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Employment and underemployment of rural people in Grainger County, Tennessee

William Brewster Ewing

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I am submitting herewith a thesis written by William Brewster Ewing entitled "Employment and underemployment of rural people in Grainger County, Tennessee." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

Joe A. Martin, Major Professor

We have read this thesis and recommend its acceptance:

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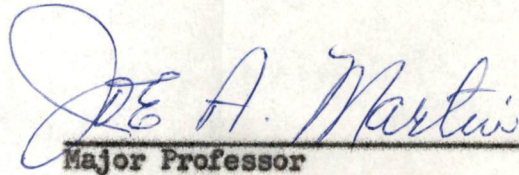
Vice Provost and Dean of the Graduate School

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

August 1, 1960

To the Graduate Council:

I am submitting herewith a thesis written by William Brewster Ewing entitled "Employment and Underemployment of Rural People in Grainger County, Tennessee." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.


Major Professor

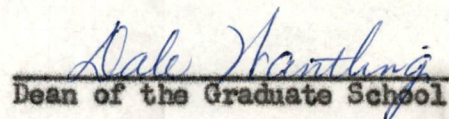
We have read this thesis
and recommend its acceptance:







Accepted for the Council:


Dean of the Graduate School

EMPLOYMENT AND UNDEREMPLOYMENT OF RURAL PEOPLE
IN GRAINGER COUNTY, TENNESSEE

A Thesis
Presented to
the Graduate Council of
The University of Tennessee

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
William Brewster Ewing
August 1960

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CHAPTER I

INTRODUCTION

Why do some areas enjoy greater rates of economic growth than do other areas? This is a question which has perplexed economists especially in recent years. The causes of differential rates of economic development can sometimes be linked to differences in the resource bases of the areas concerned. In 1954 the U. S. Department of Agriculture conducted a survey in an effort to discover the underlying forces associated with the concentration of low incomes in many rural areas. This study concluded that the underdevelopment of the human resources in rural areas was a principle cause of the concentration of low incomes and slow rates of economic growth in certain geographic regions.¹ Grainger County is located within one of the most serious low income areas.

A. ECONOMIC HISTORY OF THE AREA

There is very little known about the economic history of Grainger County. In many respects the early development was quite similar to that of the entire Upper East Tennessee Valley. Therefore, most available information on economic history pertains essentially to that of the Upper East Tennessee Valley. Grainger County was formed in 1796 and originally constituted about one-fourth of the area in East Tennessee. Like most regions in the United States, East Tennessee was inhabited by the Indians

¹United States Department of Agriculture, "Development of Agriculture's Human Resources," A Report on Problems of Low-Income Farmers Prepared for the Secretary of Agriculture, Washington D. C. April 1955.

(Cherokee) before the white settlers appeared on the scene, about the middle of the eighteenth century. The Cherokees primarily hunted and farmed for a living. Their chief crops were corn and vegetables, and their only domesticated animals were dogs and turkeys. An early settlement of white men, from Virginia and North Carolina, in the hills was followed by a long period of economic and social isolation. Early settlers enjoyed favorable grain and livestock markets, but this condition proved to be only temporary and these markets were soon lost to the richer lands of the Midwest which also had more favorable access to commercial markets. When these grain and livestock markets were lost, the area's agriculture declined to a subsistence type of farming. And the migration of capital and young farmers to the Midwest and West resulted in shortages of capital. For some time these settlers failed to find new alternative sources of income and by the time tobacco had become a major source of cash income, many of the farms were so small, overpopulated, and capital-poor that the income from tobacco was not sufficient to alleviate their low-income problem.

The period preceding the Civil War saw small industries springing up throughout the area particularly in Washington County, but this industrial development was severely handicapped by the Civil War. Among the direct effects of the Civil War were destruction of farm and industrial property, deterioration of the transport system, and a drastic decline in trade. The spirit of the reconstruction period aroused a deep-seated bitterness which is slow to die. This encouraged continued cultural isolation from the northern industrial areas. The economic growth of Grainger County, as measured by the per capita value added by manufacturing, declined

sharply during and after the Civil War relative to that of the nation and had not regained the relative position it held before the Civil War as recently as 1954 (Table I). It should be stated, however, that prior to the Civil War part of Hamblen County (Morristown, in particular) was included in Grainger County. Hamblen County was formed in 1870, which probably accounts for the failure of Grainger County to regain the relative position it held prior to 1860.

In 1934 a research team concluded that "industries in Grainger County are conspicuous by their absence."² At that time there were sixty-nine industrial establishments. Prior to the 1930's over 800 people were employed in all industries in Grainger County. In 1954 there were only twelve industrial establishments employing sixty-eight persons - this included eleven saw mills and one hosiery mill.³

The Tennessee Department of Employment Security reported that in 1959 there was one hosiery mill employing thirty-six women and nine men, and ninety-two business firms employing 292 persons.⁴ This latter figure includes restaurants, service stations, retail stores and motels. The number of saw mills which were in operation in 1959 was not reported by the Department of Employment Security. Lumbering has not been carried on to any substantial degree since 1927 when a branch line of the Southern Railway which ran through the southern part of the county was discontinued.

²Grainger County, Tennessee, Agricultural Industrial Survey, Directed by W. R. Woolrich for the Tennessee Valley Authority, 1934.

³U. S. Department of Commerce, Bureau of the Census, U. S. Census of Manufacturing: 1954, Vol. III, Area Statistics, Tennessee Table 7.

⁴Information obtained through a personal communication with a Tennessee Department of Employment Security agent in December, 1959.

TABLE I
 PER CAPITA VALUE ADDED BY MANUFACTURING
 GRAINGER COUNTY, 1859-1947^a

	Per capita value added dollars	Percent of U. S.
1859	2.44	0.8
1869	1.97	0.4
1879	1.32	0.3
1889	2.44	0.4
1899	3.35	0.4
1919	2.69	0.1
1947	29.45	0.6
1954	10.93	0.1

^aSource: Data computed from Census of Manufacturing, 1860-1954,
 U. S. Department of Commerce, Bureau of the Census.

These are only a few of the reasons relatively low incomes persist in Grainger County.

B. PHYSICAL DESCRIPTION OF THE AREA

Grainger County, located in the northeast section of the state, is bounded on the east by Hancock and Hawkins Counties; on the south by the Holston River and Cherokee Lake; on the west by Knox and Union Counties, and on the north by the Clinch River and Norris Lake. The topography of the county is that of a series of parallel ridges and narrow valleys running northeast to southwest. Clinch Mountain rising to an elevation of more than 3,000 feet divides the county into two distinct sections. Some of the valleys are suitable for the production of many agricultural products but others are quite unproductive due to shallow soils and considerable limestone outcropping. Approximately 46 percent of the county's 196,000 acres is in forest. Only 25 percent of the land in the county is classified as fair, good or very good agricultural land by The Soil Survey Report. The other 75 percent of the land is classed as poorly or very poorly suited to the agriculture of the county.⁵

Two federal highways pass through Grainger County. U. S. Highway 11-W, which is the main route between Knoxville and Kingsport, passes through the southern section of the county and U. S. 25-E crosses Clinch Mountain at Thorn Hill. Both highways are considered first-class highways and are heavily traveled by commercial vehicles. State highway 131 follows

⁵Grainger County Soil Survey, Series 1940, No. 4, United States Department of Agriculture in cooperation with the Tennessee Agricultural Experiment Station and the Tennessee Valley Authority, November, 1948.

the Washburn Valley from Thorn Hill to Knox County. This route is very narrow and crooked and not very conducive to commercial traffic but is quite heavily traveled by commuters from north of the mountain. Another state highway, Tennessee 92, runs approximately north and south between Rutledge and Jefferson City. It, too, is a second-class highway and not very suitable for commercial transportation. The network of highways in Grainger County places practically all the residents of the county within sixty minutes traveling time of either Knoxville or Morristown. Many of the residents south of Clinch Mountain are within thirty minutes of either Knoxville or Morristown.

The mineral deposits found in Grainger County are noteworthy. Iron ore, zinc, marble, and coal exist in varying quantities. In the Thorn Hill area some of the world's richest zinc deposits are known to exist. However, they are not being worked extensively at the present time.

Except for a limited area surrounding Rutledge - the county seat for which a new public water supply is available - the county's water supply is derived entirely from wells, springs and cisterns. Public water systems are now being installed in the Bean Station and Blaine areas.

Four electric power distributing companies serve the residents of the county. More than 90 percent of the households have electricity. Telephone service also is now available to most of the county.

C. RECENT TRENDS AND EXISTING CONDITIONS

A brief analysis of Tables II and III will give a comparative picture of Grainger County's resource base, characteristics of its people, and its

TABLE II
 AGRICULTURE AND POPULATION OF GRAINGER COUNTY
 WITH REGIONAL AND STATE COMPARISONS^a

Land Use	County, 1950 Avg. or Pct.	Ec. Area, 1950 Avg. or Pct.	Tenn., 1950 Avg. or Pct.
Percent of total land area in farms	75.9	70.9	69.3
Average size of farms 1950	65.4	56.9	80.0
1954	65.1	56.9	86.9
Value of land and building per farm	5,353	6,551	6,154
per acre	80.24	118.99	77.26
Percent tenancy	20.0	10.9	29.2
Percent share-croppers	10.6	6.5	12.1
Percent of farm area in cropland harvested	(23.7)	(28.3)	(30.1)
Farm by class 1950	Grainger	UETV	Tenn.
Commercial	61.1	56.5 ^b	59.7
I \$25,000 & over gross sales	0.2	0.2	0.3
II 10,000-24,999 gross sales	0.3	0.7	1.3
III 5,000- 9,999 gross sales	1.3	2.3	3.5
IV 2,500- 4,999 gross sales	6.2	8.0	9.9
V 1,200- 2,499 gross sales	20.5	20.4	21.0
VI 250- 1,199 gross sales	32.5	24.9	23.7
Other farms			
Part-time	17.3	19.1	15.3
Residential	21.7	24.4	25.0
Farm by class 1954	Grainger	UETV	Tenn.
Commercial	67.3	60.6	61.2
I \$25,000 & over gross sales	0	0.2	0.3
II 10,000-24,999 gross sales	0	1.0	1.4
III 5,000- 9,999 gross sales	3.1	2.7	4.6
IV 2,500- 4,999 gross sales	7.6	10.5	12.8
V 1,200- 2,499 gross sales	22.3	24.1	22.9
VI 250- 1,199 gross sales	34.3	22.1	19.2
Other farms			
Part-time	16.6	22.7	16.6
Residential	16.1	16.7	22.2

^aSource: B. H. Luebke, "Selected Agricultural Data, Grainger County," Agricultural Experiment Station, University of Tennessee, Knoxville, 1955.

^bSeven Upper East Tennessee Valley counties.

TABLE III

CHARACTERISTICS OF THE POPULATION IN
GRAINGER COUNTY AND TENNESSEE^a

	County	State
Average size of family	4.13	3.67
Median age	24.2	27.3
Percent under 15, 1950	34.1	30.1
Percent over 65, 1950	7.9	7.1
1940	6.6	5.9
1930	5.4	4.5
Dependency ratio, 1950 ^b	42.1	37.2
Percent of rural farm male population 20-29 age group	26.5	23.6
Number farm males passing 20 each year	116	10,506
Annual deaths and retirement among all farm males in 1950 ^c 2625	51	5,207
Replacement needs for farmers in economic classes I-V (Gross income over \$1200) 657	15	1,874
Ratio of farm boys age 20 to replacement need in economic classes I-V	7.9 to 1	5.6 to 1
Income and wealth:		
Sales of agricultural products, 1949 (millions of dollars)	2.4	340.5
Total income payments, 1953 (millions of dollars)	6.9	3,992.1
Total income payments, 1951 (millions of dollars)	6.4	3,533.5
Income payments to farm operators, 1951 (millions of dollars)	2.7	324.3
Percent of total income payments going to farmers, 1951	41.7	9.2
Percent employed in agriculture, 1950	60.7	21.8
Per capita income, average for all occupations, 1953	521	1,217
Percent increase from 1950-1953	3.8	25.5
Income per farm worker, 1949 (Dollars)	1,147	1,108
Percent increase in income per farm worker, 1939-1949	3.8	237
Median income of rural farm and unrelated individuals (Dollars)	871.00	-
Median income of all families and unrelated individuals (Dollars)	904.00	1,749
Median school year completed	6.9	8.4

^aSource: B. H. Luebke, "Selected Agricultural Data, Grainger County,"
Agricultural Experiment Station, University of Tennessee, Knoxville, 1955.

^bPercent under 15 and over 65.

^cNumber required to maintain present number of men in agriculture.

relative income position with that of the Upper East Tennessee Valley and the state, prior to the time of the 1957 survey. Table II indicates that: approximately 75 percent of the land in Grainger County was in farms; the average size of farm was substantially less than the average size of farm in the state; the percent in cropland harvested was lower than the comparable figure for the East Tennessee Valley area and state; the value of land and buildings in Grainger County was also lower than for the area and state; the percentage of families with agricultural sales of less than \$2500 was higher for Grainger County than for the state or the area; and the percent of tenancy and sharecroppers was substantially higher than for the area. Data from Table II reveals that: Grainger County had larger families than the average for the state as a whole; a higher percentage of its population was over sixty-five years of age; Grainger County's dependency ratio was higher than the comparable ratio for the state; its labor replacement ratio was higher; a considerably higher percentage of its population was employed in agriculture; the average per capita income was less than one-half the state average per capita income; and the median income of all families in Grainger County was also about one-half the comparable figure for the state.

D. STATEMENT OF THE PROBLEM

One of the major economic and social problems facing many rural areas is the extremely low incomes of many farm families. This is by no means a new problem area, for indeed the poor fertility of the land, inefficient use of resources, and over population have characterized agriculture for decades. Grainger County has been singled out as an area in

which this problem is most critical. In the preceding section, some of the economic conditions existing in Grainger County have been reviewed. In light of the facts that: in 1954 approximately 90 percent of the farmers in the county had agricultural sales of less than \$2,500; in 1950 the median incomes of rural farm families were \$871; the farm labor replacement ratio was 7.9 to 1; and the absence of nonfarm employment opportunities in the county, the problem is one of an overabundance of people in relation to other factors of production with the types of occupations they now have. It seems, therefore, that the underemployment of this county's human resources is one of the important underlying causes of low incomes in Grainger County. Reallocation of resources has not taken place to the extent necessary to facilitate any substantial increase in per capita farm incomes.

E. PURPOSES OF THE STUDY

The objectives of this thesis are to describe the characteristics of the adult population, to determine the extent of underemployment among rural households, to delineate the role of vocational training in preparing rural youths for occupations outside of agriculture, and to point out this county's potential for local urban-industrial development.

F. REVIEW OF RELATED STUDIES

Many relevant studies concerning the industrial and general economic development of the South have been made. Several of these studies will be discussed briefly.

The Allred, Atkins, et. al., study,⁶ based on 1930 census data, proposed to make available to residents of the state of Tennessee accurate and complete information concerning the state's resources and other pertinent social and economic data which may be used in the development and improvement of the state. The study was intended to be strictly descriptive in nature and no attempt was made to spell out the problems which existed or to suggest courses of action which might improve the economic conditions in the state.

Luebke⁷ studied the factors influencing off-farm migration using data obtained from a survey taken in one Civil District in Jefferson County. His study revealed that social values rather than economic considerations had stronger influences over the decisions of farm families to leave or remain in agriculture.

In 1957 Riggs⁸ made a comparative analysis of income levels of thirty-five Upper East Tennessee Valley Counties. Information contained in this report has been made available to program planners who are concerned with problems of low income and the general economic underdevelopment of the area.

Nicholls has conducted several studies concerning the economic

⁶Charles E. Allred, Samuel W. Atkins, et. al., "Human and Physical Resources of Tennessee," Agricultural Experiment Station, University of Tennessee, Knoxville, Tennessee, 1939.

⁷B. H. Luebke, "Migration From a Southern Appalachian Community: Response to the National Labor Market," Unpublished Manuscript, Agricultural Experiment Station, University of Tennessee, Knoxville, 1954.

⁸Fletcher E. Riggs, "Income Levels in the Upper Tennessee Valley: A Comparative Analysis," Division of Agricultural Relations, Tennessee Valley Authority, Knoxville, Tennessee, September 1957.

development of Tennessee and of the South generally. One of these studies⁹ deals specifically with twenty Upper East Tennessee Valley Counties. In this particular paper, Dr. Nicholls explored the interrelationships during 1900-1950 between population characteristics and degree of industrialization.

Three southeastern experiment stations have made studies dealing explicitly with employment and underemployment of rural people. Galloway¹⁰ made a study to provide information to those concerned with the effective employment of the labor force; he emphasized the underemployment of manpower on farms in Eastern Kentucky. The West Virginia Agricultural Experiment Station and the U. S. Department of Agriculture have conducted similar studies¹¹ concerning the availability of rural people for nonfarm employment. Metzler and Charlton at Arkansas in cooperation with the U. S. Department of Agriculture made a survey in 1956¹² designed to provide basic data about the working population, occupations, and the extent of employment

⁹William H. Nicholls, "Human Resources and Industrial Development in the Upper East Tennessee Valley 1900-1950," Quarterly Journal of Economics, Vol. LXXI, May, 1957.

¹⁰Robert E. Galloway, Rural Manpower in Eastern Kentucky, Kentucky Agricultural Experiment Station, University of Kentucky, Lexington, Bull. No. 627, June, 1955.

¹¹W. F. Porter and W. H. Metzler, Availability for Employment of Rural People in the Upper Monongahela Valley, West Virginia, West Virginia University Agricultural Experiment Station, Morgantown, Bull. No. 391, June, 1956; and W. H. Metzler and W. F. Porter, Employment and Underemployment of Rural People in the Upper Monongahela Valley, West Virginia University Agricultural Experiment Station, Morgantown, Bull. No. 404, June 1957.

¹²W. H. Metzler and J. L. Charlton, Employment and Underemployment of Rural People in the Ozark Area, Agricultural Experiment Station, University of Arkansas, Fayetteville, November, 1958, Bull. No. 604.

or underemployment of people in the Ozark area. These studies, although peculiar to the area in which they were made, will serve as useful guides in the present study of Grainger County.

G. METHODOLOGY USED IN THE STUDY

Approximately a 5 percent random sample survey of rural households in Grainger County was completed in March, 1958. This amounted to 155 households. Only adult members of the household - if possible, the household heads - were interviewed. Information was obtained regarding population characteristics, land use, land quality, farm expenses and receipts, available family labor, nonfarm employment of household members and limited information as to the migration which had taken place since 1950. Data obtained pertained to conditions existing for the twelve month period ending December 31, 1957. Of the 155 rural households, ninety-seven were considered farm households and fifty-eight were classified as nonfarm household. With such a distribution the sample taken is representative and should reflect the aggregate characteristics of the population of Grainger County.

CHAPTER II

CHARACTERISTICS OF THE RURAL POPULATION

Before any detailed analysis can be made, a review of some of the characteristics of the population studied is in order. The 155 rural households interviewed contained 574 persons of all ages, 421 of which were 14 years of age or older. For purpose of analysis the households were divided into two broad categories, farm and nonfarm. The basis for this classification was essentially the census definition. Households with either three acres of land or more and who had raised \$150 worth of farm products, or those with less than three acres of land and had at least \$150 of farm sales signified a farm household. If the household did not meet one of the above conditions it was considered a nonfarm household. The average size of all households was 3.7 persons. The farm families were larger than the nonfarm families. The average farm family had 4.1 persons as compared with 3.0 persons per nonfarm family.

A. AGE AND SEX DISTRIBUTION

The population studied had a relatively large percentage of young people and old people. Of the 574 residents 48 percent were either under 14 years of age or over 55 years of age. There was very little difference between the age distribution of males and females except in the age group 14 to 24 in which there was almost twice as many males as females.

Approximately 70 percent of the persons in the sample area were members of farm households. The farm households had a higher percentage of young people (under 14 years of age) and fewer old folks (over 55 years

of age) than did the nonfarm households (Figure 1). A higher percentage of the nonfarm population was in the productive age group - 20 to 44 years of age. This difference is particularly noticeable in the 25-34 year age group in which 19 percent of the nonfarm but only 6 percent of the farm population fell. The farm households had a higher percentage of male members than female, but the reverse was true of the nonfarm households. Over 22 percent of the nonfarm household heads, as compared with only 2 percent of the farm household heads, were females (Figure 2).

The age distribution of household heads in Grainger County was compared with that of the seven Upper East Tennessee Valley Counties and with that of the United States in Table IV. Forty-four percent of the household heads in the sample area were over 55 years of age as compared with 36 and 34 percent respectively for the household heads in the seven East Tennessee Counties and the United States. A smaller proportion of the heads of households in Grainger County were under 45 years of age than in either the seven East Tennessee Counties or the nation. A higher percentage of nonfarm household heads were over 55 years of age than were farm household heads. However, the median age of nonfarm household heads was lower than the median age of the farm households. The median age of all household heads in the sample area was three years higher than the seven East Tennessee Counties. More than two-thirds of the children of farm households over 14 years of age who were living at home at the time of the survey were under twenty as compared with only 30 percent of the children of nonfarm households who were in this age group. Forty-three percent of this latter group of children, but only 9 percent of the farm children, were over thirty (Figure 3).

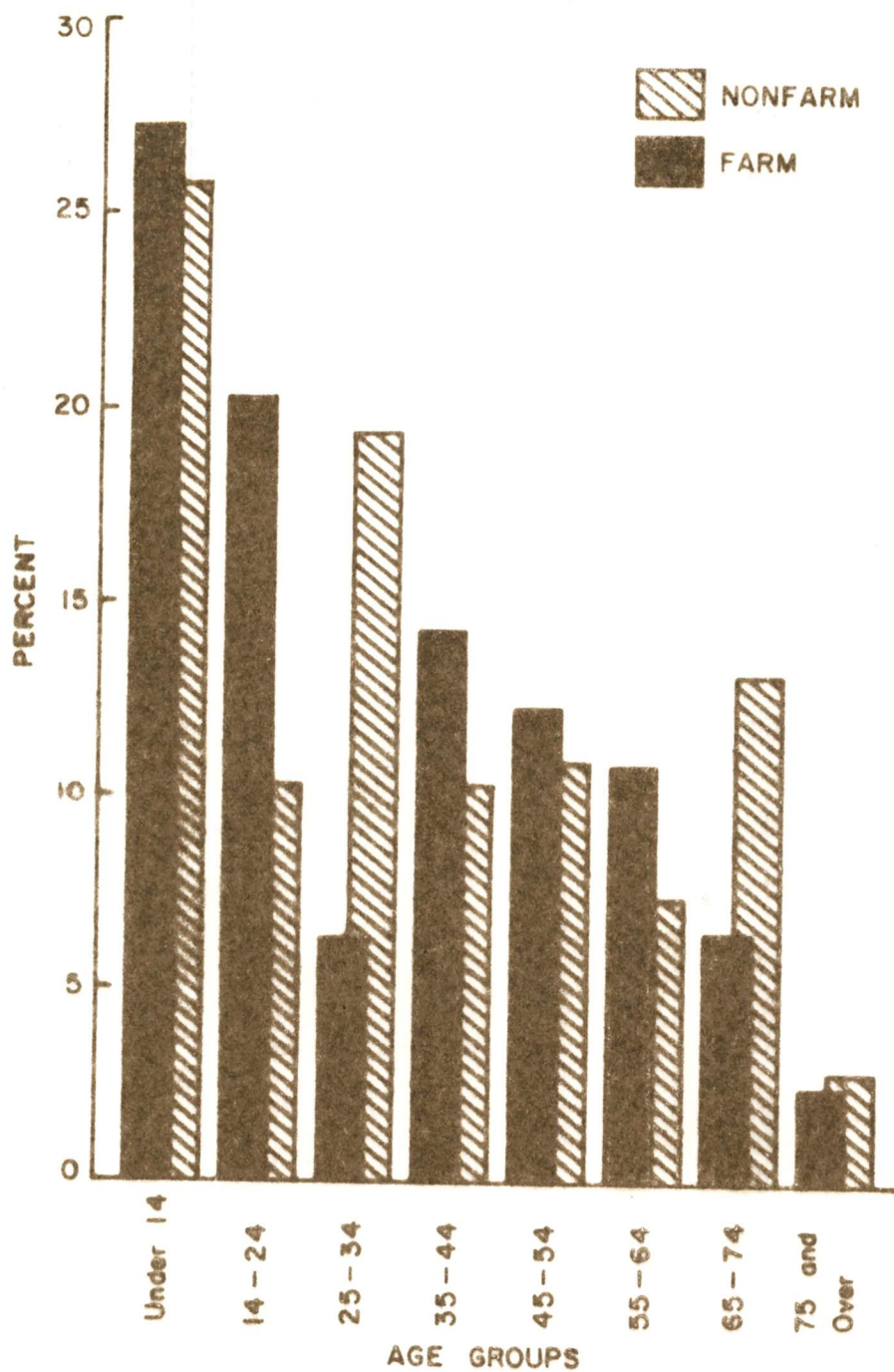


Figure 1. Age distribution of 574 rural residents, all ages by farm and nonfarm, Grainger County, 1957.

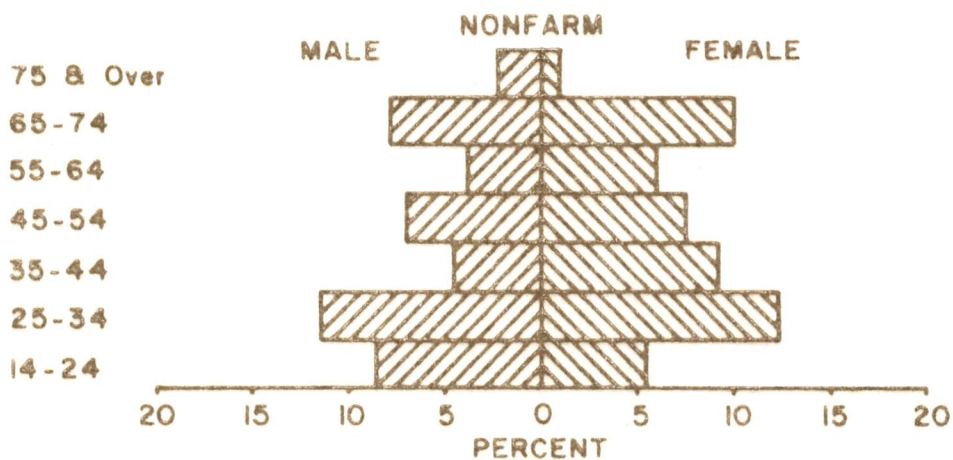
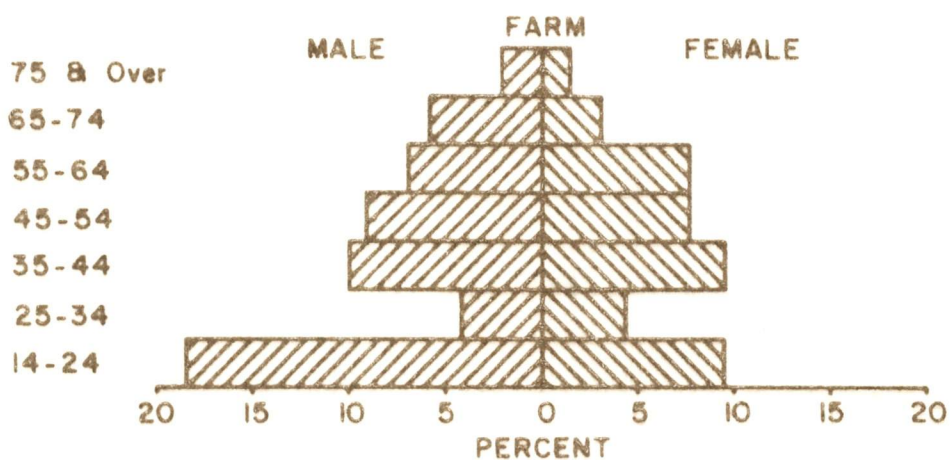
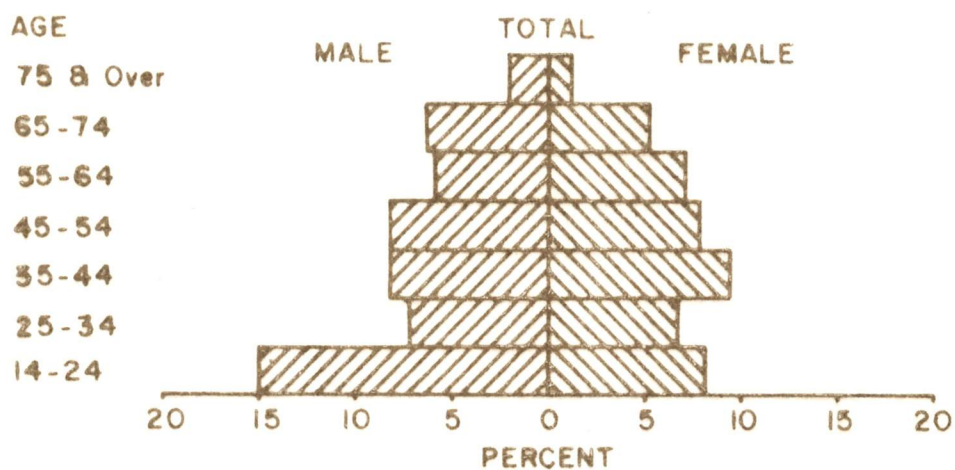


Figure 2, Age and sex distribution of persons over 14 years of age, Grainger County, 1957.

TABLE IV

AGE DISTRIBUTION OF 155 HEADS OF RURAL HOUSEHOLDS, GRAINGER COUNTY,
UPPER EAST TENNESSEE VALLEY, AND ALL HOUSEHOLDS,
UNITED STATES, 1957

Age group	Percent in each group			Grainger County	
	Grainger County ^a	Upper East Tennessee Valley ^a	U. S. ^b	Farm	Nonfarm
Under 25	2	4	5	2	2
25 - 34	12	15	19	5	24
35 - 44	19	19	22	24	10
45 - 54	23	26	20	28	16
55 - 64	19	18	17	22	14
65 - 74	21	14	12	16	27
75 and over	4	4	5	3	7
Under 45	33	38	46	31	36
55 and over	44	36	34	41	48
Median age	52	49	47	52	51

^aSource: Grainger County and UETV Survey Data 1957.

^bSource: U. S. Bureau of the Census, "Current Population Reports, Population Characteristics," Series P-20, Nos. 81 and 83, 1958.

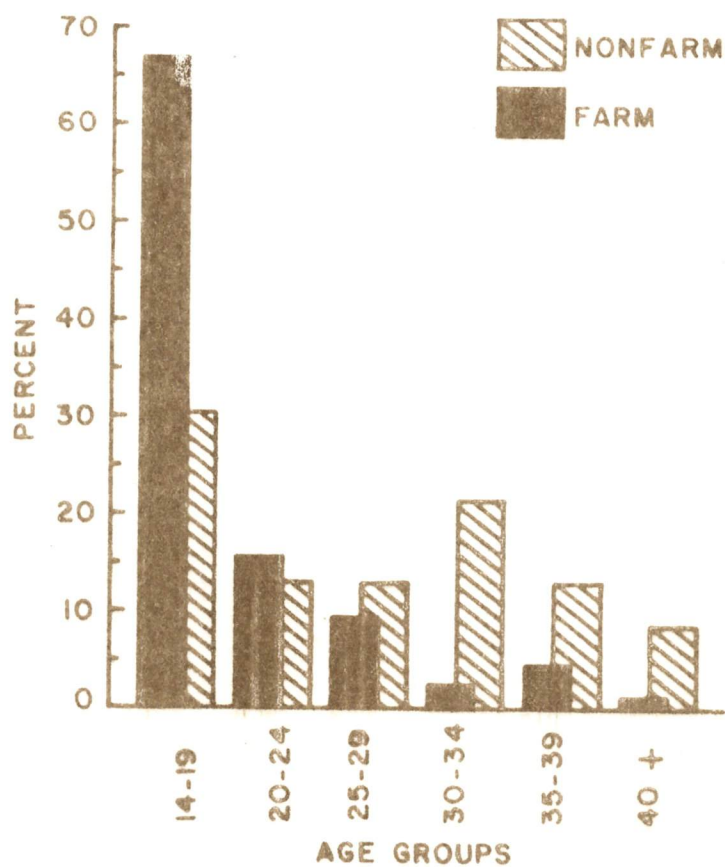


Figure 3. Age distribution of 105 children over 14 years old by farm and nonfarm households, Grainger County, 1957.

B. EDUCATIONAL ATTAINMENT

The educational level of Grainger County youths is below the state and national averages according to information compiled by the U. S. Census Bureau and the Bureau of Business Research at the University of Tennessee. There is a need, therefore, to identify the underlying forces associated with this below-average educational level and to discover what effects (if any) it has on the economic achievement of the people.

The following relationships were studied: (1) the relationship of the household heads' educational attainment to the educational level of the resident children, (2) the relationship between type of household and the educational level of the resident children, (3) the relationship of the household heads' education to their major activity, (4) the relationship of the household heads' educational attainment to the households' level of living and net cash income, and the relationship of level of living and net cash income to the educational attainment of the resident children and migrants, and (5) the relationship of educational attainment of various household members upon the desire for nonfarm work and occupation.

Children have more formal schooling than parents. In general, children in the county have considerably more formal education than their parents (Table V). None of the grandparents had 12 or more years of education. In comparison, 10 percent of the heads of households and their wives and 17 percent of the resident children over 14 years of age had 12 or more years of schooling. Children who had migrated from the area since 1950 attended school longer than children who remained in the area. Forty percent of the migrants had completed high school.

TABLE V

EDUCATION OF THREE GENERATIONS, 395 RESIDENTS IN 155 HOUSEHOLDS,
GRAINGER COUNTY, TENNESSEE, 1957

Education (years)	Grandparents ^a %	Heads and wives %	Resident children ^b %
Under 8	57	48	25
8 - 11	43	42	58
12 and more	<u>0</u>	<u>10</u>	<u>17</u>
Total	100	100	100

^aParents of household heads and their wives.

^bFourteen years of age and over, including those not attending school in 1957.

Approximately three-fifths of the children from both farm and nonfarm households attained higher levels of education than did their parents. Children of full-time farm households attended school more years in excess of their parents than did the children of part-time farm households.

The median school years completed for the children was about two years higher than the median for the household heads. For the children the median was 8.5 years schooling, and for the household heads it was 6.6 years. Census data seem to substantiate this survey data in that the more recent census figures indicate a higher educational attainment; for example, the median school years completed by those 25 years and older in 1940 was 6.6 and in 1950 was 6.8.¹

"Actual school enrollment" figures for the years 1948-1959 (compiled by the University of Tennessee Bureau of Business Research) showed that there was a considerable amount of "drop-out" between the first grade and the ninth grade. Only about two-fifths of those who started the first grade in 1950 started high school and only about one-third of those who started school in 1947 completed high school. However, most of those who start the second year of high school complete the twelfth grade.

More nonfarm than farm children complete high school. Thirty-two percent of the children of nonfarm households, but only 12 percent of the children of farm households, had completed high school; however, farm families had a substantially higher percentage of their children attending

¹U. S. Bureau of the Census, 1950 Census of Population, Characteristics of the Population, Vol. II, Part 42, Table; and Sixteenth Census of U. S., Population, 1940, Characteristics of the Population, Vol. II, Part 6, Table 21.

school in 1957 (Table VI).

Forty percent of the farm children, but only 4 percent of the nonfarm children, 14 years old and older were in school in 1957. This can be partially explained by the fact that only 30 percent of the nonfarm children, but 67 percent of the farm children, were of normal school age - 14 to 19 years of age (Figure 3, page 19).

Education related to major activity. Those engaged in nonfarm work had completed more school than those who reported farm operator as their major activity. Educational attainment of household heads by major activity was as follows:

<u>Years of school</u>	<u>Farm operators</u>	<u>Nonfarm workers</u>
Less than 8 years	68%	43%
8-11 years	26%	47%
12 or more years	6%	10%
Total	100%	100%

There were no significant differences between the educational level of farm operators who were fully employed and all farm operators.

The majority activity of the household head was also related to the educational attainment of the children. About 35 percent of the children of farm operators, but none of the children of nonfarm workers, had less than an eighth grade education. Although the number of observations was small, two-thirds of the children of household heads who reported nonfarm work as their major activity had a high school education or more, whereas only 12 percent of the children of farm operators had completed high school.

TABLE VI

EDUCATIONAL ATTAINMENT OF CHILDREN OVER 14 YEARS OF AGE,
BY TYPE OF HOUSEHOLD, 155 HOUSEHOLDS,
GRAINGER COUNTY, TENNESSEE, 1957

Type of household	Percent of those not in school, 1957				In school, 1957 percent of all children
	Less than 8th grade	8-11 years	High school or college	Total	
Full-time farm	31	67	12	100	42
Part-time farm	38	49	13	100	37
All farm	34	54	12	100	40
Nonfarm	32	36	32	100	4

Education related to nonfarm work. Household members that were not engaged in nonfarm work in 1957 were asked if they had any desire for nonfarm work. Forty-four percent of the children who expressed a desire for nonfarm work had less than an eighth grade education and only 5.6 percent had finished high school.

Of the children not in school, 42 percent were working at nonfarm jobs. The children working at nonfarm jobs had considerably more education than the ones who were not. Education of the two groups was:

<u>Years of school</u>	<u>Nonfarm workers</u>	<u>Others</u>
Less than 8 years	40%	45%
8-11 years	23%	48%
12 or more years	37%	7%
Total	100%	100%

Higher educated had higher paying jobs. About 47 percent of the children, not attending school in 1957, were engaged in nonfarm work at some time during the year. Seventy-three percent of the children of nonfarm households were engaged in nonfarm work, whereas only 36 percent of the children from farm households worked at nonfarm work in 1957. Of those engaged in occupations generally considered more remunerative (e.g., professional, managers, officials, clerical and kindred workers, sales workers, craftsmen and foremen) 90 percent had at least a high school education (Table VII). Almost 30 percent of those doing nonfarm work were engaged in Group I occupations, three-fifths of which were from nonfarm households and two-fifths from farm families. Of the remaining nonfarm workers, about two-thirds were engaged as operatives and general laborers which are usually

TABLE VII
KIND OF NONFARM WORK BY EDUCATIONAL ATTAINMENT
OF RURAL YOUTHS 14 YEARS OF AGE AND
OLDER, GRAINGER COUNTY, 1957

Education	Kind of nonfarm work		Total no. of nonfarm workers
	Group Ia ^a	Group IIb	
	%	%	
Less than 8 years	11	36	10
8 - 11 years	-	44	11
12 years or more	89	20	13
Total	100	100	34

^aIncludes professionals, managers, clerical, craftsmen, and foremen.

^bIncludes salesworkers, operatives, general laborers, salesmen, and service workers.

considered less remunerative than professionals, managers, etc. Thirty-nine percent of these had less than an eighth grade education, two-thirds of which were from farm families; and only 17 percent had completed high school.

Education related to family income. There was a definite positive relationship between level of education and net cash income from all sources for both farm and nonfarm households. As the educational level of household heads increased the net cash income also increased (Table VIII).

Forty-five percent of all households interviewed in the survey had net cash incomes of less than \$2,000. All of the children of these low-income households had less than a high school education, and 50 percent of these had less than an eighth grade education. In the income bracket of \$5,000 and over, only 12.5 percent of the children had less than an eighth grade education and 50 percent had a high school education.

Summary. The relationships discussed in this section indicate that educational attainment is associated with income. The data indicated that household heads with low levels of education generally had low net cash incomes and that children in low income families had lower educational attainment than did the children in households with higher net cash incomes. Children and household heads engaged in nonfarm work had completed more years of formal education, and most of those desiring nonfarm employment had fewer years of schooling. Finally, the data showed that higher educational attainment yielded the more remunerative nonfarm jobs.

TABLE VIII

NET CASH INCOME BY EDUCATION OF HOUSEHOLD HEAD,
155 HOUSEHOLDS, GRAINGER COUNTY, 1957

Education	Income groups		
	Under \$1,000	\$1,000-3,999	\$4,000 and over
	%	%	%
Less than 8 years	74	66	22
8 - 11 years	26	28	56
12 years or more	0	6	22
Total	100	100	100

C. VOCATIONAL TRAINING

Vocational training of residents in the sample area was conspicuous by its scarcity. Data concerning vocational training was obtained only for the household heads and those who had migrated from the area since 1950. Only 16 percent of the household heads and migrants in Grainger County reported any specialized training; whereas, 24 percent of household heads in the seven East Tennessee County study area reported that they had received some specialized training (Table IX). It is interesting to note that four times as many migrants as household heads had completed high school, but only a slightly higher percentage of the migrants had some vocational training. This may suggest a declining demand for vocational training versus academic training.

Only one household head who had received vocational trade training worked at a nonfarm job in 1957. Therefore, no conclusions can be drawn as to the relationship between vocational training of household heads and type of work they were doing or the compensation received. Two-thirds of the migrants who had received vocational training were engaged in Group I occupations which is some indication of the value of such training. Earnings of migrants were not enumerated.

The only formal vocational training available within the county is vocational agriculture, which is taught in both high schools in the county. This training is primarily in general agriculture with some emphasis on machine shop work. Both high schools also offer courses in home economics, typing, and shorthand. Consequently, if rural youths desire any formal vocational training (other than that mentioned above) they must acquire it

TABLE IX

COMPARISON OF SPECIALIZED TRAINING FOR FARM OR NONFARM JOBS OF
HOUSEHOLD HEADS AND MIGRANTS, GRAINGER COUNTY AND SEVEN
EAST TENNESSEE VALLEY COUNTIES, 1957 SURVEY

Type of training	Migrants		Household heads	
	Grainger County	7 E. Tenn. Counties	Grainger County	7 E. Tenn. Counties
	%	%	%	%
Trade or vocational	7.4	6.7	3.9	6.9
College training	2.4	6.2	1.9	1.8
On-farm training	a	a	1.9	0.4
On-job industry training	2.4	1.0	3.3	8.3
Apprenticeship training	1.2	0	0	0.4
Work experience	2.4	1.0	3.9	5.3
Military service training	0	0	0.6	1.2
Other	0	0.5	0.6	0.2
Not reported	0	0.5	5.2	2.4
None	84.2	84.1	78.7	73.1
Total	100.0	100.0	100.0	100.0

^aQuestion not asked of migrants.

outside the county, and probably at a substantial cost to the individual.

D. LEVEL OF LIVING

The number of household facilities was enumerated to determine the level of living of the rural households. The presence or absence of the following was considered: electricity, running water, water heater, central heat, complete bathroom, refrigerator, washing machine, TV set, automobile, telephone, number of rooms per person, and home ownership.

Based on the above conveniences, the seven counties in the East Tennessee study possessed a higher level of living than did the residents in the Grainger County study area except for the question concerning home ownership. A higher percentage of the households interviewed in Grainger County owned their homes debt-free than did the households in the seven county study (Figure 4). The median level of living score² of the households in East Tennessee area study was 5.8 as compared with 5.1 for the Grainger County survey. It is interesting to note how the differences widen in favor of the seven East Tennessee counties for the more modern conveniences such as running water, water heater, telephone, bathroom and central heat.

Figure 5 shows that a higher percentage of the farm households possessed more of the conveniences than did the nonfarm households. However, the reverse was true for TV sets, telephones, and complete bathrooms.

²Based on the number of the following conveniences in house: electricity, running water, water heater, central heat, complete bathroom, refrigerator, washing machine, TV set, automobile, telephone, number of rooms per person and home ownership. Each convenience was given equal value.

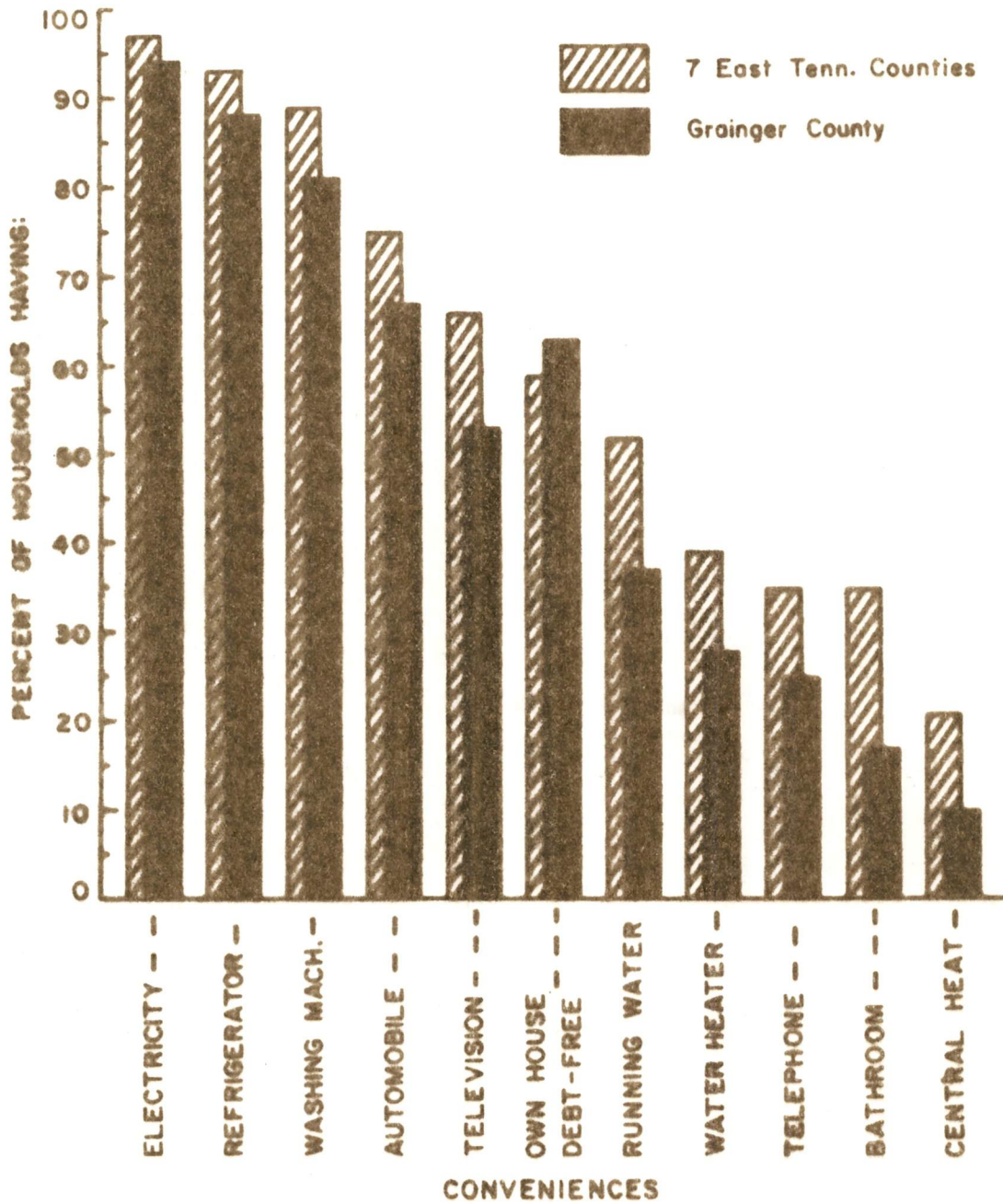


Figure 4. Percent of households having various conveniences, 506 rural households in seven East Tennessee counties and 155 rural households in Grainger County, 1957.

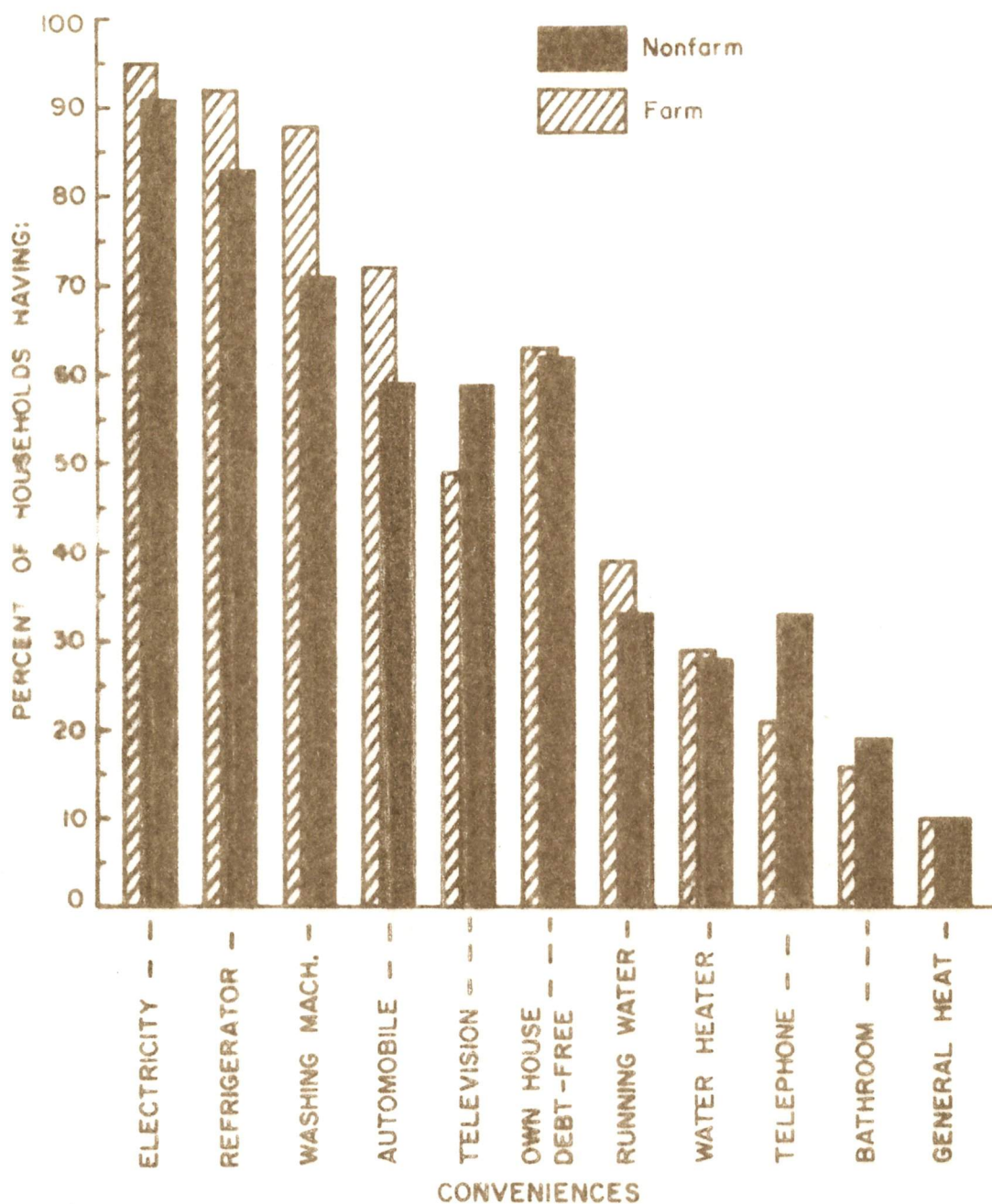


Figure 5. Percent of households having various conveniences, by type of residence, 155 rural household, Grainger County, 1957.

The relatively high percentage of nonfarm household heads were females, the fact that 52 percent of the nonfarm household heads were receiving welfare payments or pensions, and the inclusion of part-time farm household heads in the farm household statistics are contributing factors which help explain the differences which were found to exist between the level of living of the farm and nonfarm households.

When the part-time farm households were separated from the full-time farm households (Figure 6), a higher percentage of the part-time farms had more of the conveniences than did the full-time farm households. This is an indication that the supplemental income from nonfarm employment received by part-time farm households enabled them to enjoy a higher level of living than either the nonfarm or full-time farm households.

Household heads with higher educational attainment tended to have higher levels of living. There was some indication that a high level of living of the household was also associated with a high educational level of the children. The percentage of those who had completed high school tended to increase as level of living increased. A closer relationship existed for the children of the nonfarm households than for those of the farm households.

In an examination of the relationship between level of living and education of migrants, there appeared to be a positive, although inconsistent, relationship between these variables - i.e., the higher the level of living of the household, the higher the educational attainment of those who have migrated from the household. Of the children of households whose level of living score was five or less, 19 percent had less than an eighth

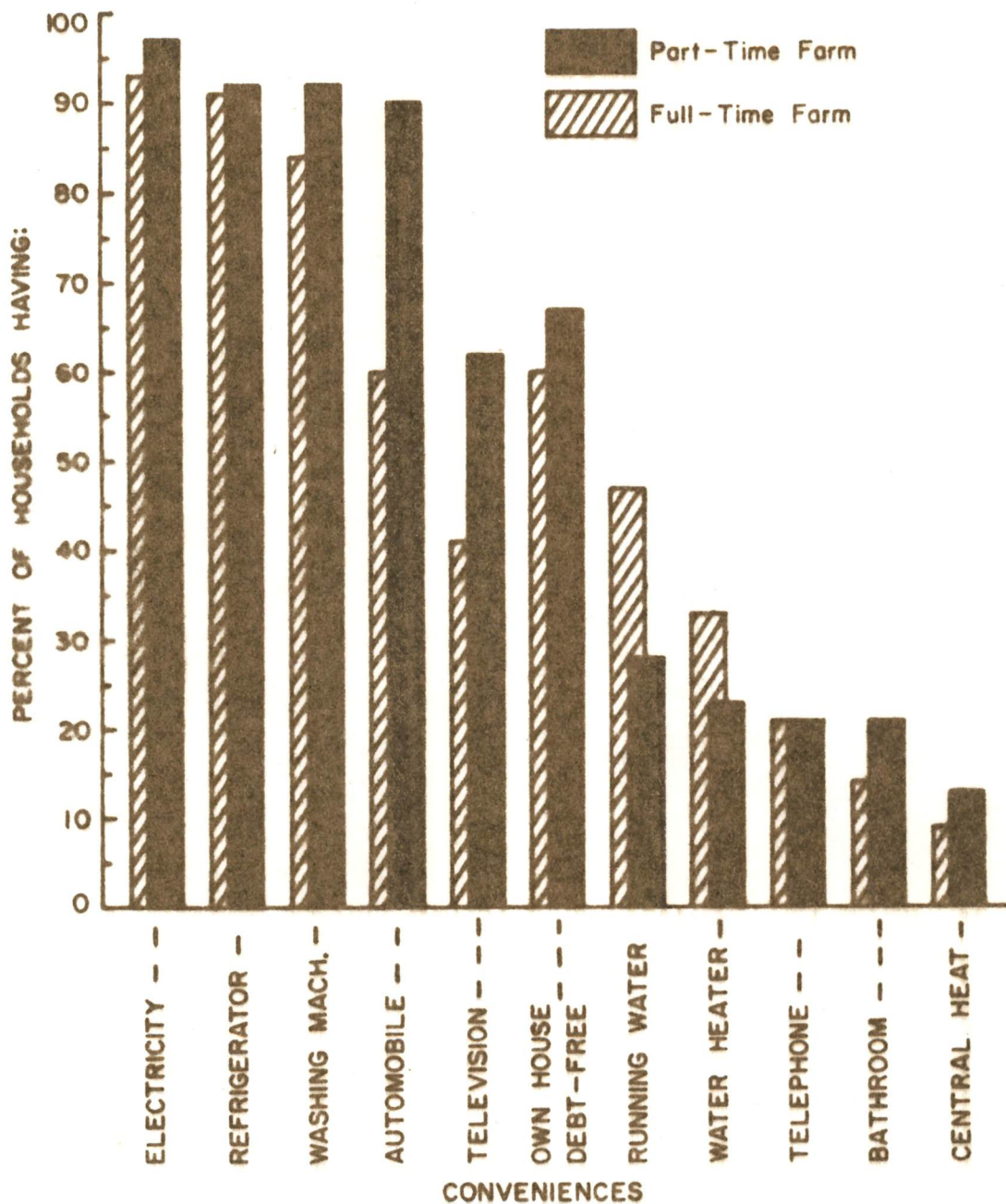


Figure 6. Percent of households having various conveniences, by full-time farm and part-time farm households, 155 rural households, Grainger County, 1955.

grade education. None of the migrants of households with level of living scores of six and over had less than an eighth grade education. In the latter group, of those with higher levels of living, 62 percent had completed high school as compared to only 25 percent of the migrants from households with low level of living scores.

CHAPTER III

EMPLOYMENT AND INCOME OF HOUSEHOLD MEMBERS

An inventory of the major activity and employment of the household members is essential to the study. The analysis made in this chapter is needed to appraise the manpower potential of Grainger County.

A. COMPOSITION OF THE LABOR FORCE

Eighty-two percent of the household heads were in husband-wife households, approximately 8 percent of the household heads were male without a wife, and 10 percent were households with female heads (Figure 7). Seventy-seven percent of the households had no employable males other than the household head. Twenty-two percent of household heads had some physical handicap other than age.

The determination of the number of able-bodied males, those between the ages of 18 and 45 with no known physical handicap, is necessary in describing the composition of labor force and its potential. The aging population again becomes evident. The farm households had slightly more able-bodied males than nonfarm households. The percent of households with able-bodied males was as follows:

	Percent of able-bodied males (18-45 years of age)			Total
	None	One	More than one	
Farm households	47	42	11	100
Nonfarm households	50	47	3	100

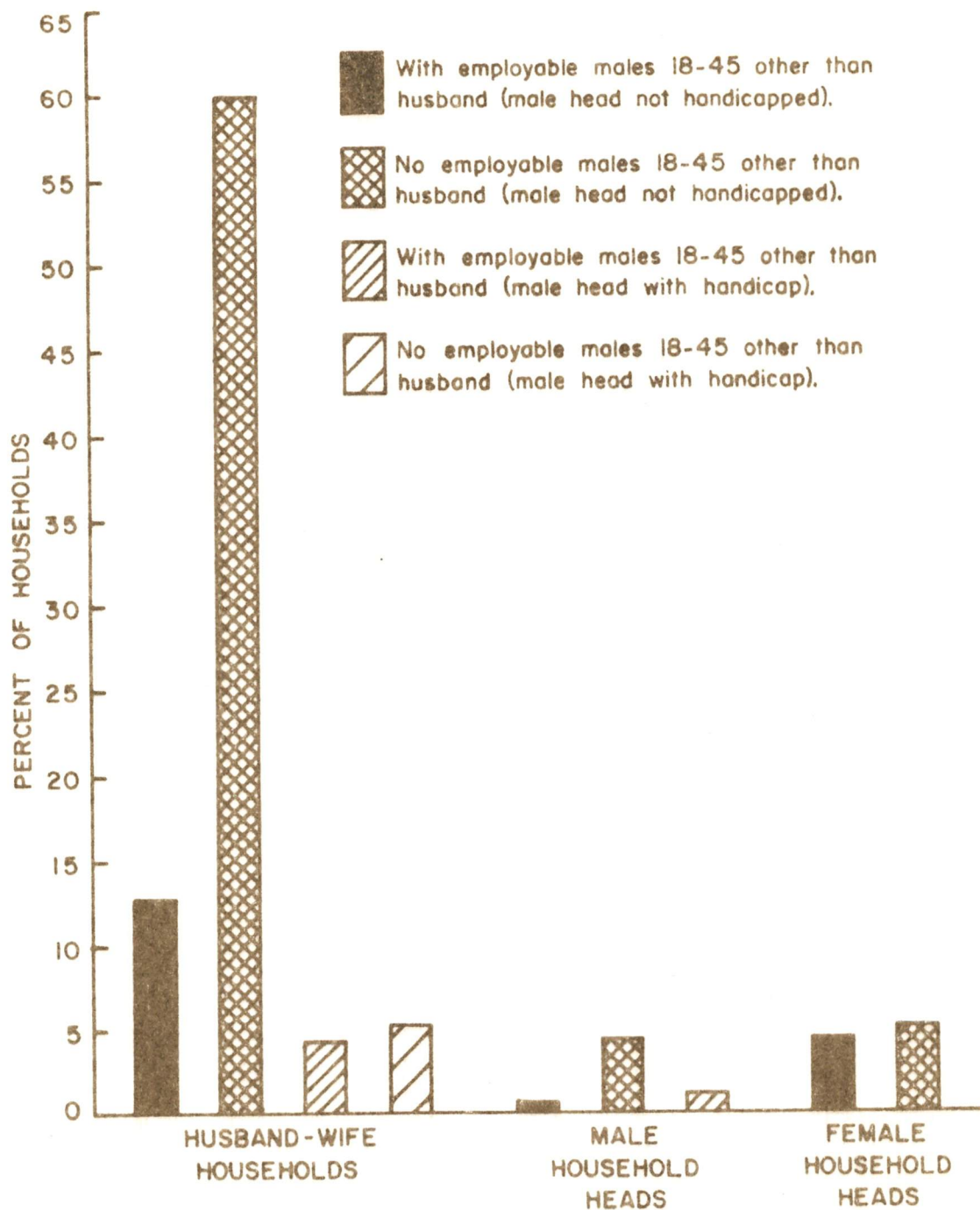


Figure 7. Households with specified characteristics, 155 rural households by family type, Grainger County, 1957.

The absence of able bodied males is apparent in that only about one-half of the households had able bodied males, according to the criteria used here. The fact that only approximately one-half of the households had male members in the productive age group is a factor likely to inhibit the transfer of the present farm labor force to the nonfarm labor force and therefore inhibit the adjustment of human resources to more economical employment.

Less than one-half of the household members were in the labor force a major part of the year, but 81 percent of the household heads were in the labor force for the major part of the year (Table X). It can also be observed from Table X that 80 percent of the male household members as compared with only 16 percent of the female members were in the labor force in 1957.

Almost three-fifths of the male household heads reported farm operator as their major activity during 1957, whereas less than one-third reported nonfarm work as their major activity. Other household members in the labor force in 1957 reported either farm wage work, nonfarm work, or unpaid family work as their major activity; however, almost 70 percent of this group was not in the labor force in 1957.

Less than 30 percent of the adults in the sample area were engaged in nonfarm work (Table XI). The majority of the nonfarm workers were engaged in occupations requiring little or no skill or training, namely operatives, service workers, and laborers.

Important changes in the family labor force have taken place among rural households in Grainger County in recent years. In analyzing the responses to the questions concerning gains or losses in the number of

TABLE X

MAJOR ACTIVITY OF 421 HOUSEHOLD MEMBERS 14 YEARS OF AGE AND OLDER
BY POSITION IN HOUSEHOLD, GRAINGER COUNTY, 1957

	All persons		All male		All female		Household heads				Other members						
	%	Number	%	Number	%	Number	All	Male	Female	%	Number	All	Male	Female	%	Number	
In labor force	51	196	80	164	16	23	82	89	21	33	69	33	69	16	16	16	16
Farm operator	19	74	36	131	*	1	51	57	7	*	1	*	1	0	0	0	0
Farm wage work	3	11	4	15	2	7	2	1	7	6	8	6	8	1	1	1	1
Nonfarm work	22	84	31	114	11	38	28	30	7	18	32	18	32	12	12	12	12
Unpaid family work	5	19	7	26	3	11	0	0	0	15	20	15	20	3	3	3	3
Looking for work	2	7	4	15	0	0	1	1	0	3	8	3	8	0	0	0	0
Not in labor force	49	184	18	67	84	118	18	11	79	67	31	67	31	84	84	84	84
Going to school	9	34	9	34	8	30	0	0	0	14	25	14	25	9	9	9	9
Housekeeping	33	124	0	0	71	26	7	0	72	48	0	48	0	70	70	70	70
Other (retired, etc.)	7	27	9	33	5	18	11	11	7	5	6	5	6	5	5	5	5
All persons	100	421	100	421	100	421	100	100	100	100	100	100	100	100	100	100	100
Percent																	
Number																	

*Less than .5 percent

TABLE XI

EMPLOYMENT OF 421 HOUSEHOLD MEMBERS 14 YEARS OF AGE AND OVER BY POSITION,
155 HOUSEHOLDS, GRAINGER COUNTY, 1957

	All persons		Household heads		Other members	
	Total	%	All	%	All	%
	Male	Female	Male	Female	Male	Female
Professional, technical, and kindred	1	1	2	2	1	0
Managers, officials and proprietors	2	3	3	4	1	1
Clerical and kindred	2	1	1	1	2	1
Craftsmen, foremen and kindred	6	10	9	10	4	9
Sales workers	1	1	0	0	2	2
Operatives and kindred	10	14	13	14	8	13
Service workers incl. priv. household	2	1	3	2	2	0
Laborers, except farm and mine	5	9	5	6	5	14
No nonfarm work in 1957	71	60	64	61	75	60
All persons	100	100	100	100	100	100
	421	225	155	140	266	85
Percent						
Number						

*Less than .5 percent

household members, households were categorized into three groups: those which were larger in 1957 than in 1950, those which were smaller, and those which were essentially the same in 1950. The following causes of change were considered:

1. Losses to local areas (within 100 miles)
2. Losses to areas beyond 100 miles
3. Losses due to biological factors only (death, 50 years or older, or acquired handicap)
4. Losses due to biological factors and losses to distant areas
5. Children coming into the productive age group

Data obtained from the 155 survey households indicate that 57 percent of the households had a declining labor force (Figure 8). In over one-half of these households the losses were due to biological factors, and losses in an additional 39 percent of the households were due to a combination of the biological factors and losses due to migration to distant areas. It is also noteworthy that only 19 percent of the households incurred no losses since 1950. These findings suggest that the general trend is toward a declining labor force and that biological factors have been a major factor. Furthermore this trend can be expected to continue if the age distribution remains as it was at the time of the survey, or unless the out-migration of young people is reduced and there is a subsequent increase in the formation of new households.

B. MAJOR ACTIVITY, EMPLOYMENT, AND INCOME OF HOUSEHOLD MEMBERS

Major activity during 1957. Data obtained in the 1957 survey pertaining to the major activity of household members 14 years old and older

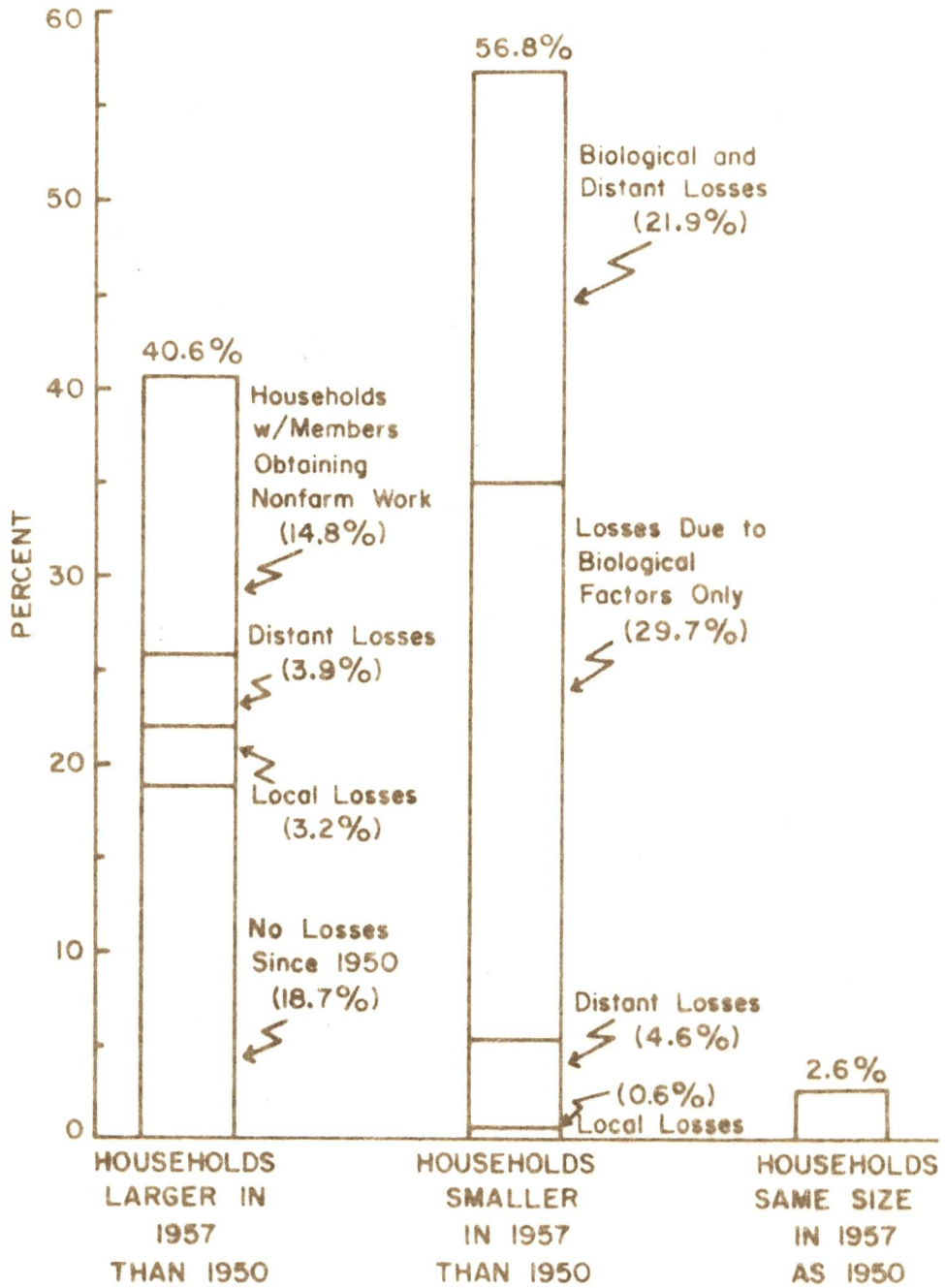


Figure 8. Changes in family labor force since 1950, 155 rural households, Grainger County.

served as a basis to separate the housewives, school children, and retired or disabled persons from those which were largely in the labor force. Seventy percent of the female members reported housekeeping as their major activity (Table XII). A total of 37, or 9 percent, of those over 14 years of age were attending school the major portion of the year. Nine percent of the male members and 5 percent of the female members were either retired or disabled. Persons engaged in these nongainful activities totaled 205, or 49 percent of the adult population. However, some of these members were engaged in gainful activities for a minor portion of the year. Of the 216 household members who were engaged in gainful activities for the major portion of 1957, 77 percent of those employed primarily in nonfarm work were under 45 years of age. In comparison, 75 percent of those reporting "farm operator"¹ as their major activity were over 45 years of age.

Relationship of education to major activity. In Chapter II it was pointed out that those engaged in nonfarm work had completed more formal schooling than those who reported farm operator as their major activity. This can also be seen in Table XII. Table XIII shows the major activity and educational attainment of the household members who were engaged in productive activities at some time during the year. Forty-four percent of all such members had less than an eighth grade education. Of those primarily engaged as farm operators, 50 percent had less than an eighth grade education. Almost three-fifths of those who had graduated from high school reported nonfarm work as their major activity during 1957. Only 10 percent

¹A farm operator as used in this study was the person who had the responsibility of making managerial decisions for the farm operation.

TABLE XII

MAJOR ACTIVITY OF 421 ADULT HOUSEHOLD MEMBERS
BY AGE AND SEX, GRAINGER COUNTY, 1957

Major activity	All persons No.	Age and sex											
		14-24 years		25-44 years		45-64 years		65 yrs., over		Male		Female	
		Male	Female	Male	Female	Male	Female	Male	Female	%	%	%	%
Farm operator	81	3	0	28	0	70	2	50	2	0	0	0	0
Farm wage work	12	9	0	3	3	2	2	0	2	0	0	0	0
Nonfarm work	91	27	3	56	22	21	9	6	9	6	0	0	0
Unpaid family work	23	20	11	5	1	0	0	3	0	4	0	0	0
Looking for work	9	6	0	5	0	2	0	3	0	0	0	0	0
Going to school	37	33	46	0	0	0	0	0	0	0	0	0	0
Housekeeper	138	0	34	0	73	0	87	0	0	71	0	0	71
Other (retired, etc.)	30	2	6	3	1	5	0	38	0	25	0	0	25
All persons	421	100	100	100	100	100	100	100	100	100	100	100	100
Percent Number		64	35	65	69	60	64	36	64	28	36	28	28

TABLE XIII

MAJOR ACTIVITY OF 238 HOUSEHOLD MEMBERS WHO WERE
GAINFULLY EMPLOYED AT SOME TIME DURING 1957
BY EDUCATION, GRAINGER COUNTY

Major activity	All persons		Educational level							
			7 years or less		8 years		9-11 years		12 years or more	
	No.	%	No.	%	No.	%	No.	%	No.	%
Farm operator	81	33	52	50	17	26	4	12	8	24
Farm wage work	12	5	9	9	2	3	1	3	0	0
Nonfarm work	91	38	30	29	31	46	10	29	20	58
Unpaid family work	23	10	7	7	8	12	6	18	2	6
Looking for work	5	2	2	2	0	0	2	6	1	3
Going to school	13	6	1	1	2	3	7	20	3	9
Housekeeper	11	5	1	1	7	10	3	9	0	0
Other (retired, etc.)	2	1	1	1	0	0	1	3	0	0
All persons	238	100	103	44	67	28	34	14	34	14

of the farm operators, as compared with 22 percent of those who were primarily engaged in nonfarm work, had a high school education. Over two-thirds of members whose major activity was nonfarm work had at least an eighth grade education. In the light of the data in Table XIII, there is a strong suggestion that the labor force in Grainger County is at a distinct disadvantage education-wise in a nation whose labor force is becoming increasingly specialized and requires higher and higher degrees of technical knowledge. The data also suggest that household members with higher levels of education are in a position which allows them to compete better for non-farm job opportunities.

Nonfarm employment of rural residents. One-hundred twenty residents, or 29 percent, of the adult population in the sample area were employed at nonfarm work at some time during 1957. Approximately three-fourths of these nonfarm workers were under 45 years of age (Table XIV). Eighty percent of the professional workers were over 45 years of age. Female members constituted 25 percent of the nonfarm workers. Three-fifths of all nonfarm workers were working in occupations requiring little or no skill, e.g. operatives, private household and service workers and laborers. One-fifth of the nonfarm workers reported their occupation as craftsmen or foremen (generally considered more remunerative than those occupations mentioned above).

Relationship of education to nonfarm employment. It is generally believed that there is some relationship between education and occupation types. Table XIV shows this relationship which was found in the survey

TABLE XIV

TYPE OF NONFARM WORK OF 120 RURAL RESIDENTS BY AGE GROUP AND SEX,
GRAINGER COUNTY, 1957

	All persons	Percent in each age group																	
		14-24 years		25-44 years		45-64 years		65 yrs., over											
		Male	Female	Male	Female	Male	Female	Male	Female										
	No.	%																	
Professional, technical and kindred	5	4	0	0	0	6	5	10	50	0									
Managers, officials and proprietors	7	6	0	0	9	6	11	0	0	0									
Clerical and kindred	7	6	4	33	2	12	5	10	0	0									
Craftsmen, foremen, kindred	24	20	20	0	30	6	17	10	25	0									
Sales workers	5	4	8	0	0	12	0	10	0	0									
Operatives and kindred	40	33	24	33	45	40	28	10	0	0									
Private household workers	1	1	0	0	0	0	0	10	0	0									
Service workers	9	8	0	0	0	12	17	40	0	0									
Laborers (excl. farm)	22	18	44	33	14	6	17	0	0	0									
All persons	120	100	100	100	100	100	100	100	100	100									
Percent Number			25	3	43	17	18	10	4	100									

area. One of the most significant observations in Table XV is that 68 percent of the household members who had at least a high school education worked in Group I occupations (professional, managers, etc.) which are usually more remunerative than Group II occupations. Forty-four percent of those engaged in Group I occupations had completed high school, as compared with only 12 percent for those working in Group II occupations (sales workers, operatives, laborers, etc.). Seventy-one percent of those in Group II occupations had an eighth grade education or less.

Nonfarm earnings. The analysis of nonfarm earnings poses many questions - questions which cannot be fully answered with the limited data collected and the fewness of nonfarm workers in the sample area. Information obtained as to actual days of nonfarm employment and compensation received was complete for only 112 household members. Therefore, the analysis which follows deals only with these members - 26 percent of the adult population.

Average annual nonfarm earnings, as seen in Table XVI, indicate that as age and education increased, the average annual nonfarm earnings also increased. There are, however, several exceptions to this generalization. Average earnings were lower for the age group 45 years and older than for the 35-44 year age group in all education groups. This decline is probably related to physical limitations which very likely impair the productiveness of persons in this age group and a decline in the number of days worked by persons in two of the education groups. In the age group 25-34 (with less than 8 years formal education) average annual earnings were somewhat higher than for persons in the 35-44 age group, and the

TABLE XV

TYPE OF NONFARM WORK OF 120 RURAL RESIDENTS BY EDUCATIONAL LEVEL,
GRAINGER COUNTY, 1957

	Educational level											
	All persons		7 years or less		8 years		9-11 years		12 years or more			
	No.	%	No.	%	No.	%	No.	%	No.	%		
Group I occupations	43	36	13	36	9	23	2	11	19	68		
Professional, technical, kindred	5	4	2	6	0	0	0	0	3	11		
Managers, officials, proprietors	7	6	1	3	2	5	0	0	4	14		
Clerical and kindred	7	6	0	0	0	0	2	11	5	18		
Craftsmen, foremen, and kindred	24	20	10	27	7	18	0	0	7	25		
Group II occupations	77	64	23	64	29	77	16	89	9	32		
Sales workers	5	4	0	0	1	3	1	6	3	11		
Operatives and kindred	40	33	14	38	17	45	7	38	2	7		
Private household workers	1	1	1	3	0	0	0	0	0	0		
Service workers	9	8	2	6	4	11	3	17	0	0		
Laborers (excl. farm)	22	18	6	17	7	18	5	28	4	14		
All persons	120	100	36	100	38	100	18	100	28	100		

TABLE XVI

AVERAGE ANNUAL NONFARM EARNINGS BY EDUCATION AND AGE GROUPS,
GRAINGER COUNTY, 1957

Age group	Under 8 years			8-11 years			12 years or more		
	:N:	:Av. days worked	:Average earnings	:N:	:Av. days worked	:Average earnings	:N:	:Av. days worked	:Average earnings
Under 25	5	178	1508	11	139	1227	12	156	1531
25 - 34	10	205	2198	13	217	2254	6	258	3073
35 - 44	8	172	1970	14	209	2316	3	257	2800
45 and older	8	188	1771	15	148	1331	7	197	2528

45 years and older age group (with 8 to 11 years schooling) had lower earnings than those of the same age group with less than 8 years education. The only explanation for these deviations from the general trend is that the average days worked was substantially higher and lower respectively for the two groups which do not follow the trend indicated. The average earning for the 35-44 year age group with 12 or more years education was lower than that for the 25-34 year age group. This exception is probably the result of the fewness of observations in this group.

The relationship of age, education, and occupation group combined on nonfarm earnings was analyzed to determine if the following generalizations could be applied to the population studied:

1. Higher levels of formal education increase the individual's earning power.
2. Certain occupations are more remunerative than other occupations.
3. Nonfarm earnings are a function of education, occupation group, and age.

When the above relationship was studied for the data in the survey area it was found that it did not conform with the above generalizations. This was probably the result of the wide variation in the number of observations in each of the various categories examined; however, some important observations were found.

The general trend indicated in Figure 9 suggests that nonfarm earnings were a function of age and education. The decline in average annual income as education attainment increases from less than 8 years to 8-11 years for the age groups under 25 and over 45 years of age can probably be explained by the influence of work experience on earnings;

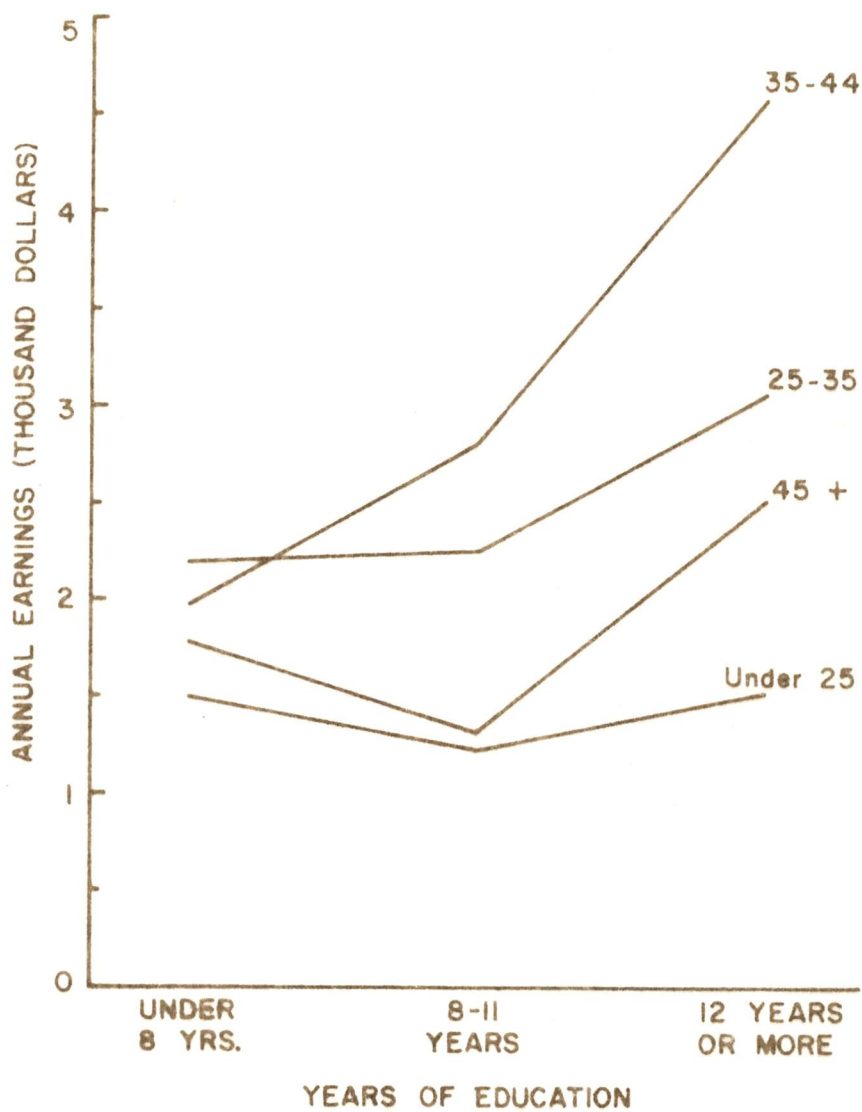


Figure 9. Earnings by age group and education, Grainger County, 1957.

that is, the influence of additional years of work experience on earnings acquired by those who left school before completing the eighth grade resulted in higher earnings than those received by household members with a few more years of schooling. The earnings of the 45 years and over age group were below the younger groups due primarily to the fact of the decreasing productivity of persons approaching retirement age.

Although the evidence is not conclusive, Figure 10 does indicate that Group I occupations (professional, managers, etc.) were more remunerative than Group II occupations (operatives, laborers, etc.). There is also a further indication that earnings increased as individuals approached the 35 to 44 year age group and then declined above 45 years of age. Figure 10 indicates the expected influence of education on earnings which is probably due to the fact that persons with higher levels of educational attainment were more fully employed so that although average daily earnings were lower, average annual earnings were higher than those of persons with less than an eighth grade education. The fact that only two persons over 25 years of age with at least a high school education were working in Group II occupations suggests the possibility that education also influences the selection of occupation.

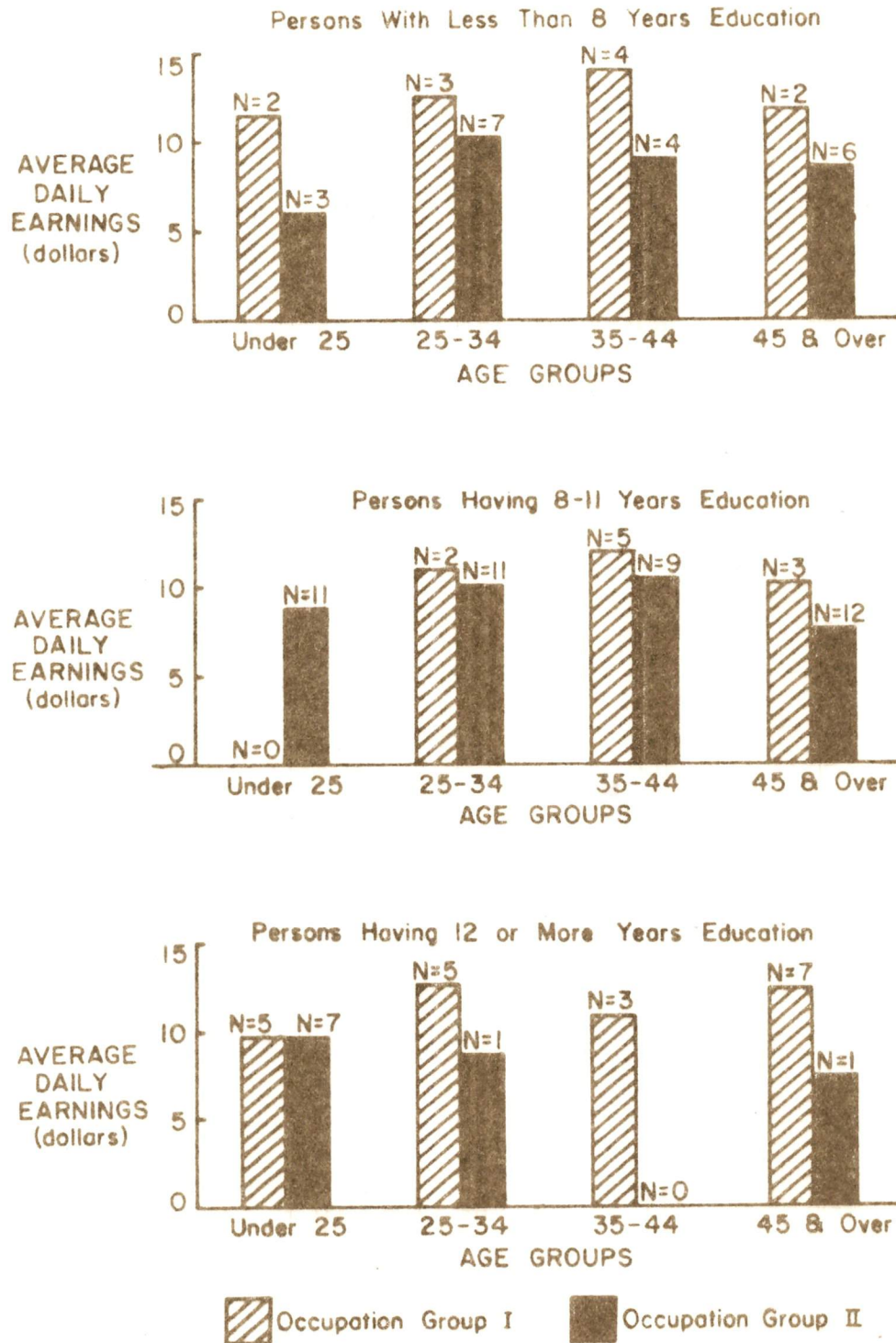


Figure 10. Average daily nonfarm earnings by age group and occupation group, Grainger County, 1957.

CHAPTER IV

UNDEREMPLOYMENT OF HOUSEHOLD MEMBERS

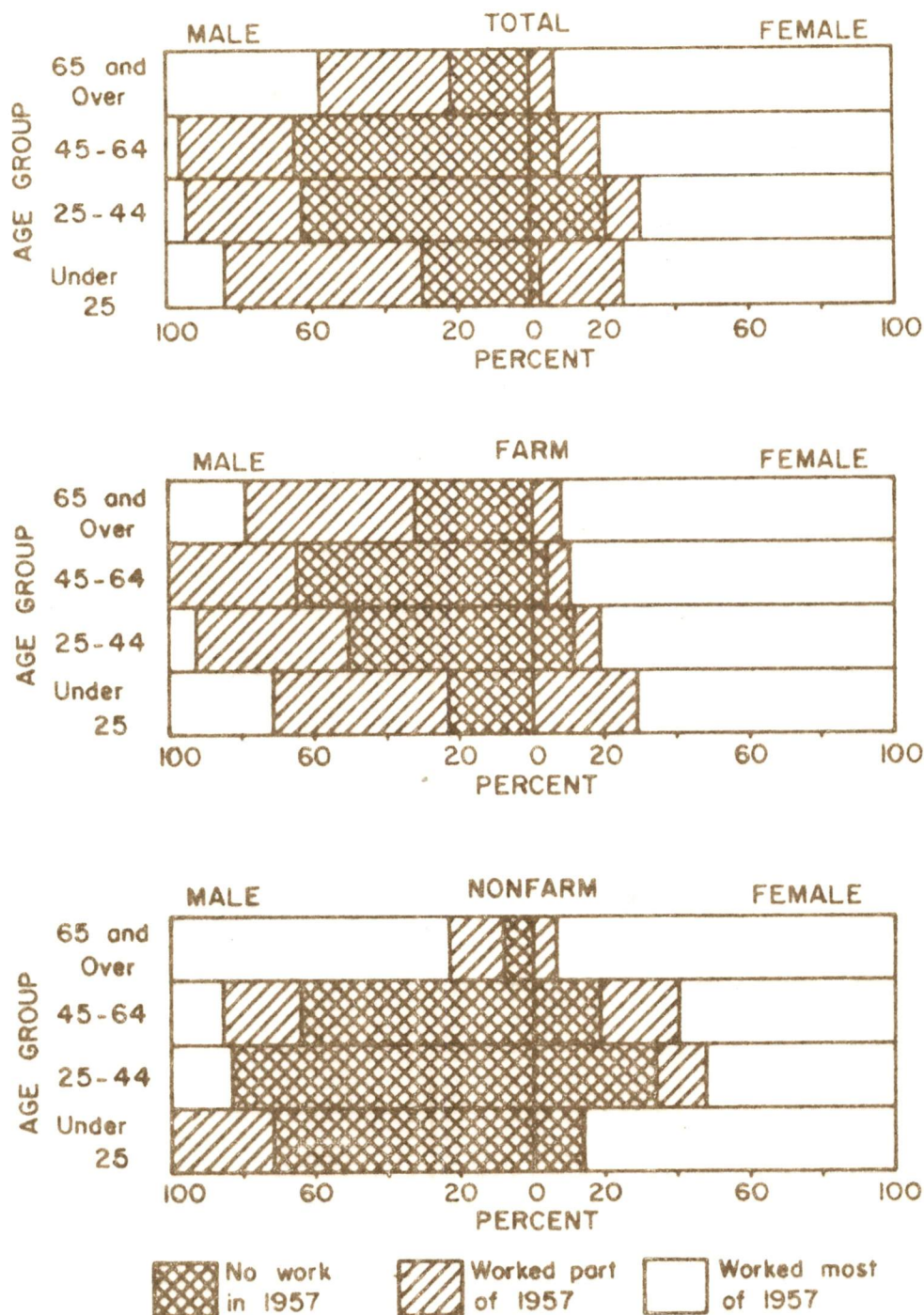
An able-bodied person who is not gainfully employed for 12 months per year can be considered underemployed. Underemployment is often prevalent in rural areas in which there is a surplus of the human resources in relation to other resources (land and capital) which results in poor allocation of resources and consequently low per capita output. Alternative employment opportunities do not exist in sufficient quantities to absorb the labor surpluses. In the light of these conditions many observers agree that labor is the most wasted resource in chronically low income areas.¹

As was seen in Chapter III, 238 or 56 percent of the adult population which was surveyed were engaged in some type of gainful activity for some portion of 1957. The period of employment for these individuals varied from 12 days to over 300 days worked in the 12 months preceding the survey. The purpose of this chapter will be to determine the extent of underemployment which existed in Grainger County in 1957 and to delineate the availability and/or the willingness of residents to accept additional employment or alternative employment.

A. EMPLOYMENT STATUS OF ADULT HOUSEHOLD MEMBERS

The portion of the year that males and females were employed is illustrated in Figure 11. For purposes of this analysis a household member

¹Gerald M. Meier and Robert Baldwin, Economic Development (New York: John Wiley & Sons, Inc., 1957), Chapters 13 and 15.



Note: The total farm labor requirements were allotted to the farm operator. The farm housewives and unpaid family workers were not given credit for any farm work in this analysis (see Appendix I).

Figure 11. Age and sex distribution of all household members over 14 years of age, showing the proportion of members employed for the major part of the year, part of the year and those doing no work during 1957, Grainger County.

was employed for a major portion of the year if he worked at least 131 days in 1957 (See Appendix, Part I). This work could have been performed either at farm or nonfarm jobs or a combination of both. If he was engaged in any gainful activity less than 130 days he would be included in the group "working some portion of 1957."

An indication of the underemployment which exists in Grainger County is shown in Figure 11. Almost one-half of those in the labor force were employed less than 131 days in 1957. Forty-four percent of the adult population did not report any productive activity in 1957. Of the farm households, a higher percentage of both male and female members worked less than 130 days during the year. This is probably the result of (1) small farm units not requiring a full man-equivalent, (2) few farm women who worked in the labor force, and (3) all work performed in connection with the farm business being allocated to the farm operator. The number of farm males working the major part of the year increased as age increased up to 65 years of age.

Farm males who had worked over 130 days were older on the average than were nonfarm workers in the same category. The largest proportion of farm males working the major part of the year were in the 45-64 year age group but the largest proportion of nonfarm males working the major part of the year were in the 25-44 year age group. Figure 11 also indicates that male members of farm households remain employed to an older age than do nonfarm males.

Another characteristic of the labor force in the sample area was that the workers from nonfarm households tended to be more fully employed than workers from farm households; that is, the nonfarm group had a higher

percentage working over 130 days in 1957 than did the farm group. All of the nonfarm male workers in the 14-24 year age group were engaged in some productive activity for some portion of the year. It can be concluded from the data presented here that underemployment of human resources is more serious among farm households than among members of nonfarm households, and among the older segment than the younger household members.

B. LENGTH OF EMPLOYMENT AS RELATED TO TYPE OF NONFARM WORK AND INDUSTRY

The analysis immediately following will deal only with the length of employment of 120 household members who were engaged in nonfarm jobs. Differences found in the number of days worked among the various occupations by nonfarm workers in the sample area are shown in Table XVII. Managers and clerical workers in the sample area were the most fully employed (on the basis of days worked). Craftsmen were also relatively fully employed considering the fact that many of the craftsmen were construction workers whose work is largely dependent upon weather conditions. Only 52 percent of the operatives, 40 percent of the private household-service workers and 36 percent of the laborers were employed ten or more months in 1957. Another observation which can be made from Table XVII is that only 19 percent of those working in Group I occupations were employed less than 6 months as compared with 32 percent of those engaged in Group II occupations. It can be concluded from these data that the household members working in Group I occupations were more fully employed than those engaged in Group II occupations.

Some types of industries provided fuller employment for the residents

TABLE XVII

LENGTH OF EMPLOYMENT OF 120 HOUSEHOLD MEMBERS BY KIND OF NONFARM EMPLOYMENT,
GRAINGER COUNTY, 1957

Type of nonfarm work	All Persons		Percentage who worked a specified number of days at nonfarm jobs			Days worked not reported
	No.	%	130 or less	131-195	Over 195	
Group I occupations	43	100	19	12	62	7
Professional, technical, kindred	5	100	20	20	20	40
Managers, officials, proprietors	7	100	29	0	71	0
Clerical and kindred	7	100	0	29	71	0
Craftsmen, foremen and kindred	24	100	21	42	33	4
Group II occupations	77	100	32	18	47	3
Sales workers	5	100	40	0	60	0
Operatives and kindred	40	100	25	18	52	5
Priv. household and service workers	10	100	50	10	40	0
Laborers (excl. farm)	22	100	36	28	36	0

in the sample area than did other industries. Persons working in the mining and forestry industries and personal service industry were characterized by relatively short periods of employment, whereas those working at construction, manufacturing, transport communications and public utilities, wholesale-retail trades and business and repair service were employed, on the average, for longer periods of time (Table XVIII).

C. EXTENT OF UNDEREMPLOYMENT

Method of determining extent of underemployment. It is very difficult to establish any norm or standard as to what should be considered "full employment." Such a norm would vary according to age, sex, and physical capabilities of individuals and also in regard to differences in the various occupational fields. What may be considered full employment for a man 60 years of age with some physical disability might not be full employment for a man 25 years of age. This obstacle was countered by calculating man equivalents for each household (See Appendix, Part II). And a school teacher who works 180 days per year is generally considered fully employed but the office worker or craftsman who works only 180 days per year could be considered underemployed because persons in the latter categories generally are gainfully employed 240 days or more per year.

Another problem encountered in determining the extent of family employment on the home farm was the absence of data concerning the portion of work done by the various household members.

Considering these various problems the writer has attempted to set up criteria upon which the degree of underemployment might be reliably calculated (See Appendix, Part II).

TABLE XVIII

LENGTH OF NONFARM EMPLOYMENT OF 120 HOUSEHOLD MEMBERS BY KIND OF INDUSTRY,
GRAINGER COUNTY, 1957

Kind of industry	All Persons No.	%	Percentage who worked a specified number of days at nonfarm jobs			Days worked not reported
			130 or less	131-195	Over 195	
Mining and forestry	11	100	55	0	45	0
Construction	9	100	11	11	67	11
Manufacturing	52	100	29	19	50	2
Transport, communication public utilities	6	100	17	17	49	17
Wholesale and retail trade	18	100	11	17	72	0
Finance, insurance and real estate	0	0	0	0	0	0
Business repair service	9	100	22	22	56	0
Personal service	6	100	49	17	17	17
Entertainment and recreation	2	100	100	0	0	0
Professional and related service	5	100	20	20	40	20
Public administration	2	100	0	0	100	0

Degree of underemployment and estimation of potential labor force.

Sixty-three percent of the families in the survey had some underemployment (Table XIX). Of the sixty full-time farm families, 41 households had 71 persons between the ages 14 and 59 who were underemployed for one month or more in 1957 based upon the criteria set forth in the preceding section. Twenty-five of the 37 part-time families had 39 persons in the same age group who were underemployed and in 32 of the 58 nonfarm families 45 persons were underemployed. This makes the combined total of 155 persons or 47 percent of all persons in the age group 14 to 59 who were underemployed.

Generally speaking, it is difficult for persons under 18 or over 45 years of age to find regular employment in industry so with this in mind further analysis will exclude underemployed persons in these age groups. Sixty-four of the persons underemployed were under 18 or between 45 and 59 years of age leaving a total of 91 persons who could be considered for alternative or additional employment.

Underemployment in full-time farm households was considerably greater than for part-time farm households and nonfarm households (Table XX).² Sixty-three persons or approximately one-third of the persons between the ages 18 and 45 were underemployed for a period of six months or more. Fifty percent of the members in the age group under consideration of full-time farm families could have taken on additional employment

²Calculations of underemployment by months underemployed for persons 18-45 years of age showed differences between full-time farm households and the part-time farm and nonfarm households which were very highly significant by the Chi Square test. However this must be interpreted with the assumption that farm housewives were assumed to be in the labor force and housewives of nonfarm households were not assumed in the labor force unless they were currently working or desiring nonfarm work.

TABLE XIX
 NUMBER OF UNDEREMPLOYED PERSONS 14-59 YEARS OF AGE
 BY HOUSEHOLD TYPE, 155 RURAL HOUSEHOLDS,
 GRAINGER COUNTY, 1957

Household type	Number of families			Number of persons		
	Total	With underemployed 14-59 years		Total	Underemployed 14-59 years	
		No.	%		No.	%
Full-time farm	60	41	68	132	71	46
Part-time farm	37	25	67	103	39	25
Nonfarm	58	32	55	97	45	29
Total	155	98	63	332	155	100

TABLE XX

NUMBER OF UNDEREMPLOYED PERSONS 18-45 YEARS OF AGE BY HOUSEHOLD TYPE
AND DEGREE OF UNDEREMPLOYMENT, 155 RURAL HOUSEHOLDS,
GRAINGER COUNTY, 1957

Household type	Total persons in age group		Length of underemployment						Total under- employed		Total fully employed	
	No.	%	1-5 mos.		6-11 mos.		12 mos.		No.	%	No.	%
Full-time farm	66	100	6	9	15	23	18	27	39	59	27	41
Part-time farm	59	100	10	17	8	14	6	10	24	41	35	59
Nonfarm	68	100	12	18	5	7	11	16	28	41	40	59
Total	193	100	28	14	28	14	35	19	91	47	102	53

for six or more months without reducing their farming operations. An additional 9 percent of the persons in full-time farm households could have taken on one to five months of additional employment without affecting their farming operations.³ The underemployment for the part-time farm and nonfarm household members was less than one-half that of the full-time farm families in the 6 to 12 months group.

It is the number of persons who were underemployed six months or more which are of particular significance to this study because it is primarily from this group that potential workers for industry would come. Sixty-three persons fall into this group (Table XX). However, we cannot assume that all of these persons would be willing to accept nonfarm employment or that they all possess the physical and mental capabilities to perform nonfarm work. But this estimate does provide an indication of the magnitude of the potential labor force which exists in Grainger County. Data obtained concerning the educational levels of these sixty-three persons will refine our calculation further.

Forty-five percent of those underemployed between the ages 18 and 45 had less than an eighth grade education (Table XXI). It is very probable that persons falling into this group would provide "muscle power" only for industry and would be unable to compete favorably with persons with higher levels of education for the more desirable nonfarm jobs. Those with less than 8 years of education were highly concentrated among the farm households. Eliminating household members who were underemployed less than six months

³If in a farm household there was enough work for one and one-half persons and there were two full man equivalents available, the household head was considered fully employed and the other household member was considered underemployed.

TABLE XXI

NUMBER OF PERSONS 18-45 BY MONTHS UNDEREMPLOYED AND
EDUCATIONAL LEVEL, 155 RURAL HOUSEHOLDS,
GRAINGER COUNTY, 1957

Educational level	Number of persons by months underemployed			Total	Percent of total
	1-5 months	6-11 months	12 months		
Under 8 years	13	15	13	41	45
8 years	6	6	14	26	29
Over 8 years	9	7	8	24	26
Total	28	28	35	91	100

and those with less than 8 years of schooling, the residual would be those most likely to meet the requirements for additional or alternative work in industry. There were thirty-five persons which fell into this group. The procedure used here in calculating the extent of underemployment and the number of persons in Grainger County which might be available for additional industrial employment is closely patterned after the method used by Bonser for Hardin County, Tennessee.⁴ However it must be pointed out that the estimation is very crude and there is much room for further refinement, especially if actual data as to availability and qualifications of the individuals were available. It must be kept in mind that the estimation made in this study is based upon the following assumptions:

1. Persons over 45 years of age are not acceptable as new employees in industry.
2. Persons with less than an eighth grade education are not likely to meet the requirements of industry.
3. Most nonfarm jobs call for full-time employment, and therefore persons underemployed less than six months could not be considered potential workers for industry.

Perhaps this last assumption underestimates the potential labor force because undoubtedly some of those presently engaged in farming might desire nonfarm employment in which daily earnings are generally greater than their farm earnings.

On the basis of these assumptions there would be approximately 760 persons in Grainger County between the ages 18 and 45 with an eighth grade education or more and who were currently underemployed 6 months or more

⁴Howard J. Bonser, C. F. Lard, and P. S. Buchanan, "The Impact of Industrial Employment on the Agriculture of Hardin County, Tennessee," Unpublished manuscript, Agricultural Experiment Station, University of Tennessee, August, 1957.

(See Appendix, Part III). In other words, industry looking for persons with these requirements could expect to find about 760 such persons in Grainger County.

D. AVAILABILITY OF PERSONS FOR ADDITIONAL OR ALTERNATIVE EMPLOYMENT

Availability of labor involves more than the existence of under-employment. The term availability relates to the readiness or willingness of the underemployed to accept nonfarm employment.

The 155 households in the survey area were divided into three main categories: those with no unused labor, those with unused labor but less than one full-time worker, and those with unused labor and had at least one excess worker. Fifty-eight, or 37 percent, of all households had no unused labor, 41 percent had some unused labor and 22 percent of the households had at least one person in excess of its labor requirement - one which could be released to nonfarm work without changing the farm organization (Figure 12). Approximately 30 percent of the households had some member desiring nonfarm work. Of the households which had at least one potential worker in excess of its needs, 18 persons desired nonfarm work. Expanding this figure to the whole of Grainger County we arrive at an estimate of 394 persons who would be available for nonfarm employment.⁵

Willingness to accept nonfarm employment. Household heads who did no nonfarm work in 1957 were asked if they would be willing to accept

⁵On the basis of 1960 preliminary census figures and the average size of family in the 1957 survey there was approximately 3,369 families in the county. ($18/155 \times 3369 = 394$ persons available for nonfarm employment.) See Appendix, Part III.

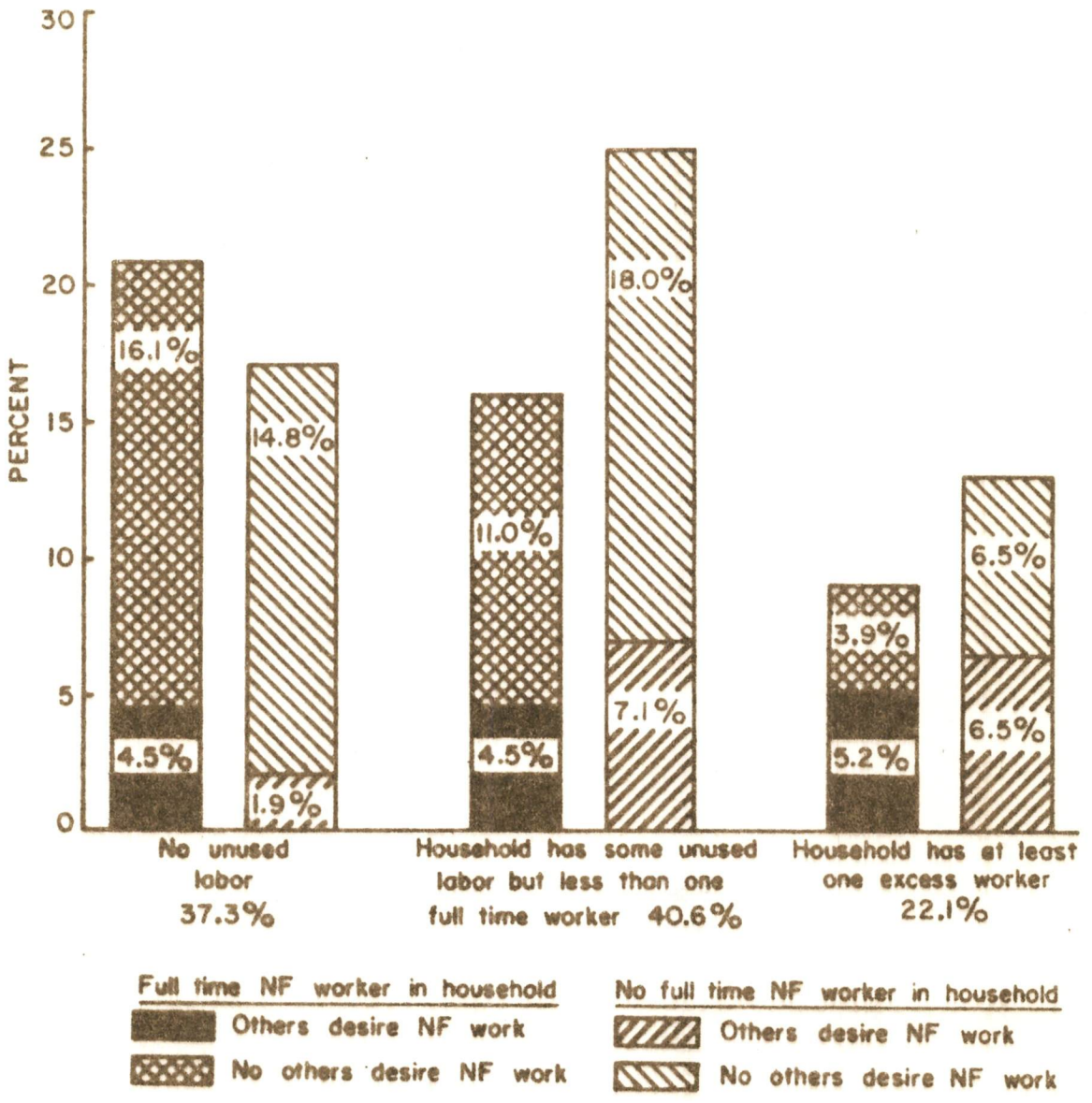


Figure 12. Availability of labor for nonfarm jobs.

nonfarm employment. There were ninety-seven household heads who did no nonfarm work in 1957; thirty-seven reported that they would be willing to accept nonfarm employment if it were available (Table XXII). Of those not desiring nonfarm work, 27 percent reported that they were either too old or that they were disabled.

All adult household members, not engaged in nonfarm work, were asked if they were considering nonfarm employment. Of the 318 which fell into this category, only 58 reported that they were considering⁶ nonfarm work. Several factors are probably responsible for the small proportion of the household members desiring nonfarm employment. The high percentage of persons over 45 years of age, farm operators who are fully employed, housewives who are not interested in seeking employment away from home, and children who were attending school make up the bulk of those not engaged in or desiring nonfarm work. Another factor that probably contributes to the lack of expressed desire for nonfarm employment is the lack of nonfarm employment opportunities within the county or within commuting distance.

Mobility of household heads. Mobility is becoming an increasingly important factor affecting the number of employment opportunities available to persons living in areas such as Grainger County. As was pointed out in Chapter I, nonfarm employment opportunities within Grainger County are almost nil. If this situation remains unchanged, persons in the county

⁶The term "considering" was used in the questionnaire; however, it carried the connotation of desiring nonfarm work rather than consideration of a specific nonfarm employment opportunity.

TABLE XXII

WILLINGNESS OF HOUSEHOLD HEADS TO ACCEPT NONFARM WORK,
155 RURAL HOUSEHOLDS, GRAINGER COUNTY, 1957

Would you accept nonfarm work	Number	Percent
Yes	37	24
No	57	37
Not reporting	3	2
Nonfarm work, 1957	58	37
Total	155	100

interested in nonfarm work must plan on commuting to Morristown, Jefferson City or Knoxville or even make a permanent move to one of these urban centers or some more distant industrial area.

Seventy-six household heads indicated that they either were willing to accept nonfarm employment or that they would look for another nonfarm job if they lost their present job. Almost two-fifths of those employed at nonfarm work reported that they would move from their present place of residence to accept full-time employment (Table XXIII). In contrast, only 7 percent of those not engaged in nonfarm work in 1957 indicated that they would move to accept full-time nonfarm work. These data indicate that the value patterns of the two groups under consideration differ. They suggest that persons already employed place a higher value on economic remuneration and are prepared to sacrifice some of the amenities of their present locale in an effort to maintain or improve their level of living. These findings may also suggest that the risk of finding or holding another job, for persons already engaged in nonfarm work, is (believed to be) less.

TABLE XXIII

MOBILITY OF HOUSEHOLD HEADS, 76 RURAL HOUSEHOLDS,
GRAINGER COUNTY, 1957

Would move for nonfarm job	Number	Percent
Those reporting nonfarm work in 1957		
Yes	12	39
No	11	35
Not reporting	8	26
Total	31	100
Those reporting no nonfarm work in 1957		
Yes	3	7
No	37	82
Not reporting	5	11
Total	45	100

CHAPTER V

POTENTIAL FOR RURAL INDUSTRIAL AND LOCAL ECONOMIC DEVELOPMENT

In the preceding chapters some of the underlying economic and social forces associated with the employment and underemployment of human resources in Grainger County have been discussed. The purpose of this chapter is to briefly summarize the conditions as they were found in the 1957 survey and to state some adjustments which, if adopted, the author believes would promote the economic development of the county.

A. THE OVERALL PICTURE FOR GRAINGER COUNTY

The question was posed in Chapter I as to why Grainger County has not enjoyed economic growth to the extent other areas have. Although the writer fully agrees that this question has not been answered completely in this thesis, a few of the economic and social forces associated with the rate of economic development have been described and analyzed.

In the past Grainger County has been considered primarily an agricultural county - most of its land and people being engaged in farming. A close examination indicates, however, that much of the farm land is relatively unproductive (poorly drained bottoms and mountainous). A substantial proportion of the farmland is also waste land or woodlands. Much of the more productive land has been covered by TVA lakes leaving the less productive mountain land for agricultural use. Average size of farm in the survey area was 73 acres, and two-fifths of this acreage was in farm-

steads, woodland, and waste. The average farm capital investment for the 97 farms was \$12,570 which was substantially under the area, state, and national averages. A combination of these factors has resulted in relatively low incomes - the average cash farm income on 97 farms was \$1,040; average family cash income from all sources was \$2,479 and per capita cash income was \$657. These factors provide rough indicators of the imbalance which exists among the resources being employed in agriculture.

In describing the characteristics of the population it was found that only a very small percentage of the population were in the productive age group of 20 to 44. A smaller proportion of the farm household members were in this age group than members of nonfarm households.

The average educational level of persons in the survey area was substantially below the state and national average. Some improvement, however, was evident. There was also evidence of the lack of vocational training and vocational training facilities. There was a definite relationship between educational level of household members and the type of employment, income, and level of living. Generally those with a high school education or more were employed in Group I occupations and their income and level of living was higher than for persons with low levels of education.

Forty-four percent of those productively employed had less than an eighth grade education. Three-fifths of the high school graduates held nonfarm jobs. Almost four-fifths of the nonfarm workers who had a high school education were employed in Group I occupations. Sixty percent of the nonfarm workers were employed in Group II occupations and almost three fourths had only an eighth grade education or less.

Farm families who had supplemented their farm income by nonfarm

employment enjoyed a higher income and level of living than did full-time farm or nonfarm families.

A high percentage of the households had no employable males other than the household head and only about one-half of the households had able-bodied males (18 to 45 years of age). Fifty-seven percent of the households had a declining labor force as the result of migration and/or biological losses (age, acquired handicap or death). Thus a high percentage of household heads were limited in earning capacity by reason of age, physical handicap or widowhood.

Almost 50 percent of the labor force in Grainger County was employed less than 130 days in 1957. Underemployment was greatest among members of farm households. Based upon labor requirements for the farm production reported there was only an average of 160 days of farm employment required per farm. And the average man equivalents per farm was 1.4. The average length of nonfarm employment was 187 days per nonfarm worker. Sixty percent of the 155 households were characterized by underemployment, and 46 percent of the underemployed persons were found in full-time farm households. It was estimated that there would be approximately 760 qualified persons who could accept nonfarm work, and 394 persons who might desire nonfarm employment. These estimates are very conservative when compared with 1,318 applications for nonfarm employment filed with the Tennessee Department of Employment Security in 1959.¹

¹Highlights of an Area Economic Base Report for Grainger County prepared by Tennessee Department of Employment Security in Cooperation with University of Tennessee Extension Service, April 27, 1960.

B. ADJUSTMENTS WHICH MIGHT PROMOTE THE ECONOMIC
DEVELOPMENT OF THE COUNTY

Substantial evidence that there exists within Grainger County an overabundance of human resources in relation to employment opportunities has been presented. The findings further suggest that if the human resources of the county were more fully developed and employed the income situation could be improved. (Development of the human resource would probably contribute substantially to the development of other resources.) Attention will now center around adjustments which might contribute to the development of the human resources and the general economic development of the county.

Adjustments in farming systems. In Grainger County full-time farmers operated an average of 23 acres of cropland and 54 acres of cropland and pasture combined as compared with 33 and 68 for full-time farmers in the seven county Upper East Tennessee survey. This is far short of the tillable acreage generally considered to be sufficient for an economic farm unit.

Generally areas with a higher proportion of their land in cropland and which have higher farm capital investments enjoy higher incomes and higher levels of living than do areas which have little or no cropland and whose farmers are unable to accumulate or acquire sufficient quantities of capital to farm efficiently. Some areas have been able to attract industry which provide an additional source of income for rural people; unfortunately, however, Grainger County has not been able to locate any substantial industry within its borders. It seems, therefore, that the farmers in this county have three possible courses of action from which to choose in order

to improve their income situation: (1) farm consolidation, (2) intensified farming, and (3) nonfarm employment. The first two alternatives would involve adjustments in the resource-mix, that is, increased investments in land and capital to more fully utilize existing surplus labor. Farm consolidation would involve the transfer of land owned by persons working at nonfarm jobs to those who remain in agriculture. Those who remain in agriculture must rely on volume and efficiency to increase their incomes. As some farmers increase their production, a greater number of marginal farmers could be freed exclusively for nonfarm work. The third alternative, of course, depends upon the availability of nonfarm employment opportunities, and the willingness of rural people to accept such opportunities.

Future research in the area of potential adjustments in farming systems centered around: a workable method for the reallocation of land resources, means to finance required adjustments, and the marketing problems which confront the farmers in Grainger County would help define and evaluate these possibilities.

Expansion of vocational training program. Associated with the need for nonfarm employment opportunities is the need for increased vocational training for rural youths with increased emphasis on preparation for non-agricultural occupations. Vocational education is any form of education that gives an individual the training to pursue effectively a recognized profitable employment.² When such a program is available to rural youths

²J. K. Umholtz, "History and Development of Vocational Education in the Area of Elizabethton," (Unpublished Master's thesis, University of Tennessee, Knoxville, 1954).

it affords them certain experiences in working with tools, machines, and materials which, when accompanied with general educational subjects, will tend to make students more efficient workers and place them in a more competitive position for higher paying nonfarm jobs. The offering of a variety of trades at the high school level might also serve as an incentive for rural youths to continue their education. It is generally believed that youths possessing technical skills usually find it easier to find nonfarm jobs and also higher paying jobs than do rural youths who do not possess such skills. It is also probable that an expanded vocational program would be a valuable asset in the county's effort to attract industry.

Financial assistance for local vocational training programs is available from both the state and federal governments. There are many factors to consider before such a program can be initiated. In some areas students are required to take aptitude tests as a prerequisite for enrollment in vocational training classes. Another important consideration is the local need; that is, what type of training or skills are required by local industries? It is strongly recommended that any program initiated should be designed to prepare youths for the skills needed locally; however, this is not required by law.

Counties desiring vocational programs must supplement funds furnished by the state and federal governments. This is quite often the obstacle that prevents rural areas from installing a vocational program. There are various ways by which such a program can be self-sustaining.

In Lawrence County, Tennessee, two general building trades classes

built a four-bedroom residence.³ With the exception of excavating and plumbing work the entire dwelling was constructed by the students as a major part of their training. The house was sold at public auction and the net proceeds went into the school budget. These students also saved the school over \$6,000 during a six year period by performing maintenance work that was previously paid for with school funds. However, the primary objective of the program - vocational training - must always be the first consideration. Some localities have held evening extension classes to obtain additional revenue and also to assure fuller use of vocational training facilities.

The failure to initiate or expand a vocational training program in high school appears, to the writer, to be false economy. High school being the last chance, in many cases, for young people to get a formal education, our public school systems generally have assumed the responsibility of developing vocational competence before a child leaves school. The cost of vocational training must, therefore, be considered in the light of its long run benefit to the student and the community. Most former graduates of Fulton High School's vocational industrial trade courses feel that their training helped them find employment and resulted in higher starting pay and that their present earnings were higher than they would have been had they not had some vocational training in high school.⁴

³Neal Beard, "Construction of a Residence by General Building Trades Classes at Lawrence County High School" (unpublished Master's thesis, University of Tennessee, Knoxville, 1954).

⁴John Alderson Gilbert, "Graduates of Vocational Trade and Industrial Courses, Fulton High School" (unpublished Master's thesis, University of Tennessee, Knoxville, 1955).

Although this discussion has dealt with the importance of strengthening the vocational trades training in rural areas, the writer would not advocate such a program at the expense of academic training.

Labor placement services. Competition is considered one of the cornerstones of our economic system, but in reality one of the fundamental principles of a competitive system, perfect knowledge, is often lacking among rural people. A person seeking nonfarm work cannot compete on an equal basis with persons who have knowledge of employment opportunities if the former lacks similar knowledge. The employer and the job-seeker must be brought together to facilitate the reallocation of human resources. In the past this process has taken place on an informal basis - friends or relatives working in industrial centers informing home-folks of employment opportunities. This source of employment information has facilitated the transfer of surplus labor to a limited degree but leaves much to be desired. Persons seeking nonfarm employment but who have no friends or relatives in industrial centers would lack nonfarm job knowledge and consequently may remain on the farm. Public and private employment bureaus are usually in a much more favorable position, having direct lines of communications with prospective employers in industrial centers, to bring the potential nonfarm worker and prospective employer together. The recent installation of an Employment Security Office in Rutledge could facilitate a more rapid transfer of surplus labor from farm to nonfarm employment.

Expansion of recreational facilities. It is evident that Grainger County possesses tremendous recreational potential. With the increase of leisure time and the prosperity which exists generally, the demand for

recreational facilities is increasing. The tourist business is becoming big business.⁵ On a national basis it is approaching a \$20 billion a year volume. In 1953 almost 7 million tourists spent 460 million dollars in Tennessee.⁶ A tourist promotion program in Grainger County could undoubtedly uncover a number of natural and historical attractions which would enable the county to "cash-in" on its share of the \$20 billion being spent annually by American tourists. The following is a brief list of points of interest which, if developed, would attract additional tourists to Grainger County:

- (1) Red House Tavern - built in 1796
- (2) Boone Trail at Bean Station
- (3) Norris and Cherokee Lakes
- (4) Indian Cave
- (5) Kingswood School
- (6) Clinch Mountain
- (7) Melungen Settlement
- (8) Quail and Fish Breeding Station

Cherokee and Norris Lakes, with a relatively small investment for development and adequate advertising, might very well attract thousands of swimming, fishing, boating and camping enthusiasts from adjoining and distant areas. Such development would not only provide additional employment

⁵U. S. Department of Commerce, Office of Area Development, "Your Community Can Profit From the Tourist Business," (Washington: Government Printing Office, 1957).

⁶Lewis C. Copeland, "Estimating Tennessee's Tourist Business Bureau of Business Research," The University of Tennessee, Knoxville, 1955.

for persons in Grainger County but more important would also mean additional dollars being spent in Grainger County.

Current developments at Indian Cave (housekeeping accommodations, swimming pool, fishing facilities and picnic area) are a striking example of the type of project that is likely to bring additional income into the county. Fifty lakeside cottages could net the county more than \$1,000 per year in taxes alone, to say nothing of the magnitude of the potential tourist expenditures that are likely to result from an active tourist promotional program.⁷

Another important argument in favor of expanding Grainger County's recreational facilities is to make the county more attractive to industry. Management is becoming increasingly conscious of the necessity of attractive surroundings for its employees. Therefore, adequate recreational facilities are quite often one of the prerequisites to an industry moving into a community.

⁷In the case of Knoxville, Tennessee, the Tourist Bureau reports that each 3¢ it spent resulted in \$29.15 in tourist trade (an approximate ratio of \$1.00 to \$1,000), Eighth Annual Survey, Knoxville Tourist Bureau, 1955 Findings.

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APPENDIX

CONFIDENTIAL

DETERMINATION OF THE POTENTIAL LABOR FORCE IN GRAINGER COUNTY

Part I

Procedure Used in Calculating the Farm Labor Requirements

Days worked on the home farm by the farm operators, farm housewives, and unpaid family workers was not enumerated by individuals. The farm labor requirements for the various crop and livestock enterprises were based on W. P. Ranney's "Labor Used in Crop Production in Tennessee, 1953," Farm Economics Circular No. 5, Parts II-VI, September 1954 - April 1955, and "Labor Used in Production of Livestock and Livestock Products in Tennessee," January, 1956, University of Tennessee Agricultural Experiment Station and Agricultural Extension Service, Knoxville, Tennessee.

Part II

Criteria Upon Which the Degree of Underemployment Was Estimated

- A. The following man equivalent chart was also used in determination of the extent of underemployment in Grainger County.

Age	Man Equivalents ^a	Annual Hourly Male	Conversion Females ^b
14-18 (in school)	0.3	800	400
14-18 (not in school)	0.8	1920	960
19-35	1.0	2400	1200
35-39	0.9	2160	1080
40-44	0.7	1680	840
45-49	0.6	1440	720
50-54	0.6	1440	720
55-59	0.5	1200	600
60-64	0.5	1200	600
65+	0.5	1200	600

^aBased on a Purdue University study by W. H. M. Morris (Personal communication).

^bMan equivalents for females were assumed to be one-half that of male members.

B. General Assumptions:

1. The following groups of persons were excluded from estimation of the degree of underemployment:
 - (a) Persons over 60 years of age
 - (b) Children attending school
 - (c) Nonfarm wives unless they were working at a nonfarm job or they were desiring nonfarm employment

2. Two hundred and fifty days of farm employment was considered full employment, 180 days for persons in the teaching profession, 200 days for construction workers and 240 days were considered full employment for persons working at other non-farm work.

Part III

Estimation of the Potential Labor Force

The following computations, using the assumptions stated above, are an example of how the potential labor force for the county may be estimated:

A. Total underemployed persons 14-59 years of age	155
Eliminate those under 18 and over 45	64
B. Total underemployed persons 18-45	91
Eliminate those underemployed less than 6 months	28
C. Total underemployed persons 18-45 who were under- employed 6 months or more	63
Eliminate those with less than 8 years schooling	28
D. Total number of additional workers in sample area in 155 households	35
Percent of families with potential workers $35/155 = 22.6\%$	22.6%
E. Potential additions to the labor force in Grainger County	
Number of rural families in Grainger County*	3369
Percent of families with "qualified" persons	22.6%
Estimated potential "qualified" persons in Grainger County (3369 x .226)	761

*Preliminary 1960 census figures indicated a total population in Grainger County of 12,466 persons. The average size of family based on 1957 survey was 3.7. (12,466 x 3.7 = 3369 families)