural people regarding the nature of change in this FOSE and the age of head is quite easily understood.

The capability of family members to work which is reflected in the index score may affect the strength of the family income stream. Such strength may associate with the concern for rural people about the actual situation and opportunity for the local aged. Therefore, the capability of family members to work index score may relate to the perception of rural residents regarding the nature of change in the situation and opportunity for the elderly. The greater the communication level of living scale score, the wider may be the exposure of family members to various communication channels. Such exposure may relate to the feeling of rural people with respect to the nature of recent change in the situation and opportunity for the local old people. Therefore, the communication level of living scale score may associate with the perception of open-country residents concerning the nature of change in this FOSE. Since the anomia score of rural people is one kind of measurement of individual attitude related to the degree of their pessimism, such degree of pessimism may associate with their values and beliefs concerning this FOSE as well as their activities related to this FOSE thereby partly explaining why the anomia score of the open-country people is associated with their perception regarding the nature of change in the situation and opportunity for the local elderly.

The perception of rural people regarding the nature of change in the quality of the county as a place to live has interacted with

their anomia score and the social participation score of household heads. The degree of involvement in social participation by individual may affect the personal relationship between his and his friends' families as well as his own knowledge level with regard to various possible opportunities for himself and his family members. Therefore, there may exist an interactional relationship between the perception of rural people and social participation score of the household heads. The sociopsychological status of rural people may associate with their attitude toward their social relationship and the degree of their aggressiveness to obtain benefits from various FOSE's. Thus, the anomia score of rural people may relate to their perception regarding the nature of recent change in the quality of the county as a place to live.

To sum up, the degree of pessimism of rural residents' attitude, the age of homemakers, and the capability of family members to work index score are substantially related to the perception of rural people with regard to the nature of change in various FOSE's. This seems to imply that the capability of family members to work index score is tremendously important for rural development at a locality where the industrialization is just starting.

#### IV. THE IDENTIFIED INTERACTIONAL RELATIONSHIPS BETWEEN VARIOUS FOSE'S AND SOCIOECONOMIC CHARACTERISTICS IN HUMPHREYS COUNTY

In Humphreys County, among the socioeconomic characteristics of rural people, only anomia score is associated with perceptions of the nature of recent change in so-called quality of life for most



local people. Those who were in a position to know the actual changes occurring during the 60's were of the opinion that the general quality of life had improved. The primary causes were seen as the improvement in local economic and housing conditions. The county experienced a substantial in-migration during the decade which brought new ideas and thoughts that may be somehow different from the ones which the native people have. Such differences may disturb some of the patterns of association between the perception of rural people concerning the nature of change in this FOSE and their own socioeconomic characteristics and this may explain, in part, the lack of significant associations found in the results of the regression analysis. Since one of the most important elements of so-called quality of life is related to being able to depend on others, the degree of pessimism may be associated with feelings about the nature of recent change in the general quality of local living.

The association between the perception of rural people regarding the nature of recent change in the quality of county government and the age and educational achievement of rural homemakers is reflected in the regression analysis. The in-migration associated with local industrialization has brought about some young people to be active, involved in, and aggressive in county government affairs, but at the same time the interest of native people seems to tend toward decline. The age of homemakers may be associated with the amount of their experience to deal with local politics. The educational achievement of rural homemakers may be associated with the degree of contribution which they can make to help their family members to be involved in

the local government affairs. Therefore, the association between the perception of rural people as well as the age and educational achievement of homemakers is quite reasonable.

According to the results of the regression analysis, the perception of rural people concerning the nature of change in the quality of local politics is associated with the social participation score of the household head, the North-Hatt occupational score of principal wage earners, and the material level of living scale score. Since the material level of living scale score is one measurement of the relative availability of material items in the family, people may be able to pay more attention to the political facet of life when the material aspect of living has reached a certain level relative to their own expectations. Therefore, the perception of rural people regarding the nature of change in the quality of local politics may be associated with the material level of living scale score. The occupational prestige of principal wage earners may be related to the degree of involvement in the local political affairs by themselves and their family members and hence to the amount of benefits and/or satisfaction derived from this FOSE. Therefore, the perception of rural people concerning the nature of change in the quality of local politics may be associated with the North-Hatt occupational score of principal wage earners in their families directly and/or indirectly. The social participation of head may be associated with his and his wife's opportunities to be involved in various kinds of local political activities especially given the industrialized nature of the county. Such association may relate to his perception and that of his family

members concerning the nature of recent change in the quality of local politics. This may explain, in part, the association of the perception of rural people regarding the nature of change in the quality of local politics with the social participation score of household heads.

The association of the perception of rural people regarding the nature of change in the quality of local public schools with the educational achievement of household head and the dependency index of the rural family is shown in the results of the regression analysis. During the past decade, there was some improvement in the quality of the local public schools with the principal causes being larger budgets available for employing better qualified teachers than before as well as the improvement in the facilities and the curricula. In an industrialized area, the greater the educational achievement of head, the more emphasis he may place on the education of the next generation. This may explain, in part, why the perception of rural people concerning the nature of change in the quality of local public schools is associated with the educational achievement of household heads. The amount of attention rural people paid to the local educational system may be associated with the dependency of their families. Therefore, the perception of rural people concerning the nature of recent change in the quality of local public schools may be associated with the dependency index of their own families.

According to the results of regression analysis, the feeling of rural residents concerning the nature of change in the opportunities for education beyond high school is associated with the number of

material items possessed by the rural family. A community college has been established in the county and there has also been an area vocational school established within commuting distance. The county has experienced a surge in industrialization since the late 1950's greatly expanding the available job opportunities. As a result, local young people have two alternatives as they graduate from high school-- seeking more education or taking a job. Their degree of satisfaction with the material aspects of living may affect their decision between two possible alternatives. At the same time, those who have high level of material aspects living may pay more attention to such educational opportunities because of either themselves, close friends, or relatives. Therefore, the association between the perception of rural people concerning the nature of change in this FOSE and the number of material items possessed by the rural family is quite reasonable.

The interactional relationship of the perception of rural residents regarding the nature of change in the local situation with respect to agriculture and land use with the age of homemaker, the capability of family members to work index score, the anomia score of rural people, and the number of communication items possessed by the rural family shows up in the results of the analysis. According to the censuses of agriculture in 1964 and 1969, the number of farms has remained stable since 1960. At present, the number of part-time farmers is greater than the number of full-time farm operators. Even though the degree of the local industrialization is the highest among the four study counties, rural people may still be agriculturally

oriented. Agriculture is an industry over which the farmers individually have little control. Since anomia score is one measurement of the degree of pessimism of individuals attitude related to the things which the individuals have no control, their sociopsychological states may be associated with their own values and beliefs. This may explain, in part, the association of the perception of rural people regarding the nature of change in this FOSE with their anomia score. The number of communication items available in the rural family may associate with the variety of communication means to which rural residents are exposed and hence, their values, beliefs, and their perception concerning the nature of change in this FOSE. The capability of family members to work index score may influence the extensiveness of their contact with the local agriculture and land use as well as the degree of their dependency on this FOSE to obtain financial resources to support their family living. Such contact and their dependency on this FOSE would help to explain the perception of rural people concerning the nature of change in this FOSE and its interaction with the capability of family members to work index score. The values and beliefs of rural homemakers with respect to local agriculture and land use may be associated with their age. If so, then their values and beliefs may relate to the perception of rural people regarding the nature of change in this FOSE. Under such conditions, the association between the perception of rural homemakers would seem to be quite reasonable.

According to the results of regression analysis, the perception of open-country residents concerning the nature of change in the quality of local medical care and health services is associated with

the educational achievement of rural people as well as with the communication level of living scale score of the rural family. In Humphreys County, a new hospital and some modern medical facilities have been made available, but the number of local medical personnel has been insufficient to satisfy the demand of rural people. As a result, many special medical services could be obtained only in other areas. Under this situation, the communication level of living scale score may affect the amount of information about the possible sources of health services available for rural people and hence the magnitude of benefits obtained by rural residents from this FOSE. Thus, the association between the perception of open-country people concerning the nature of recent change in the quality of the local medical care and health services as well as the communication level of living scale score of the rural family is quite understandable. The educational achievement of rural adults may affect their beliefs and values about health and medical matters. Especially in an industrialized area, their beliefs and values may associate with the amount of health services they consumed and also the magnitude of benefits obtained from this FOSE. Thus the perception of rural people concerning the nature of change in the quality of local health services may reasonably associate with the educational achievement of the rural residents.

From the analysis results, it has been found that the perception of open-country people concerning the nature of recent change in the quality of the local welfare programs is associated with the educational achievement and social participation score of rural homemakers, the communication level of living scale score, and the number of communication

items possessed by the rural family. The communication level of living scale score and/or the number of communication items possessed may influence the breadth of range of communication channels available and hence the degree of acceptance of the values on which the welfare system has been based. Therefore, the communication level of living scale score and the number of communication items possessed by the rural family may associate with the perception of rural people concerning the nature of change in the quality of local welfare programs. The educational achievement of rural homemakers may affect their capacity to accept the new ideas and the values which are related to industrialization and hence the perception of rural people concerning the nature of change in this FOSE. The county has been industrialized since 1960. Some value exhibited by the welfare system is related to the industrialization and the concept of charity. Social participation of rural homemakers may be involved in the diffusion of the new ideas on which the industrialized society is based and of values related to the concept of charity. Therefore, the degree of rural homemakers' involvement in social participation may affect their acceptance of the new ideas related to welfare programs and the values associated with the concept of charity, hence their feeling of approval in the degree of performance of their values by the society. They may also obtain some sociopsychological satisfaction from such a performance. Thus, the association between the perception of open-country people concerning the nature of change in the quality of local welfare programs and the social participation score of homemakers is quite understandable.

The results of analysis have shown that the perception of rural people regarding the nature of recent change in the quality of life for the local poor is associated with the age of head, the educational achievement of the homemaker, the material level of living scale score, and the number of material items possessed by the rural family. The industrialization which has occurred in the county may have increased some job opportunities for the local poor, but their chance of obtaining high position through the labor market seems to be limited by their own socioeconomic circumstances. Since the average per capita income in the county has increased substantially, the average accessibility of material items has also been raised. The rural people whose material aspect of living has been improved may feel that the material facet of life for the local poor also improved. Therefore, the perception of rural people concerning the nature of change in the quality of life for the poor may reasonably be associated with the material level of living scale score and/or the number of material items possessed by the rural family. The age of heads may associate with the total amount of knowledge accumulated on which they base to make a judgment about the nature of change in a particular FOSE. Therefore, the age of heads may associate with the perception of rural people concerning the nature of change in the quality of life for the local poor. The educational achievement of homemakers may be related to their ability to be involved in various socioeconomic activities. Then the degree of their involvement may affect their knowledge level about the local socioeconomic conditions as well as their beliefs and ideas. Therefore their educational achievement may



be associated with the perception of rural people concerning the nature of change in this FOSE.

From the regression analysis results, it has been found that the perception of rural people regarding the nature of change in the local situation with respect to crime and law enforcement is associated with the age and educational achievement of rural household heads, the age and social participation of homemakers, the household dependency index, as well as the number of communication items possessed by the rural family. According to the knowledgeable interviewer's report, there has been an increase in petty larceny and juvenile delinquency in the county. In the urban areas, law enforcement equipment has been improved and more well trained personnel have been added to the staff. The age and educational achievement of the household head may associate with the accumulated amount of their experience dealing with the social problems. Therefore, the association between the perception of rural people as well as the age and educational achievement of the household head is quite reasonable. The dependency index may influence the amount of attention which parents pay to each child and themselves. Therefore, the amount of attention paid may be associated with the degree of influence on their families by the increase in petty larceny and juvenile delinquency. So the dependency index of the rural family may associate with the perception of rural people concerning the nature of change in this FOSE during the 1960's. The more varied the communication channels, the greater may be the awareness of the instances of petty larceny and juvenile delinquency which rural people seem to fear. Therefore the perception of rural residents

regarding the nature of change in the local situation with regard to crime and law enforcement may associate with the number of communication items possessed by their families. As to the rural homemakers, their age may affect the amount of their social experience accumulated which is related to social activities and their attitude toward social phenomena. One of their major sources of social participation may be in activities related to churches. The degree of their involvement in church activities may associate with their and their family members' values and beliefs related to this FOSE. Thus the social participation intensity and age of the homemakers may be associated with the perception of rural people regarding the nature of recent change in the local situation with respect to crime and law enforcement.

Among the rural residents' socioeconomic characteristics, none was found to be associated with the perception of rural people concerning the nature of change in the quality of roads and the other transportation systems from the regression analysis. There has been a little agreement that the quality of the roads and other local transportation system has improved since 1960. The opening of Interstate Highway 40 changed the traffic pattern in the county. There was some shortage of financial resources which resulted in the maintenance of the local roads and highways being insufficient relative to the expectations of local people. Also, the new in-migrants attracted by the local industrialization may have brought new ideas which are related to the quality of transportation systems in some large industrialized areas. These above facts may disturb the

interactional relationship between the amount of benefits and/or satisfaction obtained by rural people from this FOSE and their own socioeconomic characteristics. Thus, such relationships may not be reflected in the result of the regression analysis.

The analysis result shows that the perception of rural people concerning the nature of change in the income for local wage earners is associated with the educational achievement and social participation score of rural household heads, social participation intensity score of homemakers, the rural family income, as well as the anomia score of rural people. In general, the household head and principal wage earner in the rural family is usually the same person. To understand this pattern of associations, it should be pointed out that Humphreys County has become industrialized, that more job opportunities have been made available for the local residents, and that there have been few speculative economic activities in the county. As a result, individual economic rewards tend to be associated with the individuals' effort. Each job opportunity has its own set of qualifications required for personnel recruitment and the educational achievement of potential employees may be one of the most important elements of its qualification requirement for them to be considered as a potential employee. Therefore the association between the perception of rural people regarding the nature of change in the situation with respect to local wage income and the educational achievement of the household head is quite understandable. A large part of social participation in which the household head is involved may be related to his occupation and/or local politics especially in an industrialized area. The most

important part of homemakers' social participation may be the activities related to religion. Their involvement in social participation may affect the degree of their husbands' involvement in social affairs. Thus, the social participation intensity scores of rural adults may be associated with the perception of rural people concerning the nature of change in the situation with respect to local wage income level. In Humphreys County, there has been an increase in the number of local people who are employed in the local industries. A large part of rural family income may be related to wage income, therefore the feeling of rural people regarding the nature of change in the local wage income level seems to be related to their family income. Since the anomia score is one of the measurements of the degree of pessimism of individual sociopsychological state, the degree of individual anomia may affect the aggressiveness of his attitude toward the opportunity for making money. Thus, the perception of rural residents concerning the nature of change in the income for wage earners may associate with their anomia scores.

From the result of the regression analysis, none of the rural residents' socioeconomic characteristics was found to be associated with their perception of the nature of recent change in the local situation with regard to job opportunity for the county residents. This situation may be due to two possible reasons. The industrialization in the county has created diverse employment opportunities for the local people. The different job opportunities have their own requirement for their recruitment such as some jobs emphasize personality and the others may put emphasis on either educational

achievement or experience. This situation may disturb the association between their perception and socioeconomic characteristics. It may also be that there is just unanimity concerning the improvement in job opportunities.

The results of the regression analysis show that the perception of open-country residents regarding the change in real income locally is associated with the educational achievement of household heads and homemakers, anomia score, as well as the leisure-time participation intensity score. The association with educational achievement may be due to its affect on the patterns of family consumption and ability to generate income. Therefore, their educational attainment may be associated with their perception concerning the nature of change in local income level. The anomia score may relate to the awareness of opportunities to make money and associate with attitudes toward spending money which in turn would affect consumption patterns. The association of leisure-time participation intensity score with opinion about the nature of change in real income may be due to the freedom or restriction that changes in real income will have on such participation.

According to the regression analysis result, the perception of rural people concerning the nature of change in the quality of local churches and religious groups is associated with the capability of family members to work index score and the material level of living scale score of the rural families. The association of availability of material items may be due to the increase in the amount of attention which rural people can pay to their spiritual aspect of

living when the material goods necessary for living are available in quantity. Since the activities related to the local religious institution are time consuming, the extent to which family members can be involved in occupational activities may affect the frequency of contact with the local church system and also influence ideals about what the church ought to be. Thus the perception of open-country residents concerning the nature of change in the quality and effectiveness of the local church system may be associated with the capability of family members to work index score.

The association between the perception of rural people concerning the nature of change in local recreational opportunities and the social participation score of household head is reflected in the result of regression analysis. There has been an increase in the local recreational opportunities but the speed of such increase has not been as rapid as the expansion of the anticipation by the local people. It is possible that the higher the degree of involvement in social participation by the household head, the less will be the attention paid to local recreational opportunities and the amount of benefits obtained from this FOSE.

The association between the feeling of open-country residents concerning the nature of change in the quality of public utilities and the age of household head is shown in the results of the regression analysis. In the industrialized area, some commodities related to public utilities and public utilities themselves will become necessary goods in the rural residents' consumption processes. Therefore the association between some socioeconomic characteristics and the amount

of benefits and/or satisfaction obtained from the public utilities will become even weaker. Then some of the association between the perception of rural people and their socioeconomic characteristics could not be found from the result of the regression analysis. The age of rural household heads may be associated with their knowledge of improvements in an expansion of local public utilities as well as their experience as consumers of public utilities services. Thus the perception of rural people concerning the nature of change in this FOSE and the age of head may be associated with each other.

From the results of regression analysis, none of the socioeconomic characteristics of rural people is associated with the perception of rural people concerning the nature of change in the local physical environment. In Humphreys County, the local industrialization may have caused pollution problems. At the same time, the local industrial sector has tried to control the pollutants. These two trends may interact with the amount of satisfaction derived from this FOSE. Such trends may also disturb the consistency of the interactional relationships between the perception of rural people concerning the nature of recent change in the quality of local physical surrounding and their own socioeconomic characteristics. Therefore, we were unable to find the interactional relationship from the results of the regression analysis.

According to the results of regression analysis, the perception of open-country people concerning the nature of change in the adequacy of good housing locally is associated with the age of homemakers, the educational achievement of household heads, and the number of material

items possessed by the rural family. The association of the number of material items possessed with the perception of rural people may be due to the relationship between the quality of housing unit and the number of material items. The educational achievement of household heads may relate to their own value regarding the quality of this FOSE and their own criteria to judge whether a housing unit is good or not. Therefore the educational achievement of household heads may associate with the perception of rural people concerning the nature of change in the local good housing provision. The greater the age of homemaker, the more will be her experience of dealing with housing problems and the greater her appreciation for the increase in the number of appliances available in the county. Therefore, the age of homemaker is understandably associated with the perception of rural people concerning the nature of change in this FOSE.

From the results of the regression analysis, it has been found that the perception of rural people regarding the nature of change in the situation and opportunity for the local youth is associated with the age and educational achievement of homemakers as well as with family income. The greater the family income, the easier it is to take advantage of recreational and educational opportunities if the young people and their parents are inclined to do so. The association of the age and educational achievement of homemakers may be due to their concerns about various opportunities for their young children and other local youth.

The perception of open-country people regarding the nature of change in the situation and opportunity for the local elderly is



associated with the social participation score of heads, the material level of living scale score, communication level of living scale score, and the leisure-time participation intensity score of the rural family. Medicare and more welfare programs are objective changes which become available for the local elderly. The association of social participation score may be due to the involvement of household head in activities related to the local politics. The association of the communication level of living scale score may be due to the breadth of range of communication channels available for the rural family. Such breadth may affect the values and beliefs of rural people which are related to this FOSE and/or their knowledge level about the actual situation of this FOSE. Conversely those who were themselves better off materially may perceive the opportunity for and situation of the local old people as worse after making a comparison between themselves and the elderly. Similarly those who have many opportunities to devote their own time to various leisure-time activities may feel the situation and opportunity for the local elderly not as good as theirs.

According to the results of the regression analysis, the perception of rural people regarding the nature of change in the quality of the county as a place to live is associated with the dependency index and material level of living scale score. The association of the dependency index may be due to the greater ease in accumulating money to support the family living when dependency is low. Those who were better off materially may feel the county as a good place to live. Therefore the perception of rural residents

concerning the nature of change in this FOSE may relate to their material level of living scale score.

From the above analyses, we find that the educational achievement of rural people, the age of the homemakers, and the availability of material items to be strongly associated with the perception of rural people concerning the nature of change in various FOSE's in the county. The anomia score is one measurement of the degree of pessimism of individual attitude which is related to the things other people are responsible for. In an industrialized society such as Humphreys County, the degree of social dynamics will tend to increase. The degree of dynamics may affect individual aggressiveness in taking advantage of various existing socioeconomic opportunities. At the same time, the ability of self-control may also become stronger. Therefore the association of the rural residents' sociopsychological state with their perception concerning the nature of change in various FOSE's would tend to decline. The greater the degree of social dynamics, the stronger will be the seriousness of competition to obtain various socioeconomic opportunities. The educational achievement of rural people may be helpful for them in such competition. Therefore their educational achievement will increase the degree of its association with their perception. The higher the degree of industrialization, the greater will be the availability of material items in local area. Such availability may improve the local residents' material aspects of living and hence associate with their perception regarding the nature of change in various FOSE's.

V. THE IDENTIFIED INTERACTIONAL RELATIONSHIPS BETWEEN VARIOUS  
FOSE'S AND SOCIOECONOMIC CHARACTERISTICS IN UNION COUNTY

In Union County, the perception of open-country people concerning the nature of change in the quality of life for most people is associated with the educational achievement of household heads, and both level of living scale scores. The general quality of life has improved in the county since 1960 according to the local leaders' and the rural residents' opinions. The primary causes have always been referred to as improvement in the economic facet of the local socioeconomic environment (rising in per capita income) and an increase in educational level of the county residents by themselves. According to the censuses of population and housing in 1960 and 1970, the portion of local labor force that works outside the county boundaries (mostly in Knox County) has tended to increase. Therefore, the rural residents' values and beliefs may be urban oriented. In order to obtain more responsible positions in their occupations, the rural household heads need to emphasize their educational achievement. Even though there have been few job opportunities for them within the county boundaries, it would be easier to obtain a job within reasonable commuting distance of the county since they have improved their educational levels and hence the material aspect of their life and the availability of communication channel for them tend to improve. Such improvement may have brought about their feeling that the general quality of life has improved in Union County since 1960. Therefore the fact that the perception of rural people about the nature of change

in the quality of general life is associated with both level of living scale scores and the rural household heads' educational achievement is quite understandable.

From the results of regression analysis, it may be seen that the perception of rural residents regarding the nature of change in the quality of county government is associated with the leisure-time participation intensity score and the number of communication items possessed by the rural family. The amount of involvement of rural people in leisure-time activities may affect the opportunities to discuss with kin and close friends the affairs of county government. The number of communication items possessed by the rural family may associate with the width of the range of communication channels available for the local rural people. The diffusion of new ideas and information may also relate to the number of communication items possessed. Therefore the perception of rural people regarding the nature of change in the quality of county government may have associated with the number of communication items possessed by and the leisure-time participation intensity score of the rural family.

The perception of open-country people concerning the nature of change in the quality of local politics is associated with the educational achievement of homemaker, family income, and the material level of living scale score according to the regression analysis results. During the past decade, there have been more young people and highly educated people who are involved in politics of Union County. The county residents have also tended to be more interested in local politics. The rural homemakers' educational achievement

may affect their own ability to support their family members to be involved in the local politics. The family income and the material level of living scale score of rural family may interact with the amount of attention which rural people have paid to local politics. Therefore the perception of rural people regarding the nature of change in the quality of local politics and political parties may associate with the socioeconomic characteristics mentioned above.

According to the results of regression analysis, the perception of open-country residents concerning the nature of change in the quality of the local public schools is associated with the educational achievement of homemakers and the dependency index of the rural family. In an urban oriented area, the higher the rural homemakers' educational level, the more emphasis may be placed on the education of the next generation and the more attention will be paid to the local educational system. The higher the dependency of the rural family, the greater may be the awareness of the problems in the local school affairs in spite of the greater amount of benefits obtained from this FOSE. Thus the association of the perception of rural people regarding the nature of change in the quality of local public schools with the dependency index of the rural family and the rural homemakers' educational achievement is quite understandable.

From the results of the regression analysis, the association of the perception of rural people concerning the nature of change in the opportunity for education beyond high school with the educational achievement of household heads, the capability of family members to work index score, the social participation scores of rural people,

the North-Hatt occupational score of principal wage earners, anomia score, and the number of communication items possessed by the rural family has been found. The rural household heads' educational achievement may affect the values and beliefs of their family members which are related to the opportunity for high level education. The higher the rural household heads' educational achievement, the greater may be the awareness of existing high-level educational opportunities. The higher the capability of family members to work index score may imply that the rural family has fewer children in school or the children just out of school. Therefore, such index score may interact with the perception of rural people regarding the nature of change in this FOSE. The combination of the activities related to political affairs and the social activities with regard to occupation may constitute the major part of the social participation in which the heads of rural households are involved. For the homemakers the activities related to church and PTA will account for a large part of their social participation. The greater the degree of involvement in such activities by the rural people, the greater the influence of their education on their feeling about the importance of education in life. This then is the basis upon which their expectation concerning this FOSE may be formed. Hence the degree of their involvement in social participation may associate with their own values and beliefs related to the opportunity for education beyond high school.

The higher the occupational prestige, the greater may be the occupational responsibility. They would then be likely to have greater awareness of the opportunity for education beyond high school. Such

greater awareness may affect their own and family members' perception concerning the nature of recent change in this FOSE.

The higher the anomia which rural people have, the greater may be the degree of their conservatism. Such conservatism may affect their family members' taking advantage of existing high-level educational opportunities and their perception about this FOSE. Thus the association between the rural residents' anomia score and their feeling about the nature of change in the educational opportunity beyond high school may be quite reasonable. The greater the number of communication items possessed by the rural family, the wider may be the exposure of family members to various communication channels and the greater may be the possibility for rural people to obtain some information related to the opportunity for receiving education beyond high school.

According to the results of the regression analysis, the perception of rural people regarding the nature of change in the local situation with respect to agriculture and land use is associated with the age and educational achievement of rural household heads, the capability of family members to work index score, the dependency index of the rural family, and family income. Local farmers have raised more cattle and smaller acreages of row crops in recent years. Some farmers have obtained off-farm jobs and become part-time farmers. The age and educational achievement of household heads may relate to their own values and beliefs concerning farming and land use, therefore, the age and educational achievement of rural household heads may associate with the perception of rural people regarding the nature

of change in this FOSE. The capability of family members to work index score and the dependency index of the rural family may affect the extensiveness of their contact with local agriculture and land use as well as the number of sources to obtain money for supporting their family living. Therefore the perception of rural residents concerning the nature of change in the situation with respect to local agriculture and land use may associate with the capability of family members to work index score and the dependency index of the rural family. The changing conditions in local agricultural sector may associate with the rural family income. Thus the changes occurred in the local agricultural sector may cause the rural people who have a change in family income to get different feeling concerning the nature of change in this FOSE. Therefore the perception of open-country people regarding the nature of change in the situation with regard to agriculture and land use may associate with their family income.

The regression analysis result shows that the perception of rural people concerning the nature of recent change in the quality of local medical care and health services is associated with the dependency index of the rural family, the North-Hatt occupational score of principal wage earners, the material level of living scale score, and the anomia score of rural people. The higher the dependency in a family, the greater may be the degree of contact which the rural family has made with local health and medical services. Therefore, the dependency index of rural family may be associated with the perception of rural people concerning the nature of change in this FOSE.



The North-Hatt occupational score is associated with the contents of occupational activities. The contents of occupational activities may affect the demand of rural people for medical care and health services. Thus the perception of rural people concerning the nature of change in this FOSE may associate with the North-Hatt occupational score of the principal wage earners. The higher the material level of living scale score, the better off the family will be materially. Such high level of material aspect of living may affect the health conditions of open-country people. Then their health conditions may interact with the amount of health services they need. Since anomia score is a measurement of the degree of pessimism of individual attitude, the individual anomia may associate with the amount of health services needed and the effectiveness of medical treatment when he receives health services. Therefore the perception of rural residents regarding the nature of change in this FOSE may be associated with the material level of living scale score and the anomia score of rural residents.

According to the results of the regression analysis, the perception of open-country people concerning the nature of change in the quality of local welfare programs is associated with the age of household heads, the educational achievement of rural homemakers, and family income. The educational achievement of rural homemakers may influence their own capacity to accept the new ideas and values which are urban oriented and on which the welfare programs are based. Thus the educational achievement of rural homemakers may be associated with the perception of rural people concerning the nature of change in this FOSE.

The OEO programs have helped old people to get employment. The age of rural household heads may also relate to their own sociopsychological attitude. Therefore the age of rural household heads may be associated with the feeling of rural residents concerning the nature of change in the local welfare programs. The family income may affect the material aspect of living and the family members' attitudes, values, and beliefs related to welfare programs. Therefore, the rural family income may be associated with the perception of rural people concerning the nature of change in the quality of local welfare programs.

From the results of regression analysis, it has been found that the perception of rural people concerning the nature of change in the quality of life for the local poor is associated with the age of rural homemakers, the material level of living scale score, and the number of communication items possessed by the rural family. The number of communication items possessed by the rural family reflects the range of communication channels available to rural residents. During the communication processes, their values and beliefs related to the lot of the poor may be modified. Therefore the association between their perception concerning the nature of change in the quality of life for the local poor and the number of communication items possessed is quite reasonable. The increase in job opportunities in Knoxville or surrounding areas may provide some jobs for the local poor but their chance of obtaining high position through the labor market seems to be limited by their own socioeconomic circumstances. In Union County, the average level of material aspect of living has improved substantially. Such improvement may interact with the rural

residents' perception regarding the circumstances of the local poor. Therefore the feeling of rural people about the nature of change in the quality of life for the poor may be associated with the material level of living scale score. The age of rural homemakers may influence the attitude of their family members toward the lot of the local poor. Thus the perception of rural people concerning the nature of change in this FOSE may be associated with the age of rural homemakers.

The association between the perception of open-country people concerning the nature of change in the local situation with respect to crime and law enforcement and the communication level of living scale score has been found in the result of regression analysis. According to the knowledgeable' opinions, the local situation with regard to crime and law enforcement has improved since 1960. The salaries for law enforcement personnel have been increased, more law enforcement equipment has been made available, and the sheriff and other law enforcement officers are reportedly working harder than before. There have been fewer juvenile delinquency problems and no drug problem. The communication level of living scale score may be associated with the degree of exposure of family members to various communication channels. The wider the range of such channels, the more may be the information regarding the delinquency problem which rural people obtain. Therefore the perception of rural residents concerning the nature of change in this FOSE may be associated with the communication level of living scale score.

According to the regression analysis results, the perception of rural people concerning the nature of change in the quality of

roads and the other transportation systems is associated with the age of homemakers, the dependency index of the rural family, and the material level of living scale score. In the county, Highway 33 construction and the pavement of some rural roads have improved the local transportation systems very much. There are still some rural roads which are not considered to be in good condition. The greater the age of rural homemakers, the more may be the amount of their accumulated knowledge concerning the change in highways and roads. Thus, such perception of rural people may be associated with the age of homemakers. The dependency of the rural family may be associated with the amount of transportation services consumed by rural residents. Therefore the perception of open-country people concerning the nature of change in the quality of this FOSE may be associated with the dependency index of the rural family. When the material aspect of life has been satisfied, then people are able to consider other facets of life such as recreation, social participation, and the consumption of transportation services. Therefore, the perception of rural people concerning the nature of change in this FOSE may be associated with the material level of living scale score.

The results of regression analysis have shown that the perception of open-country people regarding the nature of change in the income for the local wage earners is associated with the social participation scores of household heads and homemakers as well as the number of communication items possessed by the rural family. More than half of the local labor force has had jobs outside the county boundaries. This may imply that the communication channels available to the

residents is related to the degree of their taking advantage of opportunity to make money. Therefore the number of communication items possessed by the rural family may associate with the perception of open-country residents concerning the nature of change in the wage income. A major part of social participation which rural household head is involved in may be related to his occupation and/or local politics especially in an urban oriented area. The more important part of the homemakers' social participation may be the activities related to the church and/or PTA. The involvement in social participation by the rural people may affect the degree of systematic contact with other people with the similar circumstances. Such contact may affect the amount of their attention paid to the opportunity of making money which is compatible with their socio-economic characteristics. Thus the social participation intensity score of rural people may be associated with their perception concerning the nature of change in the local wage income.

From the results of regression analysis, it has been found that the perception of open-country people concerning the nature of change in job opportunities for county residents is associated with the educational achievement of rural household heads and the number of material items possessed by the rural family. Since the household head and the principal wage earner are the same person in most households and the educational achievement is one of the more important elements for obtaining employment and promotion, the educational achievement of rural household heads may associate with the amount of benefits obtained from this FOSE. Hence the perception of

open-country people concerning the nature of change in the job opportunity for the local residents. The amount of benefits obtained from this FOSE may relate the ability to buy material items. Therefore the number of material items possessed by the rural family may be associated with the perception of rural residents concerning the nature of change in the employment opportunity for local people.

According to the regression results, the perception of rural residents concerning the nature of change in the local real income level is associated with the age of homemakers, the material level of living scale score and the leisure-time participation intensity score. The amount of time which rural residents devote to leisure-time activities may relate to the magnitude of their time available for occupational activities and hence the amount of benefits obtained from this FOSE. The leisure-time activities rural people are involved in may also relate to their consumption pattern and the real value of their money income. Therefore the leisure-time participation intensity score may be associated with the perception of rural people concerning the nature of change in local real income. The availability of material items in the rural family may be related to the real income obtained, Thus the perception of rural residents concerning the nature of change in real income may associate with material level of living scale score. The age of homemakers may relate to their consumption preference, their values and beliefs concerning money, and their attitude toward spending money. Therefore, the perception of rural people regarding the nature of change in real income may be associated with the age of homemakers.

The results of the regression analysis show that the perception of open-country residents concerning the nature of change in the quality of local churches and religious groups is associated with the capability of rural family members to work index score and the dependency index of the rural family. The greater the capability of family members to work index score, the easier may be the obtaining of satisfaction in the material aspect of living. After the satisfaction of the material aspect of living reaches a certain level, people may pay more attention to the spiritual aspects of their lives. Thus the capability of family members to work index score may associate with the perception of rural people concerning the nature of change in the quality of the local churches. There have been more programs for young people in the local church system. The higher the dependency of the rural family, the greater may be the number of young children in the family. The rural family which has more young children may have greater contact with the local churches than the other families do. Therefore the dependency index of the rural family may associate with the perception of rural people concerning the nature of change in the quality of the local church system.

The perception of rural people concerning the nature of change in the local recreational opportunity is associated with the social participation score of household heads and homemakers, the North-Hatt occupational score of principal wage earners, family income, and the number of material items possessed by the rural family. In Union County, various recreational facilities have either increased or improved, but such improvement and/or increase was insufficient relative to the

expectation of local people according to the knowledgeable interview results. Since the primary part of social participation in which household heads are involved is related to occupation and/or local politics, the higher the degree of involvement in social participation by rural household heads, the less may be the attention given to local recreational opportunities. A large part of social participation in which homemakers are involved may be related to church and PTA activities which could include some recreational activities. Thus the social participation score of rural people may be associated with their perception regarding the nature of change in local recreational opportunities. The greater the North-Hatt occupational score of principal wage earners, the higher may be their prestige in the local society. Rural people who have high social prestige may be involved in decision making concerning the increase and improvement in the local recreational facilities. Thus the North-Hatt occupational score of the principal wage earners may be associated with the perception of rural people regarding the nature of change in the local recreational opportunity. In order to make more money, it is necessary to sacrifice some part of the time which may originally be devoted to recreational activities. Therefore, the perception of rural people concerning the nature of change in this FOSE may be associated with the rural family income. After the satisfaction in material aspect of living reaches certain level, then rural people can pay some attention to the recreational opportunities. Thus, the number of material items possessed by the rural family may associate with the perception of open-country people concerning the nature of change in local recreational opportunities.



According to the results of regression analysis, the perception of rural residents concerning the nature of change in the quality of public utilities is associated with the age of homemakers, the material level of living scale score, and the leisure-time participation intensity score. The greater the age of homemakers, the more may be their experience of consuming the public utilities. Therefore the perception of rural people concerning the nature of change in the public utilities may be associated with the age of rural homemakers. As the urban influence becomes stronger and stronger, the material items related to public utilities may be introduced into the county. Such introduction may increase the amount of the public utilities consumed. Thus the material level of living scale score may be associated with the judgment of the rural residents concerning the nature of change in the quality of public utilities. Rural people who have paid more attention to leisure-time activities may express less concern over their public utilities consumption. Thus the feeling of open-country people regarding the nature of change in the quality of public utilities may associate with the leisure-time participation intensity score.

The results of the regression analysis show that the perception of rural people concerning the nature of change in the quality of physical environment is associated with the family income and the number of communication items possessed by the rural family. According to the results of knowledgeable interviews, the use of boating houses has caused pollution in the lake, but this has been offset by reforestation conducted by TVA which has minimized soil erosion and an increase

in conservation practices. There has been some problem with garbage being dumped on stream banks and highways. The rural people who have more communication channels are more likely to be aware of the nature of change in physical environment than other rural residents. The rural people who have high family income may be able to afford to pay a high price to obtain a dwelling unit located at an area where the quality of the physical environment is high. Therefore, the family income and the number of communication items possessed by the rural family may be associated with the perception of rural people concerning the nature of change in the quality of local physical environment.

From the results of regression analysis, it has been found that the perception of open-country people regarding the nature of change in the local provision of good housing is associated with the age of homemakers, the capability of family members to work index score, the communication level of living scale score, and the number of communication items possessed by the rural family. The situation with regard to provision of good housing for the local poor has improved since 1960, but many residents were of the opinion that not enough was being done for the poor in the county. More public houses, more subsidized housing units and low rent dwelling units still need to be made available for low-income people. The communication level of living scale score and the number of communication items possessed by the rural family may relate to the availability of communication channels for the family members. Such availability may associate with their values and beliefs related to this FOSE, their criteria to judge a dwelling unit whether its quality is good or not, and the amount of their knowledge about the local housing market. Since there is a limitation on the housing supply

in the county, the capability of family members to work index score may associate with the ability of the rural family to compete with others in the local housing market. The greater the age of homemakers, the more will be their experience of dealing with housing problems. Therefore the perception of rural people concerning the nature of change in the local provision of good housing may have associated with the age of homemakers, the capability of family members to work index score, the communication level of living scale score, and the number of communication items possessed by the rural family.

According to the results of the regression analysis, it has been found that the perception of rural people concerning the nature of change in the situation and opportunity for the local youth is associated with the age and educational achievement of rural household heads, and the social participation score of rural household heads and of homemakers. The absolute number of the opportunities for education beyond high school available for the local youth has increased. More young people have opportunities to be involved in local politics and to obtain jobs. More recreational opportunities have been available for them. But the improvement in the situation and opportunities has apparently not been as fast as the growth of expectation of rural people according to the sample survey. The greater the age of rural household heads, the more may be the amount of their experience and knowledge accumulated concerning the local social conditions. The educational achievement of household heads may associate with the amount of assistance which the young people in the family obtain from them. Since a large part of social

participation in which homemakers are involved may relate to church and PTA activities, they may obtain some information about various opportunities for the youth during their involving. A primary part of social participation household heads are involved in may be the activities which are related to their occupation and the local political affairs, thus the degree of their involvement in social participation may associate with the amount of attention paid to various opportunities for youth. Therefore, the perception of open-country people concerning the nature of change in this FOSE may be associated with the age and educational achievement of the rural household heads as well as the social participation score of rural people.

The association between the perception of rural residents concerning the nature of change in the situation and opportunities for the local elderly and family income is shown in the results of regression analysis. The amount of family income may associate with the degree of satisfaction which the family members obtain from the material aspect of their living. Then such degree of satisfaction may relate to their criteria to judge the nature of change in this FOSE. Therefore the perception of rural people concerning the nature of change in the situation and opportunities for the elderly may be associated with their family incomes.

From the results of the regression analysis, it has been found that the perception of rural people concerning the nature of change in the quality of the county as a place to live is associated with the number of communication items which are possessed by the

rural family. The larger the number of communication items possessed by the rural family, the wider may be the exposure of family members to various communication channels. Such exposure may associate with their values and beliefs which are related to the quality of a place to live. Therefore the association between the perception of rural people concerning the nature of change in this FOSE and the number of communication items possessed by the rural family is quite reasonable.

From the above analyses, the results show that the number of communication items possessed by the rural family, the material level of living scale score, family income, the age of homemakers, the educational achievement of household heads, and the dependency index of the rural family are strongly associated with the perception of rural people concerning the nature of change in various local FOSE's. The analysis results seem to imply that in an urban oriented area, the availability of material items and communication channels is very important. The family income and dependency index increase their importance for rural development, along with the social participation of rural people. Finally, sociopsychological conditions of open-country people appears to have little influence on the perception of rural people.

## CHAPTER IV

### DESIGN OF VARIOUS SOCIOECONOMIC INDICATORS FOR EACH FOSE

In order to understand the development which occurred in a rural area during a specific period of time and the degree of association between each FOSE and its related socioeconomic characteristics during such developmental process, it is necessary to design socioeconomic indicators which will reflect the actual state of each FOSE at particular points in time.

The designed indicator needs to be useful, meaningful, and helpful in terms of its reflection of the actual situation in the society and the change occurring during a particular period of time. It should also be sufficiently sensitive to the occurred changes so the measurement of change when it occurs can be obtained easily. At the same time it should be accurate in measuring the situation and changes so it has value in facilitating concise, comprehensive, and balanced judgments regarding policy making. The indicator will be constructed according to what it intends to show for the corresponding FOSE. In order to maintain the sensitivity and accuracy of the constructed indicator, one must avoid putting any limitation on the range of change in the indicator. It is also not necessary for the measurement to be direct since the direct measurement may be impossible to obtain and an indirect measure can often be useful, meaningful, and helpful for people in conceiving of the actual conditions in the society.

Many published statistics are very important and their meanings are easily understood but they cannot be considered as socioeconomic indicators if they are insufficient to describe and/or explain the actual status of as well as changes occurring in each FOSE and the related ALSC's in a particular area. Therefore, many of the statistics can qualify as socioeconomic indicators but not all of them. Sometimes the data for the ideal indicator are not available in either published or unpublished form. When this occurs some reasonable proxy for the ideal one must be used if some related data are obtained from any source. Some may argue that the indicator has to be as simple as possible. Although the simplicity of socioeconomic indicator is desirable, the simplicity is not its most important character, since the criterion for judging goodness of the indicator will be its facilitating function in helping people to comprehend the actual condition of their society as well as the magnitude of changes in the socioeconomic environment and in various ALSC's occurring during a specific period of time in a particular area.

In this study, the quality of life for the local poor will be viewed as a part of the quality of the local general life. The amount of benefits local people obtain from each FOSE may become the element which forms their perception of the quality of local life generally in terms of the sociopsychological sense and of the specific quality of the local area as a place to live. Because of variations in the importance of various FOSE's for different age groups, each group will emphasize different FOSE's when they make decisions about their place of residence. For example, those in the labor force may

emphasize employment opportunities while older people would tend to place more emphasis on the quality of the physical environment and the presence of kinsfolk when they choose their residence. Therefore, the amount of benefits obtained by the different age groups from various FOSE's will be reflected in their perception of the quality of the locality of their present residence as a place to live. It also influences the feeling of local people concerning the quality of life in general. The complexity of the factors influencing the quality of these two FOSE's is too great to permit the construction of socioeconomic indicators at present. It is hoped that in the near future some competent social scientists can develop appropriate indicators which will reflect the quality of these FOSE's. Since various FOSE's and several socioeconomic characteristics are involved in this study, the indicators for each FOSE will be considered in turn.

#### I. QUALITY OF COUNTY GOVERNMENT

County government is a political institution which can be viewed as a non-profit production organization and/or as a consumption unit in an economic sense. As a production organization, it combines several kinds of resources such as human resources, capital, land, and institutional resources into production processes and then offers the public its outputs--various public services such as safety protection, welfare, health services, education, recreation, and transportation facilities. As a consumption unit, it collects various taxes to support itself and buys a huge amount of goods and services at the market.



If the average educational level of personnel in the county government were considered as an indicator to show the quality of the government, this indicator would be misleading since the educational achievement of personnel is only one dimension of the quality of human resources put into the production procedure of the public services. At the same time the educational level may indirectly affect the quality of the county government.

While it is reasonable to evaluate the quality by its efficiency in providing various public services for the county residents from the view point of a production organization, there are tremendous difficulties which cannot be overcome at the present stage in measuring such efficiency. These difficulties are due to the multi-dimensional character of the outputs which cannot be described by price although we can use price to summarize the measurement of the total cost of all inputs. It is difficult to estimate the total amount of public services provided by the county government for the county residents.

From the viewpoint of consumption unit, the total annual amount of tax collection by the county government may be taken as an indicator to show its quality, but such an indicator ignores the population size in the local area. That is, we would assume that the better the quality of the government, the greater will be the ratio of external funds to internal funds in the expenditure structure.

Whatever the ratio between internal and external funds, there is always some limitation on the availability of resources in each area, even though technological progress may moderate the limitation. There are also many desirable socioeconomic policies and/or public

programs which compete for the limited resources available. Therefore, the saving of the internal resources is very important for rural development, especially in chronically depressed and/or low income rural areas. So the ratio of total county government annual external expenditures to its corresponding internal expenditures seems reasonable for application as an indicator for measuring its quality, even though both kinds of expenditures vary with the total magnitude of all of the public services provided during that year. The larger the absorption of external resources for providing various public services, the greater will be the efficiency of the internal resources and the consequent possibility of rural development from the consumption viewpoint.

Since there are little data available for constructing the indicator, the following formula will be used to evaluate the quality of county government:

The quality of county government index =

$$\frac{\text{Total county government annual expenditure for providing public services}}{\text{Total county government annual maintenance expenditures}}$$

where the total government annual expenditures for providing various public services includes expenditures for education, highways, public welfare, health services, police protection, park and recreational facilities, and natural resource conservation. The government annual maintenance expenditures will consist of various items of outlay such as correction, financial administration, general control, general public building, interest on government debts, as well as other and

the unallocable. That the total amount of public services produced by the county government is completely consumed will be assumed. The total county government annual maintenance expenditures are considered fixed outlay while the total expenditures for providing the public services will be treated as variable expenses. The greater the ratio of the total variable expenses to fixed outlay in the government expenditure structure, the higher will be its efficiency and its quality. As to data for constructing this kind of indicator, they were obtained from censuses of government publications.

## II. QUALITY OF LOCAL POLITICS AND POLITICAL PARTIES

In the United States, there are usually two major political parties which are operating and controlling all levels of politics. In general, the quality of the political parties and of the local politics will be reflected in their proposed policies. Such policies will be related to local interest in varying degrees, and the extent of such relation should be reflected in the number of votes cast at each local election. This number will also be affected by the number of people eligible for registration. In the United States, local people do not have to vote in every election in order to be eligible to vote in the next election. As a result, the fluctuation in the number of people registered from one election to the next will be very small except when the regulations are changed.

When the difference in the qualification of candidates nominated by the two parties is very large or one of the parties dominates in the local power structure, the number of ballots cast in each election

is likely to drop. If this should be the case, the difference and the domination would tend to reduce the quality of local politics and the average quality of the political parties. Without a big issue raised for a local election, the number of voters voting will be small. Since it is the responsibility of local politicians to find local issues, propose appropriate policies to resolve the issues and improve the local socioeconomic environment, if the policies proposed by the candidates do not induce the local constituencies to cast their votes, it will reflect the low qualification of candidates and of local politics.

At present stage, someone may suggest that the percentage of ballots cast should be the indicator to evaluate the quality. But this indicator lacks the sensitiveness needed to show slight change in the quality of the local politics and political parties, especially when the percentage approaches 100. In order to maintain the sensitiveness of the indicator, the following formula will be used for measuring the quality of local politics and political parties at a particular point in time:

The quality of local politics and political parties index =

$$\frac{\text{Number of people voting at a particular election}}{\text{Number of people registered to vote - number of people voting at that election}}$$

The data sources for this indicator would be local newspapers and Office of Secretary of State (Nashville).

### III. QUALITY OF PUBLIC SCHOOLS

Public schools are one kind of educational institution, so educational spending may be conceived as consumption or investment in human resources from an economic point of view. From the private standpoint, education expenditures may be considered as a kind of consumption expense especially for the parents of enrolled students but it remains an investment in human resources for the next generation from the viewpoint of the nation as a whole.

In the United States, the educational system has absorbed a great deal of attention, emphases, and various resources. There are also many scholars who have been devoting themselves to the study of educational administration and various divisions of education such as mathematical education, music education, home economic education, business education, and health education, and so forth. They have developed many indicators to facilitate their investigations such as average expenditure per student per day, average educational level of teachers, number of students per teacher, actual number of days of school attendance per year, annual expenditure per teacher, and so forth. A lot of indicators seem to be only for administrative purposes and thus may be misleading as reflectors of the quality of schools even though all of these characteristics will have some impact on that quality. All relate to measurement of the actual condition of the input side in the production process of the future national human resources.

The school as an educational institution which creates various future human resources, may influence the intellectual level of the

future citizen and affect the future development of scientific and technical levels for the nation and the future national economy. It seems that the school can also be considered as a productional institution whose responsibility will be to make a contribution to the improvement in the intellectual levels of its students and to stimulate the students' motivation to learn more. Although the amount of various facilities which are available in the school may affect the extent to which its responsibility is completed, the construction of a new school building and the installation of new physical facilities do not necessarily mean the improvement of the quality of school. Its quality may have to be measured by average improvement in the intellectual level of its students in various grades or the degree of stimulation of its students' incentive to enroll in higher level educational institutions. Since the degree of stimulation is related closely to the existing opportunities of receiving education beyond high school, thus ideally the average increase in I.Q. of the students in various grades per academic year could be used as an indicator for measuring the quality of the public schools. Because such data will not be readily available from every school system, its use as a satisfactory indicator is precluded.

In most states young people have to stay in school until they reach 16 years of age according to law. The number of those who are ages 14 through 17 enrolled in schools would take into account the perception by the community of the value of the education provided by the local schools. It would be somehow related to the perceived utility of formal education on the part of the young people growing

up as well as the extent of involvement in school affairs of the adults in the community. It would also be determined by the number of people in the age group in the local area. Therefore, the following formula may be used to construct the indicator for showing the quality of public schools:

The quality of public schools index =

$$\frac{\text{Number of people aged 14 through 17 enrolled in schools}}{\text{Number of people aged 14 through 17 who are not enrolled in schools}}$$

The data sources were Censuses of Population and Housing, 1960 and 1970, Chapter C.

#### IV. OPPORTUNITY FOR EDUCATION AND TRAINING BEYOND HIGH SCHOOL

An individual interested in taking advantage of opportunities for education and training beyond high school may be affected by his own socioeconomic conditions and the existence of educational facilities. His motivation to learn more after his high school graduation will largely determine whether he is capable of taking advantage of the chance which exists for receiving an education or not. Thus, the individual socioeconomic conditions which allow him to receive the education beyond high school, the existence of educational facilities, and the individual incentive to learn more will constitute the necessary and sufficient conditions for receiving more education, that is, if there is a lack of any of these elements, the other conditions will be insufficient to make a contribution to the improvement in the individual educational attainment. Therefore, we

cannot investigate them separately and the structure of educational achievement of a specific age group in the local area must be examined in order to obtain meaningful insight into the actual situations which local people experience in attempting to take advantage of educational opportunity beyond high school. Meanwhile those who did not graduate from high school are excluded from such an opportunity. The following formula may be used to measure the adequacy of educational opportunity beyond high school:

The adequacy of educational opportunity beyond high school index =

$$\frac{\text{Number of people aged 18 through 24 enrolled in schools}}{\text{Number of people aged 18 through 24 who have completed at least high school} - \text{Number of people aged 18 through 24 enrolled in schools}}$$

The larger the index value, the greater will be the opportunity for receiving education and training beyond high school and the more rapid will be the increase in the aggregate level of educational achievement. Since the data for the number of people aged 18 through 24 who have completed high school at least are not available from 1960 census publications, we are unable to construct the 1960 indicators for each study county. Meanwhile people who have taken advantage of such beyond high school educational opportunities may not necessarily belong to this age group. Therefore, the following formula will be used to construct the indicator for showing the adequacy of the educational opportunity beyond high school.

The adequacy of high-level educational opportunity index =

$$\frac{\text{Number of people who received education beyond high school}}{\text{Number of people completed 4 year high school education}}$$



where the people referred to those who were 25 years old and over, and sources of data would be 1960 and 1970 Censuses of Population and Housing, Chapter C.

#### V. AGRICULTURE AND LAND USE

There are a myriad of indicators dealing with agricultural situations such as size of farm population, value of assets in agricultural sector, index of productivity of labor in agriculture, average size of farm in terms of acreage, value of gross sales, parity return or income, yield per acre, and so forth. All of these indicators seem to emphasize the industrial dimension of farming and neglect its change. There exists a trend which leads its structural change and the adjustment to this change in the agricultural sector of the economy. In some areas the change and adjustment may be relatively slow, while in the other areas they are comparatively fast. The individuals' subjective judgment about the change and adjustments in farming will be dependent upon their own value criteria. Objective judgment may have to rely upon the lag in adjustment relative to the structural change in agriculture.

Since technological change in agriculture is one kind of capital using technological progress, the major structural adjustment will be the adoption of new farming techniques and reorganization of inputs in agricultural production. The lag in such structural adjustment in the agricultural sector may be reflected on the response of farmers to technological progress in farming. The stronger the responses, the faster will be the increase in capital input in the agricultural

sector, relatively. Therefore, in this research the ratio of capital input value in local agricultural sector to labor expenditures for farming will be utilized as an indicator to evaluate the actual condition in the local agricultural sector. The capital input value will include expenditures for livestock and poultry, feed for livestock and poultry, commercially mixed formula feeds, seeds, bulbs, trees, commercial fertilizers, gasoline, other petroleum fuel, and oil for farm business. While the labor expenditures for farming consist of the payments for hired labor, contract labor, machine hire, and custom work, the machine hire does not belong to labor input, but in publications of Censuses of Agriculture the machine hire and custom work were combined together as an item.

Since land is one kind of input in various production processes, the goal of its usage tends to search for the optimum return to the entire society under a certain level of technology. As technological change occurs, land use needs to be adjusted to such change in order to obtain the optimum return. The greater the adjustment in land use, the more land will be shifted from low class of production to a higher class of production. So the ratio of the amount of land used in higher class production to the total acreage of land utilized in low class of production (such production principally utilizes the natural resources such as mining and fishing) may be used as an indicator for evaluating the actual situation with respect to land usage in a local area. Since the data for constructing this kind of indicator will not be readily available in the United States, its use as a satisfactory indicator may have to be excluded.

As economic growth happens in a local area, land use in the area will be adjusted. And some of the land will be shifted from farming to more valuable production. At the same time, the productivity of land will increase. Carrying this line of reasoning, we may use the following formula to evaluate the situation with regard to land use in the local area:

The land usage index =

$$\frac{\text{Total acreage of non-agricultural land in local area}}{\text{Total acreage of agricultural land in the area}}$$

where non-agricultural land includes federal land excluding cropland under lease, urban and built-up area, and small water areas, while agricultural land will consist of cropland, pasture, range, forest, and other. The data for the construction of this index were obtained from Tennessee Statistical Abstracts, 1969 and 1971.

## VI. MEDICAL CARE AND HEALTH SERVICES

The absolute quality of medical care and health services in a nation is related to the scientific levels of its medical and biological sciences, while the relative quality in a local area may be the result of variation in the distribution of medical personnel and facilities as well as other medical resources. As a result, the number of hospital beds available and the number of physicians per 1000 inhabitants are often used as indicators to measure the quality and accessibility of health services to local people. But the availability of the health services is different from its quality

even though the accessibility of medical services to the local people may influence the quality very much. Some authors have developed several indicators for facilitating their health condition research in some area such as life expectancy, expectation of healthy life, infant and maternal mortality rates, average frequency of visiting doctors per year per person, and annual preventive, curative, and ameliorative care expenditures per person. The indicators life expectancy and expectation of healthy life will reflect the general health condition of local people. The general health condition can be expected to be affected by the quality of the health services provided, but the data to construct the life expectancy or expectation of healthy life for a small area are not available. The frequency of visiting doctors and the ratio of preventive expenditures to those of curative and ameliorative care seem to reflect the capacity of local people's consumption structure of health services and their idea or beliefs regarding their receiving medical services.

People may always search for relatively better quality of health services according to their financial situations and the availability of the services within a reasonable distance. Thus, the ratio of the health expenditures spent within the county to those spent outside the county may show the general quality of medical services in the county relative to the medical services existing within a reasonable commuting distance, but again there is a lack of available data.

As mentioned above the general health condition of local people may be affected by the quality of the health services provided.

Therefore, an indicator to measure the general health of local people can be constructed that will show the quality of the medical care in local area. The following formula will be used to gauge the quality indirectly:

The quality of local health services and medical care index =

$$\frac{\text{Number of people who have no disability to work}}{\text{Number of people who have some disability}}$$

The sources of data were the household surveys carried out in 1960 and 1972.

#### VII. WELFARE PROGRAMS AND THE ADEQUACY OF BENEFITS PROVIDED

According to history, during the early period of the United States, people who were recognized as needing assistance were given charity. The charity was on a voluntary basis. It was not the responsibility of anyone or of the government although church groups were often involved. At present, the poor who need help for supporting themselves and their children can obtain assistance from public sources if their conditions satisfy the requirements of public assistance programs. The assistance includes not only money and materials but also various social services. The number of welfare programs has increased tremendously during the past forty years. But public resources which can support the implementation of all of the welfare programs are limited at any point in time since there are many public programs competing for the public resources.

When we deal with welfare programs in terms of policy implication, the adequacy of the benefits provided and the effectiveness of welfare programs to help the poor to stand by themselves are the most important considerations. Therefore, a number of researchers

have used average length of time that recipients are on the welfare rolls and the average size of assistance payments as indicators to evaluate welfare programs. Just bringing or forcing people out of welfare rolls is not enough for the purposes of public assistance programs. Reconstructing their ability and offering them the opportunities to reparticipate in productive activities in order to let them make some contribution to economic and social development will be more meaningful. Therefore the average length of time on public assistance rolls may reflect some significant implication of the effectiveness of the welfare programs in a given area for making comparison among several points in time. But some people may have to stay on the welfare rolls as long as they live since there may be no possibility of their reestablishing their capabilities. This would include those permanently and totally disabled including the blind for example.

The health structure, age distribution of the population, and socioeconomic conditions in a local area should affect the average length of time which beneficiaries would stay on the welfare programs. Following this line of reasoning, the persons who have no possibility of reconstructing their own abilities should be excluded from consideration when we evaluate the effectiveness of public assistance programs in the local areas. So the best indicator to show the effectiveness of welfare programs would be the ratio of number of persons whose households' members have been restored to economic productivity to the number of persons whose household heads or members' capability could be reestablished to make some contribution to societal

and economic growth but they have not taken advantage of opportunities to do so and remain on the welfare rolls. Since there is no data available to construct this indicator, it is impossible to utilize it to measure the effectiveness of welfare programs.

As an alternative, welfare programs may be viewed as one kind of means for income redistribution which will improve the socioeconomic conditions of the poor in the short run and long run. Therefore we may examine the effectiveness of welfare programs by examining the income distribution. Following this line of reasoning a Gini ratio or coefficient may be used as the indicator to evaluate the effectiveness. But there is a limitation on the range of its change, therefore the following formula will be used in this research to evaluate the effectiveness of welfare programs:

The effectiveness of welfare programs index =

$$\frac{5000 - \text{Gini coefficient}}{\text{Gini coefficient}}^8$$

As to the adequacy of welfare programs, it may be in terms of the amount of benefits provided for the beneficiaries or in terms of the number of public assistance programs available to deal with possible needs. In terms of the amount of benefits provided, many researchers have made a comparison of the variations in financial

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<sup>8</sup>George J. Stigler, The Theory of Price (New York: The Macmillan Company; London: Collier-Macmillan Limited, 1967), Chapter 18 and Appendix B, p. 347. The range of values for this coefficient is from zero to five thousand with the lower limit indicating perfect equality of income distribution.

assistance levels among states, between rural and urban areas, and between SMSA and non SMSA areas. Consideration of these kinds of comparisons involves the assessments of the differences in financial requirement for subsistence in different areas and the variation in family size. Since such comparisons have only a cross sectional sense and lack time dimensional implications, we may have to deal with the adequacy of welfare programs from the deficit in financial requirements for subsistence. The larger the adequacy of public assistance programs, the smaller will be such deficits. Therefore, we may use the following measurement as an indicator to show the adequacy of welfare programs in terms of the amount of benefits provided at a given point in time:

The adequacy of welfare program index =

$$\frac{\text{Mean public assistance or welfare payment per capita}}{\text{Mean income deficit per capita} - \text{mean public assistance or welfare payment per capita}}$$

where the mean income deficit per capita is the average difference between the actual per capita income of families below poverty level and the poverty level. While these data may be obtained from the 1970 census of population, there are no data available for calculating the indicator to show the adequacy in 1960.

This indicator does not include the amount of social services provided by the welfare programs since it is impossible to measure the magnitude of this kind of service provided directly. The beneficiaries of public programs may sometimes feel it is a kind of intervention in their private lives. The most important element of



social services will be its goodness in terms of beneficiaries' feeling concerning such services. The goodness of social services will be reflected in the result of effectiveness of welfare programs. While the adequacy of public assistance programs either in terms of the amount of benefits provided or of the categories of welfare programs available will tend to result in greater evenness of the local income distribution. Even though at present we can estimate the workloads of caseworkers which has implications for the magnitude of the social services provided, it is impossible to measure the adequacy and effectiveness of welfare programs separately. Therefore we have to deal with both adequacy and effectiveness simultaneously by means of income distribution.

#### VIII. CRIMINALITY AND THE EFFECTIVENESS OF LAW ENFORCEMENT

Criminality will cause loss implicitly and/or explicitly for the entire society and/or for the victims of crime in economic terms and/or in psychological effect. Criminality is one kind of social illness. In the United States there are a lot of indicators which were developed to measure the seriousness of criminality in the society such as arrest rate, crime rate, the F.B.I. index of major crimes, percentage in various categories of crime, and the measurement of risk for victims' economic losses due to property crimes. All have different emphases, even though each has provided some meaningful insight into the criminal problems in the society. The frequency of different types of crimes have been changing at different rates. The degree of vulnerability also differs for different victims at

the same time and for the same victim at different points in time with respect to the same crime. There will also be variations in the seriousness of the effects of criminal acts, all of the economic losses due to the crime in each case must be considered regardless of whether the loss is implicit or explicit. Even though the psychological loss is very important, to date we are unable to evaluate the psychological loss to victims due to the resulting harm or fear of crimes in terms of economic value.

One approach to the change in the seriousness of criminality in society might be the variation in workloads of police and the amount of harm to the victims. The workload of the police or public prosecutors may show the seriousness of criminality but it is also related to population size and the number of law enforcement personnel or the size of the public prosecutors staff. The same criminal may cause different amounts of harm by different offenses, and victims may also suffer different amounts of harm even though the crime is the same. If we only take the frequency of crimes into account for constructing indicators to show the seriousness of criminality and the effectiveness of law enforcement in the society, the indicators will be too crude to describe precisely the actual situations of the criminal problem. One means for improving the precision would be to consider the age structure of the population and remove the part of people who are not eligible for legal action from the total population. This does not mean that we can ignore the distribution of different crimes, which is very important for combating crimes. Some authors have asserted that different crimes should be given

different weights, then the frequencies of various crimes will be multiplied by their corresponding weights and the products will be summed to measure the seriousness of criminality in the society.<sup>9</sup>

This assertion may be misleading in the interpretation of the indicator, since the seriousness of the same crime caused by different offenses may have differential impact on the society.

We may use the amount of economic losses due to various crimes per thousand adults who are eligible for legal action to evaluate the aggregate seriousness of criminality in a local area. Ideally the economic losses should include property losses, medical payment for physical injury, earning lost when the victim is wounded, public expenditures for providing jail facilities, income lost by prisoners, and other losses due to crime which could be found. Unfortunately such data are not available at present.

Another alternative and the one which will be used here, would be use of law enforcement annual expenditure per adult to show the seriousness and the effectiveness of law enforcement. Since the greater the seriousness and the lower the effectiveness, the higher will be the amount of law enforcement investment needed in the local area to combat the criminality due to the response of the local people to the crime.

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<sup>9</sup>U.S. Department of Health, Education, and Welfare, Toward a Social Report (Ann Arbor, Michigan: The University of Michigan Press, 1970), pp. 56f.

The index of responsiveness of local people to criminality =

$$\frac{\text{Annual police protection budget}}{\text{Number of people who are 16 years old and over}}$$

The sources of data were Censuses of Government and of Population.

#### IX. ROADS AND OTHER TRANSPORTATION SYSTEMS

Roads and transportation systems influence a person's mobility and the opportunity to expand his contacts. It thus affects the knowledge level of local people and their ideas regarding every socioeconomic institutional area. The improvement in the transportation system may also remove the impediments of various other public programs related to rural development. In the United States, the most important transportation tool is the automobile, even though some rural households still do not have ready access to an automobile. Federal, state, and local governments have been spending tremendous amounts of money on highway construction to provide highway services to the public.

The quality and amount of this kind of service available in a local area may affect the degree of development at that area. The better the quality, the greater will be the number of people who feel comfortable and/or safe as they consume such services and the less will be the magnitude of economic loss due to traffic accidents occurring during a specific period of time.

Since we are unable to evaluate the pleasure attained by local people as they utilize the roads and other transportation systems,

we can only deal with quality from the safety aspect of the transportation systems. It seems reasonable to use the number of accidents occurring per unit of time to measure the quality, but this would not take into account variations in the amount of damage caused by different accidents. As a result, if we only counted the frequency of accidents in an area during a specific period of time as an indicator to evaluate the quality of roads and highway systems, the indicator would be too crude to show the quality in the local area. The total number of accidents occurring and the total amount of damage caused by accidents would also be affected by the total number of automobiles owned by the local residents. Therefore, we probably should use total economic loss due to traffic accidents per hundred automobiles per year as an indicator to show the quality of highway systems. Even though individual physical conditions may affect the probability of his being involved in accidents, the aggregate level of drivers' health situations would have to be assumed to be fixed during the study period. As to loss due to personal injury caused by traffic accidents, the ratio of amount of physical injury to the property loss due to accidents may be assumed to be constant at the aggregate level, even though there will be variations in this ratio at each accident. The higher the quality of highway system, the smaller will be the amount of economic losses due to traffic accidents per hundred cars per year and vice versa. Unfortunately, there are no data available for constructing this kind of indicator, therefore, the following formula will be applied in this study:

The quality of local transportation system index =

$$\frac{\text{Number of motor vehicles registered} - \text{Number of motor vehicles involved in accidents}}{\text{Number of motor vehicles involved in accidents}}$$

The data sources were Tennessee Department of Safety and Tennessee Department of Revenue, Motor Vehicle Division.

As to the adequacy of transportation systems, since there are other means of transportation besides the highways, some indicators might be developed to deal with the availability of means of transport. One might use mileage of paved roads per thousand persons, miles of navigable waterway per thousand persons, and the flight frequency of airplane per thousand persons if there is an airport available in the local area to evaluate the accessibility of each of the various transportation systems to the local residents. There are no data available for constructing the indicators to show the adequacy of navigable waterways and air transportation. Therefore for this study, the following formula will be applied to measure the availability of local transportation systems:

The adequacy of local transportation system =

$$\frac{\text{Total mileage of transport ways in the county}}{\text{Population size}}$$

where the transport ways include state highway systems, local county roads, city roads, as well as state and federal reservations. The data sources were Tennessee Department of Transportation and 1960 and 1970 Censuses of Population and Housing, Chapter B.

## X. MONEY INCOME OF PEOPLE WHO WORK FOR WAGES

Money income measures the amount of goods and services available to individuals and their families. The money incomes of concern to us are the returns to labor which includes mental and physical types of exertion. In the job market, the amount of such money income earned is usually determined by supply and demand in the labor market, educational level, experiences, age, skill levels of the individuals in the labor force, and so forth. There are some kinds of income which are unrelated to the recipients' labor exertion such as various welfare payments except social security benefits. There are also many kinds of measurement for incomes such as family income, personal income, disposable family income, per capita disposable income, permanent income, and per capita gross national income, and so forth. Each somehow involves sources of income which are irrelevant to the contribution made by labor exertion. Therefore they should be excluded from consideration as the indicator for this purpose.

For present purposes, we have to exclude such incomes from our construction of an indicator. The indicator designed should also reflect the local people's ability to earn money income from their labor exertion. Since the amount of money income which they make may be affected by the dynamic condition of the labor market, their adaptability to such dynamic condition should be viewed as a part of their ability to earn money income. Therefore, it is necessary to take the employed and the experienced unemployed into account for the indicator construction, that is, experienced civilian labor

force has to be considered. The experienced unemployed may obtain incomes from social insurance program, but this kind of income is somehow related to their contribution to the economy. So the median earnings of persons in the experienced civilian labor force by sex in terms of 1960 constant dollars will be considered as the indicator for this purpose. The data sources were Chapter C, 1960 and 1970 Censuses of Population and Housing, Bureau of the Census.

#### XI. JOB OPPORTUNITY AVAILABLE FOR COUNTY RESIDENTS

Human resources make up one kind of unstorable resource for which there is no possibility of storage, that is, today's labor force can not be stored for the tomorrow's utilization. Therefore job opportunities are very important to participants in the labor force. In the individual case, it is determined by demand conditions in the labor market, the person's educational achievement, experience, age, skill level, health conditions, and related characteristics in short run. Even though job opportunities may exist, they are of no value if there are no people with appropriate skills to fill those positions, that is, when job opportunities are filled will then be a contribution made to the economy. The opportunities are also relevant only to people who are able and willing to work. The lack of job opportunities in a certain area will weaken the individual's economic capabilities for supporting themselves and providing an adequate living level for their families, will seriously affect the local economy, and it can create a heavy burden for public assistance programs.



In general, the unemployment rate is used to measure the seriousness of the unemployment and to show the amount of employment opportunities available related to labor force indirectly. The smaller the rate, the less will be the degree of the seriousness of unemployment. Full employment is to be found only in economic theory, not in the real world. Even if the unemployment rate could somehow reflect the actual conditions of the job opportunities indirectly, it is still a percentage measurement which is calculated according to the number of people registering with the department of labor as searching for jobs. Since the statistics include many people who are temporary labor suppliers, the unemployment rate tends to be over-estimated. In order to measure the job opportunities more directly with the hope of correcting such an upward bias in estimation, we may design an employment opportunity index as the following formula:

Employment opportunity index =

$$\frac{\text{Average weeks of employment realized by people in labor force}}{\text{Average weeks of unemployment}^* \text{ of people in labor force}}$$

\* Not including vacations

On the above formula, people means all persons 16 years old and over in the labor force. The sources of data were Chapter C, 1960 and 1970 Censuses of Population and Housing, Bureau of the Census.

The maximum value for the index will be infinity, that is, in the labor market has absolutely full employment. The minimum value for the index will be zero, that is, the actual condition in the labor market is complete unemployment. But both cases are impossible

in the real world. The larger the index is, the greater will be the employment opportunities in labor market and vice versa.

## XII. REAL INCOME

The usefulness of money is represented by its purchasing power. The purchasing power of a unit of money is determined by the general price level. The adequacy of income of families and unrelated individuals is influenced by the amount of money income from various sources, price level, family size, and taxation. Therefore, it seems reasonable to measure real income by per capita disposable income in terms of constant dollars. Even though the consumers' preference, relative changes in prices among the different commodities, location of residence, and age structure of family affect the purchasing power of a unit of money, it is impossible for us to consider all of them in the aggregate level, therefore, all will be assumed to be constant.

The relative change in the magnitude of money income and the general price level will determine the purchasing power which local people have as consumers. If the amount of money income increase faster than the general price level, the purchasing power will be increased and vice versa. But income includes not only money but also nonmonetary forms such as the value of food consumed on farms, net rental value to owner occupants of their homes, and the value of services furnished without payment by financial intermediaries. For present purposes, however, we will use the estimated per capita personal income in terms of constant dollars as an indicator to show the real income in the local area. As to the data sources, they

were Tennessee Statistical Abstract, 1969 and 1971, Center for Business and Economic Research, The University of Tennessee.

### XIII. CHURCHES AND RELIGIOUS GROUPS

At present, the church and religious groups have been increasingly oriented toward suburbanization. They are providing many kinds of services which are not purely religious, such as graded Sunday schools, vacational Bible schools, kitchen, dining hall, recreational and lounge facilities for their members. This means the responsibilities of religious organization are multi-dimensional and the quality and effectiveness of churches will be reflected in many dimensions. Church federation, consolidation, the closing of many country churches, and the rise in the educational level of religious organizational personnel also imply that the degree of satisfaction which is obtained by church participants and the attractiveness of services provided by churches will be two important aspects for measuring the quality and effectiveness of the churches. The degree of such satisfaction and attractiveness are qualitative variables and cannot be evaluated directly but they could be evaluated indirectly by means of the size of the contributions made to churches per unit of time. The most accurate source where such data have been centrally collected might be personal income tax returns. Given the unlikelihood of access to such data, reports from various denominational groups will be sought.

The higher the quality and effectiveness of churches and religious groups, the larger will be the degree of satisfaction

obtained by the members of religious organizations from the services provided, the greater the attractiveness of the religious institutions to the local people and therefore the greater the number of local people who are members. Along with this logical reasoning routine, it seems to imply that the quality and effectiveness of churches in the local areas will be reflected in the number of members which various churches have at a particular point in time. The number of members would also be affected by population size in the local area which constitutes the base for membership recruitment. Therefore we may use the following formula to measure the quality and effectiveness of churches and religious groups in the local area:

The quality and effectiveness of churches and religious groups  
index =

$$\frac{\text{Number of people who are involved in religious organization activities}}{\text{Number of people who are not involved in religious activities}}$$

The greater the index value, the higher the quality and the effectiveness of churches and religious groups in the local area. The data sources were the household interviews arrived at in 1960 and 1972.

#### XIV. RECREATIONAL OPPORTUNITY IN LOCAL AREA

The accessibility of recreational opportunity to individuals seems to be determined by the amount of recreational facilities in the local area, the amounts of monetary resources and leisure time local people have, as well as their knowledge level regarding the existence of potential recreational opportunities. From an economic

standpoint, recreation may be one kind of luxury consumption good since its cost includes not only the recreational expenditures sometimes but also the earning foregone due to participation in it. Even though it is one kind of luxury good for consumption, the increase in convenient household appliances, the taking care of many household chores by service industries, and the shortening of the work week to five days, make more leisure time available for involvement in various forms of recreations. Meanwhile, the serious emotional and psychological tension or strains which modern living places upon the individuals cause an increase in demand for recreation in the rapidly changing society. The variety and content of the many forms of recreation are also becoming increasingly complicated.

The existence of recreational opportunities is of little value if the recreationists are unable to utilize the opportunities. Thus it seems not unreasonable to use the number of hunting and fishing licenses sold per unit of time, number of available amusement facilities per capita at a particular point in time, number of attendance at the local amusement locations, and the total attendance at various recreational areas per year, and so forth, as indicators to show the amount of various recreational opportunities available and/or utilized. Since the degree of enjoyment or the amount of utility obtained from a unit of various recreational activities differs from one another, to measure the total amount of the recreational opportunity existing in a local area, we have to find some ways to estimate the amount of utility acquired from participation in each unit of various recreational activities. Unfortunately at present, we do not know how to measure utility empirically.

There is at present no absolutely appropriate indicator for estimating the total amount of recreational opportunity existing in a specific area. Annual recreational expenditures per capita would approximate the recreational opportunities which are realized during that year, but unfortunately data for constructing such an indicator are not currently available. For present purposes, we will use the government annual revenue from selling hunting and fishing licenses per dault as the indicator to show the amount of the realized opportunities. Even though hunting and fishing are only two forms of recreation, the ratio of the total amount spent on the other recreational opportunities to the total amount spent on these two kinds of opportunities may be assumed to be constant, at least for the short run.

#### XV. PUBLIC UTILITIES

Public utilities include such services as water supply, waste disposal, electricity supply, gas supply, sewerage system, and telephone services. Each kind of public utility has different factors which influence its adequacy in a special area. The adequacy may be reflected in the consumers' satisfaction obtained from consumption of such utility. While the amount of satisfaction derived by consumers is a subjective matter, it will be affected by the consumer's preference and it is impossible to evaluate directly. The degree of adequacy may also be affected by the real income level in a local area, that is, a given amount of public utilities provided may be able to satisfy low-income people but not high-income people. It will

also be affected by the current level of modern amenities in the area. It is also possible that the level of public utilities needed to be considered adequate will be different at various points in time. The number of types of public utilities has also been increasing due to technological progress.

The adequacy of the services supplied by public utilities may be measured in terms of the proportion of the population served such as a ratio of population served by public water supply, by telephone lines, or by sewage services. These indicators are helpful, meaningful, and comprehensive for determining which kind of public utility is inadequate. Unfortunately, the data for constructing these indicators are not available. Therefore we will use the following formulae to construct the indicators for showing the adequacy of each of three kinds of utilities:

(1) Water supply adequacy index =

$$\frac{\text{Number of housing units which have water supplied by public or private system}}{\text{Number of housing units which have no water supplied by public or private system}}$$

(2) Sewage services adequacy index =

$$\frac{\text{Number of housing units which have public sewer, septic tank, or cesspool}}{\text{Number of housing units which have no public sewer, septic tank, or cesspool}}$$

(3) Telephone services adequacy index =

$$\frac{\text{Number of housing units which have telephone}}{\text{Number of housing units which do not have telephone}}$$

On the other hand, the adequacy may be measured in terms of the availability of the public utilities as a whole to the local people. This way of measurement has included all of the public utilities in consideration, but unfortunately there are no data available for constructing the assessment of public utilities per capita. The data for construction of indicators according to the above three formulae were obtained from 1960 and 1970 Censuses of Population and Housing, Bureau of the Census, Department of Commerce.

#### XVI. PHYSICAL ENVIRONMENT

The quality of the physical environment is a multi-dimensional phenomenon. This phenomenon involves air, earth, water, and the appearances as well as other characteristics of each. There may be variations in the degree of physical environmental problem for different locations at the same time and for the same place at different points in time. At a specific point in time, there may also be different environmental problems for each area with some areas having air pollution while others have water or land pollution. The same environmental problem may be caused by different pollutants. The different dimensions of physical environmental quality have diverse criteria for judging them such as the quality of dissolved oxygen and air pollution index to evaluate the quality of water and air respectively. From the above, we know that the quality of the physical environment has its complicated multi-components. For wholly understanding the environmental problems we need to be equipped with extensive interdisciplinary knowledge. To learn all of the knowledge which is related to environmental quality is tremendously difficult.



From the standpoint of economic theory, we may analyze the quality of physical environment in a local area indirectly from the total cost of maintaining minimum standard of environmental quality. Even though the technological level of controlling various kinds of pollution may influence the total cost of maintaining minimum standard environmental quality of all dimensions, it somehow implies the quality of the local physical environment as a whole theoretically. Variations in the cost of maintaining minimum standards only show the change in the seriousness of the pollutional problems and cannot indicate which dimension of the physical environment has to be improved. Therefore, while accepting the total cost of maintaining minimum standard of the environmental quality as an indicator of the quality of the compound dimensional physical environment, we still need other indicators to show the quality of each dimension of the physical environment. Physical environment may be divided into several dimensions such as air, water, landscape, and quietness. As to air, the air pollution index may be used to show the quality of air in a local area. About the quality of water in the local area, the quantity of dissolved oxygen per unit of water is in general taken as an indicator to show the quality. The quality of the local landscape may be measured according to the following formula:

The quality of landscape index =

$$\frac{\sum A_p}{\sum L_i}$$

where  $A_p$  is the acreage of land whose usage will help overcome land

pollution such as acreage in park and forest, and  $L_1$  is the acreage of land whose utilization may cause land pollution such as mining land areas, areas of junk yards, areas for garbage fill, and areas for transportation usage. The degree of quietness in the local area may be measured by the ratio of the number of people who are subjected to hearing trouble caused by the noise to the number of people that are free from hearing trouble.

Unfortunately, there are no data available to construct the above indicators for a small local area. Another alternative and the one that will be used here, would be to use the subjective opinions of local people concerning their own residential satisfaction to show the quality of the local physical environment. The ratio to be used will be that of the number of housing units in which respondents did not feel the environmental problems were severe enough to cause them to want to change their residences to the number of housing units which they felt the problem that was severe in surveys completed in 1960 and 1972.

#### XVII. HOUSING PROVISION

This FOSE has two notions; one is housing supplied, and the other is the availability of good housing relative to its demand. If we ignore the monetary resources available for people to afford standard housing, its adequacy seems to be determined by population size. The quality of housing can be measured by the percentage of housing which is substandard in the sense that it is either dilapidated, deteriorating, or lacks adequate plumbing facilities. The quality of

housing units available relative to the demand for it is measured by the degree to which it is crowded, that is, the percentage of housing with 1.01 or more persons per room and/or median number of persons per unit of housing are taken as indicators to show crowding in the selected area. We are concerned with both quality and quantity of housing simultaneously, so the dilapidated and deteriorating housing units will not be counted as part of supply in construction of the indicator. The following formula might be adopted for calculating the indicator of the adequacy of the provision for good housing in a local area:

The adequacy of good housing provision index =

$$\frac{\text{Total number of rooms in sound housing units}}{\text{Population size}}$$

This indicator will show the adequacy of good housing in a local area. The larger the index value, the greater will be the adequacy of the good housing relative to its demand in the local area and vice versa. Unfortunately, no such data are available to construct the indicator for 1970 to determine the adequacy of good housing.

Another alternative would be from the residential satisfaction of rural people in terms of subjective viewpoint to deal with the adequacy of good housing in rural area. The subjective standard of housing has been rising due to the increase in real income and the greater availability of modern amenities. At the same time, it is most important that the dwellers in a housing unit feel it is comfortable and safe for them. Therefore we need to take the subjective

standard into account in the development of an indicator. That is, we will use the ratio of the number of housing units which rural residents satisfied to the number of units with which rural people are dissatisfied. The data for construction of this kind of indicators were obtained from the household interviews arrived at in 1960 and 1972.

#### XVIII. OPPORTUNITIES FOR YOUNG PEOPLE

The most important dimensions of the situation and opportunities for the youth include the educational, employment and policy-making participation opportunities as well as their health and nutritional conditions. Even though these dimensions do not cover everything related to youth, we can grasp the primary situation and opportunities which the young have if we can accurately measure these dimensions. Since it is very difficult for the young people to be in the labor force and to be enrolled in school simultaneously, the following two formulae will be used to evaluate their educational and employment opportunities respectively:

(1) Educational opportunities for the youth index =

$$\frac{\text{Number of people aged 14 through 24 who are enrolled in schools}}{\text{Number of people aged 14 through 24 who are not enrolled in schools and not in labor force}}$$

(2) Employment opportunities for the youth index =

$$\frac{\text{Number of people aged 14 through 24 who are in labor force}}{\text{Number of people aged 14 through 24 who are not in labor force and not enrolled in school}}$$

The data for construction of the above two kinds of indicators were obtained from Censuses of Population and Housing. In order to measure the health and nutritional conditions of the youth, the number of days during a year in which their activities were limited due to health problems needs to be considered. Therefore we might use the following formula to calculate the indicator for showing the health condition of the youth:

(3) Aggregate health and nutritional conditions of the youth index =

$$\frac{\text{Average number of days without limitation on activities of the youth per year}}{\text{Average number of days with limitation on activities of the youth per year}}$$

Unfortunately such data are not available. Therefore, the following formula will be substituted for the one above:

(4) Health condition of the youth index =

$$\frac{\text{Number of people aged 14 through 24 who have no disability}}{\text{Number of people aged 14 through 24 who are disabled}}$$

The data for constructing indicators according to formula (4) were obtained from the household surveys conducted in 1960 and 1972.

As to recreational opportunities for the youth, ideally one might use per capita annual recreational expenditures for people aged 14 through 24 in terms of constant dollars. But such data are not available. Unfortunately, no other data related to the recreational opportunities for youth is available to construct a reasonable proxy for this dimension.

The greater the policy-making participational opportunity for the youth is, the more they will be active in political affairs, and the greater will be their interest in politics. Therefore the degree of their political involvement may be a good indicator to express the amount of the opportunities available to them. But since regulations may influence the degree of the involvement of a particular age group, we have to take regulations into account as we construct the indicator for this dimension. The existence of the opportunities, however, count for naught unless advantage is taken of them. Thus we may apply the following formula to calculate the indicator value for showing the degree of involvement in political affairs by the local youth:

(5) Political participational opportunity for youth index =

$$\frac{\text{Number of people aged 18 through 24 voting in a particular election}}{\text{Number of people aged 18 through 24 registered but not voting in a particular election}}$$

Unfortunately, we are unable to obtain data for constructing this index.

## XIX. THE AGED

The most important dimensions concerning the situation and opportunities for the elderly include the following components; recreational opportunities, income situation, the accessibility of good housing, means for keeping touch with the extended community, labor saving and food preparation facilities in their home, and

their health and nutritional conditions. By elderly here reference is to people 60 years of age and over.

We may take the average annual recreational expenditures of the elderly as an indicator to evaluate their recreational opportunities. Even though many opportunities may exist for them, such opportunities are useless if they can not take advantage of them. The amount of their realized opportunities may be affected by their health conditions, communicational level, knowledge level regarding the opportunity, and the amount of money available to them individually. At the aggregate level, we may ignore such factors which influence the amount of recreational opportunities realized by the individual, since the change in the realized opportunities will have to be the focus of investigation. However, it is impossible to obtain the data at present to evaluate their annual recreational expenditures.

Measure of the health and nutritional conditions of the elderly must take into account that they are vulnerable to the degenerative diseases which are not easily controlled given the present medical scientific level. One approach would be to deal with the condition in terms of the number of days which are subjected to the limitation on activity due to chronic conditions. Once again the needed data are not available so the following formula will be used to evaluate the health conditions of elderly at aggregate level in rural areas:

(1) The elderly health condition index =

$$\frac{\text{Number of old people who have no disability}}{\text{Number of old people who are disabled}}$$

The average number of communication items and of material items which are accessible to the old people will be used to evaluate the ease with which they can keep in touch with others and the labor saving devices, respectively. That is the number of communication items and of material items will be taken into account to measure the availability of these two types of items for them. The following formulae will be used to evaluate the accessibility of material items and communication items to the rural elderly:

- (2) The accessibility of material items to the elderly index =

$$\frac{\sum F_o N_m}{\sum F_o}$$

where  $F_o$  is the number of the aged in the household interviewed and  $N_m$  is the number of material items possessed by the household.

- (3) The accessibility of communication items to the elderly index =

$$\frac{\sum F_o N_c}{\sum F_o}$$

where  $N_c$  is the number of communication items possessed by the household interviewed.

Again, the quality of housing units will also be determined using the subjective viewpoint of the dwellers in rural area. That is, the following formula will be used to evaluate the accessibility of good housing to the aged:



(4) The accessibility of good housing to the aged index =

$$\frac{\sum \frac{F_o N_r}{F_m}}{\sum F_o}$$

where  $F_m$  is the size of household interviewed and  $N_r$  is the number of rooms in the housing unit with which the respondent was satisfied.

In general, the elderly would not very often be involved in production activities, therefore, their income situation is quite important for supporting their living. But the amount of money available to them in terms of current dollars does not express the actual situation so their incomes will be measure in terms of constant dollars according to the following formula:

(5) Income for the elderly =

$$\frac{\sum \frac{F_o}{F_m} Y_f}{\sum F_o}$$

where  $Y_f$  is the family income. As to the data for construction of indicators to measure the situation and opportunity for the local elderly, they were obtained from the household surveys conducted in 1960 and 1972.

## CHAPTER V

### THE IMPLICATIONS OF THE CONSTRUCTED INDICATORS AND RATE OF CHANGE MATRICES

#### I. INTRODUCTION

On the assumption that each ALSC or FOSE has changed at its own constant rate of change, therefore,

$$Y_t = Y_0 e^{rt} \dots \dots \dots (1)$$

where  $Y_t$  is the magnitude of socioeconomic indicator for the corresponding ALSC or FOSE at point  $t$  in time.  $Y_0$  is the initial value of the indicator, and  $r$  is the constant rate of change in the indicator.

If the logarithms of both sides of equation (1) are taken, then

$$\ln Y_t = \ln Y_0 + rt$$

$$r = \frac{\ln Y_t - \ln Y_0}{t} \dots \dots \dots (2)$$

Although the change in ALSC or in any FOSE has never been perfectly as smooth as in the equation (1), equation (2) will give a good approximation of the constant rate of change. If a year is taken as the unit of measure for the length of time,  $t$ , then  $r$  will be the estimate of annual rate of change in any ALSC or any FOSE of concern during the particular period of time. The assumption is also made that if there is no change in external socioeconomic forces which affect the relationship between each FOSE and its related ALSC's,

then all of the socioeconomic variables in a socioeconomic system will continue to change at their previous constant rate of change.

If some interactional relationships or associations are found to exist between each FOSE and some ALSC's, even though the relationship can not be evaluated by means of statistical tools in a quantitative sense, some idea about the responsiveness between them can still be obtained from the rate of change matrix. The condition here is that the other related ALSC's or the related FOSE's are not held at any constant level but only that they keep the same relative rates of change as do all of the related socioeconomic variables concerned. There is also another assumption that if all of the socioeconomic variables in the socioeconomic system are changing at their constant relative rates of change, then the structure of the entire socioeconomic system will be kept stable and the entire system will continue to move along the same track.

In order to deal with the entire socioeconomic system, it is necessary to switch to a matrix approach. Suppose there is a matrix of order  $n \times (m + 1)$  to show the entire socioeconomic system as follows:

$$S = \begin{bmatrix} y_1 & x_1 & x_2 & \dots & x_m \\ y_2 & x_1 & x_2 & \dots & x_m \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ \vdots & 0 & \vdots & \vdots & \vdots \\ \vdots & 0 & \vdots & \vdots & \vdots \\ \vdots & 0 & \vdots & \vdots & \vdots \\ \vdots & 0 & \vdots & \vdots & \vdots \\ \vdots & 0 & \vdots & \vdots & \vdots \\ y_n & \vdots & \vdots & \dots & \vdots \end{bmatrix} \dots \dots \dots (3)$$

where  $y_i$  is an indicator for the  $i$ -th FOSE and  $x_j$  is the indicator for the  $j$ -th ALSC. If there is no interactional relationship found between the  $i$ -th FOSE and  $j$ -th ALSC, then  $(i, (j + 1))$ -th element in the matrix will be zero (in Tables XVII through XX in the Appendix those zeroes will be taken away in order to get more visualization).

This kind of matrix may be defined as a socioeconomic indicator matrix which shows the entire socioeconomic conditions for the corresponding rural area at a given point in time and the existence of the interactional relationships among all FOSE's and ALSC's in the entire socioeconomic system.

If there are data available to construct two matrices, one for the initial point in the study period and the other for the final point in the period, then

$$\frac{\ln S_f - \ln S_i}{t} = R \dots \dots (4)$$

where  $S_i$  is the indicator matrix for the socioeconomic system at the initial point and  $S_f$  is the matrix for the system at the final point.  $R$  may be called rate of change matrix (see equation (5)).

$$R = \begin{bmatrix} \alpha_1 & \beta_1 & \beta_2 & \dots & \beta_m \\ \alpha_2 & \beta_1 & \beta_2 & \dots & \beta_m \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ \vdots & 0 & \vdots & \ddots & \vdots \\ \vdots & \vdots & 0 & \ddots & \vdots \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ \vdots & 0 & \vdots & \ddots & \vdots \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ \alpha & \dots & \dots & \dots & \dots \end{bmatrix} \dots \dots (5)$$

This is also a matrix of order  $n \times (m + 1)$  and consists of the rates of change in various FOSE's ( $\alpha_i$ ) on the first column as well as the rates of change in ALSC's ( $\beta_j$ ) on all of the other columns. From equation (5), we can find what is likely to happen in the socioeconomic system when policies effecting one or more of the FOSE's or ALSC's are introduced.

In this study, rural development has been assumed to be anything which may make a contribution to improvement in any FOSE or ALSC. The ALSC's are the portion of the socioeconomic system that can be modified by public policy and it is through such changes that the FOSE's can be changed. Improvement in an ALSC will bring about desired change in some related FOSE's. At the same time, it may bring about undesirable change in the other related FOSE's. Due to the improvement in and preferred change in various FOSE's, the county residents will obtain more benefits from those FOSE's than before, therefore such an increase in provision of benefits will contribute to a rise in the quality of life. This means that the final result of rural development would show up as improvement in the quality of rural life. The so-called quality of life is a subjective matter from the individual viewpoint and involves various dimensions. Each dimension in an objective sense becomes one FOSE at the aggregate level. Although the number of dimensions which constitute the quality of life will increase as the society becomes more and more complicated, the improvement in any FOSE may induce some change in the other FOSE's through the change in its related ALSC's.

If an improvement in any FOSE would bring about the same direction of change in the other FOSE's through the change in their related ALSC's then such chain interaction between the different FOSE's would be defined as a supplementary relationship. On the other hand, if the improvement in one FOSE makes any other FOSE worse than before through changes in one or more of their related ALSC's, then the interaction between these FOSE's may be called a trade off relationship. These relationships are very important for guiding the selection from among the many possible public policies or combinations of policies that might be considered for the promotion of rural development.

Since there are no data available for measuring the leisure-time participation intensity score in either micro or macro level in 1960, it is impossible to include the rate of change in the leisure-time participation intensity score into the rate of change matrices.

The calculated socioeconomic indicators for all of ALSC's of rural people and FOSE's as well as the rates of change in both for the study counties are listed in Tables IX through XVI in the Appendix. And the rate of change matrices for the study areas are shown in Tables XVII through XX in the Appendix.

## II. IMPLICATIONS FOR HANCOCK COUNTY

From Table IX in the Appendix which deals with the ALSC's, there is evidence of a reduction in average educational achievement of rural people in Hancock County between 1960 and 1972. This may

be due to the more educated people migrating to other areas in response to job opportunities. There has also been an increase of dependency in rural families during this period. Rural homemakers were less involved in social involvement outside the home than they were twelve years ago. The average occupational prestige of principal wage earners has declined since 1960 and the average age of rural people has increased. Finally, while the economic aspect of rural living has improved and the capability of rural family members to work index score has increased, the average rural dweller has become more pessimistic with regard to the dependability of others.

In Table XIII in the Appendix which deals with the FOSE's, there is evidence that local people have tended to lose interest in local politics since 1960. In 1972, the number of votes cast was less than half of the number of people registered to vote. There is also an indication that the relative opportunity for local people to receive a high-level education has declined since 1960. There are at least two possible explanations; either the increase in the realized high-level educational opportunity has been slower than the increase in the number of people graduating from high school since 1960, or the people who received higher-levels of education have migrated to other areas in search of better socioeconomic opportunities.

The indicators for local agriculture and land use show that the amount of labor input has increased relative to the amount of capital input in the local agricultural sector since 1960. This may be due to the fact that a lot of farmers have shifted from full-time to part-time farming and remain in the transitional stage of the

employment shift. One contributing factor might be that the out-migrants have taken some capital away from the local agricultural sector, which is in contrast to the situation in agriculture generally. It is possible that it only reflects a change in the type of local farming.

If the welfare programs are supposed to be a mechanism for redistributing income more evenly, they have not done their job well. That is, the local income distribution has moved toward more unevenness than existed in 1960. This appears to mean that in the county the increase in income for the high-income class has been relatively greater than those for the low-income class.

The figures of law enforcement investment per adult suggest that local people felt that the situation with regard to criminality and law enforcement was deteriorating. This is assumed to be behind their willingness to increase expenditures for local police protection.

As to the local transportation system, there has been an increase in highways and roads available for local people but the number of accidents occurring has also risen relative to the number of motor vehicles registered. This appears to be the result of insufficient maintenance or modernization of rural roads and highways due to the lack of financial resources.

Job opportunities for county residents have decreased relative to the number of people in the local labor force even though some highly educated people have migrated to other areas and other local people have obtained jobs in surrounding areas.



The local adults were less involved in hunting and fishing activities than they were in 1960. The rural people have also lost some of their interest in religious activities.

The indicators concerning the health condition of rural youth show that there were relatively more disabled young people than there were in 1960.

According to the above analysis, in order to facilitate rural development, the interest of the county residents in local politics, recreation, and church activities needs to be stimulated. The extension personnel may be able to make a great deal of contribution to such stimulation. Job opportunities for local people should be created by some policy implementation. The tendency toward more uneven income distribution should be corrected or stopped. Local people who received high level of education have to be attracted to stay in the county or some people from outside who obtained education beyond high school need to be induced to move into the county.

The rate of change matrix for the county shows that if the tendency of decline in the interest of local people in local politics as well as recreation and church activities were stopped or corrected by the effort of the extension agents, then the degree of pessimism of open-country residents' attitude, the average number of material items possessed, the average of both level-of-living scale scores of the rural families would tend to drop. Rural homemakers would also tend to be more active in local social affairs. The average age of rural homemakers would tend to decline. Such decline may be due to that some families with young homemakers would be attracted to move into the county or newly married couples were induced to stay in the loca<sup>l</sup> v

According to the rate of change matrix, due to the drop in average anomia score of rural people and in the number of material items possessed by the rural family, there would tend to be a change in the county government expenditure structure. That is, a higher proportion of county government budgets would tend to be spent on maintenance activities relative to providing public services for the local residents. The trend of increasing optimism on the part of rural people would incline local people to put less emphasis on education than before. Through the decline in the average number of material items possessed and anomia score of rural people, the number of local people who received high level of education would appear to increase relative to the number who did not continue beyond high school. As to the situation with regard to local agriculture and land use, due to the decline in the averages of both level of living scale scores, the ratio of capital input to labor input would tend to increase in the input combination and more land would tend to be shifted into the local agricultural sector. Through the drop in average anomia score of rural people and in average age of rural homemakers, the quality of health services for rural people may tend to get worse. The tendency of local income distribution toward greater unevenness would appear to be corrected or stopped by the drop in the average material level of living scale score of rural family and the rural homemakers' average age. By the tendency of decrease in average age of rural homemakers, the mileage of transport ways per thousand persons and the number of motor vehicle accidents relative the number of motor vehicles registered would tend to drop.

The local wage income level would appear to drop due to the decline in the average of both level-of-living scale scores and in the average anomia score of rural people. Through the tendency that rural homemakers become more active in social groups and have a younger average age as well as the average anomia score declines, there would tend to be an increase in job opportunities for county residents. A decrease in the rural homemakers' average age would seem to lower the level of local real income. An increase in the average social participation score of rural homemakers would appear to lower the quality of the physical setting in the rural residents' subjective viewpoint. At the same time, the employment and educational opportunities realized by the local young people as well as the situation and opportunity for the rural elderly appear to get worse but the health condition of the rural youth seems to improve with a drop in rural homemakers' average age.

The rate of change matrix shows that if the implementation of various public policies were made in order to attract highly educated people from outside or the local people who received education beyond the high school level to stay in the county, to improve the uneven local income distribution, and to create more job opportunities for county residents, then, the average age and anomia score of rural people, the average number of material items and communication items possessed by the rural family, the averages of both level-of-living scale scores, and the average social participation score of rural household heads would tend to decrease while the average educational achievement of rural people may turn to decrease.

This seems to imply that in order to improve economic and educational aspects of the local socioeconomic environment, the county residents need to devote themselves to saving for capital accumulation, the average educational level of rural people should also be raised, the rural household heads should become less involved in social activities, while the rural homemakers should become more socially active.

Sociopsychologically, it would appear that rural people need to be more optimistic than they have been.

Such change in various ALSC's would be helpful for stimulating the interest of local people in fishing and hunting activities, religious activities, and local politics which appear to be desirable. However, such a change would also affect the other thirteen FOSE's in a detrimental way. This appears to show that trade off and supplementary relationships exist among the various FOSE's through change in some ALSC's. All of trade off and supplementary relationships need to be taken into account at the policy planning stage for most effective decision making. The decision regarding what kind of change needs to be made should be determined by the county residents with a knowledge of the implications, since such change would involve the county residents' values and beliefs as well as the amount of various resources available for them to invest in desired policies.

### III. IMPLICATIONS FOR HOUSTON COUNTY

The Table X in the Appendix shows that there has been a trend toward an increase in the average age of rural people and toward a decline in the dependency of the rural family. The average North-Hatt

occupational score of rural principal wage earners has dropped implying that while the number of local people employed outside the local agricultural sector has increased relative to the number of farmers, the occupations entered have not been especially prestigious or rewarding. Such a change in local occupational structure may be the result of the local industrialization and of the new techniques which have been adopted in local agricultural sector. The degree of pessimism of rural residents' attitude has also been on the increase even though the economic aspects of rural living have improved since 1960.

From Table XIV in the Appendix, the decline in the county residents' interest in local politics and church activities is clear. The ratio of the number of highly educated people to the number with only a high school education has tended to decrease. This appears to mean that the opportunities for education beyond high school has increased more slowly than the chances for receiving a high school education and/or some highly educated people have out-migrated in spite of the efforts at various levels of government to create such opportunity and there exists some high-level of educational opportunities within reasonable commuting distance. The health conditions of rural people, of the rural youth, and of the rural elderly appear to have gotten worse even though more medical personnel have been hired by the county health department and more medical equipment has been made available than in 1960. Law enforcement investment per adult has been increased. This would imply that more law enforcement equipment

has been installed and more law enforcement personnel have been hired. This appears to be the result of the county residents' response to the local juvenile delinquency problems in part. The mileage of transport ways per thousand persons has decreased while the number of motor vehicle accidents has increased in the county relative to the number of vehicles registered. This appears to be caused by the heavy traffic and crowdedness on the local highways.

According to the above analyses, in order to facilitate rural development, the interest of local people in local politics and church activities needs to be stimulated. More opportunity for education beyond high school should be created and/or local people who receive a high level of educational and highly educated people from the other areas must be attracted to choose the county as their place of residence. The health condition of rural people should be improved. More highways would need to be established, with the maintenance of local transportation system more strongly emphasized, along with greater emphasis on the prevention of motor vehicle accidents.

The rate of change matrix for the county shows that if the interest of local residents in church activities and local politics could be heightened, then there would tend to be decrease in the average educational level of rural household heads, the average number of material items possessed by the rural families, the average age of rural homemakers, and the average capability of rural family members to work index score.

According to Table XVIII in the Appendix, there would be additional consequences of the changes resulting directly from

increasing the interest in church and local politics. The decline in the average educational achievement of household heads would tend to shift the pattern of the county government expenditures, that is, the expenditures for maintenance would tend to increase relative to those for providing various public services. The drop in the rural homemakers' average age would have at least two effects. One it would be to reduce perception of the quality of the local schools. The other would be to decrease local involvement in fishing and hunting activities as well as to reduce the adequacy of various public utilities in terms of the proportion of housing units served.

The lowering of the index scores for the capability of family members to work would have a number of effects. There would tend to be improvements in the opportunities for education beyond high school and in the adequacy of local transportation system as well as decreases in the number of accidents occurring relative to the number of motor vehicles registered in the county. There would also tend to be a decline in the adequacy of rural good housing provided as well as in the income and accessibility of the rural elderly to good housing, to material items, and to communication items but the average health of rural elderly might improve.

If some implementation of public policies were made in order to increase the opportunity for education beyond high school, to improve the health condition of rural people, to create more highways and roads, and to prevent motor vehicle accidents, then, according to the rate of change matrix, there would be a tendency to decline of the average capability of rural family members to work index score,

the average communication level of living scale score and the number of communication items possessed by rural families, the average age of rural household heads, as well as the average social participation score of rural homemakers.

According to the rate of change matrix for Houston County, due to the change in the above five ALSC's the following would also occur: the interest of rural people in church activities would tend to rise through the decline in average capability to work index score in rural area, the subjective assessment of the quality of the rural physical environment would appear to drop because of the decrease in average social participation score of rural homemakers, the provision of good housing in terms of number of rooms in good dwelling units per capita would tend to decrease through the decline in average capability of rural family members to work index. The economic aspect of rural living for the local elderly would tend to deteriorate from the drops in average age of rural household heads, in the average capability of rural family members to work index score, and in the average communication level of living scale score of the rural families, but the health condition of the rural elderly may improve.

From above analyses, several trade off and supplementary relationships between different FOSE's through the change in some ALSC's have been found; the trade off relationship between the quality of county government and local politics with respect to the average educational achievement of rural household heads, the supplementary relationship between the quality of local politics and churches in terms of the average number of material items possessed by the rural



family, the trade off relationship between the quality of local churches and public schools with regard to the average age of rural homemakers, the supplementary relationships among the opportunity for education beyond high school, the local transportation system, and the quality of local churches with respect to the average capability of rural family members to work index score, and so on.

In general, the supplementary relationships between FOSE's would tend to be preferred and people would try to avoid the trade off relationships from a policy viewpoint. Certainly, these two kinds of relationships between different FOSE's should be taken into account in the policy formulation procedure for rural development. But since decision making involving public policies would usually involve the values and beliefs of local people as well as the amount of various resources available to them for the implementation of public policies, the final decision should be made by local people.

#### IV. IMPLICATIONS FOR HUMPHREYS COUNTY

According to the data in Table XI in the Appendix, from 1960 to 1972 there was a drop in the average age of rural household heads and an increase in the average age of rural homemakers. These trends may be due to the in-migration of young males taking advantage of job opportunities along with the tendency of native females to live longer than the native males in the county. The average dependency of the rural family has tended to rise. This is largely the result of in-migration of young families with small children. There has also

been a tendency for rural people to be less involved in formal and informal social activities. This may be due to the local industrialization and the slow integration of new families into the social fabric of the county. The average North-Hatt occupational score of rural principal wage earners has tended to decline. Such a trend appears to be the result of the fact that rural people have shifted from the farming to the industrial sector but they have not been immediately able to obtain high prestige occupations in the local industrial sector.

Table XV in the Appendix shows that there has been a decline in the interest of the county residents in local politics and various church activities. The indicators for the opportunity of education beyond high school show that there is a tendency for the number of highly educated people to increase relatively slower than the number of high school graduates. This appears to be due to the fact that the job opportunity for highly educated people has increased more slowly than the job opportunity for those with only a high school education even though local industrialization has created many employment opportunities for local people. Then the highly educated people have migrated to the other areas for obtaining more desirable jobs. The table also shows that the general health conditions of rural people have tended to get worse since 1960 even though a new hospital and modern medical facilities have been made available. The number of medical personnel in the county has possibly been insufficient to satisfy the increase in demand for various health services due to the expansion of the local population size. The

indicators also show that the health condition of rural elderly has tended to get worse. The indicators for welfare programs have expressed that welfare programs would not have improved the local uneven income distribution so, perhaps, they are ineffective as income redistribution mechanism. This appears to show that the incomes for high-income class have increased faster than those for the low-income class in the county. The indicators for the situation with regard to crime and law enforcement show that the law enforcement investment per adult in local area has tended to increase. This may be the result of the response of local people to the increase in petty larceny and juvenile delinquency in the county. The mileage of transport ways per thousand persons implies that the adequacy of the local transportation system has tended to decline. The number of motor vehicle accidents relative to the number of vehicles registered has also increased. New highways have been built and street lights were modernized in the towns. Some bridges were rebuilt or repaired. But the increased mileage and improvement in the local transportation system have still been insufficient to satisfy the rise in demand for highway services due to the expansion of the local population.

According to above analyses, to facilitate rural development, the interest of the county residents in local politics and church activities needs to be heightened. The opportunity for education beyond high school should be increased. The health condition of rural people and the rural elderly need to be improved. The tendency of income distribution toward greater unevenness ought to be corrected or stopped. The transport ways should be extended and motor vehicle

accidnets should be reduced. There is also a need to reverse the trend toward an increase in petty larceny and juvenile delinquency.

The rate of change matrix for the county shows that if an increase in the interest of the county residents in local politics and church activities were to be induced, then the rural household heads would tend to be involved in more social participation, the North-Hatt occupational score of rural principal wage earners would rise while the average material level of living scale score and the average capability to work index of rural family members would tend to decrease. Through the increase in social participation score of household heads and the decline in average material level of living scale score in rural area, the economic position of the elderly would tend to deteriorate, but their health condition would improve. By the rise in average social participation score of rural heads, the local wage income level as well as the involvement in fishing and hunting activities by local people would tend to decrease. Due to the decline in average capability of rural family members to work index score, some capital would tend to shift out of the local agricultural sector and more land would be devoted to farming. If various public policies were simultaneously implemented to create the opportunity for education beyond high school, to improve the health condition of rural residents, to reduce the unevenness of local income distribution, to reduce per adult investment in law enforcement, as well as to establish more transport ways and to prevent motor vehicle accidents, then, according to the rate of change matrix for the county, there would be decrease in the average number of material items and

communication items possessed by rural families, the average educational achievement of rural people, the average communication level of rural living scale score, the average age of rural homemakers, as well as the average dependency of the rural family. But the rural homemakers would become more involved in social activities and the average age of rural household heads would tend to rise. Here, it seems that there appears to be a conflict between the creation of the opportunities for education beyond high school and the reduction in the average educational achievement of rural people. This may in part be the result of out-migration of highly educated people due to the lack of high position occupations in the local labor market.

If the change in those ALSC's were occurring, then several FOSE's would appear to be affected. The expenditure structure of the county government would tend to change, that is, a higher proportion of the county budget would be spent on maintenance activities relative to providing various public services due to the decrease in average age and educational achievement of rural homemakers. The values and beliefs of local people concerning education may change due to the drop in average achievement of rural household heads and in the average dependency of rural families. There would also appear to be a turn-around in the current trend toward improvement of local agricultural sector due to the decrease in average number of communication items possessed by the rural family and in the average age of rural homemakers. If such a turn-around occurred, then more land would be shifted into the local agricultural sector and the relative amount of capital input for production factors would decrease.

The wage income in the local area would tend to decline due to the drop in average educational achievement of the rural household heads and the rise in social participation scores of the rural homemakers. Through the drop in the average educational achievement of rural people, the real income for local people would tend to decline. As the average age of the rural household heads turned to increase, the adequacy of various public utilities would tend to drop. When the average age of rural homemakers and the educational achievement of the rural household heads decline, the provision of rural good housing would tend to decrease. The situation and opportunities for the local youth would tend to get worse as the average age and educational achievement of rural homemakers decline. When the average communication level of living scale score of the rural family drops, the material and economic aspects of rural living for the rural elderly would tend to deteriorate, but their health conditions would tend to improve.

From the above analyses, various trade off and supplementary relationships among different FOSE's in terms of some ALSC's have been found. In terms of the social participation score of rural household heads, there are trade off relationships between the interest of the county residents in local politics and local wage income as well as between the quality of local politics and the realized recreational opportunity from hunting and fishing activities. There also exists a trade off relationship between the quality of local politics and the material and economic aspects of rural living for the elderly with regard to the social participation score of rural household heads and the average material level of living scale score. Between the opportunity for education beyond high school and the

provision of rural good housing, there is a trade off relationship in terms of the average number of material items possessed. In terms of communication level of living scale score, there exists a supplementary relationship between the quality of medical care and the health condition of the rural elderly as well as a trade off relationship between the quality of medical care and the economic aspects of rural living for the elderly. Between the health condition of rural people and local real income, there exists a trade off relationship in terms of the educational level of rural people. With respect to the rural homemakers' educational achievement, there exists trade off relationships between the quality of county government and medical care and also between the quality of health services and the situation and opportunity of the local youth. In terms of rural household heads' educational achievement, there are trade off relationships between the quality of medical care and public schools, between the health condition of rural residents and local wage income, as well as between the quality of health service and the provision of good rural housing. In addition, there is a supplementary relationship between the quality of health services and law enforcement. In terms of both rural homemakers' educational achievement and communication level of living scale score of the rural family, there exists a supplementary relationship between the quality of medical care and welfare programs. There also is a trade off relationship between local wage income and the law enforcement investment per adult in terms of both rural household heads' educational level and the social participation score of rural homemakers. Between the law enforcement

investment and the local agricultural situation, there is also a trade off relationship in terms of both the average number of communication items possessed and the rural homemakers' age. There is a trade off relationship between the law enforcement and the adequacy of rural good housing provision with respect to rural homemakers' average age and average level of rural household heads' educational achievement. In terms of rural household heads' average age, there is a trade off relationship between the law enforcement investment and the adequacy of various public utilities. In terms of both dependency index and rural household heads' educational achievement, there exists a trade off relationship between the quality of public schools and the law enforcement investment. While in terms of the rural homemakers' age, there are trade off relationships between the quality of county government and the law enforcement investment as well as between the situation and opportunity for the local youth and the quality of law enforcement and so forth.

All of the trade off and supplementary relationships between different FOSE's through some ALSC's need to be taken into account during policy making processes. Since the choice and combination of various public policies will involve the values and beliefs which local people have as well as the amount of different resources available to them for investment in various public policies, such choices and combinations should be determined by them.



## V. IMPLICATIONS FOR UNION COUNTY

According to the data in Table XII in the Appendix, there has been a reduction in rural homemakers' average educational achievement and a rise in educational level of rural household heads in Union County. It appears that local men have taken advantage of educational opportunities existing in the surrounding areas, especially Knoxville, but the rural women have not. The rural people have tended to be less involved in social participation than before. This may imply that rural people have devoted more of their time to occupational activities. The North-Hatt occupational score of rural principal wage earners has appeared to decline. Such a decrease may be the result of the fact that many of the rural people have obtained non-farm occupations but their occupations are not on a par with those in the other sectors of the economy.

Table XVI in the Appendix shows that the opportunity for education beyond high school and the quality of public schools have tended to decline. This seems to be the result of the fact that young people have had better employment opportunities than before so they have given up the opportunity of receiving more education to satisfy their present desire for material goods. The local people are more interested in local politics than before, which may be the effect of urban contact or influence. More capital has been invested in the local agricultural sector relative to the amount of labor input while there is more land used for agricultural production. Per adult law enforcement investment has tended to decline. The mileage

of transport ways per thousand persons has decreased and the number of motor vehicle accidents has tended to increase relative to the number of motor vehicles registered. Rural people have been less interested in church activities than before. The young people have tended to take less advantage of educational opportunities than earlier. The health conditions of young people have also tended to get worse. The accessibility of the rural elderly to good dwelling units has declined. This seems to be the result of the county becoming a dormitory county for nearby Knox County.

According to the above analyses, in order to stimulate rural development, the quality of local public schools should be improved to heighten the interest of local people in education. More opportunities for education beyond high school need to be created. As to the local transportation system, more highways and roads should be established and the tendency toward an increase in the number of motor vehicle accidents must be halted or reversed. The interest of rural people in church activities needs to be stimulated. The health condition of rural people needs to be improved and the trend of decline in educational opportunity for the local youth should be stopped. More good housing units for the rural elderly need to be built in order to ease their access to good housing.

According to the data in Table XX, if policies were implemented simultaneously to change the values and benefits of local people regarding education, to create more opportunities for education beyond high school and more transport ways, to stop the increase in motor vehicle accidents, to improve the situation and opportunity of the

local youth, as well as to build more good housing for the local elderly, then the average educational achievement of rural homemakers, the dependency of rural family, the social participation score of rural people, the average North-Hatt occupational score of rural principal wage earners, and the degree of optimism of rural residents' attitude would tend to rise. There would also be a tendency to decline in the educational achievement of rural household heads, the average capability of rural family members to work index score, the average number of communication items possessed, the average age of rural people and the material level of living scale score.

The initial changes would have further consequences according to Table XX in the Appendix. Due to decline in material level of living scale score and the increase in rural homemakers' average educational achievement, the county residents would tend to lose their interest in local politics. The expenditure structure of county government may be shifted, that is, a larger proportion of the budget will be spent on maintenance activities relative to the expenditure for providing various public services because of the decrease in average number of communication items possessed. As to the local agriculture and land use, it would appear to be that capital and land may be shifted out of the local agricultural sector due to the declines in average age and educational achievement of rural household heads, in the average capability to work index score and the rise in the dependency of the rural family. Due to the increase in rural principal wage earners' occupational score and in the dependency of the rural family as well as the drop in the material

level of living scale score and in the degree of pessimism of rural residents' attitude, the health condition of rural people would change for the worse. By the decline in average age of rural household heads and the rise in average educational achievement of rural homemakers, the local income distribution will tend to be more uneven. Through the increase in average social participation score of rural people and the drop in average number of communication items possessed, the local general wage income would appear to decrease. Due to the rise in rural homemakers' average educational achievement and the decline in average material level of living scale score, the job opportunity for the county residents and the local real income level would tend to decrease. By the increase in social participation score of rural people and in average North-Hatt occupational score of rural principal wage earners, the county residents would appear to be involved in less fishing and hunting activities than before. The adequacy of various public utilities would decline through the decrease in average age of rural homemakers and material level of living scale score. Due to the decline in average number of communication items possessed by the rural family, rural people may tend to have greater sense of deterioration of the local physical environment. By the decrease in average number of communication items possessed, in capability to work index score, and in the rural homemakers' average age, there would tend to be a lack of provision of rural good housing.

If the religious institutional personnel were successful in trying to promote rural residents' interest in church activities, then the average capability to work index score would tend to decrease

and the dependency of the rural families would rise. Because of those two changes the opportunity for education beyond high school would tend to increase, the quality of public schools and the situation of local transportation systems would tend to improve, some land and capital would tend to shift out of the local agricultural sector, the number of rooms in good rural housing per person would drop, and the health condition of rural people would get worse.

From the above analyses, there exist various trade off and supplementary relationships between or among different FOSE's through some ALSC's which need to be taken into account during policy making processes. Since the supplementary relationships are the change in two or more than two different FOSE's at the same direction toward improvement, it may be possible to find that as one FOSE is improved, several FOSE's may also improve from the rate of change matrix. As to the trade off relationship is defined as that if the improvement in one FOSE makes the other FOSE worse than before through change in one or more than one of their related ALSC's, then the chain interaction between these two different FOSE's would be the trade off relationship. Therefore the trade off relationship can be found only between two FOSE's since the directions of change in the FOSE's are different from each other. In terms of rural homemakers' educational achievement, there is a trade off relationship between the quality of public schools and local politics. Among the quality of public schools, the adequacy and quality of the local transportation system, as well as the rural residents' interest in church activities, there would be supplementary relationships with respect to the dependency

of the rural family. Between the quality of public schools and local health services, there is a trade off relationship in terms of the dependency of rural household. In terms of the dependency index, there exists a trade off relationship between the quality of public schools and local agricultural situation and a supplementary relationship between the quality of local educational system and land use. There are also trade off relationships between the quality of public schools and welfare programs, between the quality of local educational system and the job opportunity for the county residents, as well as between the quality of local public schools and real income level with respect to the educational achievement of rural homemakers. In terms of the average number of communication items possessed by the rural family, there exist trade off relationships between the opportunity for education beyond high school and the quality of county government as well as between the high-level of educational opportunity and the quality of the rural physical environment in the sense of rural residents' feeling. With respect to the number of communication items possessed and the social participation score of rural people, there is a trade off relationship between the high-level educational opportunity and the local wage income. Between the provision of rural good housing and the opportunity for receiving education beyond high school, there is a trade off relationship in terms of the number of communication items possessed and the capability to work index score. With respect to anomia and North-Hatt occupational scores, there is a trade off relationship between the health condition of rural people and the opportunities for receiving education

beyond high school. In terms of rural residents' average social participation score and North-Hatt occupational score, there exists a trade off relationship between the opportunities for receiving higher level education and being involved in fishing and hunting activities.

Between the higher level educational opportunity and the educational opportunity realized by the local youth and their health condition, there is a supplementary relationship with respect to the rural household heads' educational achievement and the social participation scores of rural people. In terms of rural household heads' educational achievement and the capability to work index score, there exists a trade off relationship between the higher level educational opportunity and local agricultural situation and a supplementary relationship between local land usage and the opportunity for education beyond high school. Except for the above, the quality and adequacy of the local transportation system has either a trade off or a supplementary relationship with the health condition of rural people, their interest in local politics and church activities, the adequacy of various public utilities, local real income level, the provision of rural good housing, as well as local agricultural situation and land use, in terms of either one or some of the three ALSC's, that is, the average age of rural homemakers, the dependency of the rural family, and the average material level of living scale score. With respect to either the capability to work index or the dependency index of the rural family or both, the interest of rural people in church activities also has either trade off relationship or a

supplementary relationship with the following two FOSE's; the health condition of rural people and the situation with regard to local agriculture and land use.

Since the choice and combination of various public policies will involve the values and beliefs of the county residents as well as the amount of different resources available for them to invest in various public programs, the choice and combination should depend upon decisions made by local people.



## CHAPTER VI

### SUMMARY AND CONCLUSIONS

This study has involved Hancock, Houston, Humphreys, and Union counties which were selected to represent low income counties in Tennessee in 1950 according to the level of living indices. There have existed some differences in socioeconomic conditions among them. Hancock County is an economically depressed and isolated rural area. There has been heavy out-migration and its population size has declined since 1950. The average educational level of rural people in the county has dropped slightly during this same period. Houston County is still at the beginning stage of industrialization. The degree of industrialization in Humphreys County is the highest among these four counties which started with the building of a TVA steam plant in the late 1950's. Union County has the distinction of having more than half of the labor force commuting to work in the surrounding areas, especially in Knoxville. Many of the county residents also go to Knoxville or the surrounding urban areas to do their shopping. Such differences in socioeconomic conditions may have created some of the different socioeconomic problems in the study counties. At the same time, since they were all low income in 1950, they may share the same socioeconomic problems today.

#### I. SURVEY IDENTIFIED PROBLEMS

According to the general opinions of rural people shown in the results of household survey carried out in 1972, in order to

facilitate rural development, in Hancock County, the interest of the county residents in local politics and church activities needs to be stimulated. More job opportunities and recreational opportunities also need to be created for local people and more attention and efforts should be paid to the quality of medical care and health services, of welfare programs, and to the physical environment as well as the situation and opportunities for the local youth. Except the above FOSE's, the situation with regard to the provision of good housing as well as the prevention of crime and law enforcement need to be emphasized and improved.

In Houston County, based on the rural residents' general opinions, if the county residents would like to devote themselves to rural development most effectively, the improvement in the following FOSE's should be stressed: the quality of county government and local politics, crime prevention and law enforcement, local real income level, recreational opportunity, the quality of the local physical environment, and the situation and opportunities for local youth.

In Humphreys County, the general opinions of open-country people imply that improvement in the quality of county government and local politics, the quality of medical care and health services, welfare programs, the situation with regard to crime and law enforcement, and the local real income level should be emphasized to effectively achieve rural development.

According to the opinions of rural people in Union County, the local political situation is very much in need of improvement.

In addition, more effort and attention needs to be paid to the quality of medical care and health services, local real income levels, recreational opportunities, the provision of good housing, and the situation and opportunities for local youth in order to facilitate rural development.

## II. INDICATOR IDENTIFIED PROBLEMS

According to the constructed socioeconomic indicators discussed in Chapter V, in Hancock County since 1960, the interest of county residents in local politics, activities related to churches, and in the hunting and fishing activities has tended to decline, along with the relative opportunity of local people for receiving education beyond high school. In the local agricultural sector, the amount of labor input has tended to increase relative to the magnitude of capital input in the production processes. Welfare programs have not been able to achieve an effective income redistribution. The number of traffic accidents in the local area has increased relative to the number of motor vehicles registered since 1960 and the per adult investment in law enforcement has also tended to increase.

In Houston County, the socioeconomic indicators show that the county residents have tended to lose interest in local politics and church activities while the ratio of the number of highly educated people to the number of high school graduates in the county has shifted toward decline. The health condition of rural people appears to have gotten worse since 1960 and the per adult investment in law enforcement has tended to increase. In addition, the number of motor

vehicle accidents has increased relative to the number of vehicles registered in the county during this period.

According to the constructed socioeconomic indicators, there has been a drop in the interest of the county residents in local politics and various activities related to local churches in Humphreys County. Since 1960, the number of people with more than a high school education has dropped relative to the number of people who ended their formal education with high school graduation. In addition, the health condition of rural people has gotten some worse. The welfare programs have not made a significant contribution toward diminishing in the unevenness in the local income distribution. Law enforcement investment per adult has increased. The adequacy of transport ways has declined and the number of traffic accidents has increased relative to the number of motor vehicles registered in the county.

The constructed indicators show that in Union County since 1960, the opportunities for education beyond high school and the quality of public schools have tended to drop. Rural people have been less interested in church activities than before. The adequacy of transport ways has dropped and the probability of traffic accidents has been increasing. The situation and opportunity for the local youth have gotten worse. The accessibility of the rural elderly to good housing has declined since 1960.

### III. OPINION AND INDICATOR DIFFERENCES

There have been some differences between the results obtained by means of socioeconomic indicators and the general opinions of

rural people. In Hancock County, the general opinions identify two FOSE's as needing improvement not so identified by the socioeconomic indicators. They are the provision of good housing and the quality of medical care and health services.

In Houston County, four FOSE's not identified as areas needing improvement by the socioeconomic indicators were so identified by the opinions of county knowledgeable. They include the quality of county government, local real income level, recreational opportunities, and the quality of the physical environment. On the other hand, the socioeconomic indicators identified four FOSE's needing improvement which the general opinions did not. These include opportunities for education beyond high school, medical care and health services, the roads and transportation system, and local religious institutions.

Two FOSE's not identified as aspects needing improvement by the indicators but so identified by the general opinions of rural people in Humphreys County were the quality of county government and local real income level. On the other hand, the socioeconomic indicators identified three FOSE's needing improvement which the general opinions did not. They include the opportunity for higher level education, the roads and other transportation systems, and the local religious system.

In Union County, three FOSE's not identified as areas needing improvement by the constructed socioeconomic indicators were so identified by the opinions of rural people. They include the quality of local politics, the local real income level, and the provision of rural good housing. On the other hand, the socioeconomic indicators

identified three FOSE's needing improvement which the general opinions did not. These include the quality of local public schools, the opportunity for education beyond high school, and local church system.

Such differences in the results derived by means of the general opinions and the socioeconomic indicators may be due in part to the limitation on the availability of published or unpublished data for the construction of indicators which could be considered as ideal. At the same time, the reasonable proxy indicators may not be able to express the actual conditions of various FOSE's precisely. In order to be more effective in empirical studies in the social sciences, it will be necessary to modify various data collection systems. For example, religious activities are an important part of life in western culture but there are no published systematic data available for studying this aspect of living. Some socioeconomic data are available but not at the county level. For example, data for measuring expectation of healthy life are available but not for the county level while data for estimating the adequacy of local recreational opportunities is not available at all.

#### IV. MOST INFLUENTIAL CHARACTERISTICS

Through identification of interactional relationships between various FOSE's and socioeconomic characteristics, several facts have been established. The psychological conditions of rural people, their age, and material aspects of their living are strongly related to the feeling of rural residents with regard to the nature of change in various FOSE's in a comparatively isolated rural area. The capability

of family members to work is substantially associated with the perception of rural people concerning the nature of change in various FOSE's in an area where local industrialization has just started. The educational achievement of open-country people, material possessions available to the rural family, and the rural homemakers' age are strongly associated with the rural residents' perception of change in various FOSE's in an area where local industrialization has made a substantial advance. In an urban oriented area, the availability of material items and effective means of communication, family income, the rural homemakers' age, as well as the dependency of rural family members are all very important for rural development. Whatever the degree of urbanization or industrialization in the county, the rural homemaker's age is strongly associated with perceptions of the nature of change taking place in various FOSE's. At the same time, interactional relationships which have been identified also show that the sociopsychological conditions of open-country people would be very influential on the rural residents' perception of the nature of change in various FOSE's for a relatively stagnant society but such influence would tend to decline as the degree of social dynamics (industrialization) becomes stronger.

#### V. PATTERNS OF CHANGE

In all of the four counties, an increase in the degree of pessimism of rural residents' attitude and a decrease in the occupational prestige of rural principal wage earners during the study period were found. Except for Houston County, the degree of involvement

in social participation by the rural residents has tended to decline. In Hancock County, the educational achievement of rural people has dropped since 1960, while in Union County this has been true only for the homemakers. The dependency of rural families in both Humphreys and Hancock counties has increased. Except for the rural household heads in Humphreys County, the average age of rural people has increased since 1960. This may imply that there has been a heavy out-migration of rural young people in the other three counties. All of the ALSC's related to economic aspects of rural living have changed toward improvement in all the study counties since 1960.

#### VI. AREAS OF COMMON NEED

The constructed socioeconomic indicators have shown that there are several FOSE's which need to be focused on in common in the four study counties; that is, the interest of rural people in church activities, the quality of transportation systems, and the opportunity for education beyond high school. Except for Union County, the county residents have tended to be less interested in local politics. The adequacy of transport ways has also tended to decline except in Hancock County. These common socioeconomic problems may be resolvable by means of regional politics or state programs, but for the particular problems existing in each county, there is need for special local programs to deal with them.

By means of the rate of change matrices which were discussed in Chapter V, various trade off and supplementary relationships among different FOSE's in terms of their related ALSC's have been found.



Such relationships need to be taken into account in the decision making processes.

#### VII. FURTHER STUDIES NEEDED

The results obtained from the analyses done in connection with this study did not include the establishment of either absolute or relative goals for various public policies to stimulate rural development since such goals should be determined according to the values and beliefs of local people, the amount of various resources available to invest in public programs, and the cost-benefit analysis results for rural development. At the same time, the effect of policy implementation at various levels of resources investment in a quantitative sense is also not included in this study. Such effect involves many issues which need to be resolved. In order to set up either absolute or relative goals and to ascertain the effect of policy implementation at various levels of investment, there is need for additional studies, more adequate tools, and certain additional types of data. The following studies and areas of work would help to serve these needs:

1. Set up more complete socioeconomic data collection system, under this system, the following data should be included: data concerning external and internal funds available for county government, data related to I.Q. score change at each grade, data concerning each kind of land usage, data related to health condition of local people, detailed data related to crime and law enforcement, data regarding religious and recreational activities, and data concerning physical environment and specific age groups.

2. The standard of various FOSE's which need to be reached in order for the majority of local people to feel that the local socioeconomic environment is excellent need to be studied and determined.

3. The amount of various socioeconomic resources, human, institutional and financial available in the local area for policy implementation needs to be evaluated.

4. The amount of various resources required in order to achieve an increase or decrease of 1 percent in the annual rate of change of each FOSE should be determined.

5. The effectiveness of the political structure in allocating the various socioeconomic resources according to the intensity of the need to all public policies and programs needs to be studied and analyzed.

6. There is need for more competent quantitative tools such as tools which do not require the condition that all socioeconomic variables be held constant. At the same time, when some statistical tools are made available, the immediate development of computer programs related to such tools should be emphasized. For example, the discriminant analysis has been made available but there is still no computer programs for calculating the entire set of statistics under all possible conditions.

7. The pattern of change in various FOSE's and ALSC's needs to be analyzed and studied in terms of quantitative sense. In the present study the assumption was made that change was at a constant rate because data were available for only two points in time. How accurate is this assumption?

8. The causes for the different socioeconomic problems which exist in the four counties in terms of both general opinions of rural people and the developed socioeconomic indicators should be analyzed and ascertained.

9. The socioeconomic policies needed for resolving the socioeconomic problems identified by means of both socioeconomic indicators and the general opinions of rural people should be designed and studied.

It is clear that this study is only a beginning step for rural development potential studies. It is hoped that the results obtained in this research will provide some insight to those interested in rural development in the four study counties and guideline for similar studies for other areas. At the same time, it is expected that more fruitful research results will appear in the near future.

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APPENDIX

QUESTIONNAIRE: GENERAL OPINIONS CONCERNING THE NATURE OF CHANGE  
AND THE CURRENT QUALITY OF VARIOUS FOSE'S

- |  |   |
|--|---|
| <p style="text-align: center;">Column A</p> <p>1 Improved</p> <p>2 Gotten Worse</p> <p>3 Remained the same</p> <p>9 No comment</p> | <p style="text-align: center;">Column B</p> <p>1 Very good</p> <p>2 Pretty good</p> <p>3 Fair</p> <p>9 No comment</p> |
|--|---|

	<u>A</u>	<u>B</u>
	Nature of Change Since 1960 <u>in County</u>	Rating of Current Situation <u>in County</u>
Quality of county government (more or less, honest, efficient, progressive, etc.)	_____	_____
Politics and political parties	_____	_____
Quality of public schools	_____	_____
Opportunities for education and training beyond high school for people in county	_____	_____
Situation with regard to agriculture and land use	_____	_____
Quality of medical care and health services	_____	_____
Welfare programs	_____	_____
Quality of life for poor people	_____	XXXXXXXXXXXX
Crime and law enforcement	_____	XXXXXXXXXXXX
Obedience to the laws by all citizens, young and old	XXXXXXXXXXXX	_____
Quality of the roads and the transportation system	_____	_____
Income for people who work for wages	_____	_____
Job opportunities for county residents	_____	_____
Real income (considering both earnings and prices people have to pay)	_____	_____
Quality of churches and religion	_____	_____

	<u>A</u>	<u>B</u>
Recreational opportunities	_____	_____
Public utilities (water, gas, electricity, sewage and waste disposal)	_____	_____
Quality of the physical environment (air, water, soil and forests)	_____	_____
Provision of good housing (building of public housing, subsidized housing for low-moderate income people, requiring repair or condemnation of substandard housing, etc.)	_____	_____
Situation and opportunities for young people	_____	_____
Situation and opportunities for old people	_____	_____
The county as a place to live	_____	_____

TABLE I

## CHANGE IN AND QUALITY OF FOSE'S FOR HANCOCK COUNTY ACCORDING TO 57 RURAL RESIDENTS, 1972

	Nature of Change				Chi-Square Value*	Quality Rating				Chi-Square Value*	
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor		No Comment
Life for most people	33	13	7	4	41.03	--	--	--	--	--	--
County court	14	14	17	12	0.89	1	14	19	12	11	2.72
Politics and political parties	7	17	19	14	5.81	4	4	15	20	14	17.82
Public schools	26	9	11	11	13.11	9	15	20	4	9	13.44
Opportunity for education beyond high school	29	3	11	14	24.90	9	15	13	5	15	6.60
Agriculture and land use	36	5	11	5	45.95	10	27	9	5	6	28.18
Medical care and health services	27	0	22	8	10.21	9	15	19	6	8	10.28
Welfare programs	21	6	15	15	8.05	11	16	5	11	14	6.07
Life for poor people	40	4	8	5	62.65	--	--	--	--	--	--
Crime and law enforcement	4	39	9	5	58.30	--	--	--	--	--	--
Citizen obedience to the law	--	--	--	--	--	8	27	9	6	7	27.12

TABLE I (continued)

	Nature of Change				Chi-Square Value*	Quality Rating					Chi-Square Value*
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor	No Comment	
Roads and transportation system	43	1	9	4	46.42	11	17	18	6	5	12.74
Wage income level	44	0	8	5	49.58	8	23	13	4	9	18.35
Job opportunities	29	3	18	7	24.96	2	12	8	29	6	38.53
Real income level	24	5	12	16	13.25	6	13	15	7	16	7.44
Church and religion	13	16	24	4	14.37	10	21	12	9	5	12.39
Recreational opportunity	19	7	22	9	11.42	6	8	13	21	9	12.39
Public utilities	30	3	17	7	30.51	10	17	12	10	8	4.14
Physical environment	9	15	28	5	21.25	8	18	19	7	5	15.19
Housing adequacy	32	0	7	18	16.53	1	10	5	5	36	45.95
Young people situation and opportunity	29	3	21	4	34.73	7	11	13	21	5	13.61
Old people situation and opportunity	28	3	20	6	29.25	6	13	21	11	6	13.44

TABLE I (continued)

	Nature of Change				Chi-Square Value*	Quality Rating					Chi-Square Value*
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor	No Comment	
County as place to live	29	4	20	4	32.33	18	21	8	7	3	20.81

\*Calculation of chi-square against even distribution for all categories: Critical values:  
 $\chi^2_{4,.01} = 13.28$ ,  $\chi^2_{4,.05} = 9.49$ ,  $\chi^2_{3,.01} = 11.34$ ,  $\chi^2_{3,.05} = 7.81$ ,  $\chi^2_{2,.01} = 9.21$ ,  $\chi^2_{2,.05} = 5.99$ .

TABLE II  
CHANGE IN AND QUALITY OF FOSE'S FOR HOUSTON COUNTY ACCORDING TO 60 RURAL RESIDENTS, 1972

	Nature of Change				Chi-Square Value*	Quality Rating				Chi-Square Value*	
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor		No Comment
Life for most people	38	5	4	13	50.27	--	--	--	--	--	--
County court	15	10	16	9	2.80	0	10	22	11	17	6.27
Politics and political parties	18	6	15	21	8.40	1	9	19	9	22	8.40
Public schools	27	6	10	17	16.93	4	13	22	5	16	19.17
Opportunity for education beyond high school	35	1	6	18	19.90	11	19	11	2	17	2.67
Agriculture and land use	28	9	6	17	19.33	2	14	18	9	17	3.33
Medical care and health services	44	1	2	13	45.70	15	20	13	0	12	2.53
Welfare programs	26	1	7	27	11.45	7	17	10	1	25	12.27
Life for poor people	44	1	2	13	45.70	--	--	--	--	--	--
Crime and law enforcement	9	12	24	15	8.40	--	--	--	--	--	--
Citizen obedience to the law	--	--	--	--	--	6	22	16	4	12	18.00

TABLE II (continued)

	Nature of Change				Chi-Square Value*	Quality Rating				Chi-Square Value*	
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor		No Comment
Roads and transportation system	37	4	6	13	46.00	6	16	19	6	13	11.50
Wage income level	42	0	3	15	39.90	8	19	17	1	15	4.93
Job opportunities	33	2	10	16	12.45	2	14	17	11	16	1.47
Real income level	22	7	8	23	15.07	0	15	16	6	23	9.73
Church and religion	24	4	18	14	14.13	11	20	15	1	13	3.07
Recreational opportunity	25	2	17	16	2.10	5	13	13	14	15	5.33
Public utilities	40	0	6	14	31.60	11	22	13	0	14	4.67
Physical environment	16	6	22	16	8.80	9	15	19	2	15	4.80
Housing adequacy	31	0	4	25	20.10	4	21	11	1	23	15.33
Young people situation and opportunity	26	5	14	15	14.80	4	15	14	14	13	6.83
Old people situation and opportunity	33	1	7	19	15.70	7	22	11	6	14	13.83



TABLE II (continued)

	Nature of Change				Chi-Square Value*	Quality Rating				Chi-Square Value*	
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor		No Comment
County as place to live	37	1	10	12	21.70	5	30	7	2	16	24.13

\*Calculation of chi-square against even distribution for all categories: Critical values:  
 $\chi^2_{4,.05} = 9.49$ ,  $\chi^2_{3,.01} = 11.34$ ,  $\chi^2_{3,.05} = 7.81$ ,  $\chi^2_{2,.01} = 9.21$ ,  $\chi^2_{2,.05} = 5.99$ .  
 $\chi^2_{4,.01} = 13.28$ ,  $\chi^2_{4,.05} = 9.49$



TABLE III (continued)

	Nature of Change				Chi-Square Value*	Quality Rating					Chi-Square Value*
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor	No Comment	
Roads and transportation system	37	1	3	19	18.55	5	19	14	2	20	11.07
Wage income level	33	0	1	26	**	6	19	8	1	26	16.93
Job opportunities	33	3	1	23	21.70	2	24	7	4	23	24.67
Real income level	4	12	11	33	31.33	0	6	9	11	34	32.92
Church and religion	25	4	6	25	26.80	10	18	7	1	24	10.93
Recreational opportunity	28	0	4	28	19.20	4	16	10	2	28	20.00
Public utilities	32	1	5	22	17.20	8	21	6	0	25	17.73
Physical environment	8	8	17	27	16.40	4	19	6	3	28	40.50
Housing adequacy	25	2	1	32	22.90	4	13	10	2	31	26.00
Young people situation and opportunity	24	4	4	28	32.80	4	13	9	8	26	23.83
Old people situation and opportunity	29	2	4	25	15.70	3	25	5	3	24	43.67

TABLE III (continued)

	Nature of Change				Chi-Square Value*	Quality Rating				Chi-Square Value*	
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor		No Comment
County as place to live	34	2	5	19	18.30	19	18	4	0	19	10.80

\*Calculation of chi-square against even distribution for all categories: Critical values:  $\chi^2_{4,.01} = 13.28$ ,  $\chi^2_{4,.05} = 9.49$ ,  $\chi^2_{3,.01} = 11.34$ ,  $\chi^2_{3,.05} = 7.81$ ,  $\chi^2_{2,.01} = 9.21$ ,  $\chi^2_{2,.05} = 5.99$ .

\*\*Combined Remained Same and No Comment categories then conducted statistical test against binomial distribution but nonsignificant.

TABLE IV  
CHANGE IN AND QUALITY OF FOSE'S FOR UNION COUNTY ACCORDING TO 54 RURAL RESIDENTS, 1972

	Nature of Change				Chi-Square Value*	Quality Rating				Chi-Square Value*	
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor		No Comment
Life for most people	30	7	8	9	27.04	--	--	--	--	--	--
County court	9	9	23	13	9.70	3	16	17	4	14	16.92
Politics and political parties	6	9	20	19	11.04	1	16	14	8	15	3.33
Public schools	32	5	8	9	34.44	9	21	12	3	9	16.00
Opportunity for education beyond high school	27	0	11	16	7.44	4	15	13	4	18	15.44
Agriculture and land use	19	10	13	12	3.33	3	14	15	5	17	14.89
Medical care and health services	30	3	11	10	29.70	11	13	12	6	12	2.85
Welfare programs	22	7	11	14	8.96	7	9	16	7	15	7.11
Life for poor people	31	5	8	10	31.18	--	--	--	--	--	--
Crime and law enforcement	16	8	21	9	8.37	--	--	--	--	--	--
Citizen obedience to the law	--	--	--	--	--	7	22	13	4	8	18.41

TABLE IV (continued)

	Nature of Change				Chi-Square Value*	Quality Rating				Chi-Square Value*	
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor		No Comment
Roads and transportation system	33	3	10	8	39.47	9	16	11	8	10	3.59
Wage income level	35	0	8	11	24.33	4	17	19	0	14	9.85
Job opportunities	30	1	11	12	12.00	7	15	14	5	13	7.48
Real income level	12	15	17	10	2.15	1	8	17	10	18	4.81
Church and religion	17	3	24	10	18.15	10	19	11	0	14	3.63
Recreational opportunity	22	1	18	13	1.78	6	12	14	6	16	7.85
Public utilities	38	0	7	9	33.44	11	17	14	3	9	10.44
Physical environment	12	5	27	10	19.92	9	16	18	1	10	5.11
Housing adequacy	27	1	9	17	8.11	1	10	10	8	25	13.41
Young people situation and opportunity	32	1	11	10	17.17	2	16	17	7	12	5.70
Old people situation and opportunity	23	4	15	12	13.70	3	14	18	7	12	12.85

TABLE IV (continued)

	Nature of Change				Chi-Square Value*	Quality Rating				Chi-Square Value*	
	Improved	Got Worse	Remained Same	No Comment		Very Good	Pretty Good	Fair	Poor		No Comment
County as place to live	35	0	9	10	24.11	18	15	9	3	9	12.67

\*Calculation of chi-square against even distribution for all categories; Critical values:  
 $X^2_{4,.05} = 9.49$ ,  $X^2_{3,.01} = 11.34$ ,  $X^2_{3,.05} = 7.81$ ,  $X^2_{2,.01} = 9.21$ ,  $X^2_{2,.05} = 5.99$ .

TABLE V  
THE F-VALUES FOR IDENTIFYING INTERACTIONAL RELATIONSHIPS BETWEEN POPE'S AND CHARACTERISTICS OF THE RURAL PEOPLE IN HAMCOCK COUNTY, TENNESSEE

Facet of Socio-economic Environment	Sample Size	Degree of Freedom	Critical Value	Age of Head	Age of Home-maker	Educa-tion Head	Educa-tion of Home-maker	Capa-bility to Work	Depend-ency Index	Social Partici-pation Score of Head	Social Partici-pation Score of Home-maker	North-Hatt Occu-pation Family Income	Material Level of Living Score	Communi-cation Level of Living Score	Leisure Time Partici-pation Score	Number of Communi-cation Items	
Life for most people	53	(1,41)	4.075	5.229*	0.6201	--	8.613**	0.02771	0.4873	--	--	3.395	2.103	7.231*	3.703*	11.69**	4,301*
County court Politics and political parties	45	(1,33)	4.16	7.57	1.107	--	5.437*	0.517**	0.4716	--	--	1.285	4.353*	4.322*	5.827*	2.269	4,635*
Public schools	43	(1,39)	4.09	7.33	--	--	--	--	--	--	--	--	3.047	--	5.736*	--	5,212*
Opportunity for education beyond high school	46	(1,42)	4.08	7.31	--	--	3.402	--	6.280*	--	--	--	--	--	--	12.63**	--
Agriculture and Land use	43	(1,34)	4.13	7.44	6.032*	--	--	5.860*	--	2.210	3.114	--	1.672	--	17.34**	--	6,254*
Medical care and health services	52	(1,44)	4.06	7.24	7.824*	--	--	2.899	--	6.727*	--	--	4.489*	4.503*	1.424	--	2,76
Welfare programs	49	(1,43)	4.065	7.255	--	--	4.707*	--	3.148*	9.491**	--	--	--	--	8.535**	--	1,001
Life for poor people	42	(1,37)	4.103	7.37	--	--	13.00**	4.003*	--	--	5.314*	--	8.42**	--	--	--	--
Crime and law enforcement	52	(1,46)	4.10	7.24	2.134	2.775	--	5.233*	--	--	0.6472	3.218	--	0.6414	--	5.687*	--
Roads and transportation system	52	(1,38)	4.13	7.35	4.839*	0.07637	--	1.644	3.726	0.0337	0.3563	1.205	1.652	--	0.3312	0.3312	4,183*
Wage income level	53	(1,49)	4.065	7.16	7.494**	8.993**	--	1.600	--	--	--	--	--	--	--	--	--
Job opportu-nities	52	(1,43)	4.105	7.255	11.01**	--	3.380	--	--	--	--	3.572	0.8463	4.672*	6.467*	4.339*	--
Real income level	50	(1,37)	4.11	7.37	1.561	4.115*	0.5360	--	2.037	--	3.191	4.556*	--	0.6388	3.433	3.649	7,258*
Church and religion	41	(1,36)	4.04	7.39	--	6.166*	--	6.996*	4.182*	0.9066	--	--	--	--	--	--	2,281
Recreational opportunities	53	(1,49)	4.065	7.19	--	--	--	--	--	--	4.11*	1.676	--	14.05**	3.339	--	--
Public utilities	48	(1,43)	4.05	7.255	--	5.678*	--	--	--	--	--	--	--	4.507*	1.500	--	--
Physical environment	50	(1,46)	4.04	7.21	--	9.641**	--	2.858	--	--	--	--	--	--	--	--	6,457*
Housing adequacy	52	(1,48)	4.12	7.19	--	2.527	--	--	--	--	--	--	--	--	--	--	3,391*
Young people situation and opportunity	39	(1,35)	4.12	7.415	--	5.546*	--	--	--	--	--	--	--	--	--	--	4,603*
Old people situation and opportunity	53	(1,50)	4.03	7.17	--	7.652**	--	--	--	--	--	--	--	--	--	--	4,213*
County as place to live**	51	(1,42)	4.07	7.27	6.424*	4.291*	--	3.760	--	3.042	--	--	12.76**	--	--	3.879	9,032**
	53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

\*The partial regression coefficient is statistically significant at 5% significance level.  
 \*\*The partial regression coefficient is statistically significant at 1% significance level.  
 \*\*\*No partial regression coefficient statistically significant either at 1% or 5% significance level at all steps.

NOTE: At critical value column, upper figures are critical values at 5% point and lower ones are critical at 1% point.



TABLE VI  
THE P-VALUE FOR IDENTIFYING INTERACTIONS BETWEEN POSE'S AND CHARACTERISTICS OF THE RURAL PEOPLE IN HOUSTON COUNTY, TENNESSEE

Fact of Socio-economic Environment	Sample Size	Degrees of Freedom	Critical Value	Age of Head maker	Age of Homeowner	Educa-tion Head	Educa-tion Homeowner	Educa-tion to Work Index	Capa-bility to Work Index	Depend-ency Index	Social Partici-pation Score of Head maker	Social Partici-pation Score of Home-maker	North-ern Partici-pation Score	Material Level of Living Score	Communi-cation Level of Living Score	Leisure Time Partici-pation Score	Number of Communi-cation Items	
Life for most people	47	(1,38)	4.10	3.510	1.100	1.787	0.3895								1.328	4.269*	4.205*	3,115
County court politics and parties	41	(1,39)	4.09			4.467*												
Public schools	39	(1,37)	4.15			3.903*		3.362	3.040					1.707		3.206	4,799*	
Opportunity for education beyond high school	43	(1,38)	4.10			30.496**	1.456	7.119*										
Agriculture and land use	43	(1,39)	4.09			2.150		4.822*					10.45*	3.843				
Medical care and health services	47	(1,36)	4.11			3.948		0.415	1.691	0.6368	1.214	0.2619		1.076	4.829*		0.8262	4,168*
Welfare programs	33	(1,24)	4.26			1.599		1.322		0.7670	0.7172			1.726	0.9693		4.177	2,613
Life for poor people	47	(1,37)	4.105			3.414	4.237*		3.334	2.817				0.6848	1.697		0.8984	1,885
Crimes and law enforcement	45	(1,42)	4.08					1.432			4.896*							
Boats and trans- portation	47	(1,36)	4.11			6.485*		0.9698	1.743	9.397**	2.582	4.212*			7.165*	0.7806	0.1517	
Wage income level	45	(1,40)	4.08					2.670	5.138*				1.464	1.862				
Job opportu- nities***	44																	
Real income level	37	(1,31)	4.16			0.1724	3.860*	1.880				1.371						
Church and religion	46	(1,39)	4.09			4.266*		8.184**					1.943	2.343		1.714	6,157*	
Recreational opportunities	46	(1,37)	4.105			1.485	6.864*	3.103	4.653*								2,693	
Public utilities	46	(1,40)	4.08			2.634	4.845*					2.190		4.342*			4,041*	
Physical environment	44	(1,36)	4.11								7.188*	3.416*		6.644*	2,558		9,721**	
Housing adequacy	35	(1,30)	4.17					3.122*							3,326			
Young people situation and opportunity	45	(1,40)	4.08					4.618*		3.241					3,303			1,653
Old people situation and opportunity	41	(1,36)	4.11					6.278*							8,914*	3,676*		
County as place to live	48	(1,40)	4.08			2.800					4.144*	0.6583			1.122	7,514**	1,169	3,495

\*The partial regression coefficient is statistically significant at 5% significance level.

\*\*The partial regression coefficient is statistically significant at 1% significance level.

\*\*\*No partial regression coefficient statistically significant either at 1% or 5% significance level at all steps.

NOTE: At critical value column, upper figures are critical values at 5% point and lower ones are critical at 1% point.





TABLE IX

AVERAGE VALUE OF SOCIOECONOMIC CHARACTERISTICS AND THEIR RATES OF  
CHANGE FOR HANCOCK COUNTY, TENNESSEE, 1960-1972

	1960	1972	Rate of Change
Age of head	49.38	54.21	0.0078
Age of homemaker	41.88	46.96	0.0095
Educational level of head	6.63	6.35	-0.0036
Educational level of homemaker	8.00	7.82	-0.0018
Capability of family member to work index	0.81	0.90	0.0090
Dependency index of family	2.36	2.25	-0.0037
Social participation score of head	4.57	4.64	0.0012
Social participation score of homemaker	4.80	3.99	-0.0153
Family income*	\$1517.86	\$3978.07 (\$2816.08)	0.0515
North-Hatt occupational score of principal wage earners	72.63**	67.42	-0.0062
Anomia score	2.64	3.33	0.0195
Material level of living scale score	2.49	3.75	0.0341
Communication level of living scale score	2.65	3.79	0.0299
Number of material items possessed	5.00	9.00	0.0490
Number of communication items possessed	3.13	5.05	0.0400
Leisure time participation intensity score	--	14.14	--

\*The figure in parenthesis is in terms of 1960 constant dollars.

\*\*It is estimated according to constant rate of change.

TABLE X

AVERAGE VALUE OF SOCIOECONOMIC CHARACTERISTICS AND THEIR RATES OF  
CHANGE FOR HOUSTON COUNTY, TENNESSEE, 1960-1972

	1960	1972	Rate of Change
Age of head	56.09	56.60	0.0008
Age of homemaker	48.07	53.14	0.0216
Educational level of head	6.69	8.80	0.0228
Educational level of homemaker	7.69	9.53	0.0179
Capability of family member to work index	0.71	0.86	0.0158
Dependency index of family	1.89	1.90	0.0002
Social participation score of head	5.57	5.61	0.0006
Social participation score of homemaker	5.26	5.38	0.0019
Family income*	\$2194.26	\$5420.83(\$3837.41)	0.0466
North-Hatt occupational score of principal wage earners	68.78**	64.11	-0.0059
Anomia score	1.85	2.42	0.0224
Material level of living scale score	3.32	5.38	0.0402
Communication level of living scale score	3.08	4.53	0.0322
Number of material items possessed	6.30	11.70	0.0516
Number of communication items possessed	4.14	6.50	0.0375
Leisure time participation intensity score	--	15.33	--

\*The figure in parenthesis is in terms of 1960 constant dollars.

\*\*It is estimated according to constant rate of change.

TABLE XI

AVERAGE VALUE OF SOCIOECONOMIC CHARACTERISTICS AND THEIR RATES OF  
CHANGE FOR HUMPHREYS COUNTY, TENNESSEE, 1960-1972

	1960	1972	Rate of Change
Age of head	53.06	51.70	-0.0021
Age of homemaker	46.92	48.70	0.0031
Educational level of head	6.68	8.80	0.0230
Educational level of homemaker	8.67	9.30	0.0059
Capability of family member to work index	0.81	0.90	0.0085
Dependency index of family	2.04	1.67	-0.0169
Social participation score of head	6.38	5.61	-0.0108
Social participation score of homemaker	6.29	5.61	-0.0095
Family income*	\$2470.34	\$5970.83(\$4226.76)	0.0448
North-Hatt occupational score	66.81**	65.68	-0.0014
Anomia score	1.76	3.03	0.0456
Material level of living score	3.47	5.23	0.0341
Communication level of living score	3.22	4.52	0.0282
Number of material items possessed	7.07	11.70	0.0420
Number of communication items possessed	4.69	6.35	0.0252
Leisure time participation intensity score	--	15.41	--

\*The figure in parenthesis is in terms of 1960 constant dollars.

\*\*It is estimated according to constant rate of change.

TABLE XII

AVERAGE VALUE OF SOCIOECONOMIC CHARACTERISTICS AND THEIR RATES OF CHANGE FOR UNION COUNTY, TENNESSEE, 1960-1972

	1960	1972	Rate of Change
Age of head	49.29	51.74	0.0040
Age of homemaker	44.02	48.40	0.0079
Educational level of head	7.35	7.89	0.0058
Educational level of homemaker	8.85	7.88	-0.0097
Capability of family members to work index	0.79	0.91	0.0119
Dependency index of family	2.27	2.31	0.0015
Social participation score of head	5.50	4.16	-0.0357
Social participation score of homemaker	3.94	3.36	-0.0132
Family income*	\$2686.48	\$5328.70(\$3772.19)	0.0283
North-Hatt occupational score of principal wage earners	65.19**	61.08	-0.0109
Anomia score	2.28	3.09	0.0255
Material level of living scale score	3.46	4.85	0.0282
Communication level of living scale score	3.30	4.31	0.0223
Number of material items possessed	6.84	10.06	0.0321
Number of communication items possessed	4.11	5.72	0.0276
Leisure time participation intensity score	--	14.29	--

\*The figure in parenthesis is in terms of 1960 constant dollars.

\*\*It is estimated according to constant rate of change.

TABLE XIII

SOCIOECONOMIC INDICATORS FOR EACH FIVE YEAR PERIOD AND THE RATE OF CHANGE FOR HANCOCK COUNTY, TENNESSEE, 1960-1972

	1960	1972	Rate of Change
The quality of county government	16.08*	24.29*	0.0344
The quality of local politics and political parties	1.51*	0.85*	-0.0478
The quality of public schools	3.07	4.00*	0.0221
The opportunity for education beyond high school	0.62	0.54*	-0.0118
Agriculture and land use			
a. Agricultural situation	15.10*	3.88*	-0.1133
b. Land use	0.021*	0.025*	0.0145
The quality of medical care and health services	6.97	8.19	0.0023
The quality of welfare programs	1.12	0.78*	-0.0298
Crime and law enforcement	\$ 0.49*	\$ 1.30*	0.0807
The roads and other transportation system			
a. Adequacy	50.97	61.87*	0.0162
b. Quality	99.53*	18.19*	-0.1416
Income for wage earners			
a. Male	\$1015	\$2885.08*	0.0871
b. Female	--	\$2223 (1970)	--
Job opportunity for county residents	3.09	1.97*	-0.0373
Real income	\$ 620	\$1029.04*	0.0422
The quality of churches and religion	4.62	2.57	-0.0487
Recreational opportunity	\$ 0.57	\$ 0.48	-0.0147
Public utilities			
a. Adequacy of water supply	0.56	1.28*	0.0690
b. Adequacy of sewage services	0.29	0.55*	0.0530
c. Adequacy of telephone services	0.19	1.28*	0.1592



TABLE XIII (continued)

	1960	1972	Rate of Change
The quality of physical environment	7.83	10.40	0.0236
Provision of good housing	0.88	1.23	0.0280
The situation and opportunity of young people			
a. Educational opportunity	1.10	1.39*	0.0197
b. Employment opportunity	0.56	1.14*	0.0593
c. Health condition	38.50	13.00	-0.0910
The situation and opportunity of old people			
a. Income	\$ 632.72	\$ 706.93	0.0092
b. Health condition	0.85	2.00	0.0717
c. Accessibility to good housing	2.09	2.19	0.0039
d. Accessibility to material items	6.78	8.30	0.0168
e. Accessibility to communication items	4.00	5.30	0.0234

NOTE: a. \* estimate assuming constant rate of change.

b. All of monetary terms are in terms of 1960 constant dollars except indicator for female wage income.

TABLE XIV  
 SOCIOECONOMIC INDICATORS FOR EACH FOSE AND THEIR RATES OF CHANGE  
 FOR HOUSTON COUNTY, TENNESSEE, 1960-1972

	1960	1972	Rate of Change
The quality of county government	1.66*	45.04*	0.2753
The quality of local politics and political parties	2.57	2.0814*	-0.0176
The quality of public schools	3.43	7.07*	0.0603
The opportunity of education beyond high school	0.64	0.33*	-0.0544
Agriculture and land use			
a. Agricultural situation	5.73*	7.08*	0.0176
b. Land use	0.0428*	0.0431*	0.0006
The quality of medical care and health services	8.43	5.17	-0.0407
The quality of welfare programs	1.24	1.41*	0.0107
Crime and law enforcement	\$ 0.77*	\$ 2.14*	0.0849
The roads and other transportation system			
a. Adequacy	74.52	59.40	-0.0189
b. Quality	27.04	20.79*	-0.0219
Income for wage earners			
a. Male	\$2087	\$5045.51*	0.0736
b. Female	\$1730	\$1790.25*	0.0029
Job opportunity for county residents	2.50	3.50*	0.0281
Real income	\$ 849.00	\$1924.43*	0.0682
The quality of churches and religion	5.31	3.26	-0.0406
Recreational opportunity	\$ 1.80	\$ 2.07	0.0119
Public utilities			
a. Adequacy of water supply	1.39	3.14*	0.0678
b. Adequacy of sewage services	0.59	3.06*	0.1402
c. Adequacy of telephone services	0.58	2.85*	0.1322

TABLE XIV (continued)

	1960	1972	Rate of Change
The quality of physical environment	9.50	10.20	0.0021
Provision of good housing	0.94	1.69	0.0493
The situation and opportunity of young people			
a. Educational opportunity	1.74	2.95*	0.0437
b. Employment opportunity	1.36	2.21*	0.0401
c. Health condition	19.50	9.00	-0.0644
The situation and opportunity of old people			
a. Income	\$ 563.54	\$ 966.75	0.0450
b. Health condition	2.0625	1.68	-0.0169
c. Accessibility to good housing	2.29	2.76	0.0232
d. Accessibility to material items	5.73	11.45	0.0576
e. Accessibility to communication items	3.73	6.65	0.0481

NOTE: a. \* estimate assuming constant rate of change.

b. All of monetary terms are expressed in terms of 1960 constant dollars.

TABLE XV  
 SOCIOECONOMIC INDICATORS FOR EACH FOSE AND THE RATES OF CHANGE FOR  
 HUMPHREYS COUNTY, TENNESSEE, 1960-1972

	1960	1972	Rate of Change
The quality of county government	2.33*	12.98*	0.1433
The quality of local politics and political parties	2.10	1.32*	-0.0388
The quality of public schools	4.06	19.84	0.1322
The opportunity of education beyond high school	0.50	0.38*	-0.0229
Agriculture and land use			
a. Agricultural situation	5.84*	7.88*	0.0251
b. Land use	0.1233*	0.1237*	0.0002
The quality of medical care and health services	12.40	6.07	-0.0595
The quality of welfare programs	1.56	1.51*	-0.0028
Crime and law enforcement	\$ 1.2*	\$ 1.72*	0.0280
The roads and other transportation system			
a. Adequacy	59.53	54.09*	-0.0080
b. Quality	15.32*	12.05*	-0.0200
Income for wage earners			
a. Male	\$2714	\$6247.75*	0.0695
b. Female	\$1361	\$2260.43*	0.0461
Job opportunity for county residents	2.94	4.72*	0.0394
Real income	\$1207.00	\$3837.92*	0.0964
The quality of churches and religion	9.69	3.34	-0.0888
Recreational opportunity	\$ 1.59	\$ 2.25	0.0289
Public utilities			
a. Adequacy of water supply	4.69	16.53*	0.1051
b. Adequacy of sewage services	0.75	6.52*	0.1798
c. Adequacy of telephone services	2.05	6.03*	0.0898

TABLE XV (continued)

	1960	1972	Rate of Change
The quality of physical environment	8.67	15.33	0.0475
Provision of good housing	1.08	1.70	0.0377
The situation and opportunity of young people			
a. Educational opportunity	3.55	12.72*	0.1064
b. Employment opportunity	2.30303	11.41*	0.1333
c. Health condition	10.5	22.00	0.0616
The situation and opportunity of old people			
a. Income	\$ 583.79	\$ 777.26	0.0239
b. Health condition	4.667	1.93	-0.0736
c. Accessibility to good housing	1.75	2.68	0.0356
d. Accessibility to material items	5.00	10.56	0.0623
e. Accessibility to communication items	3.88	5.63	0.0312

NOTE: a. \* estimate assuming constant rate of change.

b. All of monetary terms are expressed in terms of 1960 constant dollars.

TABLE XVI

SOCIOECONOMIC INDICATORS FOR EACH FOSE AND THE RATES OF CHANGE FOR  
UNION COUNTY, TENNESSEE, 1960-1972

	1960	1972	Rate of Change
The quality of county government	7.49*	25.50*	0.1021
The quality of local politics and political parties	3.90	3.91*	0.0001
The quality of public schools	4.51	3.42*	-0.0230
The opportunity of education beyond high school	0.69	0.33*	-0.0618
Agriculture and land use			
a. Agricultural situation	4.94*	5.60*	0.0157
b. Land use	0.091*	0.0886*	-0.0024
The quality of medical care and health services	7.92	9.56	0.0156
The quality of welfare programs	1.26	1.52*	0.0157
Crime and law enforcement	\$ 1.88*	\$ 0.94*	-0.0580
The roads and other transportation system			
a. Adequacy	53.79	38.09*	-0.0124
b. Quality	46.50*	19.25*	-0.0735
Income for wage earners			
a. Male	\$1953	\$3592.92*	0.0508
b. Female	\$1956	\$2846.98*	0.0313
Job opportunity for county residents	2.53	3.71*	0.0318
Real income	\$ 829	\$1287.58*	0.0367
The quality of churches and religion	3.20	2.58	-0.0179
Recreational opportunity	\$ 1.57	\$ 2.64	0.0436
Public utilities			
a. Adequacy of water supply	0.79	1.66*	0.0621
b. Adequacy of sewage service	0.38	0.93*	0.0759
c. Adequacy of telephone service	0.35	1.94*	0.1432

TABLE XVI (continued)

	1960	1972	Rate of Change
The quality of physical environment	9.00	10.25	0.0063
Provision of good housing	1.04	1.26	0.0163
The situation and opportunity of young people			
a. Educational opportunity	2.64	1.63	-0.0401
b. Employment opportunity	1.90	2.00*	0.0464
c. Health condition	43.00	15.333	-0.0859
The situation and opportunity of old people			
a. Income	\$ 545.32	\$ 812.81	0.0333
b. Health condition	1.15	3.25	0.0863
c. Accessibility to good housing	2.56	2.33	-0.0077
d. Accessibility to material items	5.33	9.97	0.0521
e. Accessibility to communication items	3.50	5.56	0.0523

NOTE: a. \* estimate assuming constant rate of change.

b. All of monetary terms are expressed in terms of 1960 constant dollars.











## VITA

Ying-Nan Lin was born on May 31, 1934, in Tainan Hsien, Taiwan. He is the oldest son of Mr. and Mrs. Shien-Chin Lin. He graduated from Kaoshiung Provincial Middle School in 1954 and received the B.S. degree in 1958 from National Chung-Hsing University

He was married to the former Shu-Hwa Han of Kaoshiung, Taiwan on February 27, 1965. He and his wife are the parents of two children, Chin-Zen and Daniel Lee.

He had taught Physics and Chemistry at Agricultural Vocational School and Applied Mathematics for Statistics at Provincial Taichung Commercial College before he came to the U.S.A.

In the spring of 1968 he entered the graduate school of the University of Tennessee. In November, 1972, he became a candidate for the Ph.D. degree in Agricultural Economics. His major areas of concentration were in Rural Development, Production Economics, and Quantitative Methods.