

RELATIONSHIP OF CREDIT TO VARIOUS CHARACTERISTICS
OF FARM OPERATION OF MEMBERS OF KANSAS FARM
MANAGEMENT ASSOCIATIONS THREE AND FIVE

by

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INTRODUCTION

The agricultural sector of the American economy is very competitive. Given this environment, the economic conditions which prevail have provided strong incentives for farmers to adopt the newer, more efficient farm practices developed by agricultural experiment stations, United States Department of Agriculture, and others.¹ The severe price-cost squeeze has also provided strong inducement for farm operators to employ all devices to increase efficiency in order to maintain profits.² As a result the resource mix in the industry has been changing in such a manner that less labor and more capital are being used.³ These changes have had a significant impact on many individuals and on many phases of economic activity. Not only must farmers adopt changes, but the institutions serving the farmer must also adapt themselves or become ineffectual. This is particularly true for the institutions and individuals engaged in the farm finance sector. Substantially fewer farmers are using more total credit today as compared with a decade or two ago.⁴ Furthermore, the kinds of financing needed by farmers today are significantly different from those needed in the past. Credit has been an

¹"Agriculture in Our Capitalistic Economy," Monthly Review of Federal Reserve Bank of Kansas City, July-August 1964, p. 3.

²Ibid., p. 8.

³Ibid., p. 3.

⁴Alvin S. Tostlebe, Capital in Agriculture: Its Formation and Financing Since 1870, (Princeton: Princeton University Press, 1957), pp. 3-18.

effective agent in the development of our agricultural economy, and its importance has grown through the years. Originally most of the capital that farmers used came from their own income, but today agriculture would be severely hampered without an effective agricultural credit system.⁵

Ways to improve the credit system are continually being sought. Intelligent decisions with respect to improvement must be based on knowledge of existing relationships. In the late fall and winter of 1960-61, the Bureau of Census made a survey of farm debt as part of its 1960 Sample Survey of Agriculture. This was the first national survey of virtually all types of farm debt ever made in the United States. (Alaska and Hawaii were not included.) It produced information never before available on the distribution of farm debt among operators of the various sizes, types, and economic classes of farms. It disclosed the relationships between farm debts of operators, the farm incomes they received, and the value of land they owned. One of the agencies cooperating in the debt portion of the survey was the Federal Reserve System. Their resulting publication was entitled, Farm Debt as Related to Economic Class of Farm.⁶ It takes a look at variability of farm debt among classes of farms as well as the characteristics associated with debt variability among farms in particular classes.

⁵Ibid., pp. 19-20.

⁶Leon F. Hesser, Raymond J. Doll, and Gary F. Sullivan, Farm Debt as Related to Economic Class of Farm. This is a study by the Federal Reserve Bank of Kansas City, 1964.

In this report similar methods of analysis are used with farm management records from Kansas Associations Three and Five as sources of data. This is an effort to discover debt characteristics for these farmers and in some cases draw comparisons with the Sample Survey findings.

Farm Management Associations Three and Five represent the thirty-seven western Kansas counties. This area represents a unique type of agricultural development. The outstanding characteristic of this area is the relatively high variability of precipitation and other weather phenomena around means that are only slightly above the minimum required for successful agricultural production.

These conditions dictate that a unique type of agriculture must exist in order to survive these conditions. Compared with agriculture generally in the United States, farms in this area are relatively large in acreage and require use of a relatively large aggregation of capital. On the average, farmers in this region own assets of considerably greater value and have greater net worth than farmers within many farming regions in the United States.⁷

Farmers are acquiring larger amounts of capital from external sources in order to increase their size of operations. The rapidity with which these developments have emerged has created

⁷Russell W. Bierman, "The Income of Great Plains Farmers," Farming in the Great Plains, ed. John C. Ellickson, Howard L. Hill, Fred L. Garlock, Edmund T. Hamlin, and Lawrence A. Jones, U. S. Dept. of Agriculture Production Research Report No. 50 (Washington: U. S. Government Printing Office, 1961), p. 26.

problems for some of the credit agencies financing farmers.⁸

Purpose of Study

The purpose of this study is to discover some of the characteristics of farm debt from records of Kansas Farm Management Associations Three and Five. A study that would explore characteristics of farm indebtedness for various regions could be of help to farmers managing their financial affairs over time. Lenders who finance farmers similar to these farm management association members could use such information to gain insight into their clients' problems.

Limitations of Study

One of the important limitations of this study is the lack of a random sample of farms for this Great Plains area. Random selection of sampling units is a must if unbiased statistical estimates of population parameters are to be made. Consequently, it would be untrue to infer that debt characteristics of farm management association members are representative of this western Kansas population.

In a master's thesis by Milton Lloyd Manuel entitled, The Representativeness of Kansas Farm Management Association, he indicates that caution must be used in applying the data obtained

⁸Stanley W. Voelker, "Institutional Adaptations to the Environment of the Great Plains," Journal of Farm Economics, XI (December 1958), p. 1266.

from the farm management farms.⁹ Some of the facts that were determined when farm management association farms were compared to sample farms were:

1. Association farms were larger in total acres than sample farms.
2. The crop areas of association farms were significantly larger than sample farms.
3. Acres in wheat represented larger acreage on association farms than on sample farms.
4. The farm management associations included more livestock farms and fewer crop farms than would be expected in a sample that was really representative.
5. The association represented fewer tenants, fewer owners and more part owner farms than was true for Kansas farms in general.
6. The association farms exceeded average Kansas farms in the amount of gross income per farm.¹⁰

Another limitation of this study is the inability to compare sample survey information and farm management data. The sample survey established the value of land and buildings by asking the farm operator to report the amount for which this property would sell.¹¹ Farm management association data typically values land at less than market price.¹² The sample survey determined

⁹Milton Lloyd Manuel, The Representativeness of Kansas Farm Management Associations, (unpublished Master's Thesis, Department of Economics, Kansas State University, 1948).

¹⁰Ibid., p. 3 (of abstract).

¹¹U. S. Bureau of Census, The 1960 Sample Survey of Agriculture, V, p. IX.

¹²Interview with John Coolidge, Extension Economist at Kansas State University, April 1965.

economic class of farms by the value of products sold. This was done by enumeration for some products and by estimation for others. They considered everything which was customarily raised for sale to be sold.¹³ Gross farm income was the only available figure in order to develop economic classes among farm management association members. Gross farm income does not include that raised for sale but not sold. In the short run the disparity would equal inventory held by farm management members during a given year.

Method of Procedure

In this report, farm debt is studied primarily as it is related to economic class of farms as determined on the basis of gross farm income. These farms are divided into six economic classes, which are:

<u>Classes</u>	<u>Gross Farm Income</u>
I	\$40,000
II	20,000 - 39,999
III	10,000 - 19,999
IV	5,000 - 9,999
V	2,500 - 4,999
VI	50 - 2,499

After classifying farms according to the value of goods sold, farms are then studied in more detail. The more detailed sections are:

1. Farm characteristics related to class of farm.
2. Debt status and sources of operator credit.

¹³Op. cit., U. S. Bureau of Census, p. XI.

3. Debt by tenure.
4. Debt of operators by farm type.
5. Debt by age of operator.

FARM CHARACTERISTICS RELATED TO CLASS OF FARM

Land and buildings managed by each economic class were measured by acres and value (Table 1). By either measure, nearly 90 per cent of the total were farmed by indebted operators. Generally there appears to be no significant trend between the class of farm and the proportion of indebted farmers. This excludes V and VI where there were insufficient numbers of operators from which to generalize.

A marked difference existed between the national survey and this farm management association study in relation to the distribution of operators between various economic classes. The survey found that 30 per cent of all operators belonged to the non-commercial¹⁴ classification, whereas only one of the 180 farm management members could be classified as a non-commercial farmer.¹⁵ A much greater portion of farm management association members were included in economic classes I, II, and III than in economic classes IV, V, and VI. The sample survey indicated that an opposite trend was true for the whole nation.¹⁶ The survey

¹⁴Non-commercial farms have farm sales of less than \$2,500 a year.

¹⁵Hesser, Doll, Sullivan, *op. cit.*, p. 5.

¹⁶The West are those states west of and including N. Dakota, S. Dakota, Nebraska, Kansas, Oklahoma, and Texas.

TABLE 1. Land and Buildings Operated by Debt Status of Operators in Farm Management Associations Three and Five.

Class of Farm	Number of Farm Operators		Land Operated		Value of Land and Buildings Operated				
	All Farms	With Debt	All Farms (acres)	With Debt	All Farms (dollars)	With Debt			
I	41	36	5	91,712	80,872	10,840	8,475,992	7,526,818	949,174
II	64	55	9	136,102	115,797	20,305	8,951,726	7,815,492	1,136,234
III	51	46	5	70,009	63,995	6,014	6,279,569	5,770,469	509,100
IV	21	19	2	18,747	17,676	1,071	1,445,870	1,362,061	83,809
V	2	1	1	1,640	1,440	200	96,457	60,001	36,456
VI	1	1	0	320	320	0	43,141	43,141	0
All Classes	180	158	22	318,530	280,100	38,430	25,292,755	22,577,982	2,714,773

found that the West¹⁷ had more large and fewer small farms than did the other regions.¹⁸ Fifty-seven per cent of these western Kansas farm management operators were in classes I and II while nationally only ten per cent of all operators could be included in these two groupings.¹⁹

There are various reasons why a difference exists between the information shown in the farm management data and the sample survey, as far as the proportion of operators within each economic class is concerned. The uniqueness of this western Kansas region is undoubtedly very responsible for this difference. It was one of the last sections of the country to be settled, but it now has the highest proportion of total land area in farms of any major agricultural region. Average crop yields per acre are low because of frequent droughts, but average incomes per farm are usually above the national average.²⁰

Settlers found that they could not employ the same type of farming methods in this region as they had used in more humid areas. Limited and uncertain precipitation restricted the kinds of crops that could be grown. Wheat became the main cash crop that could be grown. Cash crops and livestock, chiefly beef cattle, proved to be the most dependable sources of farm income. A

¹⁷Hesser, Doll, Sullivan, op. cit., p. 5.

¹⁸Hesser, Doll, Sullivan, op. cit., p. 15.

¹⁹Hesser, Doll, Sullivan, op. cit., p. 5.

²⁰John C. Ellickson, "Farming in the Great Plains," Farming in the Great Plains, ed. Russell W. Bierman, Howard L. Hill, Fred L. Garlock, Edmund T. Hamlin, and Lawrence A. Jones, U. S. Dept. of Agriculture Production Research Report No. 50 (Washington: U. S. Government Printing Office, 1961), p. 7.

diversified type of agriculture was restricted because of the climate.²¹ Off-farm work was limited because of the lack of industrial development in this area. Thus the need for larger cash incomes from farming was greater than in a humid area or in a more industrialized area.

Climatic conditions in this area dictate that a farmer cannot survive on a small extensive type farming operation. Consequently, droughts have somewhat promoted the shifts to larger farms at a greater pace than in the rest of the country.²²

Undoubtedly some of the disparity in the distribution of operators between economic classes of the two different studies is due to the misrepresentativeness of farm management association data. These farm management members probably do not represent a true cross section of western Kansas farmers. Probably a higher proportion of the farm management members operated larger farms than would a truly representative sample of this area.

Since farmers with debt operate most of the land and buildings, it would be expected that they obtained most of the gross income (Table 2). Total gross income of indebted farmers, who comprised 87.8 per cent of the total group, was \$4,694,023 or 88.4 per cent of all gross income.

Farm management members selling the largest value of farm products belonged to class I (Table 2). The total gross income of each economic class had a tendency to decline with declining

²¹Ibid.

²²Ibid., p. 8.

TABLE 2. Income of Farm Operators in Farm Management Associations Three and Five.

Class of Farm	Gross Income			Net Farm Income			Off-Farm Income		
	All Farmers	Farmers With Debt	Farmers Without Debt	All Farmers	Farmers With Debt	Farmers Without Debt	All Farmers	Farmers With Debt	Farmers Without Debt
	(dollars)			(dollars)			(dollars)		
I	2,571,324	2,264,781	306,543	498,419	433,160	65,259	89,650	66,618	23,032
II	1,804,638	1,579,966	224,672	417,040	378,184	38,856	125,438	92,667	32,771
III	771,373	708,682	62,691	219,268	199,736	19,532	91,991	69,196	22,795
IV	149,338	134,196	15,143	35,072	30,276	4,796	38,286	37,517	769
V	9,037	4,530	4,507	3,298	1,550	1,748	370	370	0
VI	1,868	1,868	0	260	260	0	9,361	9,361	0
All Classes	5,307,578	4,694,023	613,555	1,173,357	1,043,166	130,191	355,096	275,729	79,367

average size of farm as measured by economic class. That is, operators of class I farms had total gross incomes of \$2.57 million while those of class IV farms had gross incomes of \$149,338. This is not only due to smaller farms, but to the smaller proportion of operators in class IV. Total net farm income figures reflect nearly the same situation as total gross incomes.

Other income accruing to the farmers is called off-farm income. This may consist of cash wages, rental income, interest, dividends, oil and gas royalties and leases, and other income not resulting from farm operations. In general operators without debt operated less land and a smaller value of land and buildings than did operators with debt. Consequently they may have found it necessary to supplement their income from off-farm sources. However this may not be true in all cases because farmers without debt may have accumulated more funds to invest in off-farm opportunities rather than invest more in farm operations. Operators without debt constituted 12 per cent of all off-farm income. Another influence might be age of operators, as will be pointed out later, non-indebted farmers were older than indebted farmers.

Class I farms represented 22.8 per cent of the total number of farms (Table 3). Operators of these farms worked about 29 per cent of the farm land, which together with buildings represented approximately 34 per cent of the value of all farm land and buildings. These farmers produced 48 per cent of the total value of farm products sold and collected nearly 43 per cent of the net farm income. Class IV operators accounted for 11.7 per cent of

TABLE 3. Percentage Distribution of Aggregate Characteristics of Farm Management Members of Associations Three and Five.

Class of Farm	Farm Operators	Acres of Land Operated	Value of Land and Buildings Operated	Value of Products Sold	Net Cash Farm Income	Off-Farm Income
I	22.8	28.9	33.5	48.4	42.5	25.3
II	35.6	42.7	35.4	34.0	35.5	35.2
III	28.3	21.9	24.8	14.5	18.7	26.0
IV	11.6	5.9	5.7	2.8	3.0	10.8
V	1.1	.5	.4	.2	.3	.1
VI	.6	.1	.2	.1	.1	2.6

TABLE 4. Average Size of Farms of Farm Management Members of Associations Three and Five.

Class of Farm	Acres of Land Operated			Value of Land and Buildings Operated		
	All Operators	Operators With Debt	Operators Without Debt	All Operators	Operators With Debt	Operators Without Debt
I	2,237	2,246	2,168	206,731	209,078	189,834
II	2,127	2,105	2,256	139,870	139,562	142,029
III	1,372	1,391	1,203	123,128	125,444	101,820
IV	892	930	536	68,850	71,687	41,904
V	820	1,440	200	48,228	60,001	36,456
VI	320	320	0	43,141	43,141	0
All Classes	1,770	1,773	1,747	140,515	142,899	123,399

all operators but farmed only 5.9 per cent of the land. This group's net farm income was only three per cent of the total.

In general, farmers with debt had larger operations than non-indebted operators (Table 4). The only exception was class II farms. Two measures of size were acres of land operated and value of land and buildings operated. On the average indebted operators had farms which were only twenty acres larger, while the average value of land and buildings for the indebted group was nearly \$19,500 larger than the non-indebted group.

The average net cash farm income from the sale of farm products was highest for farmers with debt, in spite of the interest paid on borrowed funds by these indebted operators. This does not hold true for every economic class, in classes I, II, and V the operators without debt had larger average net farm incomes. The higher net farm income received by indebted operators of classes II and III and the larger proportion of operators within these economic classes are responsible for the overall larger average farm income of the indebted group.

Average income from off-farm sources was much larger for those without debt than for those with debt. Operators without debt had average off-farm income of \$3,608, while indebted operators had average off-farm income of \$1,745 (Table 5). The farmers who were without debt had an average total income of \$9,525, while the indebted operators had average total incomes of \$8,347. As pointed out, the non-indebted group was older and as a result may have accumulated enough capital to make more off-farm investments. This may indicate that the largest farmers do not in the

TABLE 5. Average Income of Farm Operator Families Within Farm Management Association Three and Five.

Class of Farm	Net Cash Farm Income			Off-Farm Income		
	All Operators	Operators With Debt	Operators Without Debt	All Operators	Operators With Debt	Operators Without Debt
I	12,157	12,032	13,052	2,187	1,850	4,606
II	6,515	6,876	4,317	1,960	1,685	3,641
III	4,299	4,342	3,906	1,804	1,504	4,559
IV	1,670	1,593	2,398	1,823	1,975	385
V	1,649	1,550	1,748	185	370	0
VI	260	260	0	9,361	9,361	0
All Classes	6,518	6,602	5,918	1,973	1,745	3,608

end have the largest average total net income.

In classes IV, V, and VI a greater proportion of farmers' total income came from off-farm sources than in classes I, II, and III. In fact the off-farm income received by farmers in classes IV, V, and VI was larger than their net farm income. In contrast only 21 per cent of all income received by those in classes I, II, and III is of the off-farm type.

Probably the off-farm income to operators of the larger farms was relatively more a return from investments, whereas the off-farm income of smaller farms was relatively more a return for labor. Apparently these operators of larger farms have tended to put their excess capital in non-farm alternatives rather than to enlarge their farm business further. On the other hand, indebted operators on the smaller farms probably have taken non-farm jobs to help repay loans.

DEBT STATUS AND SOURCE OF OPERATOR CREDIT

Changes in methods of farming as a result of technological improvements have caused both the quantities and kinds of resources used in farm production to change significantly. In the earliest types of agriculture, labor and land were the major sources used. Both were plentiful and commanded a low rate of return. Since mechanization developed, the gradual substitution of capital for one of the other resources is very evident. Generally capital was first substituted for labor, and then for land, as land was the most costly resource to obtain. This substitution increased the amounts of capital used and, together

with increased size of farms, caused capital requirements to be substantially greater.

Tostlebe's study on Capital in Agriculture provides an excellent historical review of trends in capital, the use of labor, and output in agriculture for the period 1870 to 1950. This study indicated that capital measured in current prices increased at an accelerating rate from 1870-1920, then dropped rather abruptly from 1920-1940, and again rose sharply from 1940-1950. Measured in terms of constant prices, it grew rapidly, but at a declining rate from 1870-1920, decreased slightly from 1920-1940, and moved upward modestly from 1940-1950. The amount of labor used in the industry increased at a significant, but declining, rate from 1870-1910 and decreased at an accelerating rate from 1910-1950.²³

Rapidly changing capital requirements in agriculture were reflected in the use of credit by the industry. In 1950, farmers in the United States had an estimated \$12.5 billion worth of credit outstanding at the beginning of the year.²⁴ It was estimated that farmers had \$27.6 billion worth of credit outstanding at the beginning of 1962. These data indicate that farmers increased their use of credit, in the aggregate, by 121 per cent from 1950 to 1962. Because of the declining number of farmers, the per cent increase in dollar volume of credit outstanding per farm would be approximately twice that for the industry as a

²³Tostlebe, op. cit., pp. 14-20.

²⁴"Agriculture in our Capitalistic Economy," op. cit., p. 7.

whole.²⁵

Eighty-nine per cent of the members in Kansas Farm Management Associations Three and Five had some debt at the end of 1963; 84 per cent had short and intermediate term debt; and 38 per cent had real estate debt.²⁶ The total debt outstanding for the indebted farmers was \$5.88 million of which \$4.54 million was short and intermediate term debt and \$1.34 million represented real estate debt (Table 6). The average size of real estate debt outstanding was \$8,353, compared with an average of \$28,205 for short and intermediate term debt. A significant difference in average size of loan between the two types of debt prevailed within each economic class of farm. In every economic class short and intermediate term debt was of greater size than real estate debt; this is contrary to the situation depicted by the sample survey.

A relatively large portion of operators in all classes had debt. Class I operators represented slightly over one-fifth of the indebted farmers but owed nearly 40 per cent of all debt. This is in contrast to class IV, which includes 12 per cent of all operators who owe only five per cent of all debt. Clearly, the larger farmers are using more credit. Because credit in agriculture is used largely for financing non-labor resources, it would be expected that operators of larger farms would have a

²⁵"Agriculture in our Capitalistic Economy," op. cit., p. 7.

²⁶Real estate debt is used here synonymous with long-term debt or mortgage debt.

TABLE 6. Farm Operator Debt of Farm Management Members in Associations Three and Five.

Class of Farm	Operators With Debt				Amount of Debt							
	Number	Per Cent of All Operators in Class	Total Debt	Average	Total Debt	Average	Total Debt	Average				
			Pro- duc- tion: Debt:	Mort- gage: Debt:	Pro- duc- tion: Debt:	Mort- gage: Debt:	Pro- duc- tion: Debt:	Mort- gage: Debt:				
I	36	87.8	82.9	43.9	2,299,697	1,844,096	455,601	63,880	51,225	12,655		
II	55	87.5	79.6	35.9	2,130,090	1,623,404	506,686	38,037	28,989	9,048		
III	46	94.1	90.1	43.1	1,158,606	817,309	341,297	24,137	17,027	7,110		
IV	19	6	90.4	85.7	28.5	293,180	252,794	40,386	15,430	13,304	2,126	
V	1	0	50.0	0	1,792	1,792	0	1,792	1,792	0		
VI	1	0	100.0	100.0	0	1,623	1,623	0	1,623	1,623	0	
All Classes	158	151	69	89.4	83.8	38.3	5,884,988	4,541,018	1,343,970	36,558	28,205	8,353

* Production Debt is used as Short and Intermediate Term Debt in this table.

relatively larger volume of credit. Generally a uniform per cent of operators in each class used credit although there was a slight tendency for more members of lower economic classes to use credit.

A smaller proportion of indebted operators of class IV farms had outstanding real estate debt in relation to short and intermediate term debt than indebted operators of any other commercial class of farm. For operators of class I farms, the number with outstanding real estate debt in relation to those with short and intermediate term debt was larger than for other classes of commercial farms. A proportional relationship exists between gross income and the proportion of operators having real estate debt. The smaller the operator's gross sales, the less chance he will have real estate debt.

The average total debt per indebted operator was closely related to the class of farm. Average debt per operator for class I farms was four times greater than the average debt for class IV farms. The large average total debt per operator of class I farms (\$63,880) indicates that some small rural banks may not be able to provide one-stop financing for these operators.

It was difficult to obtain much information about the credit sources used by members of Farm Management Associations Three and Five. This information indicated only the source of the loan and not the quantity borrowed; consequently we cannot reveal what the aggregate sum of indebtedness is to each source.

Federal Land Banks were the most popular means of financing real estate debt. Forty-three per cent of the real estate

mortgages were held by Federal Land Banks. The second most frequent source of real estate credit was insurance companies. Nationally, insurance companies were the second most popular, but the large average size of real estate loans made them the largest mortgage holder.²⁷ Commercial banks served only 2.7 per cent of operators with real estate loans (Table 7).

Farmers tend to use a single source for their real estate credit and, to a lesser extent, a single source for their short and intermediate term credit. Only 18 per cent of those operators with real estate mortgages had more than one source of mortgage credit, while 33 per cent of those with short and intermediate term debt obtained this type of credit from more than one source. Few members owed both types of credit to the same source. Of the 47 operators who had both types of credit, only five used identical sources for both short and intermediate term credit and real estate credit.

Commercial banks dominated the source from which members secured short and intermediate term debt. Since a large portion of the debt held was short and intermediate term, one could deduce that banks hold a substantial share of the total debt. A survey of the Great Plains indicated that from a fourth to a third of the total debt owed by farmers was owed to banks, although the banks' loans were somewhat smaller on the average than

²⁷Van E. Eitel and Q. Frances Dallaville, "Sizes, Interest Rates, and Terms of Farm Mortgages," Agricultural Finance Review, U. S. D. A., Economic Research Service, (Washington: U. S. Government Printing Office, 1962), p. 34.

TABLE 7. Credit Institutions Used by Farm Management Members in Associations Three and Five.

Source	All	I	III	V
	Classes	and II	and IV	and VI
	Opera-	Opera-	Opera-	Opera-
	tors	tors	tors	tors
	With	With	With	With
	Debt	Debt	Debt	Debt
	(Mortgage Debt)			
Federal Land Bank	32	19	11	2
Insurance Companies	19	11	8	0
Individuals	13	7	6	0
Farmers Home Administration	6	4	2	0
Commercial Banks	2	2	0	0
Mortgage Companies	2	1	1	0
Commodity Credit Corp.	1	1	0	0
	(Short and Intermediate Term Debt)			
Commercial Banks	90	43	47	2
Production Credit	34	25	9	0
Merchants	21	12	7	0
Individuals	11	6	5	0
Farmers Home Administration	5	2	3	0
Credit Union	4	4	0	0
Commodity Credit Corp.	3	3	0	0

advances from such lenders as the Production Credit Associations.²⁸ Production Credit Associations do not provide as large a portion of the total short and intermediate term credit extended to farmers in the Plains as they do in other parts of the country. For the Plains as a whole commercial banks supply about four times as much short and intermediate term credit as do Production Credit Associations.²⁹ The latter seems to have had more difficulty in adapting their programs to the needs of operators in the Plains than in other parts of the country.³⁰

Banks can offer a wide, flexible, and convenient type of credit and can make loans with real estate security, non-real estate security, or without security. For this reason banks should be in a good position to offer one-stop financing. In some cases where there are limitations, correspondent banks or other auxiliary means could be used. Banks are in a good position to be familiar with customers' financial requirements.

Merchants and dealers accounted for slightly over 12 per cent of all short and intermediate term credit sources. But they probably accounted for only four to eight per cent of the debt owed.³¹ While the amount owed to merchants was only a small part of all debt owed by farmers, merchants offered a convenient source of generally small amounts of credit.

²⁸Bierman, op. cit., p. 43.

²⁹Voelker, op. cit., p. 1269.

³⁰Voelker, op. cit., p. 1269.

³¹Bierman, op. cit., p. 43.

The Great Plains survey revealed some interesting factors affecting sources of credit used in relation to tenure. Compared with owner-operators, tenants are usually younger, have less borrowing power and less indebtedness per operator because of smaller investment and smaller operations, and are usually unable to offer real estate security. As a result of these factors and because smaller amounts of credit may be obtained from them quickly and conveniently, banks and merchants and dealers are usually the common creditors reported by tenants.³² In most of the Great Plains, tenants were more likely to owe banks and merchants than were owners. Tenants were more likely than owners to have loans from the Farmers Home Administrations. The chief reason was because of smaller net worths and less borrowing power; therefore a larger proportion of tenants were unable to obtain credit elsewhere or obtain it in the amount needed.³³ A larger proportion of owners than of tenants owed money to individuals.³⁴ This is because many owners owed money to the individuals from whom they had bought farms. This is indicated by the fact that individuals accounted for a much larger share of the total amount of debt owed by owners than by tenants.³⁵

³²Bierman, op. cit., p. 44.

³³Bierman, op. cit., p. 44.

³⁴Bierman, op. cit., p. 44.

³⁵Bierman, op. cit., p. 44.

DEBT BY TENURE

Farm operators have several means for acquiring the assets needed in their farm businesses. They may use their own funds for purchasing needed resources, borrow to do so, or lease resources. Tenancy and credit are alternative means of gaining control of assets.³⁶ The ability to rent land tends to reduce an operator's demand for credit. However, if an operator's capital is limited and renting land enables him to achieve a larger, more efficient operation, tenancy may enhance his ability to borrow by increasing profit potential and debt repayment capacity. Since land is a resource that lends itself readily to renting, it is common for a farm operator to rent either all or part of his land.

In this report farm operators are classified into three tenure groups - full owners, part owners, and tenants. The 1960 Sample Survey included a fourth group - managers - but none of the farm management operators could be classified as such.

The data indicates that there is not a uniform use of the three tenure arrangements. Part owner arrangements comprised 78 per cent of all farm management association operators. Full owners and tenants made up 12 per cent and 10 per cent respectively of the tenure groups (Table 8). The national survey has shown that part owners accounted for 25 per cent of the operators and full owners and tenants composed 53 per cent and 21 per cent of the operators respectively.³⁷

³⁶Hesser, Doll, Sullivan, op. cit., p. 20.

³⁷Hesser, Doll, Sullivan, op. cit., p. 20.

Much of the difference between farm management associations members and sample survey findings in relation to tenure organization is undoubtedly attributable to the natural and economic conditions that affect production. Farmers in this western Kansas area require large acreages to permit efficient use of modern machinery and family labor. Part ownership is the most common form of tenure because of the extensive type of agriculture practiced in this region. Its extensiveness is due mainly to the fact that there are not many possibilities of substituting other factors for land in the farm production mix. For a given level of technology and crops grown, machinery and labor services are combined with land in nearly fixed proportion, and the output therefore is a function of land acreage and its productivity. Hence large acreages are a necessity.

Other factors make this type of tenure arrangement desirable. When farmers have equipment and labor that are not fully utilized, they have a strong incentive to acquire more land in order to increase total volume of production. Under these conditions competition for land would be strong. In turn these effects would have an upward influence upon land prices. The increased market value of the land dictates that the farmer must rent in order to increase size of operations. Consequently, this is a reason why part ownership is the most popular tenure arrangement for these farmers.

Winter wheat farms have approximately 80 per cent of their total investment in land and buildings compared to 53 per cent in

TABLE 8. Debt by Tenure of Farm Management Members in Associations Three and Five.

Class of Farm	Tenure			
	All	Full	Part	Tenants
	Tenure	Owner	Owner	
Total Number of Operators				
I and II	105	14	84	7
III and IV	72	6	55	11
V and VI	3	1	1	1
All Classes	180	21	140	19
Aggregate Total Debt				
I and II	\$4,429,787	\$438,690	\$3,760,118	\$230,979
III and IV	1,451,786	108,430	1,170,666	172,690
V and VI	3,415	0	1,792	1,623
All Classes	5,884,988	547,120	4,932,576	405,292
Average Total Debt Per Indebted Operator				
I and II	\$42,188	\$31,335	\$44,763	\$32,997
III and IV	20,164	18,072	21,280	15,699
V and VI	3,415	0	1,792	1,623
All Classes	32,694	26,053	35,234	21,331
Per Cent of Operators With Debt				
I and II	86.6	92.8	86.9	71.42
III and IV	90.27	83.3	87.3	100.0
V and VI	66.6	0.0	100.0	100.0
All Classes	88.3	90.5	87.14	94.7

northeastern United States.³⁸ Thus renting of land permits a farmer to use his own equity for operating capital.³⁹ In this way he can increase the size of his business and to some extent share risk with other investors.

The aggregate debt for each tenure arrangement was influenced by the average size of loan. Average total debt per indebted part owner operator was \$35,234, which averages \$9,181 larger than full owners average total debt per operator and \$13,903 larger than average total debt of tenants per operator. In light of the large average debt of part owners and the large number experiencing this type of arrangement, it is not surprising that they owe 84 per cent of the total debt. The greatest portion of this debt is found in economic classes I and II.

It was found earlier that operators with greater sales tended to have larger debts outstanding. Thus it could be expected that part owners would have greater debt relative to their numbers. Since tenants, by definition are not buying land assets it would be expected that their average total debt per operator would be smaller. Consequently, the extent to which an operator rents land influences the amount of his debt. Full owners and part owners must finance all or part of their real estate debt investment in addition to short and intermediate debt needs. Tenants, by definition need only to finance their non-real estate investments.

³⁸Farm Costs and Returns, U. S. D. A., Agriculture Research Service, June 1960, p. 79.

³⁹Hesser, Doll, Sullivan, op. cit., p. 20.

When farm operators were studied by economic class to reduce the influence of size differences, part owners and tenants were found to have operated the largest units as measured by average total value of land per operator. On the average, part owners operated \$148,551 of land. Tenants on the average operated \$127,542 of land while full owners operated \$99,852 of land (Table 9).

TABLE 9. Average Value of Land and Buildings, by Tenure, of Farm Management Members in Associations Three and Five.

Class of Farm	Tenure		
	Full Owners	Part Owners	Tenants
I and II	\$108,607	\$178,232	\$135,490
III and IV	92,906	104,292	130,154
V and VI	36,466	60,001	43,181
All Classes	99,852	148,551	127,542

The farm management data did not indicate the value of land owned or rented separately by part owners, but the sample survey showed that the average value of real estate owned by part owners was only 20 per cent smaller than that owned by full owners in classes I and II and 24 per cent smaller in classes III and IV.⁴⁰ The survey found that when one considered the volume of real estate credit used by owners and part owners, the differences were even smaller.

⁴⁰Hesser, Doll, Sullivan, *op. cit.*, p. 22.

Real estate debt accounted for 26 per cent of the total outstanding debt of part owners and 14 per cent of that of full owner operators (Table 10). Likewise, the absolute real estate debt per part-owner operator was larger than that of the full owner, even though full owners on the average own 4.00 acres more per farm than part owners. The average real estate debt per owned acre was \$11 for part owner, and \$5 for full owners. This would indicate, as is pointed out later, that full owners have a greater equity in their business than part owners have. Also, the average real estate debt of part owners was \$21,136, compared with \$9,476 for full owners.

Part owners comprised 87 per cent of the farm operators owning land, and held 9/4 per cent of the real estate debt of all operators. There are several reasons why part owners owed a greater proportion of real estate debt than full owners. Part of the explanation seems to be that they farmed larger sized operations and owned only somewhat less real estate, as compared with full owners with similar gross farm sales. Secondly, the part owners are younger than the full owners and consequently are more actively making capital investments.

A similar trend was evidenced in short and intermediate debt. The part owners owned the greatest share of this type of debt. Average short and intermediate term debt per operator for part owners was \$31,320 compared with \$27,724 per operator for full owners and \$22,516 per operator for tenants. The per cent of operators using debt did not vary considerably for the three classifications although the tenant group did have a slightly

TABLE 10. Mortgage Debt of Farm Management Members in Associations Three and Five, by Tenure.

Class of Farm	Tenure		
	All Operators	Full Owners	Part Owners
	Number of Operators Using Mortgage Credit		
I and II	42	5	37
III and IV	26	3	23
V and VI	0	0	0
All Classes	68	8	60
	Per Cent of Operators Using Mortgage Credit		
I and II	40	35.7	44.6
III and IV	36.1	60.0	40.4
V and VI	0	0	0
All Classes	42.8	42.1	42.9
	Total Mortgage Debt		
I and II	\$ 976,945	\$36,287	\$ 940,658
III and IV	367,025	39,517	327,508
V and VI	0	0	0
All Classes	1,343,970	75,804	1,268,166
	Average Mortgage Debt		
I and II	\$23,261	\$ 7,257	\$25,442
III and IV	14,116	13,172	14,239
V and VI	0	0	0
All Classes	19,764	9,476	21,136

larger per cent using short and intermediate term debt (Table 11).

Net worths of the three tenure groups varied with age. The oldest group, full owners, averaged 57 years of age and had the largest average net worths with \$100,385. They were followed by the part owner classification which averaged 51.7 years of age and had average net worths of \$83,196. This is in contrast to the tenant tenure group who averaged 48.6 years of age and had only \$23,249 average net worth. The difference in net worths between part owners and full owners can be attributed to the greater land areas owned by the two groups. As would be expected, tenants net worth was by far the smallest, since they by definition do not own real estate.

The following describes borrowing characteristics for each tenure classification. Full owner operators constituted only 12 per cent of farmers studied in Farm Management Associations Three and Five. Over 60 per cent of these operators belonged to economic classes I and II. Their average age was nearly five years older than any other classification.

A relatively higher portion of full-owner operators (95.5 per cent) had debt. The majority of this debt consisted of short and intermediate term loans. On the average full owners managed a smaller value of land and buildings than any other classification but they possessed considerably more equity in their businesses than did any of the other groups. Equity figures of over 70 per cent represent most of the full owners. They owned debt-free nearly 20 per cent more of their operations than did the second high equity group, the part owners.

TABLE 11. Short and Intermediate Term Debt of Farm Management Members in Associations Three and Five, by Tenure.

Class of Farm	Tenure			
	All Operators	Full Owners	Part Owners	Tenants
	Operators Using Short and Intermediate Term Credit			
I and II	85	12	68	5
III and IV	65	5	48	12
V and VI	2	0	1	1
All Classes	152	17	117	18
	Percentage of Operators Using Short and Intermediate Term Credit			
I and II	80.2	85.7	81.9	55.6
III and IV	89.0	100.0	84.2	100.0
V and VI	66.0	100.0	100.0	100.0
All Classes	84.4	85.0	83.6	85.7
	Total Short and Intermediate Term Debt			
I and II	\$3,452,842	\$402,403	\$2,819,460	\$230,979
III and IV	1,084,761	68,913	843,158	172,690
V and VI	3,415	0	1,792	1,623
All Classes	4,541,018	471,316	3,664,410	405,292
	Average Short and Intermediate Term Debt			
I and II	\$40,622	\$33,534	\$41,463	\$46,196
III and IV	16,689	13,783	17,566	14,391
V and VI	1,707	0	1,792	1,623
All Classes	29,875	27,724	31,320	22,516

It appears that even though full owners were in a superior equity position they did not possess sufficient capital to finance their farm business at the desired scale without borrowing. This is evidenced by the \$27,724 debt per operator, which was the average short and intermediate term debt of full owners.

In general part owners operated larger farms than did full owners or tenants. It is evident that farm operators have found part owner tenure arrangements a desirable way of expanding operations. Seventy-eight per cent of all tenure arrangements were of the part owner type.

In order for the part owner to operate the larger farm, greater amounts of credit were needed. Per operator they used more real estate and short and intermediate term credit than any other group. Total debt per part owner operator was much larger than tenant or full owner total debt per operator.

The typical part owner is 51.7 years of age. His net worth is \$83,196, which gives him an equity percentage of 52 per cent. The part owner on the average owns 848 acres, but manages real estate valued at \$148,552 which indicates that the part owner rents a substantial amount. Eighty-seven per cent of his group owe some type of debt. If he belongs to the indebted group, his total debt is over \$35,000. Most of this is short and intermediate term debt.

Tenants constituted only ten per cent of all farm operators in the two western Kansas farm management associations. This ten per cent of all operators owed only seven per cent of the total debt. There are two apparent reasons why the tenant did not have

total debt in proportion to his numbers. First the tenant does not have any use for real estate debt since by definition the tenant is not in the process of acquiring land. Therefore he would tend to have proportionately less debt when compared to the full owner or part owner group. Secondly, on the average full owners managed real estate valued at \$99,852 and had \$27,724 of short and intermediate term debt. While tenants managed real estate valued at \$127,544 per operator, and needed \$22,516 of short and intermediate term credit in order to finance operations. Under a tenant arrangement the landlord shares part of the input cost; consequently the tenant would not require relative proportions of capital to finance his operations. The above data indicates this to be true. This would also be somewhat true for the part owner operators.

The tenant group has the youngest average age of the three tenure arrangements, which without doubt is partially responsible for the small net worth of this classification. The younger age of this group has not allowed them to accumulate as much capital, consequently their equity is also low.

Landlords in most cases receive as rent a portion of the value of tenants' farm sales. In order for the tenant to have a reasonable net income he must have large farm sales or have off-farm income. Seemingly, this would explain why tenants had one of the highest average off-farm incomes. The average off-farm income for tenants was \$2,029.

DEBT OF OPERATOR BY TYPE OF FARM

The type of farm operated has an influence on the amount of credit used by farm management members. For example, indebted cash crop-beef farms had an average outstanding debt of \$50,828 in 1963, compared with \$26,232 for cash crop farmers. Variations of this type would be expected, since the farms differ as to type of assets and asset turnover (Table 13).

In order to get a better understanding of the relationships between debt and type of farm, the farms were divided into five main groups. The five most important farm types were cash crop, cash crop-dairy, cash crop-beefherd, cash crop-sheep and cash crop-beef. Farm type is determined by the proportion of man work days applied to an enterprise.⁴¹ One-third of the man work days must be devoted to an enterprise before it can be designated a specific farm type.

Cash crop-beef enterprises usually included a beef feeding or a beef growing system. This farm type was by far the most popular among these farm management members. The second most popular farming type was the cash crop-beefherd operations. Fifty of the 177 farms were in this category. The remaining farm types in order of popularity were: cash crop, cash crop-sheep, and cash crop-dairy.

⁴¹Man work days is obtained by multiplying the number of acres or number of livestock handled by a standard. A man work day is the amount of work a man should be able to do in a ten hour day. A reasonable standard for a year's work is 300 work days per man.

TABLE 12. Farm Management Members Using Credit, by Type of Farm.

Type of Farm	Class of Farm					
	I	II	III	IV	V	VI
	Per Cent of Operators With Debt					
cash crop	100.0	0.0	100.0	100.0		100.0
cash crop-irrigate	85.7	100.0	100.0			
cash crop-dairy	100.0	50.0	-			
cash crop-dairy-irr.	0.0	100.0	-			
cash crop-cowherd	66.7	78.9	78.6	88.9	100.0	
cash crop-cowherd-irr.	100.0	100.0	100.0			
cash crop-sheep	50.0	50.0	100.0	100.0		
cash crop-sheep-irr.	100.0	100.0	-			
cash crop-beef	90.0	90.0	91.7	87.5		
cash crop-beef-irr.	100.0	100.0	100.0	100.0		
	Number of Operators With Debt					
cash crop	1	1	5	1		1
cash crop-irrigate	6	5	2			
cash crop-dairy	1	1				
cash crop-dairy-irr.		1				
cash crop-cowherd	2	15	11	8	1	
cash crop-cowherd-irr.	1	2	1			
cash crop-sheep	1	1	3	1		
cash crop-sheep-irr.	1	1				
cash crop-beef	9	20	22	7		
cash crop-beef-irr.	13	7	2	1		

In all farm types, cash crop is part of the classification. Cash cropping is very important in the usually extensive type of farming practiced in this western Kansas area. The most common cash crops of this region are wheat and grain sorghums.

Each of the five farm types were divided into dryland and irrigated farming in order to examine the effects of irrigation. In most cases a larger percentage of the farmers who irrigated were indebted and generally they had larger average total debt per operator. Over 93 per cent of the irrigating farmers had some type of debt. Of the 43 operators who irrigated, 21 belonged to economic class I, likewise 21 of the 35 indebted farmers of class I irrigated. This indicated that irrigation may have played a major role in generating gross income for many farmers. Irrigation operators represent 28 per cent of all operators, but they owed over 36 per cent of all debt. (Table 13).

Generally the value of farm products sales was strongly associated with borrowing. In most cases the average outstanding debt of indebted operators in each type of farm increased as value of farm products sold increased.

Borrowing also varied among types of farms within class categories. Cash crop-beef operations (includes irrigated and non-irrigated) tend to owe much greater amounts than other types. Farmers with this type of farming enterprise owed an average of \$50,828, which far exceeds the cash crop farmers' indebtedness, who have the second highest average debt. Farmers operating any type of cattle growing or cattle feeding operations require large amounts of credit in order to acquire the animals. Consequently,

TABLE 13. Average Debt of Farm Management Members in Associations Three and Five, by Type of Farm.

Type of Farm	All Classes	Class of Farm				
		I	II	III	IV	V
cash crop	\$22,872	\$105,008	\$18,573	\$15,585	\$ 2,720	\$1,623
cash crop-irrigate	28,560	37,414	27,429	4,824		
cash crop-dairy	16,359	3,746	28,972			
cash crop-dairy-irr.	8,510	0	8,510			
cash crop-cowherd	18,791	38,331	23,090	14,335	14,099	\$1,792
cash crop-cowherd-irr.	39,900	86,290	18,817	35,674		
cash crop-sheep	26,574	52,713	56,959	15,773	2,455	
cash crop-sheep-irr.	23,279	5,992	40,565			
cash crop-beef	44,802	70,547	56,134	32,813	17,006	
cash crop-beef-irr.	66,024	87,022	44,151	22,856	32,489	

cash crop-beef operations normally would owe larger average debt.

The number of operators and their average size of operation determines the aggregate outstanding debt of each farm type. The cash crop-beef (irrigated and non-irrigated) combination was the most popular farming type among farm management members in this western Kansas area. The 81 farmers who operated this type of farm owed \$4,117,080. The large average indebtedness plus the concentration of farmers within these two groups is responsible for the large aggregate debt of this farm type. Operators of cash crop-cowherd farms (irrigated and non-irrigated) were the second most numerous group. This group had the second largest aggregate debt in spite of their relatively low average total debt. The third largest group, in terms of total number of operators and aggregate debt, was the cash crop farm (irrigated and non-irrigated). Cash crop-sheep and cash crop-dairy types comprised the smallest groups when measured by number of operators and total debt.

In most cases real estate debt tended to comprise a much smaller proportion of the total debt in each cross classification and economic class. On the whole there was 3.6 times as much short and intermediate term debt as real estate debt. However, cash crop-beef type farms owed over seven times as much short and intermediate term debt as real estate debt. The only two types which had more real estate debt than short and intermediate term debt were cash crop-dairy and irrigating cash crop-sheep farms. In general the distribution of real estate debt and short and intermediate term debt was similar to the distribution of total debt.

DEBT BY AGE OF OPERATOR

One of the factors which determines whether a farm operator will borrow is his age. These farm management members with debt averaged 51.2 years of age, while non-indebted operators averaged 55.8 years of age.

In every economic class, operators without debt were an older average age. The young operator in an effort to start farming, usually has not had much opportunity to accumulate an equity in his business and must make an intensive effort to obtain supplementary resources through renting and borrowing. Thus a greater portion of the young operators were tenants and indebted.

TABLE 14. Average Age of Farm Management Members in Associations Three and Five.

Class of Farm	Average Age	
	Operators With Debt	Operators Without Debt
I	50.3	56.4
II	51.4	54.8
III	52.4	54.2
IV	50.0	57.0
V	38.0	68.0
VI	42.0	-
All Classes	51.2	55.8

Table 15 indicates that the younger the farmer the more likely the farmer will be indebted.

TABLE 15. Indebted Farm Management Members in Associations Three and Five, by Age Groups.

Class of Farm	Age Group		
	Under 35	35-54	55 and Over
I and II	1	56	34
III and IV	4	36	25
V and VI	0	2	0
All Classes	5	94	59
	Per Cent of Operators Indebted		
I and II	100.0	88.9	82.5
III and IV	100.0	92.7	86.7
V and VI	-	66.7	-
All Classes	100.0	90.5	83.1
	Average Debt Per Indebted Operator		
I and II	\$39,096	\$47,820	\$50,646
III and IV	18,457	22,566	19,962
V and VI	-	1,707	-
All Classes	22,599	37,664	37,778

Even though there were few farm management members under 35, each was indebted to some extent. Operators 55 and over were less likely to be in debt than either of the younger groups. Farm management members who were 55 and over averaged indebtedness of

\$37,778 whereas farm management members under 35 averaged \$22,599 of debt. In economic classes I and II indebted operators under 35 had a substantially lower average debt than did older operators. However in classes III and IV average debt was not highest for the older group; instead the 35-54 year old group led in indebtedness per operator. For all classes combined the average indebtedness of operators over 54 was highest.

Equity retained in the business was highest for the older group despite the greater absolute debt per operator. Equity and net worths increase with age in all age divisions except 65 and over. In this category, equity increases to 72.7 per cent but average net worth falls to \$85,926. This phenomena may be due to several circumstances. One possible explanation may be due to the fact that older farmers are disposing of their land assets to their children in order for them to escape inheritance taxes. Since this report examines conditions for only one time period it would be difficult to determine whether these farmers ever did have a larger net worth. Because of their age they may have felt that their present operating size was sufficient, consequently they did not expand operations.

The younger operators managed smaller units than did the older operators. The average value of farm products they sold per operator was \$27,326, compared with \$40,770 for operators in the 35-54 year age group and \$29,511 for the oldest group. The value of land and buildings operated per youngest indebted operators averaged over \$32,000 less than that managed by the 35-54 age group. Average value of real estate managed by the under 35

and over 55 age grouping were quite similar.

A relationship appears to exist between age of indebted operator and its ratio of debt to income. In some cases as age increases debt expressed as a percentage of annual income tended to increase. The only exception to this is when a ratio of debt to net cash farm income is computed for operators 55 and over in classes I and II. This may be due to the fact that younger farmers with smaller net worths and equities are restricted in the amount they may borrow.

SUMMARY AND CONCLUSIONS

Of the 180 farm management members analyzed in Kansas Associations Three and Five, 88 per cent had outstanding debt on December 31, 1963. Nearly an equal proportion of operators within each class were indebted. The largest farmers (class I) accounted for 23 per cent of all operators but used approximately 34 per cent of all the value of land and buildings and sold 48 per cent of all products sold, by value. Classes I, II, and III made up 87 per cent of all operators and sold 97 per cent of the dollars worth of products sold.

There was not too much difference in the average size of farms between indebted and non-indebted operators within each economic class. However the overall average of farms run by the indebted operator was largest by either of two measures - acres of land operated and value of land and buildings operated.

Farm debt was concentrated among the larger farmers. Indebted operators of class I and II farms accounted for 57 per cent

of all operators but they used 75 per cent of all outstanding farm credit. In contrast class III operators made up 30 per cent of all operators and owed 20 per cent of all debt.

The average size of debt per indebted operator was related to the class of farm. The average debt per indebted operator of class I farms, the largest farms, was \$63,880, compared with \$15,430 for indebted operators of class IV farms.

Among lenders, Federal Land Banks were the most important source of mortgage credit. It was followed in importance by insurance companies, individuals, and Farmers Home Administration loans. Commercial banks owned only two mortgages. However commercial banks were by far the most important source of short and intermediate term credit. Other important sources of short and intermediate term credit were Production Credit Associations, merchants, and individuals.

Debt varied among farm tenure groups. Part owners had the largest average outstanding debt per operator of all tenure arrangements. Seventy-eight per cent of all operators were part owners. Thus part owners held a large proportion of the outstanding debt. Full owners were the second most indebted per operator, with an average debt of \$26,053. Though full owners owned the second largest debt per operator, they operated the smallest volume of land per operator. Tenants have the smallest debt per operator, but they operate the second largest value of land per operator. Tenants did not own their farms, therefore they had no real estate debt.

Considerable variation in farm debt also appeared among

different types of farms. For example, indebted cash crop-beef farmers had the largest average outstanding debt per operator with \$50,828; in comparison cash crop farmers had average total debt of \$26,232. The cash crop-beef system was the most popular of the five farm types. Operators of cash crop-cowherd farms were the second most numerous group and had the second largest aggregate debt. The third largest group as far as total numbers and aggregate debt were the cash crop farms. Cash crop-sheep and cash crop-dairy types comprised the smallest group when measured by number of operators and total debt. In most cases a larger percentage of the farmers who irrigated were indebted and generally they had larger total debt per operator. Of the 43 operators who irrigated, 21 belonged to economic class I.

Age of operators also seems to have influenced the amount of credit. For all classes of operators, borrowers were younger than non-borrowers, and a larger percentage of young operators were indebted in each economic class. The youngest age group, under 35, has a much smaller average total debt per operator than the 35-54 age group or the 55 and over age group. Equity in the business was highest for the older group despite the greater absolute debt per operator. Equity and net worths increased with age in all age divisions except 65 and over.

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