

The Potential for Rural Development in Cherokee County, Oklahoma

E. J. R. Booth

Bulletin B-548

February, 1960



Contents

Distribution and Source of Rural Income.....	4
Families Classified by their Potential for Development.....	11
Socio-Economic Characteristics	15
Potential for Farm Development.....	22
Potential Off-Farm Labor Force	30
Summary of Conclusions	32
Appendix I The Sampling Method.....	34
Appendix II Survey Procedure	36

The Potential for Rural Development in Cherokee County, Oklahoma

E. J. R. Booth

Department of Agricultural Economics

This report presents information accumulated by the 1957 Rural Development Survey of Cherokee County, Oklahoma, and attempts to evaluate, by analysis of this information, the nature and extent of the area's potential for economic development.

Cherokee County was selected as the second pilot county of the Rural Development Program in Oklahoma.¹ As in Choctaw County, the first pilot county in the state, a survey was made of the rural area in order to establish the bounds of the rural problem. Knowledge gained from the earlier survey,² and from similar surveys in other states, led to new methods of classification and analysis of the local human and natural resources.

The survey upon which most of this report is based was taken in April and May, 1957, and lasted four weeks. Sampling methods and survey procedure are discussed in the appendix. The interviewing was done by members of a local action committee from the county, with the advice of extension and research personnel of Oklahoma State University. The data refer to the time of interview, except in the cases of employment and income which refer to the calendar year of 1956.

Cherokee County was one of 11 eastern Oklahoma counties classified by the United States Department of Agriculture as having serious rural low-income levels in 1954.³ The University of Oklahoma Bureau of Business Research listed only fourteen counties with lower income per capita in 1957.⁴ Incomes in Cherokee County at that time were \$794

¹For the general objectives of this program see U.S.D.A., *Rural Development Program*, Second Annual Report of the Secretary of Agriculture, September, 1959.

²H. E. Ward, *Rural Development Survey, Choctaw County, Oklahoma*, Oklahoma Agricultural Extension Service, 1957.

³U.S.D.A., *Counties with the Lowest Farm Income and Levels of Living*, 1954; Counties listed as "serious" were Atoka, Cherokee, Haskell, Hughes, Latimer, LeFlore, McCurtain, McIntosh, Pittsburgh, Pushmataha and Sequoyah.

⁴Bureau of Business Research, *Statistical Abstract of Oklahoma*, 1957, University of Oklahoma.

per person, including the urban area. In 1957, the nation's per capita personal income was \$2,027, with Oklahoma ranked 36th among the 48 states at \$1,619.⁵

The information contained in this report represents reasonably well the situation in the other ten Eastern Oklahoma counties classed as serious by the U. S. Department of Agriculture. Details differ considerably between counties, but other research indicates that the over-all patterns of population, employment and income are sufficiently similar to warrant some degree of generalization.

Distribution and Source of Rural Income

Distribution of Income

Table I and Figures 1 and 2 illustrate the distribution of income per family from all sources, including net farm income,⁶ in 1956. The average of \$2,378 per family was about one-third of the average for Oklahoma as a whole.

A large proportion of the rural families were bunched around the \$1,250 to \$2,499 class (Figure 1); almost 79 percent of the families earned between \$1.00 and \$3,749. Eighty percent of the rural people and 81 percent of the rural population's children were in this group of families. Sixty percent of the rural families earned less than the average income. Sixty-four percent of the families, comprising 62 percent of the adults and 57 percent of the children, earned less than \$2,500 from all sources.

On a per capita basis, the average income was \$626 as compared to \$1,561 for Oklahoma and \$1,940 for the nation⁷ (Figure 1). Although the members of only 53 percent of the rural families received less than the county average per capita income, the members of 89 percent of the rural families earned less than the State average and 91 percent earned less than the average for the nation. Nearly 16 percent of the rural families (384 families) averaged less than \$250 per person in 1956 income from all sources; and 43 percent, or 1,035 families, averaged less than \$500 per person.

⁵ U.S.D.C., *U.S. Income and Output*, 1958.

⁶ Cash receipts from farming less estimated cash operating expenses. See Table VI, footnote 6, for process of estimation.

⁷ U.S.D.C., *Survey of Current Business*, August, 1957, p. 11; urban as well as rural.

Figure 1. The Distributions of Total 1956 Income in Rural Cherokee County.

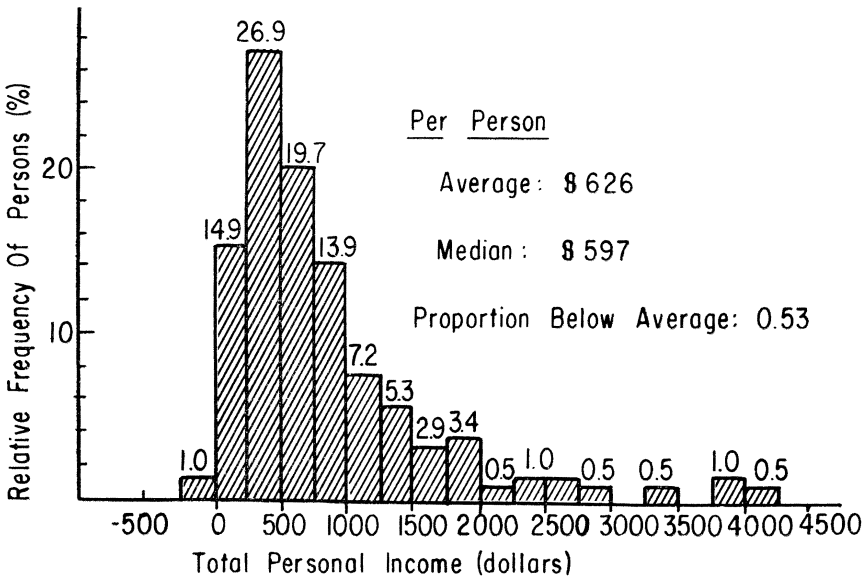
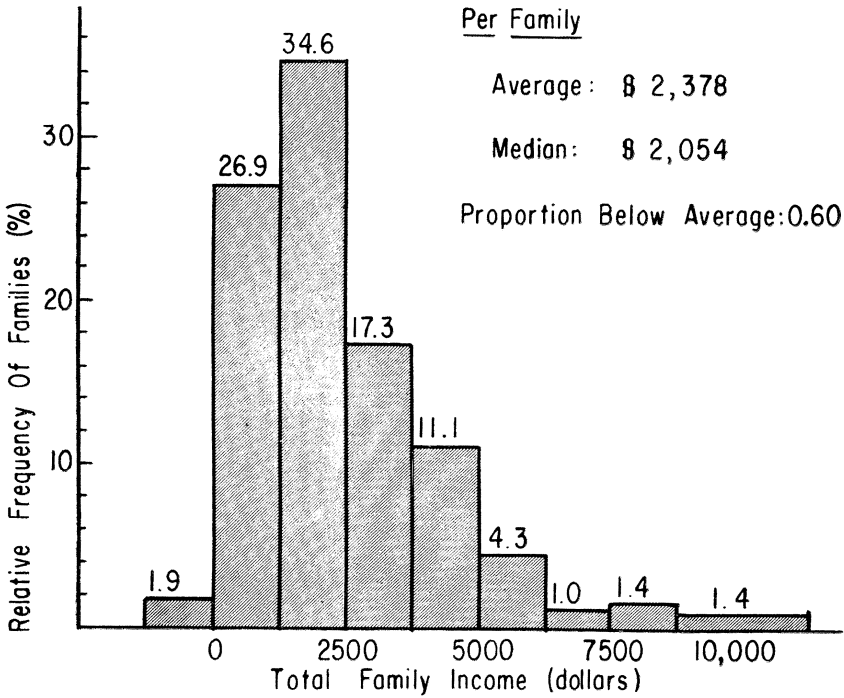


Table I.—The Sample Distribution of 1956 Family Income, Cherokee County.¹

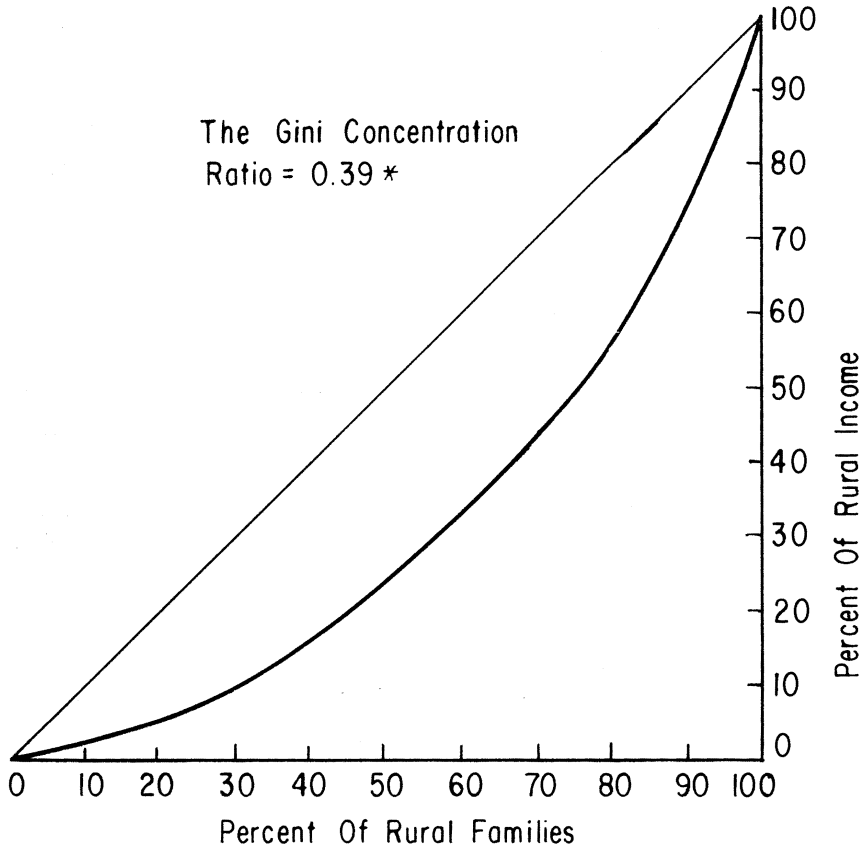
Family Income Class	Families		Persons		Children ²		INCOME		
	Number	Percent	Number	Per Family	Number	Per Family	Per Family	Per Person	Per Adult ³
Dollars	Number	Percent	Number	Per Family	Number	Per Family	Dollars	Dollars	Dollars
-1250 - 0	4	1.92	7	1.7	0	0	-98.75	-56.43	-56.43
1 - 1249	56	26.92	173	3.1	67	1.2	747.36	241.92	394.83
1250 - 2499	72	34.62	287	4.0	131	1.8	1827.58	458.49	843.50
2500 - 3749	36	17.31	170	4.7	87	2.4	2956.08	625.99	1282.16
3750 - 4999	23	11.06	95	4.1	45	2.0	4306.57	1042.54	1981.02
5000 - 6249	9	4.33	31	3.4	12	1.3	5436.44	1578.32	2575.16
6250 - 7499	2	0.96	9	4.5	5	1.5	6833.00	1518.44	3416.50
7500 - 8749	3	1.44	6	2.0	0	0	7871.33	3935.66	3935.66
8750 - 11249	3	1.44	12	4.0	5	1.7	9944.33	2486.08	4261.86
Total or Average	208	100.00	790	3.8	352	1.7	2377.66	626.02	1129.12

¹ Family income means income from all sources (including net farm income) to all members of the family.

² Children at school or under 15 years old or both.

³ Persons less children.

Figure 2. The Lorenz Curve of 1956 Family Income for Rural Cherokee County.



Source: 1957 Rural Development Survey,
Cherokee County, Oklahoma.

* Estimated ratio of the area between the Lorenz curve and the line of perfect equality to the area between the axes and the line of perfect equality.

Figure 2 demonstrates the relative inequality of family income distribution. The Gini Concentration Ratio⁶ was 0.39, which compares quite favorably with the State ratio estimated at 0.54 for rural farm and rural non-farm families in 1949.

⁶Gene Wunderlich, "Concentration of Land Ownership," *Journal of Farm Economics*, XL:5, December, 1958, p. 1,888. The Gini Concentration Ratio measures the concentration of income in the hands of few families. If all families had the same income, the ratio would be 0.00 (the single-valued distribution). If all the families but one had no income, the ratio would be 1.00.

The Sources of Rural Income

Table II illustrates quite clearly the very low contribution of farming to the income of families in rural Cherokee. On the average, farming paid to a rural family in Cherokee County roughly \$300 of net income, while off-farm payments contributed over \$2,000 per family. Only 21 percent of the families depended for their major source of income on some form of agricultural business, either farming or processing and distribution. This 21 percent earned only 11 percent of the total income of the county. On the other hand, the 28 percent of families who owed their major source of off-farm income to non-farm manufacturing, processing, construction, transport and public utilities, earned 39 percent of the county income.

The retired or welfare group, the largest single group of families, earned the second largest proportion of income in the rural county, averaging \$1,588 per family in off-farm income, most of which came from welfare sources.

Eighty-seven and five-tenths percent of the rural families had off-farm income, and of these, the net farm income averaged \$264 or less.

Distribution of Income by Major Industrial Sources

Table III gives the breakdown of rural Cherokee County income into three industrial sources: Primary, secondary, and tertiary industries. Industries are classified as primary when producing raw material, with farms and mines, forests and fisheries as examples. Secondary industries include manufacturing and processing industries of all kinds, and here include the construction industries. The tertiary class includes the service occupations such as transportation, public utility, trade, government, professional, janitor, and domestic.

Table III also includes a comparison between Cherokee County, the state of Oklahoma, and the United States as a whole. In two separate columns of the table, the Cherokee distribution of income received was adjusted to improve the comparability of the county with the state and nation. First, unearned income was excluded from the county distribution, as it is excluded from the distribution published for Oklahoma and the United States. Secondly, the county distribution was artificially adjusted for a trade sector equal to that of the state since the survey covered only the rural area of the county.

Table II.—Rural Families Classified by Major Source of Off-Farm Income; Cherokee County, 1956.

MAJOR SOURCE OF OFF-FARM INCOME ¹	FAMILIES		INCOME		INCOME PER FAMILY		
	Total	Percent of Total	Total Amount	Percent of Total	Off-farm	Ne ^a farm	Total
	Number	Percent	1,000 dollars	Percent	Dollars	Dollars	Dollars
No off-farm income or no reply	302	12.5	343	6.0	117	1017	1134
Farm labor, custom work and farm management	140	5.8	173	3.0	1017	220	1237
Mining, quarrying, wood production and oil field work	81	3.3	275	4.8	3117	256	3373
Farm transport and processing	58	2.4	141	2.4	2357	58	2415
Non-farm manufacturing, processing or construction	523	21.6	1759	30.6	3147	214	3361
Non-farm transport and public utilities	163	6.7	466	8.1	2647	214	2851
Retail stores and outlets	186	7.7	612	10.6	3030	264	3294
Government or professional service	128	5.3	527	9.2	3927	193	4120
Janitor and domestic service	105	4.3	146	2.5	1231	166	1397
Retired or welfare	733	30.3	1311	22.8	1588	201	1789
TOTALS	2419	99.9	5753	100.0	2069	309	2378

¹ Source of the largest single income payment to any family member.

Table III.—Rural Income By Industry Source in Cherokee County, With Oklahoma and United States Comparisons, 1956.

INDUSTRY ¹ SOURCE	Distribution by Industry Source of 1956 Income Payments in Rural Cherokee County				Percent ² Distribution by Industry Source of Total Civilian Income				
	Estimated Total Income	Number of Payments	Average Income Payment	Proportion of Total Payments	Rural Cherokee		Adjusted For Trade ³	Oklahoma ³	United States ³
					Unearned Income: Included	Excluded			
	Hundred Dollars	Number	Dollars	Percent			Percent		
PRIMARY	984	2047	481	40.3	17.9	22.7	19.8	16.1	7.2
Farms ⁴	818	1931	424	38.0	14.9	18.9	16.5	5.6	5.5
Mining	166	116	1426	2.3	3.0	3.8	3.3	10.5	1.8
SECONDARY	1668	791	2108	15.6	30.3	38.5	33.5	22.1	37.8
TERTIARY ⁵	2794	2187	1278	43.0	50.8	37.7	45.6	61.4	54.7
Transport	430	233	1847	4.6	7.8	9.9	8.7	9.1	8.3
Trade	506	314	1610	6.2	9.2	11.7	22.9	22.8	20.0
Services	1859	1640	1133	32.3	33.8	16.1	14.0	29.5	26.4
Professional	534	256	2086	5.0	9.7	12.3	10.7	N.A.	N.A.
Domestic	165	244	675	4.8	3.0	3.8	3.3	N.A.	N.A.
Welfare	1160	1140	1018	22.4	21.1	---	---	N.A.	N.A.
OTHER	51	58	876	1.1	0.9	1.1	1.0	0.5	0.3
TOTAL	5497	5083	1081	100.0	100.0	100.0	100.0	100.1	100.0

¹ Source of each income payment.

² Adjusting the income from trade to equal the state percentage to improve the comparison for non-rural incomes.

³ U. S. Department of Commerce, *Survey of Current Business, August, 1957*, p. 18. The breakdown by industries is not entirely comparable with the Cherokee data.

⁴ Includes farm managers' salaries, farm labor, and farm custom work. The last two items are deducted from net farm income as an expense. For this reason the total income differs from Tables 1 and 2.

⁵ Transport includes utilities; professional includes financial and government; domestic includes janitor; and welfare includes retired.

Regardless of the adjustments made, Cherokee County depended more on primary sources for its income than did Oklahoma, and both were more than twice as dependent on these sources as was the United States. The state was more dependent on the tertiary industries than either the rural county or the nation. The outstanding comparison was with respect to manufacturing and construction; the secondary industries. The people of rural Cherokee gained over 30 percent of their income from work in these industries, a proportion which compared very favorably with the nation's average and which was around ten percentage points higher than that of the state. Cherokee County is fortunately located near the large industrial centers of Tulsa and Muskogee, and the relative income-earning capacity of the local primary industries is low compared with the state average.

A further indication of the level of rural development is the fact that only 15.6 percent of the actual income payments were derived from secondary sources in the county. The average income payment from secondary industries was therefore a high \$2,108. On the other hand, the figure 20 percent of income received from primary industries is overshadowed by an even larger percentage of total payments in this class—40.3 percent—making an average farm payment per recipient of only \$424. The economic picture is further darkened by the large proportion of low average payments from the domestic service and welfare categories. From these came a total of 27.2 percent of the income payments with an average payment of \$957.

The relative importance of secondary industries was witness of considerable adjustment by local people to their changing economy. The large, relatively depressed primary sector combined with the welfare and domestic service categories were the major contributors to the low level of economic welfare in rural Cherokee.

Families Classified by Their Potential for Development

The previous sections described the general economic status of rural Cherokee. This section classifies and analyzes the families of rural Cherokee County not only with respect to their source and amount of income, but from the point of view of their potential for economic development.

Table IV is a cross-classification of rural families by both economic welfare level and employment class. Two thousand dollars of family income was arbitrarily chosen as the breaking point of an "adequate"

Table IV.—The Joint Distribution of Rural Families in Cherokee County by Major Family Employment Group and Economic Welfare Level, 1956.

Family Employment Group ¹	Economic Welfare Level ²			
	All Levels	Subsistence (Below \$999)	Marginal (\$1000-1999)	Adequate (\$2000 and up)
All Classes	2419 (100)	570 (23.6)	651 (26.9)	1198 (49.5)
A Not in Labor Force	721 (29.8)	268 (11.1)	268 (11.1)	186 (7.7)
1. Unearned welfare only	186 (7.7)	58 (2.4)	105 (4.3)	23 (1.0)
2. Welfare and work	186 (7.7)	58 (2.4)	58 (2.4)	70 (2.9)
3. Earned retirement	349 (14.4)	151 (6.2)	105 (4.3)	93 (3.8)
In Labor Force	1698 (69.7)	302 (12.5)	384 (15.9)	1012 (41.8)
B Rural Non-Farm	1035 (42.8)	116 (4.8)	221 (9.1)	698 (28.8)
4. Non farmers	442 (18.3)	105 (4.3)	116 (4.8)	221 (9.1)
5. Spare-time farmers	233 (9.6)	12 (0.5)	47 (1.9)	175 (7.2)
6. Part-time farmers	360 (14.9)	-----	58 (2.4)	302 (12.5)
C Rural Farm	663 (27.4)	186 (7.7)	163 (6.7)	314 (13.0)
7. Part-time non-farmers	209 (8.6)	-----	23 (0.9)	186 (7.7)
8. Full-time farmers	454 (18.8)	186 (7.7)	140 (5.8)	128 (5.3)

¹ Family Employment Classes are defined as follows:

A *Not in Labor Force*

More than one-half of family's income derives from non-employment sources such as:

1. Unearned Welfare Only
Unearned welfare the only source of family income, Old Age Survivor Insurance, Aid to Dependent Children and Disability Insurance are the major types of these income sources.
2. Welfare and Work
Unearned welfare payments as in Class 1 are the major source of income but these are supplemented by earned labor income.
3. Earned Retirement
Earned retirement income the major source of income. Social security and private insurance payments are the major types of these income sources.

In Labor Force

One half or more of family's income derives from employment sources such as;

B Rural Non-Farm

Less than \$1200 gross farm income and the following characteristics:

4. Non-Farmers

No farming carried on, neither gross farm income nor farm expenses but sometimes farm acreage.

5. Spare-Time Farmers

Gross farm income less than \$250 and off-farm employment income \$800 or more.

6. Part-Time Farmers

Gross farm income \$250-1199 and off-farm employment income \$800 or more.

C Rural Farm

Residual class subdivided as follows:

7. Part-time non-farmers

Gross farm income \$1200 or more and off-farm employment income \$800 or more.

8. Full-time farmers

Off-farm employment income less than \$800.

N.B. Since C Rural Farm is a residual class, a family, the majority of whose income is from employment sources, is classified as a full-time farmer even though his off-farm income exceeds his gross farm income, providing such off-farm income is less than \$800. Thus, in the Subsistence Level many families might as well be classified non-farm as farm. The choice is arbitrary.

² The levels are based on arbitrary classes of total family income. Total family income is income from all sources including net farm income.

economic welfare level.⁹ Below this level, families were classified into two groups: (1) "subsistence" families averaging below \$1,000 and (2) "marginal" families with an average income between \$1,000 and \$2,000.

From the point of view of potential for development, there is another major classification to be considered—that of whether the family can be considered in the labor force or not. The footnotes to Table IV describe the nature of the classification in further detail.

Not in the Labor Force

Of the 30 percent of rural families in Cherokee County not in the labor force, nearly half have "earned retirement" as a major source of income. For most of these, the economic welfare level was low; however, many of these families have few members and the average age of adults is high. Apart from the few children remaining in these families, there is not very much potential for development. The remaining rural families not in the labor force maintain themselves mainly through unearned, non-employment income. A large proportion of these families, also, are at an economic welfare level below adequate. However, these families are not as aged as the families in the earned retirement category and in many cases have large numbers of children. The potential for development for these families rests mainly with the children.

Rural Non-Farm

Forty-three percent of the rural families may be classified as "rural non-farm;" that is, in the labor force but obtaining their income payments mainly from off-farm employment. These families were doing the best of any group as far as economic welfare levels are concerned. Almost 70 percent of them had an adequate level of income. The spare-time and part-time farmers have moved closest to adjustment to the changing problems of a rural area. Very few members of the group classified as spare-time or part-time farmers had incomes below the \$2,000 considered adequate. The non-farmers, however, split almost 50-50 between those who gained subsistence or marginal level of economic welfare and those who gained an adequate level. These last families are engaged in no farming whatsoever; they are only resident in a rural area, but they do have an employment problem. Two hundred and twenty-one families in rural Cherokee are classified in this group that need help, and these, as will be seen later, have good employment ages

⁹ This classification broke the distribution roughly in half. Also, \$2,000 represent a full man-year's employment at the minimum wage rate.

and potential for improvement. They have concomitant potential for dropping into the group "not in the labor force" if employment opportunities are not provided in the near future.

Rural Farm

The remaining 27 percent of rural families can be classified as "rural farm," gaining most of their income from farm operations. In this category, the development problem is divided fairly evenly. Over half of the rural farm families had an economic welfare level below adequate. Most of these families gained most of their income from the farm. Over 20 percent of these rural farm families earned a family income less than \$1,000. A development program for these rural families may have to concentrate not only on new employment sources but also on some farm re-organization and improvement.

Development Potential

Of the 1,221 families in the rural area of Cherokee County that had a family income less than \$2,000, 536 were not in the labor force. For these 536 families, the problem mainly rests with ensuring employment opportunities for the relatively small numbers of children still remaining in these families. The older members of these families are mainly retired or unemployable.

For the remaining 686 families who were at a low level of economic welfare but whose members were in the labor force, an increase in opportunities for employment is needed. In addition, the children of these families will have to be considered. If employment opportunities improve, these children will do their share of raising the level of economic welfare in the county. However, if economic opportunities improve only slightly or remain constant, these children will add to the problem of underdevelopment.

Of the 686 families, 337 have already made a partial adjustment to the lack of income opportunities in agriculture and can now be classified as rural non-farm. For these families, only an increase in local employment opportunities or a movement to employment opportunities elsewhere can help.

For the remaining 349 rural farm families at less than an adequate level of economic welfare, a program for improvement would consist

of two activities: (1) improvement of employment opportunities for the "part-time, non-farmers" (only 23 families) and (2) improvement in the income opportunities from agriculture in the region. This latter type of program, however, apparently would involve only 14 percent of the rural families in Cherokee County.

Socio-Economic Characteristics

The potential for rural development is based on such characteristics as Tables V, VI, and VII illustrate in gross fashion.

Population Characteristics

Apart from details that can be gained from a close perusal of the tabulation, Table V demonstrates four major points:

(1) **The average size of family** was four or more in 5 of 8 employment groups. The full-time farmers, and two groups of families not in the labor force, have families below the average size. One group not in the labor force, "welfare and work," has an average family size of over four, so that the family problem of low income is compounded when put on a per capita basis.

(2) **Numbers of children per family** ranged from less than one to over two. The "non-farmer" group, with the fourth lowest average income, had the largest number of children. The group with the greatest concentration of children was the "part-time, non-farmers" wherein 83 percent of the families had children and the whole group averages 2.3 children per family.

(3) **The age of the population** is 30 years on the average, but the group averages range from 24 to 44. As would be expected, families not in the labor force have average adult ages far above the over-all average. An estimated 314 adults in the "welfare only" group average 64 years of age. Children's ages are concentrated around 10 years for most family groups, which gives an indication of how soon these estimated 4,094 children will be searching for employment. The 931 children whose families are not in the labor force will be ready three years sooner, on the average.

(4) **"Missed schooling per child"** gives an indication of the extent to which families are willing or able to avail themselves of the educational opportunities to prepare their children for the future. Once again, as a group, the families not in the labor force had a low rating. For this

Table V.—Gross Population Characteristics of the Rural Families of Cherokee County, classified by Family Employment Groups, 1956.

Family Employment Groups ¹ Description	Number	People		Average Age			Children			Income	
		Total	Per Family	Total	Adults ²	Children ³	Per Family	Percent of Families with Children	Missed ⁴ School per Child	Per Family	Per Person
		Number	Number	years		Number	Percent	months	Dollars	Dollars	
ALL GROUPS	2419	9177	3.8	30.4	47.7	10.2	1.8	61.0	4.5	2378	626
A Not in Labor Force	733	2175	3.0	39.7	59.7	13.1	1.3	43.5	5.4	1660	550
1. Unearned welfare only	186	500	2.7	44.4	64.1	11.1	1.0	31.3	8.1	1322	492
2. Welfare and work	186	756	4.1	34.2	60.0	13.3	1.6	68.7	5.8	1684	415
3. Earned retirement	360	919	2.6	41.8	57.2	13.7	0.9	36.7	3.4	1828	694
In Labor Force	1686	7002	4.1	27.5	43.1	9.9	1.9	68.5	4.3	2683	651
B Rural Non-Farm	1047	4408	4.3	26.5	41.7	9.9	2.0	70.8	4.9	3030	712
4. Non farmers	454	2036	4.6	23.6	39.5	9.1	2.4	73.7	6.6	2342	509
5. Spare-time farmers	233	942	4.0	27.0	41.2	10.9	1.9	75.0	2.2	3249	802
6. Part-time farmers	360	1430	4.0	30.2	44.6	10.6	1.7	64.5	3.8	3743	943
C Rural Farm	639	2594	3.9	29.2	45.3	9.8	1.8	64.9	3.2	2142	547
7. Part-time non farmers	209	942	4.5	26.6	42.9	10.7	2.3	83.3	3.1	4020	893
8. Full-time farmers	430	1652	3.6	30.7	46.4	9.1	1.5	56.4	3.2	1275	350

¹ See footnote to Table IV.² Heads of family, spouses, all related adults of the same or earlier generations and unrelated adults of 19 years old or more.³ Residual of non-adult household members.⁴ "Missed Schooling per Child" is an index of family neglect of children's education. Children are defined as above. Each child is assumed to

have free access to twelve 10-month years of schooling from age seven to eighteen, inclusive. For each year that "years of school attended" plus 6 years exceeds the age of the child, 10 months' schooling is assumed missed. Different ages of commencing school by children are assumed to cancel out.

group, not only is the present level and potential low, but apparently the future potential for economic and cultural development will be low insofar as the index measures educational levels and these levels are related to development.

Rural Living Conditions. Some useful considerations are not tabulated. Three-quarters of the households of rural Cherokee had home gardens, but the smaller their owners' income the smaller was their size and output. Little more than half of the families with children claimed knowledge of the school hot lunch and free milk programs, while somewhat fewer used them. Sixty percent butchered at least one beef or hog, but families with an adequate level of income butchered two and a half times as much meat as other families. Forty-five percent of all families received some food from the free commodity program.

The survey was not adequate to measure rural sanitation problems, but a potentially dangerous situation was inferred. Sixty-five percent of the sewage disposal systems were of the "pit" or "open-back" type, and 11 percent of the households had no facilities whatever. Eighty percent of all families used their own wells for drinking water.

Over 14 percent of all adults surveyed suffered some form of permanent disability. Disabled adults were twice as frequent in families with below adequate incomes. In addition to these permanent disabilities, temporary disability reduced the working potential of adults by another 6 percent in terms of equivalent man-years lost through such temporary disability. Thus, of the estimated 4,955 adults in the rural population, 1,036 adult years of full-time equivalent disability was suffered.

In addition to problems of disability, the head of the family in 15 percent of all rural families was living without spouse. In all but a few cases, there was at least one child in these 372 "broken homes." In 36 percent (861) of all rural families, the household head was 60 years old or over.

The head of the household in 15 percent of the rural families was classified as non-white. There seemed to be little reason to investigate any racial breakdown further for two reasons. First, although the total sampling percentage of non-white conformed exactly to 1950 census figures (18 percent), the survey picked up an unbalanced proportion of households with members belonging to the Indian race. Secondly,

the distribution of non-white families did not differ significantly from the total distribution in major characteristics such as income and employment.

Economic Characteristics

Table VI illustrates a more complete breakdown of the nature of present income sources and their relative contribution to economic welfare.

Non-employment sources contributed the largest portion (37 percent) of all major sources of off-farm income to rural families. Secondary industries were second with 26 percent. All rural families who gained income from government or professional sources engaged in some farming. Forty-seven of these were "part-time, non-farmers." The largest source of off-farm income to full-time farmers was naturally non-employment income, due to the method of classification, and 28 percent of these full-time farm families' income came from off-farm sources.

Net-farm income is highest in the "part-time non-farmers" group. Full-time farm families earn \$420 less on the average from net farm income. Apart from these two groups, net farm income provides little economic welfare to rural families. In fact, 233 "spare-time farmers" seem to farm only as a hobby in their leisure hours.

The source of farm income was mainly beef and dairy cattle, which provided the most usual major source of farm income to all families with any farm income at all. Sixty-three percent of all major sources of farm income derived from cattle sales. Dairy products placed second, but with only 15 percent of all sources.

The acreage of farm land per family ranged from 24 to 306 acres among the various groups. Over thirty percent of the rural families lived on holdings of less than 40 acres. There is naturally an association between farm size and farm income throughout the data from which the compilation comes. But the acreage holdings of the "rural non-farm" and "not in labor force" groups totalled an estimated 141,150 acres out of the 330,200 acres sampled, or 42.7 percent. Part of a development program for families farming in the region will perhaps consist of some attempt to consolidate larger land holdings. The acreage needed is available, but the sample indicates that consolidation would be difficult due to geographical factors. Most of the adequate income, large-sized farms are already consolidated and largely contiguous in areas of good quality land. The non-farm, small-acreage families are dispersed over the poorer land types which require more extensive farming for adequate

Table VI.—Gross Economic Characteristics of Rural Families in Cherokee County, Classified by Family Employment Group, 1956.

Family Employment Group ¹	OFF-FARM INCOME		FARM INCOME			ACREAGE	
	MAJOR SOURCES ²	Amount per Family ³	MAJOR SOURCES ⁴	AMOUNT PER FAMILY		Acres per Family ⁷	Percent of Families with 40 Acres or More
				GROSS ⁵	NET ⁶		
		Dollars	Dollars	Dollars	Dollars	acres	percent
All Classes	Non-employment-secondary	2068	BEEF - dairy	781	310	136	69.2
A Not in Labor Force	WELFARE-retirement	1585	BEEF - dairy	299	75	78	54.8
1. Unearned welfare only	WELFARE only	1322	None	---	---	24	18.7
2. Welfare and work	WELFARE only	1643	BEEF - dairy	167	41	50	68.7
3. Earned retirement	RETIREMENT only	1695	BEEF - dairy	528	133	122	70.0
In Labor Force	SECONDARY - farm labor	2273	BEEF - dairy	986	410	161	76.7
B Rural Non-Farm	SECONDARY - retail	3031	BEEF - diverse	219	0	82	64.0
4. Non farmers	Secondary - diverse	2342	None	---	---	31	26.3
5. Spare-time farmers	SECONDARY - diverse	3372	BEEF - poultry	104	-123	41	90.0
6. Part-time farmers	SECONDARY - retail	3655	BEEF - dairy	561	77	172	93.5
C Rural Farm	Secondary - diverse	1089	Beef - dairy	2183	1052	285	96.5
7. Part-time non farmers	Secondary - government	2680	BEEF - dairy	2644	1340	240	100
8. Full-time farmers	WELFARE - farm labor	355	Beef - dairy	1970	920	306	94.9

¹ See Table IV footnote.

² Most usual major source of non-farm family income. First and second most usual sources are listed in order. First source capitalized means that this source constitutes one half or more of the sources listed for any group. If no clear second source can be stated, "diverse" is listed. Sources are as listed in Table II with manufacturing, processing, construction and farm transport being ranked together as "secondary" industry.

³ Total non-farm family income per family.

⁴ Most usual major source of family farm income for those families with \$250 or more of farm sales. Listing is similar to that of footnote 2 with major sources classified as following: field crops; vegetables, fruit

and nuts; beef and dairy cattle; hogs, poultry; dairy products; eggs; wood; sand stone.

⁵ Total gross family farm income per family.

⁶ Total estimated net family farm income. Expenses subtracted from gross include: feed, seed, fertilizer, machinery repair, 5 per cent interest on land debt, land tax of \$0.30 per acre on owned land, rent on rented land, and estimated expenses for farms employing casual labor. Expenses are deducted if, and only if, some farm sales were made and the farm was at least 10 acres large or the farm incurred expenses on feed, seed, fertilizer or machinery repairs.

⁷ Total operated acreage.

Table VII.—Socio-Economic Characteristics of Rural Families in Cherokee County, Earning Less Than \$2,000 in 1956.¹

FAMILY EMPLOYMENT GROUP	NO. OF FAMILIES	PEOPLE		AVERAGE AGE			CHILDREN		
		Total	Per Family	Total	Adults	Children	Number per Family	Percent Families with Children	Missed School per Child
		Number	Number	years					months
All Classes	1221	4071	3.3	34.5	51.1	11.6	1.4	48.6	6.7
A Not in Labor Force	535	1419	2.7	42.7	60.9	13.6	1.0	37.0	6.5
1. Unearned welfare only	163	419	2.6	44.7	64.3	9.9	0.9	28.6	10.0
2. Welfare and work	116	384	3.3	38.5	64.2	14.2	1.7	70.0	4.8
3. Earned retirement	256	616	2.4	44.0	57.3	15.8	0.8	27.3	5.6
In Labor Force	686	2652	3.9	30.1	45.4	10.6	1.7	57.6	6.7
B Rural Non-Farm	337	1442	4.3	27.3	42.6	10.5	2.0	58.6	7.9
4. Non farmers	221	1059	4.8	23.9	39.9	10.3	2.6	68.4	9.3
5. Spare-time farmers	58	174	3.0	39.8	46.8	11.7	0.6	40.0	3.3
6. Part-time farmers	58	209	3.6	34.2	48.6	11.4	1.4	40.0	--
C Rural Farm	349	1210	3.7	33.5	48.3	10.7	1.4	56.7	5.0
7. Part-time non-farmers	23	105	4.5	22.3	36.5	11.0	2.5	100	8.0
8. Full-time farmers	326	1105	3.4	34.5	49.1	10.7	1.3	53.6	4.6

FAMILY EMPLOYMENT GROUP	NO. OF FAMILIES	FAMILY INCOME SOURCES						
		NON-FARM			FARM			
		Most Usual Source	Non-Farm Income, Dollars	Most Usual Source	Gross Farm Income, Dollars	Net Farm Income, Dollars	No. of Acres per Family, Number	Percent of Families With 40 Acres or More, Percent
All Classes	1221	Non-employment	888	BEEF	575	182	88	62.9
A Not in Labor Force	535	Non-employment	1070	BEEF	100	-4	56	56.5
1. Unearned welfare only	163	Welfare	1185	NONE	--	--	25	14.3
2. Welfare and work	116	Welfare	1121	BEEF	69	-5	49	70.0
3. Earned retirement	256	Retirement	973	BEEF	179	-9	78	77.3
In Labor Force	686	Farm Labor	746	Beef	945	326	113	67.8
B Rural Non-Farm	337	Secondary	1282	BEEF	106	-42	45	37.9
4. Non farmers	221	Farm Labor	1200	NONE	--	--	33	21.1
5. Spare-time farmers	58	Farm Labor	1557	BEEF	122	-161	41	60.0
6. Part-time farmers	58	Secondary	1316	BEEF	494	-83	93	80.0
C Rural Farm	349	Farm Labor	227	Beef	1757	682	178	96.7
7. Part-time non-farmers	23	Diverse	805	Diverse	1833	972	110	100
8. Full-time farmers	326	Farm Labor	186	Beef	1751	662	184	96.4

¹ Column headings are explained in Tables V and VI, with one exception: Only the most usual major sources of incomes are indicated here.

farm income. Sufficiently large land holdings in these areas would require extreme dislocation of the present residence pattern.

Characteristics of Families with Inadequate Income

The 1,221 families whose economic welfare level has been classified as below adequate have the greatest need for development and are in many ways the least able to help itself. Also, families with an "adequate" level of income have already shown remarkable progress in adjustment to changing conditions in the county and in the economy generally. Therefore a development program must first concentrate on families which have not made the necessary adjustments. Over half of the rural families are in this class, but only 44 percent of the population. Table VII illustrates the most important characteristics of these families from the standpoint of their needs and their potential for development.

Population characteristics. As might be expected, the population was older with fewer children than the rural county average (compare with Table V). Adults in some of the sub-groups averaged over 64 years old. The children also were older and therefore closer to the need for employment. Children missed more free schooling, especially in families whose major employment group was "welfare only," "non-farm," and "part-time, non-farm." Children in the "welfare only" group missed on the average one full year each of the available free schooling.

Some employment groups, notably groups 4 and 7, had large families with low average ages of adults. Although these groups earn their living in a quite different manner, both have great need for development and great potential, if only because of their youth.

The groups of families not in the labor force have little potential for development, due to the average age of their adults. But still the problem of their children remains. These children are older than the average, and less schooled, yet they form 32 percent of the children of families of below adequate income levels. There are an estimated 4,222 children in the rural area. Of these, 1,710 are in families of income levels which are below adequate, and 547 in families not in the labor force. By 1961, these 547 children will average 18 years old and, with below average training, will be looking for a means to earn their own livelihood.

Non-farm Income. The majority of sources of non-farm income were non-employment sources such as retirement or welfare payments. The second largest class was income from farm labor on other farms. Second-

ary industries made up the third largest source of family income; and, when they predominated, non-farm income averages were higher. The over-all average income within this group was \$888, but the range is from zero to \$1,557.

Welfare payments and retirement income may be expected to remain fairly constant, and the age of this adult population is likely to increase from the present 51 years. But both jobs and income in the farm labor category may be expected to decrease with county net-farm income presently averaging only \$310 per family. Thus, other opportunities for employment such as in the secondary industries must be provided for the present development problem to be solved. The rapid onrush of older children into the labor force from this "below adequate" group increases the need for these opportunities, either in the county or elsewhere.

Farm Income. With the exception of rural farm families, net farm income contributed little to the economic welfare of the rural families with incomes lower than \$2,000. Fifty-seven percent of these families relied on beef or dairy cattle as their major source of farm income. For the 70 percent not classified as rural farm, farming consisted of running a few cattle on a small acreage, usually spending more on supplies than the value of sales.

Families whose economic welfare level was below adequate operated an estimated 107,072 acres, or 32 percent of the total sampled. Of these acres, 44,934, or 42 percent, were operated by "below adequate" families not classified as rural farm, whose farm expenses averaged more than farm sales. If the rural farm families of this welfare level could rent or buy this land, presently useless from an economic standpoint, their average holdings would be increased from 178 to 307 acres. However, consolidation difficulties previously mentioned make such a redistribution difficult.

Potential for Farm Development

Although farming is a large contributor to the source of income, it is a relatively small contributor to the amount of income. Nevertheless, 27 percent of rural families are classified as "rural-farm" and average \$1,052 of net farm income per family. Half of these families have total incomes of \$2,000 or more. The other half average \$682 of net farm income per family, leaving room for farm development. The part-time farm category, an additional 15 percent of rural families averaging

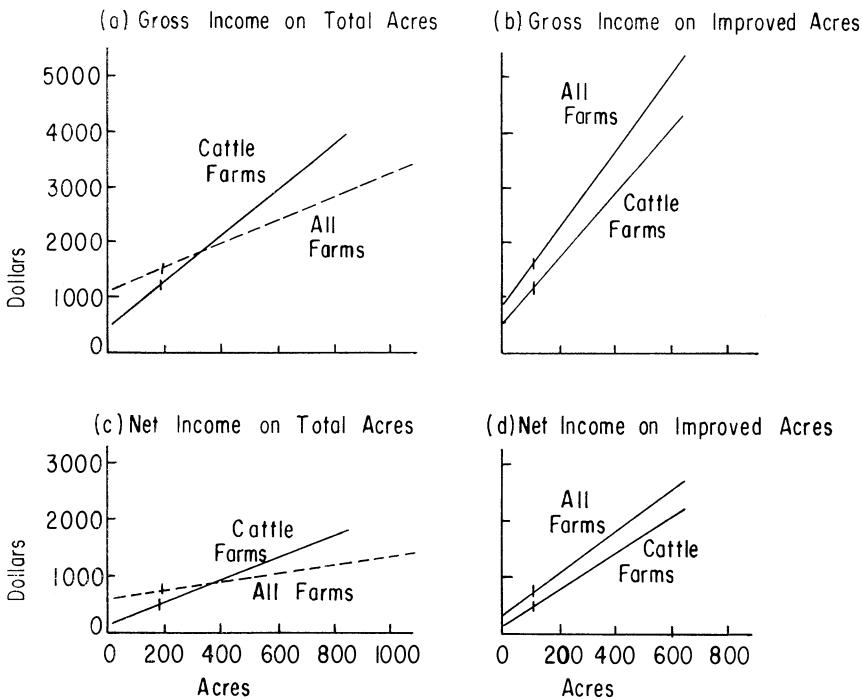
\$77 of net farm income, could also benefit from farm development even though off-farm employment provided most of them with adequate levels of income.

There are four possible restrictions on farm development noted: Farm size; farm indebtedness; farm markets; and farmer attitudes toward development.

Farm Size

The strongest association between farm income and farm size occurs for farms whose major source of farm income is from sales of cattle. Such farms constitute the great majority of all farms, but they average less income per farm than other types such as dairy, poultry and crop farms. Figure 3 illustrates the relationships, and Appendix Table II provides the statistical basis for the following analysis.

Figure 3. The Relationships Between Farm Income and Farm Size in Cherokee County, 1956.*



* Solid lines indicate significant explanation, dashed lines, non-significant. Vertical slashes indicate average acreage. Statistical estimates and definitions will be found in Appendix Table II.

Cattle Farms. For cattle farms there is a statistically significant positive association between farm size and farm income, both gross and net. The association is stronger for gross income than for net income.

A doubling in total acreage on the average cattle farm in Cherokee County would appear to bring average total acreages to 368 acres and increase gross income from \$1,256 to \$2,020 or net income from \$492 to \$863.¹⁰ Thus, a doubling in farm size would increase gross income 61 percent and net income 76 percent with existing typical forms of cattle farm management and assuming constant returns to land. Families with total income less than \$2,000 and classified as rural farm or part-time farm now operate somewhat less than 170 acres on the average. Their net farm income from all sources averages around \$700 and most of it comes from cattle sales. It would take a doubling of their farm size to move these "below adequate" families into the "adequate" category of family income if they followed practices similar to those now followed on larger farms. Such an increase appears theoretically possible, requiring a total of only 67,500 acres. Families not classified as rural farm or part-time farm operate or reside on nearly 80,000 acres and earn negligible amounts of net farm income—actually averaging \$18 per family. However, although theoretically possible, such an adjustment is not necessarily feasible. Most rural families are not willing to give up their land holdings, even though they do not use them effectively. Problems of contiguous land holdings make redistribution almost impossible. Nevertheless, programs to increase the farm size of low-income cattle farmers can increase **net** farm income, even after allowances are made for the yearly cost of the land and other factors of production. The majority of families in the rural farm and part-time farm categories are already in the cattle selling business.

The relationship between improved acreage and farm income for cattle farms is even stronger than that for total acreage. Improved acreage may be increased on existing farms by using total acreage more intensively.¹¹ Insofar as this increase was at the expense of wasteland and unimproveable woodland, and the improvement cost less than the additional returns, the increase in income would be a net increase. For cattle farms, improved acreages comprises 64 percent of total acreage

¹⁰The cause and effect statements of this section depend on the usual assumptions of regression analysis and are reliable only in this restricted sense.

¹¹Adequate data was not available for estimating the third alternative for increasing farm size: increases in the productivity of existing improved acreage.

on the average. However, much of the remaining 36 percent is land in good woodland and is quite probably in its best use.

Of the 330,197 total acres sampled, 229,720 acres operated for farming in 1956 were checked for their best use as evaluated by farm operators. Fifteen percent (35,152 acres) was in crops, 30 percent (69,489 acres) in open pasture, 46 percent (104,944 acres) in woodland or woodland pasture, and 9 percent (20,135 acres) was unused or wasteland. Farmers operating these acres estimated that if the land were put into its best use, 56 percent of existing cropland should be in pasture, 95 percent of open pasture should so remain, and 66 percent of present woodland and 36 percent of wasteland could be in pasture. These figures do not imply that the "best use" is necessarily estimated in any economic sense, but they do imply that increasing the improved acreage is possible. The extent of this increase would be 69,268 acres from woodland and woodland pasture and 7,247 acres from wasteland, which represents a 73 percent increase in potential improved acreage. Assuming that the cattle farms are a representative sample of this reported acreage use and best use, this increase in improved acreage could increase average net farm income by 57.5 percent, to \$775.

Other Farms. Dairy farms, crop, vegetable and fruit farms, poultry farms and the like show no significant association between farm size and farm income. Quite naturally, gross income from crop farms is closely associated with cropland and apparently this applies even to net income. But no relationship exists for total acres or even improved acres. These farms are in the minority; only one third of all farms selling \$250 or more of farm products are engaged mainly in these enterprises. Their income, however, is significantly higher. Programs to increase the number of these farms and to improve their management will improve county income, at least in the short run. But the total contribution to county income will likely remain quite minor.

All Farms. When all types of farms are lumped together there appears to be an association between improved acreage and farm income, but none between total acreage and farm income. But it has already been shown that the major contributors to this association are the cattle farms, and that other farms actually detract from the association.

Farm Indebtedness

The amount of indebtedness on land increased as farm sales increased (Table VIII). This was probably in part explained by the

larger size of farm. Dairy farms had the largest amount of indebtedness, with poultry farms close behind. Specialty crop farms had the least. Similar relationships existed for indebtedness secured by other than land mortgages. Over one-third of all loans came from private persons, with banks and government sources next in importance. The average size of the loan from private sources was smaller, however, and went to the low production farms in greater proportion. Actual indebtedness was not a good indicator of need for capital nor of its availability.¹²

Table VIII.—The Land-Secured Indebtedness of Cherokee Farmers Related to Farm Sale and Farm Size.¹

Sales per Farm	Debt per Farm	Acres per Farm
below \$2,500	\$ 656	161
above \$2,500	\$1,525	596

¹ For farms with \$250 or more of sales.

Farm Markets

The data summarized in Tables IX and X tend to refute the hypothesis that the structure and performance of the market for farm products may be a cause of the perpetuation of a low farm income situation in underdeveloped areas.

Location of Markets. The great majority of the estimated \$1,840,000 of farm sales from Cherokee County during 1956 were marketed in the county (Table IX). Only dairy products were over 40 percent marketed outside the county in terms of proportion of sales. This one farm product uses a dairy manufacturing plant in Siloam Springs, Ark., as a second major outlet. Other products are at least two-thirds marketed in the county.

Transport Methods. With the exception of livestock products and especially dairy products, most farmers transported their products to the market themselves (Table X). Only 17 percent of all farmers selling \$250 or more of each of crop, livestock or livestock products, hired transport for marketing their products. Those that did were mostly shipping livestock.

¹²The survey data were found inadequate to test the relationship between farm income and both farm size and capitalization. Studies are presently being made on this problem.

Table IX.—Percentage Use of Market Center by Cherokee County Farmers, 1956.¹

MARKET LOCATION	All Farm Products	Cattle	Dairy Products	Poultry	Fruits, Nuts & Vegetables			Field Crops	Eggs
					Other Livestock	percent			
Tahlequah; 12 miles ²	51	57	50	54	56	51	30	48	
Other Cherokee County	15	8	5	23	19	9	39	38	
Muskogee; 35 miles	11	16	5	8	6	18	9	2	
Siloam Springs; 40 miles	7	4	34	15	0	0	0	0	
Tulsa; 75 miles	9	12	6	0	13	11	0	2	
Remainder	6	3	0	0	6	11	22	10	
Percent of Farm Sales ³	100	43	22	9	9	7	4	3	
Sample Farms Reporting	294	105	44	13	16	51	23	42	

¹ Farmers reporting any sales for the tabulated product groups and reporting location of their market for each group.

² Estimated average road mile distance from county farms.

³ There were an additional \$54,000 sales from forest products, making an estimated total of \$1,840,363.

Number of Outlets. Although the most usual answer by farmers selling \$250 or more of a given group of products was that they knew only one buyer, the majority of livestock farmers reported knowing three livestock buyers. Cattle sales comprised 43 percent of all sales. Thus the average number of buyers known by all farmers was over four. There is considerable correspondence between the number of buyers that a farmer knew and the amount of a given product he sells. Some farmers selling large amounts of cattle in 1956 could name 10 or more outlets for their cattle. Similarly, the larger dairy farmers were familiar with several outlets. The small farmers and those engaged in part-time or spare-time farming (a larger group than the commercial farmers), generally were only familiar with one buyer for a given group of products.

Choice of Outlet. Most farmers who knew more than one buyer claimed price was the most important reason for selecting one buyer over the rest. Fifty-four percent of all farmers, even those who claimed knowledge of only one outlet, gave price as the most important reason for using a given market outlet. Services rendered by the outlets are the second most important reason for choice of buyer. In the livestock product group, services were considered most important.¹³ In the group of farmers selling \$250 or more of crops (field crops, fruit, vegetables, and nuts), buyer choice appeared more a balance between price, service, location and other factors.

¹³ Services were not represented to the respondent in any specific sense but were allowed to take on any meaning desired that was not considered monetary or locational. Other factors were an adjusted residual.

Table X.—Characteristics of the Market Structure for Farm Products as Reported by a Sample of Cherokee County Farmers, 1956.¹

MARKET CHARACTERISTIC	All Farms	Livestock Farms	Livestock Product Farms	Crop Farms
Total Respondents	104	60	26	18
Proportion of Sales (percent)	97 ²	50	34	13
<i>Method of Transport</i> ³ (percent)				
Farm Loaded	36	25	65	28
Farmer Transport	47	50	23	72
Contract Transport	17	25	12	0
<i>Number of Outlets</i> ⁴				
Average Number	4	5	4	2
Most Usual Number	1	3	1	1
<i>Reason for Choice of Outlet</i> ⁵ (percent)				
Price	54	73	27	29
Services	21	8	54	18
Location	14	15	4	29
Other	11	4	15	24
<i>Number of Criticisms</i> ⁶				
Price	6	3	1	2
Services	8	4	3	1
Information	14	7	4	3

¹ Farm sales were classified into the following groups;

Livestock: Beef and dairy cattle, hogs, sheep, horses, mules, and poultry.

Livestock Products: Milk, cream, eggs and wool.

Crops: Field crops, vegetables, fruit and nuts.

Farmers who had sales of \$250 or more in any one or more groups were asked the questions on market structure and performance for the product with the largest sales within the group. Some farmers qualified under more than one group, and these were questioned on all groups.

² \$4,530 sales of forest products by twelve sample farmers were excluded from this tabulation.

³ For each major product within each group, the proportion of farmers using one of the following methods of transport more than any other method;

Farm Loaded: Products picked up on the farm by the buyer.

Farmer Transport: Farmer used his own vehicle for transport to the market outlet.

Contract Transport: Farmer hired transport for his products to the market outlet.

This class does *not* include farm loaded dairy products (whose sales are net of pool transport charges).

⁴ For each major product within each group, farmers were asked, "About how many other potential buyers are easily available to you?" Average and most usual numbers of outlets were calculated for each group of products, although information pertained to various products within each group.

⁵ Similarly as above, farmers were asked to name the most important reason for choosing the outlet used for the product.

⁶ Also farmers were asked for criticisms of the market outlet used. Market information was mentioned in the question.

Criticism of Outlet. Having asked the farmer why he chose a given outlet requiring at least one of three possible reasons to be named, he was immediately asked to name his most important criticism of the market he faced for any group of products. Very few farmers voiced any criticism (Table X). Half of those who did criticize claimed that lack of information was the worst drawback in their marketing system. This result is surprising in view of numerous and varied information media available to the country: newspaper, radio, television, and agricultural agencies. Ninety-two percent of the rural residences possessed electricity, 56 percent owned television sets, and farmers averaged almost

once-a-month contacts with agricultural agency workers. On the other hand, only 24 percent of the rural residences possessed a telephone.

However, since so few farmers voiced criticism of any kind, not much confidence may be placed in the importance of the reply distribution. It may be concluded that even if farm markets are impeding improvement in local agriculture, most farmers are not aware of it.

Farmers' Attitudes Toward Development

An attempt was made to assess the attitude of farmers in Cherokee County toward planning for improved farm operations. Included in this assessment was the desire of the farmer for enlarging his farm operation, his desire for help in planning such enlargement, the present amount of farmer contact with agricultural agencies, his satisfaction with these contacts, and his stated needs for further information.

Almost one-fifth of the local farmers selling at least \$250 of farm products felt no need for farm improvement. Less than half wanted any help in planning. Nearly two-thirds of all farmers made at least one contact per quarter with local agricultural agencies, and they were 90 percent satisfied with these contacts. Farmers who felt the need for help in farm planning reported an even greater rate of satisfaction with the local agencies. But only 40 percent felt the need for any more help at the time the survey was taken, and less than five percent of these farmers (or two percent of all farmers selling at least \$250 of farm products) mentioned the need for help from local agricultural workers on matters of planning expanded farm operations.

However difficult it may be to evaluate personal attitudes, it seems clear that Cherokee farmers do not look upon local agricultural workers as the expert sources of planning information which they undoubtedly are. Most of the reasons for farmer contact were for specific needs such as soil tests. And almost all of the farmers who evidenced a desire for current help wanted advice for special projects such as farm ponds. All those farmers who were exceptions to these statements were large-scale, successful operators. Farmers whose income position indicated a need for planning help did not seek it, and apparently did not realize it was available locally.

One phase of a farm development program could be a drive to inform farmers who **need** planning help that there are competent local agricultural workers capable of supplying this kind of assistance. The local agencies are already well used for other specific types of service with results satisfactory to most farmers. But even those farmers who **desired** planning help, were not aware that such help was at hand.

Potential Off-Farm Labor Force

Much of the present and future economic welfare of rural Cherokee depends on the continued and preferably increased availability of off-farm employment opportunities, both in the county and outside. This section investigates the potential supply of rural adults for additional off-farm employment.¹⁴

Employment Potential of Rural Adults

Only 53 percent of the county's rural adults could be considered as employable. As Table XI shows, 20 percent of the adult man-years

Table XI.—The Potential Supply of Rural Adults for Off-Farm Employment, Cherokee County, 1956.

Item	Adults Classified by Family Income Level ¹		
	Total	Below \$2,000	Above \$2,000
All Adults	4955 (100)	2361 (100)	2594 (100)
Permanently Disabled	710 (14)	477 (20)	233 (9)
Temporarily Disabled Equivalents	326 (6)	174 (7)	151 (6)
Aged 60 years or over	1349 (27)	896 (38)	453 (17)
Unable Adults	2385 (47)	1558 (66)	827 (32)
Able Adults	2570 (53)	814 (34)	1756 (68)
Presently Unemployed	233 (5)	140 (6)	93 (4)
Admittedly Underemployed	1338 (27)	826 (35)	512 (20)
Total Employment Potential	1571 (32)	966 (41)	605 (23)
Interested in Additional or Alternative Employment	1291 (26)	663 (28)	628 (24)
Percent of Able Adults			
Interested	(50)	(83)	(36)
Interested <i>and</i> Experienced in Alternative Employment	838 (17)	465 (20)	373 (14)
Percent of Interested Adults			
Experienced	(66)	(70)	(59)
Willing to Migrate for Alternative Work	395 (8)	209 (9)	186 (7)

¹Estimated county numbers with percentages of all adults (subject to rounding error) in parentheses.

equivalent were lost to temporary or permanent disability. Twenty-seven percent of the adults were 60 years old or over and could not be considered as candidates for long-period jobs. These characteristics showed up more among families earning less than \$2,000; they may be taken as one of the causes of present low income.

¹⁴Availability for **alternative** employment is included as additional since, in most cases of availability, the present source of employment was subsistence farming, or farm labor.

Over 5 percent of the rural adults were temporarily unemployed at the time of the survey. An additional 27 percent were admittedly underemployed, which means that these adults did **not** answer "yes" to the leading question, "Do you think that everything that you do amounts to full-time work?" Excluded were those adults whose age or health prevented a full-time job. It was hoped that this question would tend to force an affirmative answer unless there was a definite conviction on the part of the respondent that his time could be more fully used regardless of its profitability.

There was, naturally, a greater proportion of adults from low-income families admittedly underemployed. A larger number of these adults (41 percent) felt potentially capable of alternative or additional work than were classified as able to work (34 percent).

Employment Attitudes of Rural Adults

Twenty-six percent of all adults, and half of those who could be considered able, were interested in alternative employment. There was a higher proportion of adults from low-income families who were interested in additional work, and this could be considered as mainly due to their present low income status. Although 83 percent of the low income, able adults were interested in alternative work, less than 70 percent (663) of the employable (966) were interested; while in the adequate income group, more than the employable (605) were interested. Low-income families, in other words, are not as interested in additional work as they are in need of it by their own admission. Although these families need local economic development the most, they may not use it for their improvement as readily as those families who are already at adequate levels of income.

One-third of the adults interested in additional work had experience in other jobs. Fortunately, the low-income group has a higher experience rate (70 percent) than the high-income group (59 percent). But the high-income group is already more fully employed and experienced in their present work.

Almost half of the adults interested in additional or alternative work were willing to migrate from the county in search of it. The county is already severely depleted in the ages between twenty and fifty years, and it would look as if in future this depletion might well continue if additional nearby opportunities for employment are not

provided. Although out-migration will decrease the denominator of income per capita, it may well decrease the numerator even more severely through productivity differences in the age groups migrating versus those remaining.

The potential supply of rural adults for off-farm employment may be summarized as follows:

Nearly 1,300 rural adults were interested in additional or alternative off-farm work, at least half of whom were both in need of improved levels of economic welfare and could become net additions to the local work force. One-third of the interested adults have experience in alternative work. An additional 200 adults would be interested in more opportunities for farm labor. Three hundred fifty adults have already received vocational training. Four hundred fifty adults would like to have more vocational training; the large majority of whom desire this training for non-farm occupations. These adults, even those from part-time farm families, nearly all specify full-time jobs. In fact, the typical adult of the 1,500 wanted work for 5 days a week, 11 months of the year. It would appear that the labor supply prospects for new industries are good.

Summary of Conclusions

The Need for Development

1. The average per capita income in rural Cherokee was \$626 in 1956, with 60 percent of the rural families earning less than the average family income of \$2,378.
2. Primary industries (farms and mines) provided 40 percent of the rural income payments but only 18 percent of the rural income.
3. Secondary industries (construction, processing and manufacturing) provided less than 16 percent of the income payments but more than 30 percent of the rural income.
4. Nearly 30 percent of the rural families were not in the labor force, 43 percent were rural non-farm, and 27 percent were rural farm.
5. One-third of the rural non-farm, over one-half of the rural farm, and nearly three quarters of the families not in the labor force received income of less than \$2,000 in 1956.

The Potential for Development

1. The children of families not in the labor force (1.3 per family) had missed more schooling and were older than the rural county average. These children can soon add to the rural development problem.
2. Rural non-farm families had already made adjustments to changing economic conditions, and two thirds of them had achieved relatively high standards of living. The remaining one-third (15 percent of the population) will either add to the rural development problem in the future with their large numbers of children (2 per family) or will provide the major source of off-farm development, depending on future employment opportunities.
3. Rural farm families were relatively few in number, but one-half of them are capable of providing some farm development if land and capital become available to them. Adults in the half who obtained adequate levels of living were more aged than the average. More than half the adults in the full-time farming category averaged over 60 years old.
4. For cattle farms (the majority of all farms in the county), small farm size was an important restriction on income.
5. Farmers did not consider that farm product markets were lacking in important features of structure and practice.
6. Farmers used the local agricultural agencies frequently and reported almost complete satisfaction with these contacts. But almost no farmer considered the agencies as sources of farm planning help.
7. The potential off-farm labor force was estimated at 1,300 persons, half of whom appeared willing to migrate in order to obtain work. At least half of these could be a net addition to the work force. One-third were experienced, and an additional third desired training.
8. Less than 70 percent of the employable adults from families of incomes less than \$2,000 were interested in alternative or additional work. Local underemployment of labor appeared at least 30 percent explained by the attitude toward work of adults from low-income families.

Appendix I

The Sampling Method

The sample was drawn from households in the non-urban or "open country" area of Cherokee County.¹ The population sampled is illustrated in the 1954 General Highway Map of Cherokee County (scale: one mile equals one inch) published by the Oklahoma Department of Highways. Geographic location of each house and building is shown on this map. Built-up areas of cities and towns were eliminated from the map, but rural communities and the suburban surroundings of the cities were left in. Two forms of map corrections were made. First, lake area cabins were identified and deleted; and, secondly, a major district of vacant homes being blocked up into a large "dude" ranch was similarly deleted.

The county was then geographically stratified as follows: The area adjoining Tahlequah, the county seat, was made into one stratum, and the four remaining corners of the county made up the five final strata. A pre-test indicated that the stratification was sufficient to insure adequate and representative coverage of the major cultural and geographical differences within the county. Cultural differences include small country towns and local concentrations of residents of one race. Bottomland versus upland types of farm land, and lakeside areas used primarily for recreational purposes, are the major contributions to geographical differences.

The county was then divided into 454 areas delineated to include an average of six houses each. Variation in the number of houses was allowed in order to use natural boundaries such as roads, rivers and section lines in the process of delineation. A random sample was drawn at the rate of 8.8 percent from each stratum, yielding a total of 40 areas. There were 217 houses in the final survey, or an average of 5.4 houses per area.

Twenty-five areas were drawn at random from the stratified population to make a pre-test sample. One household from each area was chosen for questioning, but the other houses in the area were located and checked on the map. The areas drawn were restricted from being an

¹Mr. Robert B. Spears drew the sample and conducted the pre-testing procedure. At the time of the survey, Mr. Spears held the position of Statistician, Agricultural Industrial Development Service, Oklahoma State University.

area of the main sample. Results from this pre-test indicated: (1) the need for a small redefinition of the stratum surrounding Tahlequah to include less town houses, (2) that the houses actually occupied in the country were roughly 88 percent of those shown on the map, and (3) that the households sampled did not depart violently in terms of race, age and numbers of persons from what might be expected from the population census of 1950. It was concluded that the sampling method could be expected, with the adjustment mentioned above, to give a representative sample of the rural households of the county. Appendix Table I compares results of the sampling with figures from the U. S. Census.

Appendix Table I.—Survey Estimates of the Cherokee Rural Farm Families Compared with Recent U. S. Census Reports.

FAMILY GROUP	U. S. CENSUS		CHEROKEE SURVEY	
	1949	1954 ²	1956	Percent Part-Time Farm of Family Group ³
All Rural Families ¹	3772	N.A.	2419	25.0
Non-Farm	1450	N.A.	756	0
Farm ²	2322	1798	1663	36.4
Commercial Farm	868	565	698	30.0
Class I	1	0	0	—
Class II	4	0	5	0
Class III	36	51	99	25.0
Class IV	59	90	47	25.0
Class V	295	171	407	42.9
Class VI	473	253	140	0
Other Farm	1454	1233	965	40.0
Part-Time	476	443	395	100.0
Residential	973	790	570	0
Abnormal	5	0	0	—

¹ Rural families estimated from Rural Farm and Urban and Rural Non-Farm Families and Unrelated Individuals in the same proportion as total population.

² Census of Agriculture economic classes.

³ Sample estimates proportionally adjusted to enumerated total number of farms.

⁴ Percent of families in 1956 whose income from off-farm work exceeded farm sales or whose operator worked off-farm for 100 days or more.

Source: 1957 Rural Development Survey, Cherokee County, Oklahoma.

U. S. Department of Agriculture, *Census of Agriculture*, Oklahoma 1954.

U. S. Department of Commerce, *Census of Population*, Oklahoma 1950.

Appendix II

Survey Procedures

The survey was taken largely by members of the local county committee on rural development. Agricultural workers in State and Federal agencies formed the majority of schedule takers, but other interested citizens took their part. Research and extension workers from Oklahoma State University spent several days in discussing the content of the schedule and the technique of interview. Experience in previous surveys of this nature in Choctaw and Latimer counties was invaluable in this process of instruction.

The actual survey lasted about one month and took place in April and May of 1957. Each schedule was checked by the local workers. Twenty-five schedules were returned for lack of information and other interviews made return calls. Return calls for absences were made up to five times, with neighbors being used to supply information when necessary. Finally, of the 217 schedules attempted, nine were eliminated. Two of these refused to give information, three houses were owned by persons absent from the county, one household consisted of a family who were in the incompleting process of moving in, and three schedules were abandoned since interview could not be arranged. Two hundred and eight completed schedules are thus the final count.

The problems of missing schedules are well-known but largely unanswered. It was decided to exclude the three uncontacted households and the two refusals, and to adjust the sampling percentage accordingly when estimates of the population were needed. The remaining four households are implicitly included in the sample. On this basis, the sampling percentage is estimated at 8.597 percent. The rural households of the county are thus expected to total 2,466 of which 34 are absentee families and 12 are in the process of moving in. The results in the survey thus refer to the estimated remainder of 2,419 rural families.

Appendix Table II.—The Regression Estimates of Farm Income on Farm Size.¹

SAMPLE FARMS ²		TOTAL ACRES ³						IMPROVED ACREAGE ⁴					
Type	No.	\bar{Y}	\bar{X}	a	b	t _b	r	\bar{X}	a	b	t _b	r	
<i>Gross Income</i>		\$	Acres									Acres	
I Cattle	29	1256	184	489	4.16	4.12**	.621**	117	518	6.32	4.24**	.632**	
II Dairy	8	2573	250	3089	-2.06	0.80	.310	91	3356	-8.64	0.57	.227	
III Crop ⁵	6	2287	172	633	9.63	1.02	.453	100	-334	26.13	2.47	.777	
Total	43	1645	195	1244	2.06	1.52	.232	110	869	7.08	2.86**	.408**	
<i>Net Income</i>													
I Cattle	29	492	184	117	2.03	2.47*	.430*	117	105	3.31	2.76**	.469*	
II Dairy	8	1228	250	1629	-1.60	1.11	.413	91	1883	-7.23	0.84	.326	
III Crop ⁵	6	1458	172	482	5.69	1.02	.454	100	-77	15.28	2.42	.771	
Total	43	734	195	606	0.81	0.93	.143	110	360	3.68	2.28*	.335*	

¹ Regression model $\hat{Y} = a + bX$ with Y, income; and X, size.

² Farms reporting at least \$250 farm sales with the following breakdown

Gross Income: Total value of all farm sales
 Net Income: Gross income minus estimated current expenses and carrying charges.

\bar{Y} : Average income of each group.

Type: Of the total farm sales, 75 percent or more come from Cattle; sales of cattle
 Dairy; sales of dairy products
 Crop; sales of field crops, vegetables, fruit and nuts

³ Total acres of farm land operated.

⁴ Total acres less woodland pasture, woodland and wasteland. The residual consists of cropland and open pasture.

\bar{X} : average acreage

a: estimated income intercept.

b: estimated linear average effect of size on income

t_b: Student's t statistic, absolute value testing the hypothesis that the population b is zero.

r: Pearson's coefficient of correlation.

* Hypothesis that population parameter is zero rejected with 95 percent confidence.

** Hypothesis that population parameter is zero rejected with 99 percent confidence.

⁵ Regressions were computed for crop farms on acres in cropland with results as follows:

Gross Income: \bar{X} , 20; a, -121; b, 178.0; t_b, 4.04*; r, .896*

Net Income: \bar{X} , 20; a, -578; b, 103.5; t_b, 3.81*; r, .885*