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**Social Factors Related to Farm Housing
in Southern Oklahoma**

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Toward Better Rural Housing—

Improvement of rural dwelling houses has an important place in current efforts toward general improvement of agriculture in Oklahoma. Indeed, better homes and living conditions for farm people are the final goal in all such efforts. An increase in the farm family income is of first importance in improving rural housing, but other conditions are also involved. **Housing conditions are in part a reflection of such rural problems as education, health, tenure, and similar factors, which are social rather than economic in nature.**

This bulletin reports and analyzes basic facts about social conditions related to rural housing in Oklahoma. The factual information presented was gathered by surveys in representative sections of southern Oklahoma. Information on the condition of rural dwellings in these areas, gathered during the same surveys, is presented in Okla. Agri. Exp. Sta. Bull. B-290, "Farm Housing in Southern Oklahoma."

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Social Factors Related to Farm Housing in Southern Oklahoma

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INTRODUCTION

PURPOSE OF STUDY

This study analyzes the relationship of selected social and economic conditions to housing among families living in two open-country areas of southern Oklahoma.¹ It is assumed that the character of housing is influenced by many social, economic, geographical, and technological factors. Although economic situations are considered to be of primary importance in determining the level of housing, this study attempts to discover, in addition, some of the social variables which are associated with farm housing.

The data on which this study is based are taken from two surveys. The first survey was conducted during 1943 and covers 324 families living in seventeen townships of Jackson County and four adjoining counties, located in southwestern Oklahoma (See Figure 1). The second survey was taken during February and March, 1944, and includes 372 families residing in nine townships of seven counties in the southeastern part of the State.

In both surveys the data were obtained by personal interviews in the home with the male or female head, or other responsible member of the family. Each schedule contains detailed information on housing, composition of the family, income, expenses, migration, tenure history, social participation, health, and other subjects.

* This report is based, in part, upon data collected as a part of the Regional Land Tenure Research Project under the sponsorship of the Southwestern Land Tenure Research Committee composed of representatives of agricultural economics and rural sociology in the Land-Grant Colleges of Arkansas, Louisiana, Mississippi, Oklahoma, and Texas, and one representative each from the U. S. D. A. Bureau of Agricultural Economics and the Farm Foundation. The Regional Land Tenure Research Project has been financed jointly by the institutions represented and the General Education Board.

K. C. Davis, Raymond E. Page, William Hudson and Clint C. Drury of the Department of Agricultural Economics, Robert L. Fisher of the Department of Sociology and Rural Life, and personnel of the Regional Staff assisted with the field work.

¹ This is the second of two bulletins on housing in southern Oklahoma. See Robert T. McMillan, *Farm Housing in Southern Oklahoma*, Okla. Agri. Exp. Sta. Bull. No. B-290, 1945, for a general description of farm housing conditions in the same areas as those studied here.

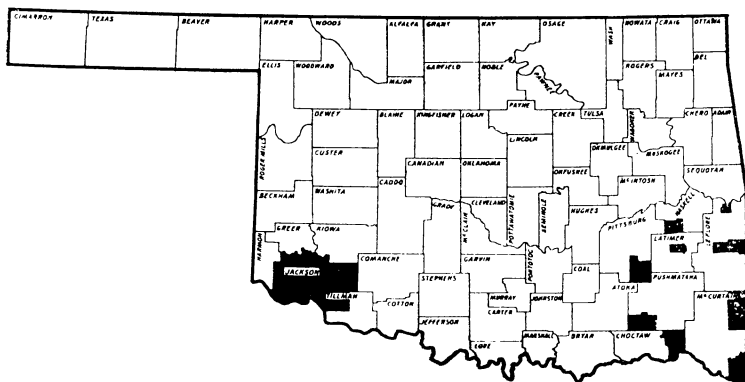


Figure 1. Map of Oklahoma Showing Areas Surveyed.

SURVEY AREAS

The two areas surveyed differ widely with respect to topography, type of farming, acres per farm, and level of living. That portion of southwestern Oklahoma included in the sampling area forms a part of the new western cotton region and is considered fairly typical of the Southern Low Plains. Farm mechanization has been under way at an accelerated pace since 1920, and farms have increased rapidly in acreage.² Rainfall is 15 to 25 inches annually, and there are intermittent drouths. Wheat and cotton are the principal cash crops, with livestock as a complementary enterprise. The average value of land and buildings per rural-farm person in Jackson was \$1483 in 1940, or 65 percent above the state average. On Hagood's Rural-farm Level of Living Index, Jackson County has a score of 110 in comparison with 91 for the State.³

The area surveyed in southeastern Oklahoma is rough to hilly, and land is of low value except in the river bottoms. Most farms are self sufficing in character and consist of small plantings of cotton, corn, peanuts, beans, and miscellaneous truck crops. The average size of farm in the area was 102 acres in 1940, though the cultivated acreage was much smaller. In 1940, the average value of land and buildings per rural-farm person in the seven counties amounted to \$230 as compared

² The percentage of farms with tractors in Jackson County increased from 13.0 in 1930 to 47.0 in 1940. During the same period, according to census data, the average number of acres per farm rose from 160 to 229.

³ Margaret Jarman Hagood, *Rural Level of Living Indexes for Counties of the United States, 1940*, Washington: U. S. D. A. Bureau of Agricultural Economics, Mimeographed, October, 1943.

HOUSING INDEX FORM

Schedule Number		Tenure Status	
1. Construction of house (Brk., etc., pntd., frm.)	Y N	18. Window decor.—LR (blds. & curt./draps.)	Y N
2. Heating (furnace or circulator)	Y N	19. Rugs—LR (large or small)	Y N
3. Water piped dwelling	Y N	20. Living room suite	Y N
4. Electric lights	Y N	21. Radio	Y N
5. Indoor toilet	Y N	22. Piano or organ	Y N
6. Sewage disposal (cess pool/septic tank)	Y N	23. Telephone	Y N
7. Separate dining room	Y N	24. Washing machine (power or send out)	Y N
8. Separate living room	Y N	25. Refrigerator (mechanical or ice)	Y N
9. Separate kitchen	Y N	26. Kitchen cabinet (built-in)	Y N
10. Bath	Y N	27. Pressure cooker	Y N
11. Rooms-person ratio (1.00 and up)	Y N	28. Kitchen range	Y N
12. Screens	Y N	29. Iron (electric or fuel)	Y N
13. Hardwood floors—LR*	Y N	30. Sweeper (elec. or mech.)	Y N
14. Wall construction—LR (plaster or wallboard)	Y N	31. Sewing machine	Y N
15. Wall decorated—LR (pntd, ppd, fancy plas.)	Y N	32. Automobile (other than truck)	Y N
16. Woodwork finished—LR	Y N		
17. Kitchen sink	Y N		
*LR refers to living room.		Score (number of Y's)	

with \$899 for the State as a whole. According to Hagood's study, the average index for the seven counties is 68, or slightly above the lowest-scoring counties of the State.

METHOD OF STUDY

For the purpose of this study, housing includes the dwelling, equipment, and site. In order to study its relationship to specified factors, some measure of housing was necessary. To meet this need a simple index was constructed, in which each family is scored one point for possession, and zero for non-possession of specified items relating to the dwellings and its facilities (See "Housing Index Form," above). The housing score for each family is the sum of the scores for the several items possessed. Items included in the index are those which a previous study had shown would differentiate families with reference to socioeconomic status.⁴ A more detailed discussion of this index can be found in the Appendix.

Chiefly through the use of this index, housing was cross-tabulated with each of the several factors assumed to have

⁴ William H. Sewell, *The Construction and Standardization of a Scale for the Measurement of the Socio-economic Status of Oklahoma Farm Families*, Stillwater: Okla. Agrl. Exp. Sta. Tech. Bull. No. 9, April, 1940, pp. 30-42.

some relationship. Simple statistical techniques, that is, averages, percentages, and ratios, are employed in the analysis of the data. Critical ratios have been computed in many instances to ascertain whether differences are reliable or are due to chance sampling.

DISTRIBUTION OF HOUSING INDEX SCORES

That the housing of the families surveyed covers a fairly broad range in quality is shown by the distribution of housing index scores shown in Table 1. In southwestern Oklahoma, the scores range from 2 to 31, and the average is 17.1 ± 5.6 . In southeastern Oklahoma, the scores are concentrated at the lower end of the array, indicating a widespread lack of the various items contained in the index. The average housing score in this area is 9.4 ± 5.0 .

CORRELATIVES OF HOUSING

FARM TENURE STATUS

As measured by the index, housing is related directly with farm tenure status (Table 2).⁵ Part owners have a slightly but not significantly higher average housing score than full owners in both areas. As a group, farm owners have a larger average score than tenants, though the difference varies sharply between the two areas. In southeastern Oklahoma, the average housing score of owners is more than 50 percent larger than that of tenants, while in southwestern Oklahoma the average score of owners exceeds that of tenants by less than 25 percent. The smaller contrast between the housing scores of owners and tenants in southwestern than in southeastern Oklahoma probably can be explained largely in terms of relative economic status. Differences in wealth, income, and size of farms between these two tenure classes are smaller in southwestern than in southeastern Oklahoma.

"Other" families, including those of laborers, recipients of old age assistance, and miscellaneous workers residing in the open country, have the lowest average housing scores among the four tenure classes. This group, though heterogeneous in character, reflects in its housing evidence of limited economic resources.

AGE OF POPULATION, FERTILITY, AND SIZE OF FAMILY

The data in Table 3 indicate a rather definite relationship between housing scores and the age composition of the population, especially in the extreme age groups. As housing scores

⁵ See Robert T. McMillan, *op. cit.*

Table 1.—Distribution of Housing Scores of Dwellings Surveyed.

Housing Score	SOUTHWESTERN OKLAHOMA		SOUTHEASTERN OKLAHOMA	
	Number	Percent	Number	Percent
Total	323	100.0	371	100.0
0	0	0.0	4	1.1
1	0	0.0	5	1.3
2	2	0.6	11	3.0
3	2	0.6	24	6.5
4	0	0.0	20	5.4
5	1	0.3	29	7.8
6	4	1.2	30	8.1
7	6	1.9	31	8.4
8	9	2.8	26	7.0
9	9	2.8	25	6.7
10	8	2.5	24	6.5
11	10	3.1	18	4.9
12	10	3.1	26	7.0
13	25	7.7	19	5.1
14	15	4.6	15	4.0
15	21	6.5	14	3.8
16	27	8.3	15	4.0
17	21	6.5	14	3.8
18	23	7.1	6	1.6
19	22	6.8	5	1.3
20	20	6.2	3	0.8
21	18	5.6	0	0.0
22	19	5.9	2	0.5
23	10	3.1	2	0.5
24	7	2.2	1	0.3
25	7	2.2	0	0.0
26	6	1.9	1	0.3
27	8	2.5	0	0.0
28	7	2.2	1	0.3
29	3	0.9	0	0.0
30	1	0.3	0	0.0
31	2	0.6	0	0.0

Table 2.—Average Housing Scores of Dwellings Surveyed,
by Farm Tenure Status.

Farm Tenure Status	SOUTHWESTERN OKLAHOMA		SOUTHEASTERN OKLAHOMA	
	Average Score	Standard Deviation	Average Score	Standard Deviation
All tenures	17.12	5.64	9.38	4.99
Full owners	19.12	5.78	11.87	5.24
Part owners	19.86	4.80	12.20	4.76
Tenants	15.77	4.64	7.75	3.45
Others	12.00	4.57	6.92	4.61

Table 3.—Age Distribution of Population Living in Dwellings Surveyed, by Housing Scores.

PERCENTAGE OF PERSONS IN SPECIFIED AGE GROUP, YEARS				
Housing Score	Number of Persons	Under 15	15-44	45 and over
Southwestern Oklahoma				
All scores	1195	27.5	43.4	29.1
0-3	15*			
4-7	49	40.8	28.6	30.6
8-11	160	35.0	41.2	23.8
12-15	269	28.0	46.6	25.4
16-19	355	27.6	46.2	26.2
20-23	231	24.7	42.4	32.9
24-27	78	15.4	35.9	48.7
28-31	38	13.2	44.7	42.1
Southeastern Oklahoma				
All scores	1606	38.4	37.2	24.4
0-3	226	48.2	36.8	15.0
0-5	226	48.2	36.8	15.0
4-7	521	41.7	37.0	21.3
8-11	432	40.2	39.0	20.8
12-15	269	28.3	37.5	34.2
16-19	140	27.9	35.0	37.1
20-31	27*			

* Inadequate sample.

increase in size, the proportions of children under 15 years of age among the population decrease. In contrast, the percentages of persons 45 years of age and over tend to increase irregularly with the size of housing scores.

Although the ratio of children less than 15 years of age to the total population is much greater in southeastern than in southwestern Oklahoma, the difference is due mostly to the high fertility rates of families with low housing scores in the former area. Nearly three-fourths of the total population surveyed in southeastern Oklahoma live in houses scoring less than 12 on the index. The corresponding proportion in southwestern Oklahoma is less than one-fifth of the number of persons surveyed.

That high fertility of families tends to be associated with poor housing can be seen from data in Table 4. In both areas, the average fertility index tends to decrease with each increase in size of housing scores.⁶ The average index of fertility in

⁶ The formula used in computing the fertility index for each family is:

$$\text{Index} = \frac{\text{Number of children born alive} \times 100}{\text{Number of years wife was married during period 15 to 44 years of age, inclusive}}$$

the area with the lowest housing scores exceeds by more than one-third that of the area with the highest housing scores. In other words, disproportionately large numbers of children come from poorly-housed families.

The fairly uniform relationship between the average number of persons per family and the size of housing scores lends factual support to the theory that a large number of children per family tends to accentuate conditions of poverty among some families (Table 5). The differences between the average size of families in the two areas studied are most pronounced in the groups scoring lowest on the housing index.

AGE OF DWELLING

Housing status appears to be related inversely to the age of dwelling. As the latter increases, the housing scores tend to decrease in size (Table 6). When comparisons are made on the basis of specified housing items, as in Table 7, certain differences can be noted. Such improvements as electric lighting, kitchen sink, water piped into dwelling, and bathroom, which require major changes in the housing structure, are less likely to be found in dwellings over 24 years old than in newer houses. With the exception of radios and sewing machines, most items of household equipment shown in the table tend to become less numerous with advances in age of dwelling.⁷

SOCIAL PARTICIPATION

Although housing probably does not exercise any direct causal influence upon the participation of families in the organized social activities of a community, the two factors are associated. Previous studies have shown the relationship of socioeconomic status to social participation.⁸

In this study, the amount of social participation increases regularly with size of housing scores (Table 8).⁹ The area

⁷ Other data at hand show little relationship between age of male heads of families and possession of specified housing items with two exceptions. Comparatively high percentages of families with male heads over 64 years of age report these items: kitchen sink, water piped into dwelling, bathroom, mechanical refrigerator, and telephone. Families with the male head under 35 years of age are below average in possession of all items tabulated excepting the automobile.

⁸ For example, see W. A. Anderson and Hans S. Plambeck, *The Social Participation of Farm Families*, Ithaca, New York: Cornell University Agri. Exp. Sta., Dept. of Rural Sociology, Mimeographed Bull. No. 8, March 1943, and Otis Durant Duncan, "Relation of Tenure and Economic Status of Farmers to Church Membership," *Social Forces*, Vol. XI, May 1933, p. 542.

⁹ The procedure used to measure the amount of social participation follows: The husband and wife are scored one point each for membership, attendance, or office holding in any religious, economic, educational, fraternal, patriotic, or recreational organization. Attendance is scored if the persons participated in one-fourth or more of the meetings.

Table 4.—Average Fertility Index of Families Surveyed, by Housing Scores.

Housing Score	SOUTHWESTERN OKLAHOMA	SOUTHEASTERN OKLAHOMA
All scores	18.7	25.4
0-3	---	31.2
4-7	24.2	28.6
8-11	24.1	26.8
12-15	18.7	19.1
16-19	18.1	19.3
20-23	18.9	13.6
24-27	15.1	---
28-31	12.9	---

*Table 5.—Average Number of Persons Per Family, by Housing Scores.**

Housing Score	SOUTHWESTERN OKLAHOMA**	SOUTHEASTERN OKLAHOMA**
All scores	3.7	4.3
0-3	---	5.0
4-7	4.7	4.7
8-11	4.5	4.5
12-15	3.9	3.6
16-19	3.8	3.5
20-23	3.5	2.7
24-27	2.7	---
28-31	3.1	---

* The term, "family," as used in this study includes, in addition to the biological family, extra-family members in the household.

** Mean.

Table 6.—Average Housing Scores of Dwellings Surveyed, by Age of Dwelling.

Age of Dwellings, Years	SOUTHWESTERN OKLAHOMA*	SOUTHEASTERN OKLAHOMA*
All ages	17.5	9.8
0-9	21.9	11.2
10-24	19.4	10.4
25-49	15.9	8.7
50 and over	14.6	7.2

* Mean.

Table 7.—Percentage of Families, Classified by Age of Dwelling, Reporting Possession of Specified Housing and Household Items.

Item	PERCENTAGE OF FAMILIES IN EACH GROUP CLASSIFIED BY AGE OF DWELLING REPORTING POSSESSION OF SPECIFIED ITEMS				
	All Ages	Under 10	10-24	25-49	50 and over*
Southwestern Oklahoma					
Electric lights	37.6	51.7	50.5	27.6	33.3
Kitchen sink	33.9	72.4	46.7	20.1	25.0
Water piped into dwelling	14.0	34.5	19.6	7.5	8.3
Bathroom	8.4	20.7	14.0	2.9	8.3
Radio	88.5	96.6	87.9	87.9	83.3
Sewing machine	83.2	86.2	82.2	82.8	75.0
Automobile	86.5	86.2	84.1	83.9	75.0
Pressure cooker	66.8	69.0	64.5	69.0	41.7
Mechanical refrigerator	39.1	51.7	52.3	29.9	16.7
Power washer	33.5	44.8	43.0	26.4	25.0
Telephone	25.5	31.0	30.8	21.8	16.7
Southeastern Oklahoma					
Electric lights	4.6	9.6	1.0	4.0	0.0
Kitchen sink	3.5	6.7	2.0	2.7	0.0
Water piped into dwelling	2.4	5.8	0.0	2.0	0.0
Bathroom	2.7	6.7	1.0	1.3	0.0
Radio	76.2	86.5	70.6	71.8	80.0
Sewing machine	79.2	88.5	70.6	77.2	93.3
Automobile	22.7	34.6	21.6	15.4	20.0
Pressure cooker	51.9	63.5	45.1	49.7	40.0
Mechanical refrigerator	7.8	13.5	5.9	5.4	6.7
Power washer	19.5	29.8	15.7	16.1	6.7
Telephone	2.4	1.0	2.9	2.7	6.7

* Percentages based upon sample of 12 families in southwestern and 15 families in southeastern Oklahoma.

with the highest housing scores has a larger average index of social participation than the area with the lowest housing scores.¹⁰

SCHOOLING

Previous studies of the open-country population in Oklahoma have shown the relationship between amount of schooling and other social and economic factors to be slight due to the contravening influences upon status of advancing age, the

¹⁰ A similar relationship between housing status and social participation was found in a Pennsylvania study. M. E. John, D. S. Hiller, and D. L. Backenstose, *Poorly-Housed Rural Families of Two Pennsylvania Townships*. State College: Pennsylvania State College Agri. Exp. Sta. Bull. No. 417, November, 1941, pp. 16-18.

Table 8.—Average Social Participation Scores of Heads of Families Surveyed, According to Housing Scores.

Housing Score	Southwestern Oklahoma	Southeastern Oklahoma
All scores	3.4*	2.4*
0-3	1.7	1.4
4-7	2.3	1.9
8-11	2.6	2.4
12-15	2.8	3.2
16-19	3.3	3.6
20-23	4.3	--
24-27	4.8	--
28-31	5.5	--

* The critical ratio between these mean scores, 2.34, is significant at the 5 percent level.

Table 9.—Percentage Distribution of Male and Female Heads of Families According to Average Combined Schooling, by Housing Scores.

Housing Score	PERCENTAGE OF COUPLES HAVING COMPLETED AVERAGE GRADES OF:			
	Number of Couples	0-7	8	9 and over
Southwestern Oklahoma				
All scores	290	34.8	23.4	41.8
Male Head Under 45 Years Old				
Under 12	19	31.6	31.6	36.8
12-19	73	20.5	17.8	61.7
20 and over	32	0.0	21.9	78.1
Male Head 45 Years Old and Over				
Under 12	27	51.9	22.2	25.9
12-19	79	53.2	27.8	19.0
20 and over	60	40.0	23.3	36.7
Southeastern Oklahoma				
All scores	311	66.9	14.5	18.6
Male Head Under 45 Years Old				
Under 8	71	70.4	14.1	15.5
8-15	58	44.9	15.5	39.6
16 and over	7*			
Male Head 45 Years Old and Over				
Under 8	69	85.5	10.1	4.4
8-15	78	71.7	16.7	11.6
16 and over	28	57.1	21.4	21.5

* Inadequate sample.

improvement of educational facilities and other factors.¹¹ Similar influences appear in this study.

Table 9 shows the distribution of male and female heads of families according to their average schooling by housing scores, with age of the male head held constant. Generally, within each age group, couples with low housing scores completed fewer grades of school than couples with high housing scores. The schooling of heads of families, as well as housing scores, differs sharply between the two areas. Variations in ages of the husbands are much more closely related to the housing scores than differences in schooling.

Not only does housing appear to improve with advancing age of male heads up to a certain point, but also it should be recalled that many of the older heads of families with comparatively little schooling settled in Oklahoma when land was low-priced and acquired relatively high status from subsequent accumulations of wealth and rising prices of land. It is probable that schooling will be increasingly important henceforth as a factor in improving status, although, as in the past, its role may be conditioned largely by other background factors.

The high proportions of couples with high school training who have large housing scores strongly suggest the possibility of improved housing status as a result of schooling and the factors responsible for it. While it would be difficult to measure the contribution of a higher level of education to better housing, it is probably true that housing wants increase with amount of schooling, at least within the limits of the economic resources of the family.

HEALTH

Of all the factors studied here, none is less susceptible to accurate measurement than health. There are several reasons for this situation. The lack of popular agreement in the terminology employed in describing various diseases and sicknesses tends to distort and obscure the actual facts. For example, how should a common cold be defined and reported? Some people are reluctant to admit their illnesses, while some others like to exaggerate them.

In this study enumerators were asked to record all illnesses, including diseases, defects, accidents, and disabilities of any kind, for each member of the family during the year

¹¹ Otis Durant Duncan. *An Analysis of Farm Organization in Oklahoma*. Unpublished Ph. D. Thesis, Louisiana State University Library, 1941, pp. 193-198. Robert T. McMillan, *Migration and Status of Open-Country Families in Oklahoma*, Stillwater: Oklahoma Agri. Exp. Sta. Tech. Bull. T-19, September, 1943, pp. 25-28.

Table 10.—Number of Illnesses Reported Per 1000 Persons For One Year in Families Surveyed, by Housing Scores.

Housing Score	Southwestern Oklahoma	Southeastern Oklahoma
All scores	226	1005
0-3		1208
4-7	222	990
8-11	306	957
12-15	257	959
16-19	206	970
20-23	212	
24-27	128	
28-31	158	

preceding the interview. Table 10 relates the number of illnesses reported for each 1,000 persons to the size of housing scores. The results indicate some tendency for high rates of illness to be associated with extremely low housing scores. This characteristic is marked especially in southeastern Oklahoma where the rates of illness reported are 20 percent above average among those families in the lowest-scored housing group. Above that level the illness rates vary little between groups arranged according to size of housing scores.

MIGRATION

To measure the relationship between migration and housing, the housing scores of families who changed dwellings sometime during the ten-year period preceding the survey were compared with those of families who had not moved. For southwestern Oklahoma, the average housing scores are 19.0 for nonmovers and 16.4 for movers, but the relationship between the two variables is not great, as indicated by the coefficient of correlation (biserial r) which amounts to only .37. In southeastern Oklahoma, the housing scores average 12.5 for nonmovers and 9.1 for movers, and the coefficient of correlation is .52. The difference in the size of the correlation coefficients is consistent with the sharp cleavage found between families of high and low status with respect to other factors studied.

It seems reasonable to expect frequent movers to have the poorest housing, as they often occupy a low status economically and have little money spent on them, or to spend themselves, for housing.¹²

¹² Cf. Margaret Coffin, *Housing Conditions in Relation to Farm Labor Turnover*, College Park, Maryland: The University of Maryland Agri. Exp. Sta. Bull. No. 341, December, 1932, p. 391, and Robert T. McMillan, *op. cit.*, pp. 56-62.

VALUE OF FARM

The value of farms varies directly with the size of housing scores in southeastern Oklahoma (Table 11). This holds true for both owned and tenanted farms. The data indicate that the values of farms rise more rapidly than the housing scores. The most plausible explanation for this is that many houses were built in the period of early settlement when land was low-priced. Since then, land values advanced more than the value of farm improvements, including the dwelling. Also, many farmers have increased the size of their farms without any corresponding effect upon their housing.

Table 12 shows that in southwestern Oklahoma the value of dwellings amounts to 8.5 percent of the total value of farms operated. The dwellings of tenants are valued at only 7.0 percent of the value of farms as compared with 9.2 percent for those of owners. As values of farms increase, the ratio of values of dwellings to those of farms of both owners and tenants tend to decrease. Also, the contrasts between owner and tenant houses in respect to this point diminish as the values of farms increase. This suggests a principle that as *the size of the farm investment approaches an economic optimum, the social and economic disadvantages of farm tenancy are diminished*, at least relative to ownership. If this is a defensible inference, it means that the disparities between different classes of the farm population in respect to housing are largely amenable through the processes of social and economic reorganization of farming units.

CASH INCOME

Cash income does not bear as close a relationship to the housing scores as value of farm, chiefly because it fluctuates widely from year to year and from one type of farming to another within the same year.¹³ The data in Table 13 show that in both areas the average cash income available per family tends to increase irregularly with size of housing scores. It is pertinent to observe that both the income and housing scores are approximately twice as large in one area as in the other.

The percentages of selected families of farm operators, classified by tenure status and cash income, having specified housing items are shown in Table 14. Differences in the

¹³ For example, in 1942, the year of survey, wheat was a better cash crop than cotton in southwestern Oklahoma. Floods and drouth reduced farm income sharply during 1943 in southeastern Oklahoma. For farm operators net cash income is the figure obtained after deducting farm expenses from farm income and adding income from sources off the farm; for others it refers to the total income received by the family from wages, old age assistance, or miscellaneous sources.

Table 11.—Average Value of Owned and Tenanted Farms in Southwestern Oklahoma, by Housing Scores.

Housing Score	AVERAGE VALUE OF FARMS		
	All Farms	Owners	Tenants
All scores	\$10698	\$12542	\$ 8254
0-3			
4-7	2357		2357
8-11	7271	7731	5692
12-15	7225	8393	6579
16-19	9325	9139	9546
20-23	12304	12703	11422
24-27	18549	19449	14050
28-31	22027	22027	

Table 12.—Ratio of Value of Dwellings to Total Value of Farms Operated in Southwestern Oklahoma.

Value of Farm Operated, Dollars	PERCENTAGE VALUE OF DWELLING IS OF VALUE OF FARM		
	All Farms	Owners	Tenants
All values	8.5	9.2	7.0
Under 4000	12.2	14.9	10.8
4000-7999	10.1	12.2	7.9
8000-11999	9.8	10.8	7.5
12000-15999	7.1	7.9	6.2
16000 and over	7.4	7.9	5.4

Table 13.—Average Cash Income Available for the Family, by Housing Scores.

Housing Score	Southwestern Oklahoma	Southeastern Oklahoma
All scores	\$1649	\$ 771
0-3		739
4-7	768	611
8-11	740	754
12-15	1229	870
16-19	1555	968
20-23	2013	1338
24-27	3036	
28-31	3106	

Table 14.—Percentage of Selected Families of Farm Operators, Classified by Tenure Status and Cash Income, Reporting Specified Housing Items.

Item	SOUTHWESTERN OKLAHOMA				SOUTHEASTERN OKLAHOMA			
	Owners Cash income		Tenants Cash income		Owners Cash income		Tenants Cash income	
	Under \$500	\$1500 and over	Under \$500	\$1500 and over	Under \$500	\$1500 and over	Under \$500	\$1500 and over*
Brick or painted frame dwelling	50.0	84.1	56.0	63.2	33.9	50.0	18.3	33.3
Plaster or wallboard	18.7	43.2	20.0	15.8	6.8	35.0	2.8	0.0
Separate living room	37.5	81.8	56.0	84.2	61.0	60.0	31.0	44.4
Water piped into dwelling	6.2	26.1	0.0	15.8	1.7	20.0	0.0	0.0
Bath	6.2	21.6	0.0	7.9	1.7	30.0	0.0	0.0
Indoor toilet	6.2	18.2	0.0	5.3	1.7	20.0	0.0	0.0
Kitchen sink	25.0	54.5	20.0	42.1	3.4	30.0	1.4	0.0
Electric lighting	18.8	64.8	32.0	44.7	3.4	5.0	4.2	0.0
Radio	75.0	75.0	80.0	92.1	88.1	80.0	73.2	88.9
Telephone	6.2	46.6	8.0	23.7	0.0	0.0	0.0	0.0
Power washer	68.7	89.8	76.0	81.6	23.7	50.0	7.0	0.0
Refrigerator	50.0	92.0	80.0	89.5	45.8	70.0	36.6	66.7

* Percentages based on nine cases.

frequency of possession of items are greater between high and low income groups among farm owners than between corresponding groups among farm tenants. This is true because of the greater variations in income and housing of the owners than of the tenants studied.

PRODUCTIVE MAN-WORK HOURS PER FARM

One measure of the size of a farm is the number of productive man-work hours required in a year's operation. This measure is determined through multiplying the average number of hours of labor required to produce an acre of a given crop or specified unit of livestock by the acreage in crops and numbers of livestock on each farm surveyed.¹⁴ The data in Table 15 show the average productive man-work hours per farm for those surveyed in southwestern Oklahoma, classified by tenure status and size of housing scores. Based upon this measure, farm owners have larger farms than tenants. The difference, however, is not great. If comparable data were available for southeastern Oklahoma, the corresponding contrast probably would be much larger.

¹⁴ These calculations were furnished by the Department of Agricultural Economics, Oklahoma Agricultural and Mechanical College.

Table 15.—Average Productive Man Work Hours Per Farm in Southwestern Oklahoma, by Housing Scores.

Housing Score	AVERAGE PRODUCTIVE MAN WORK HOURS PER FARM		
	All Farms	Owners	Tenants
All scores	2709	2864	2509
Under 8	1375	*	1667
8-11	2109	1900	2269
12-15	2268	2389	2211
16-19	2628	2500	2778
20-23	3000	3105	2763
24-27	3648	3682	3500
28-31	3357	3357	

* Inadequate sample.

The average number of productive man-work hours per farm increases regularly as the housing scores increase, except for the highest-scored housing group. Apparently some of the older farmers whose housing reflects their high status have reduced the size of farming operations, but there is a rather constant relationship between housing and size of farm which strongly suggests the need of a larger economic base if housing is to be improved.

ACREAGE PER FARM

The average acreage per farm and the average cultivated acreage tend to increase with size of housing scores, except for the highest-scored housing group in southwestern Oklahoma (Table 16). The total acreage in the farms surveyed in southwestern Oklahoma averages more than twice that in the southeastern part of the State, but the cultivated acreage is nearly four times as great. Tractor machinery is widely used in southwestern Oklahoma, whereas horse-drawn equipment prevails in southeastern Oklahoma.

Further examination of the data discloses that, in the southeastern part of the State, 84.2 percent of the families with housing scores ranging from 0 to 11, inclusive, live on farms with fewer than 100 acres. This indicates a high degree of relationship between inferior housing and small acreages in that area.

The relationship between housing and acreage per farm is shown in another way in Table 17. When standardized for tenure status, dwellings on small farms tend to possess fewer of the selected items in the housing index than those on large farms. Probably the reason for some exceptions to the principle that houses on small farms are furnished less completely

than those on large farms can be traced to the fact that families living on small farms frequently derive a part of their income from employment off the farm, thereby enabling them to have housing equipment which otherwise they could not afford.

Table 16.—Average Acreage Per Farm and Average Acreage in Cultivation Per Farm, by Housing Scores.

Housing Score	SOUTHWESTERN OKLAHOMA		SOUTHEASTERN OKLAHOMA	
	Average Farm	Acres in: Cultivation	Average Farm	Acres in: Cultivation
All scores	299	190	134	55
0-3			98	42
4-7	132	97	116	56
8-11	252	204	109	42
12-15	252	161	145	53
16-19	288	172	169	63
20-23	346	220	276	143
24-27	359	260		
28-31	307	237		

Table 17.—Percentage of Selected Farm Families, Classified by Tenure Status and Acreage Per Farm, Possessing Specified Housing Items.

Item	SOUTHWESTERN OKLAHOMA				SOUTHEASTERN OKLAHOMA			
	Owners		Tenants		Owners		Tenants	
	Under 100 acres*	300 acres and over	Under 100 acres**	300 acres and over	Under 50 acres	150 acres and over	Under 50 acres	150 acres and over
Brick or painted frame dwelling	69.2	80.3	78.6	63.8	43.3	42.6	13.0	30.6
Plaster or wallboard	30.8	40.3	0.0	17.0	6.7	18.0	8.7	8.8
Water piped into dwelling	23.1	25.4	0.0	10.6	0.0	6.6	0.0	2.9
Bath	7.7	25.5	0.0	4.3	0.0	8.2	0.0	0.0
Indoor toilet	7.7	15.5	0.0	4.3	0.0	4.9	0.0	0.0
Kitchen sink	38.5	49.3	14.3	38.3	3.3	13.1	0.0	0.0
Electric lighting	46.2	60.6	0.0	38.3	3.3	8.2	4.3	2.9
Radio	92.3	93.0	85.7	89.4	83.3	83.6	73.9	64.7
Telephone	30.8	45.1	14.3	29.8	0.0	4.9	0.0	2.9
Power washer	100.0	90.1	71.4	89.4	20.0	45.9	4.3	23.5
Refrigerator	84.6	83.1	64.3	78.7	60.0	65.6	47.8	38.2

* Percentages based on 15 cases.

** Percentages based on 14 cases.

Table 18.—Average Housing Scores of Farms Classified by Type of Farming.

Type of Farming	Percentage of Farms	AVERAGE	HOUSING SCORE
		Owners	Tenants
Southwestern Oklahoma			
All types	100.0	20.0	16.0
Crop	19.2	18.7	13.5
General cotton	21.4	19.9	17.7
General cotton and small grain	47.4	20.8	17.0
Livestock	12.0	18.8	14.0
Southeastern Oklahoma			
All types	100.0	12.5	8.3
Small general	57.0	9.9	7.6
Large crop	9.2	15.1	9.6
Livestock	13.0	15.5	13.4
Other	20.8	13.6	9.4

TYPE OF FARMING

To ascertain the relationship between housing and type of farming, it was necessary to classify farms into prevailing types in each of the two areas. Then the average housing score for farm families was computed according to tenure in each type-of-farming class. These data are shown in Table 18.

In southwestern Oklahoma, the *crop farms*, those with either cotton or small grain as the principal source of cash income with some livestock primarily for home use, have a slightly but not significantly smaller average housing score than farms of other types. Especially is this true on tenanted farms. Variations in the average scores of the three remaining types are incidental and unimportant.

In southeastern Oklahoma, wide variations in housing exist among farms classified by type of farming. *Small general farms*, which comprise nearly three-fifths of all farms, have an extremely low average housing score. The few *livestock farms* in this area average highest on the housing index. On the *large crop farms*, or those with 80 acres or more of crop land chiefly planted to such cash crops as cotton, spinach, beans, or potatoes, the average housing score is higher than the average of all farms. Also, *other farms*, including all those whose operators primarily depend upon nonfarm sources for income, generally have higher than average housing scores.

No clearcut differences in housing by type of farming hold in either area surveyed. Apparently the factor of size is much more important than the type of farming.

TRACTOR FARMS

The use of motor-drawn equipment has increased rapidly in southwestern Oklahoma since 1920. In southeastern Oklahoma the acceleration of this trend is just now beginning. In southwestern Oklahoma, where 68.5 percent of the surveyed farms have tractors, the average housing score is 19.4 for farms with tractors and 15.5 for those without them. The coefficient of correlation (biserial r) between housing scores and possession of tractors is .42. This indicates a fairly significant degree of correlation between farms with motor-drawn equipment and improved housing in southwestern Oklahoma. This holds true because farms with tractors tend to be larger than average in size, and to be owner-occupied.

SUMMARY

The relationships of certain social factors to the housing of two groups of open-country families in southern Oklahoma can be summarized briefly in the following statements:

1. The average housing index scores decrease in size for tenure groups as follows: part owners, full owners, tenants, and "others." Families in southwestern Oklahoma score an average of 17.1 points and those in southeastern Oklahoma an average of 9.4 points on a scale with a maximum of 32 points.

2. An inverse relationship exists between the size of housing scores and the proportion of the total population under 15 years of age. In contrast, as the housing scores increase in size, the percentages of persons over 44 years old living in these dwellings also increase.

3. High fertility of families appears to be associated with poor housing and *vice versa*. Also, the average number of persons per family decreases as the housing scores increase.

4. The housing scores tend to be related inversely to the age of dwelling.

5. Husbands and wives in families with high housing scores participate more in organized community life than those with low scores.

6. The housing scores vary slightly with the average schooling of husbands and wives after adjustments have been made for age.

7. The number of illnesses per 1000 persons for the previous year is 1005 in southeastern Oklahoma and 226 in

southwestern Oklahoma. The illness rate is sharply higher among the population in the lowest-scored housing group than among that in the remaining groups. Variations in the illness rates by size of housing scores above the lowest level are irregular and unimportant.

8. Housing scores average higher for families who had not moved than for those who had moved during the last ten years.

9. In southwestern Oklahoma, the value of the dwelling averages 8.5 percent of the value of the farm operated. This ratio is higher for owners' than for tenants' dwellings. As the value of farms increases, the relative amount invested in the dwelling decreases. No comparable data are available for southeastern Oklahoma.

10. Three indexes of size of farm—productive man-work hours, total acreage per farm, and cultivated acreage per farm—tend to vary directly with size of housing scores excepting for the highest-scored housing group. In southeastern Oklahoma, more than four-fifths of the families occupying farms with less than 100 acres or with no farm land at all rate low on the housing index.

11. In southeastern Oklahoma, the housing on *small general farms* is inferior to the housing on *livestock, large crop, and other farms*. In southwestern Oklahoma, differences in housing on farms classified by type are not large, although the housing scores on cash-crop farms are slightly lower than those on other types of farms.

12. The difference in the average housing scores between farms with and those without tractors is as great as the difference in the scores of owner- and tenant-operated farms.

APPENDIX

SELECTION OF SURVEY AREAS

The two surveys used as a basis for this study were planned originally for different purposes. This accounts for the great difference in the method of selecting the survey areas and of sampling.

In planning the cooperative study with the Southwestern Regional Land Tenure Committee, the project leaders selected the area to be surveyed on the assumption (1) that it is representative of the cotton area of southwestern Oklahoma, and (2) that since a part of this area is to be included in an irrigation project a benchmark study should be made there before this transition occurred.

The survey of farm labor, health, and housing in southeastern Oklahoma was designed to get a cross-section of the white population living in the open country of seven counties located in the Ozark-Ouachita and Coastal Plains subregions of the State. In determining the area to be surveyed, an "average" township in each county was selected on the basis of these criteria: (1) percentage change in the rural population between 1930 and 1940, (2) number of children under 5 years old per 1000 women 15 to 44 years of age in the rural-farm population, (3) average number of acres per farm, (4) average value of land and buildings per farm, and (5) percentage of occupied rural-farm dwellings owned.¹⁵ It was found necessary to include two townships in each of two counties due to the wide diversity in the types of farming prevailing.

A comparison of the census data on certain social and economic characteristics for the townships selected to be surveyed and for the counties which these townships are intended to represent discloses that the areas selected in southeastern Oklahoma conform more closely to the region studied than is true in southwestern Oklahoma. The latter area is above the average of nearby counties with respect to most of the criteria examined.

SAMPLING PROCEDURE

In southwestern Oklahoma, the grid method of sampling was used. The area surveyed is a rough quadrangle approximately 55 miles long and 35 miles wide, and includes Jackson County, Looney Township in Harmon County, Tilley and Quartz Townships of Greer County, Mountain Park Town-

¹⁵ Other criteria were taken into consideration, but concerned villages in or near each township which were surveyed as a separate part of this project.

ship of Kiowa County, and Hunter, Maguire, and Richland Townships of Tillman County. Diagonals were drawn on the quadrangle and lines placed on the map at two-mile intervals parallel to the diagonals. Interviews were taken from the two families living nearest to each intersection.

In southeastern Oklahoma, interviews were conducted at widely scattered points within each township. Because of limitations in transportation facilities, no systematic effort was made to randomize the selection of families surveyed. However, the field workers were careful to obtain interviews at points inaccessible by automobile as well as at points on the state and county roads. Despite the tendency to bunch interviews at sampling points within each township, it is believed that the sample obtained furnishes a satisfactory cross-section of the white population living in the area.

Interviews were conducted in Wilson Township of Choctaw County, Beaver Township of Haskell County, Cravens Township of Latimer County, Heavener and Spiro Townships of LeFlore County, Mountain and Frisco Townships of McCurtain County, Ti Township of Pittsburg County, and Antlers Township of Pushmataha County.

In both surveys, families rather than farms served as a basis of sampling. Due to the heavy wartime migration of people from both of these areas and to the fact that the open-country population is not the same by definition as the rural-farm population, it is difficult to measure accurately the relative size of the sample in comparison with census figures on population. However, in southwestern Oklahoma, it is estimated that the sample includes between 4 and 5 percent of the resident open-country population. The corresponding estimate for southeastern Oklahoma ranges between 7 and 10 percent.

All interviewers employed on both surveys were persons who had technical training in agriculture or rural sociology, and most of them had previous experience in interviewing.

THE SAMPLE

The sample consists of the families classified by farm tenure status in Appendix Table 1. *Full owners* include those families who own all the land they farm; *part owners* are those families who own a part of their farm and rent additional land. All families who occupy and farm land through a rental or sharecropping agreement are classed as tenants. "Others" refer to families who live in the open country but do not farm, i. e., laborers, old-age assistance clients, country-store proprietors, school teachers, and miscellaneous workers.

Appendix Table 1.—Number and Percent of Families Surveyed, by Farm Tenure Status.

Farm Tenure Status	SOUTHWESTERN OKLAHOMA		SOUTHEASTERN OKLAHOMA	
	Number	Percent	Number	Percent
All tenures	324	100.0	372	100.0
Full owners	96	29.6	104	28.0
Part owners	66	20.4	54	14.5
Tenants	120	37.0	126	33.9
Others	42	13.0	88	23.6

*Appendix Table 2.—Coefficients of Correlation Between Selected Criteria and Housing Index Scores.**

Item	Southwestern Oklahoma	Southeastern Oklahoma
Sewell's Socio-economic Status Scale	.88	.89
Cottam's Pennsylvania Housing Scale	.75	.91
Value of dwelling	.52	.67
Home ownership (biserial <i>r</i>)	.54	.64
Interior rating of dwelling (5-point scale)	.75	.74
Exterior rating of dwelling (5-point scale)	.70	.71

* Unless stated otherwise, all coefficients were computed according to the Pearson product-moment formula.

RELIABILITY AND VALIDITY OF THE HOUSING INDEX

The housing index used in this study consists of 32 items, of which 17 pertain to the dwelling and 15 to housing equipment. Originally the two groups of items were treated as separate indexes, but statistical tests proved this procedure unsatisfactory. By combining all items into one index, reliable results were obtained from correlating the even-numbered with the odd-numbered items, and applying the Brown-Spearman formula for correcting for length of scale. These split-half reliability coefficients are:

Southwestern Oklahoma (N=323) .87

Southeastern Oklahoma (N=371) .85

The scores were also correlated with those obtained by applying Cottam's Pennsylvania Rural Housing Scale to the dwellings surveyed,¹⁶ after making certain changes in this scale to adapt it to Oklahoma data. The validity coefficients between the two sets of scores are .75 for the sample in south-

¹⁶ See Howard R. Cottam, "Housing Scales for Rural Pennsylvania," *Journal of the American Statistical Association*, Vol. 38, December, 1943, pp. 406-416.

western Oklahoma and .91 in southeastern Oklahoma. These indicate a fairly satisfactory degree of validity.

The results of correlating the housing index scores with other selected criteria are shown in Appendix Table 2.

On the basis of these several tests, it is concluded that the index used in this study is a valid measure of housing.