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The Agricultural Credit Situation in Minnesota

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THE AGRICULTURAL CREDIT SITUATION IN MINNESOTA

B. M. GILE and J. D. BLACK

INTRODUCTION

The 1925 agricultural census, as of January 1 of that year, reported 48.6 per cent of the full-owner and part-owner operated farms of Minnesota as having a mortgage encumbrance—a decrease of 3.8 per cent from the 52.4 per cent reported mortgaged in 1920. For the 1920 census, 6.9 per cent of the owner operators did not state whether their farms were mortgaged, as contrasted with only 0.8 per cent for the 1910 census. Possibly a still larger percentage did not report on this question in 1925 and a large majority of those not reporting may have had mortgages on their farms. The mortgages reported on owner-operated farms in 1925 averaged $5,117, or 43.6 per cent of the owners' estimated values. On January 1, 1920, the average mortgage amounted to $4,419, or 27.5 per cent of the estimated values of the farms mortgaged. There was thus an increase of $698 in the average size of the mortgages, and of 16.1 per cent in the ratio of debt to value of farms mortgaged.

In the same period, the number of rented farms increased from 44,138 to 51,081, or from 24.7 per cent to 27.1 per cent of the total number of farms in Minnesota.

Combining mortgage encumbrances with tenancy on a value basis, gives results as follows:

	1920	1925
Value of all farms in Minnesota	$3,301,168,325	$2,393,741,745
Value of rented farms	1,059,182,613	801,226,969
Value of mortgages on full-owner farms	254,475,222	267,026,995
Value of mortgages on part-owner farms[1]	59,822,000	80,042,000
Value of managed farms	50,234,658	19,930,059
Total values not owned by owner operators	1,877,453,840	1,225,515,740
Per cent of value of farms in Minnesota not owned by operators	43.1	48.8
Per cent of value of farms in Minnesota owned by operators[2]	56.9	51.2

Thus the farmers of Minnesota, on January 1, 1925, owned only 51.2 per cent of the estimated value of the farms in the state. The

[1] Estimated on the basis of percentage of full-owner operated farms mortgaged. There may be an error in this; but it ought not seriously to affect the comparability of the results between census periods.

[2] This does not include the value of farm mortgages that farm operators may hold against other farms, or the value of other farms that they own and rent to others.

comparable figure for 1920 was 56.9 per cent, which indicates a decline from 1920 to 1925 of 5.7 per cent.

In 1910, only 46.0 per cent of the owner-operated farms in Minnesota were mortgaged, and the mortgages averaged only $1,864 per farm—26.4 per cent of the estimated value of mortgaged farms. The operators of Minnesota farms at that time owned 65.5 per cent of the value of the farms in the state. The comparable figure for 1900, however, is only 52.5 per cent and for 1890, only 52.0 per cent. Thus the percentage of the farm values owned by the operators of farms increased considerably from 1900 to 1910, but since 1910 the situation has reversed and a larger and larger percentage of the values of Minnesota farms has passed out of the hands of the operators into the hands of the landlords, mortgage holders, and employers of managers, until the percentage owned by them in 1925 was about the same as in 1890.

Between 1920 and 1925, there were 1,378 farm bankruptcies in Minnesota, as compared with 337 between 1910 and 1920. A comparison of bankruptcies among farmers in Minnesota and in neighboring states is shown in Table I.

TABLE I

BANKRUPTCY AMONG FARMERS, 1910 TO 1925

State	1910 to 1919	1920 to 1925
Minnesota	337	1,378
North Dakota	718	2,406
South Dakota	249	816
Montana	463	1,737
Iowa	690	2,492
Wisconsin	78	522
Illinois	409	697

In all states there have been considerably more bankruptcies in the last 6 years than in the preceding 10 years. No doubt a majority of the farmers that lose their farms give them up without going through bankruptcy, either by letting their contracts go by default or by giving a deed to the holder of the mortgage. The proportion of failures going through bankruptcy has increased greatly in late years, so that the above figures exaggerate the change.

The agricultural census of January 1, 1925, included a question asking for "the total amount of other debts which you owe, not secured by mortgages on real estate." But the Census Bureau has not tabulated the answers.

A special survey of 240 farms made in Minnesota in the fall of 1924, just before the census was taken, showed an average non-mortgage indebtedness of $694 per owner-operator and $1,147 per tenant.

The year 1924 was the best Minnesota farmers had had since 1919.[3] No doubt some debts had already been paid off that year. The $694 of non-mortgage indebtedness of owner-operators consisted of personal and collateral loans and store credit. The latter was 27.2 per cent of the total. The $1,147 of indebtedness of the tenant-operators was 14.7 per cent store credit.

In a survey of 157 farm families in the fall of 1925, Carle C. Zimmerman, of the University of Minnesota, found that the average interest of borrowed funds amounted to $260. This survey covered seven communities. The lowest average amount of interest paid per farm in any community was $68 and the highest, $620, in the Blackduck (Beltrami County) and Tyler (Lincoln County) communities, respectively. The average paid on mortgage debt during the year was $172, with a minimum per farm of $11 in the Blackduck area, and a maximum of $353 in the Zumbrota area (Goodhue County). The average amount paid on all other indebtedness, not including insurance, was $109, with a minimum by communities of $41 and a maximum of $231. The average amount paid on all indebtedness other than insurance was $281, which was only slightly more than the $260 paid out for interest on borrowed funds.

Another survey made by Dr. Zimmerman in 1926, in the vicinity of Benson, Crookston, Litchfield, Mora, Spring Valley, and Tracy, included 215 owners and 120 tenants. The average interest paid during the previous year amounted to $334 per owner, or $454 per indebted owner. The Tracy area (Lyons County) averaged the highest per indebted owner and the Mora area (Kanabec County) the lowest. These areas paid respectively $779 and $176. The tenants averaged $89 of interest paid, or $99 per interest-paying tenant. The owners had reduced the average indebtedness on their farms $147 during the year and their other indebtedness $44. Tenants had no payments to make on the farms they were operating but made payments on non-mortgage indebtedness amounting to $91. Both owners and tenants in this 1926 survey were expending annually more of their income to pay interest bills than for debt reduction.

The foregoing data present a situation that needs very careful consideration. Involved in it are elements that are at the very foundation of our rural civilization. It is the purpose of this bulletin to uncover as many as possible of the real facts as to this situation, discover their significance and their causes, and show their relation to

[3] A rough index of gross incomes for Minnesota farmers in recent years runs about as follows: 1919, 234; 1920, 160; 1921, 109; 1922, 130; 1923, 149; 1924, 181; 1925, 181; and 1926, 188. The comparable net incomes run as follows: 232, 149, 86, 109, 121, 177, 202, and 210.

the credit institutions that have been established and to their manner of functioning.

While the study was of Minnesota conditions, its findings will no doubt apply in large measure to many other states.

MORTGAGE ENCUMBRANCE

The mortgage encumbrance of farms is important from the standpoint of credit, because in terms of dollars it represents by far the largest use made of credit in agriculture. To understand long-term credit for agriculture, we must analyze carefully the conditions determining mortgage encumbrance.

The principal data available concerning mortgage encumbrance are those collected each ten years by the Census bureau, and those collected in the special farm census of January 1, 1925. In the 1920 and the 1925 censuses a mortgage was defined to include "all debts secured by instruments locally called 'mortgages'; also all debts represented by judgment notes, confessions of judgments, deeds of trust, deeds with vendor or lien clause, bonds, or contracts for title, or any

MORTGAGED OWNER-OPERATED FARMS IN UNITED STATES

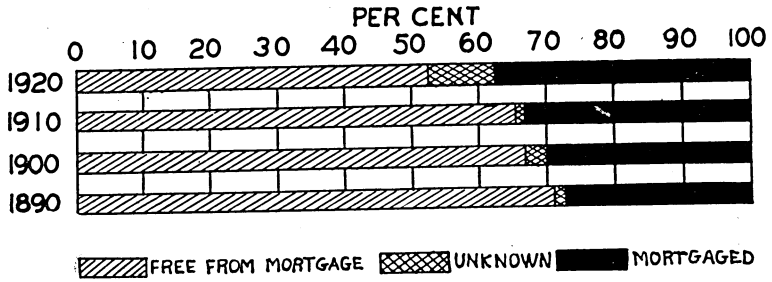

Fig. 1. The mortgaged farms in the United States increased about 9 per cent between 1890 and 1920. The 1925 agricultural census shows that between 1920 and 1925 mortgaged farms declined nearly 2 per cent. "Unknown" farms are those whose debt status was not reported. Preliminary reports of the 1925 census do not show how many farms failed to report on mortgage debt.

other legal instruments (other than mechanics' liens or crop liens) that partake of the nature of mortgages upon real estate."[4] Mortgage encumbrance thus includes the so-called "land contracts" under which, in Minnesota, considerable land is sold to young farmers. Generally speaking, a farmer selling his farm asks for a cash payment amounting to at least half the sale price, but there is a pronounced tendency to extend this limit to two-thirds. Also, many farms are sold on a con-

[4] Census 1920, Vol. VI, Part I, p. 479.

tract for deed with the buyer paying down in some cases less than a third of the purchase price.[5]

Situation in 1925

To understand the mortgage situation in Minnesota in 1925, as presented in earlier paragraphs, it must be considered in relation to the other facts presented in Table II. According to these facts, the actual number of mortgaged owner-operated farms decreased over 3000 between 1920 and 1925, in spite of the fact that the total number of farms in the state increased nearly 10,000 in the same period. In terms of percentage, only 48.6 per cent of the owner-operated farms were mortgaged in 1925, as compared with 52.4 per cent in 1920. This is an unexpected development, quite contrary to prevailing impressions. One is inclined to doubt the authenticity of the census figures. There was, however, a similar development in North Dakota, Montana, Wisconsin, Illinois, and some other states (Table III). For the whole group of west north central states, there was a decrease of 0.6 per cent in the number of owner-operated farms mortgaged. A part explantion is the increase of nearly 7,000 in rented farms and of 3,600 in part-owner farmers in Minnesota during this period. This no doubt represents, in part, a substitution of landlord ownership for mortgaged-operator ownership. Many heavily mortgaged farms no doubt reverted to their former owners or passed into the hands of mortgage holders, who are far less likely to have mortgages against them than their "shoe-string" operators. Any foreclosure or its equivalent is likely to work out in this way. No doubt the decrease in the average size of farms from 169 to 160 acres in this period and especially in the value per acre from $109 to $79, has made it possible for more persons to own them without mortgages. The lower land values are, other things being the same, the lower the proportion of farms likely to be mortgaged. (See Fig. 4.) This is just the contrary of what occurred when land values rose rapidly from 1900 to 1920. Table III shows that for the west north central states as a whole, 51.8 per cent of the farms were mortgaged in 1920 as compared to 43.1 per cent in 1900. Another circumstance related to the foregoing is the probable reduced turnover of farms during this period. Only about a fifth as many sales of farm land were reported to the Minnesota Tax Commission during 1922-25 as during 1912-15, but the sales data from county records in two counties indicate that a large proportion of the sales in recent years have been recorded as for $1, hence are not reported to the tax commission.

[5] During survey work in 1924 a farmer was interviewed in Pope county who sold 100 acres of land in 1917 to a German tenant for $12,000 upon a payment of $1,000 and the balance on contract for a deed. Many farms were sold during the land boom with very small payments down, and some have been sold in that way since.

Whenever sales fall off, the number of new mortgages written is likely to fall off also. Many of the transfers made, it has already been explained, were to the mortgage holders. It is also common belief based on observation that an unusual proportion of recent purchasers of farms could pay cash in full. The net effect of all the foregoing would be the elimination of many old mortgages and the writing of relatively fewer new ones.

TABLE II

CREDIT AND RELATED TENURE CHANGES IN MINNESOTA BETWEEN 1920 AND 1925

	1920	1925
1. No. of farms	178,478	188,231
Owner	132,744	136,382
Full-owner	112,880	112,906
Part-owner	19,864	23,476
Managed	1,596	766
Rented in full	44,138	51,083
2. Size in acres (all)	169.3	159.7
Full-owner	144.9	132.5
Part-owner	234.2	222.4
Managed	277.6	292.6
Rented	198.5	189.1
3. Value per acre (all)	$109.23	$ 79.63
Full-owner	$104.30	$ 80.85
Part-owner		$ 69.45
Managed	$113.37	$ 88.88
Rented	$120.85	$ 83.03
4. Full-owner and part-owner farms mortgaged		
No. mortgaged	69,545	66,319
Per cent of total reporting	52.4	48.6
No. farms unknown	9,113	*
5. Full-owner farms mortgaged		
No. reporting amount	57,585	52,184
Per cent of total reporting	51.1	46.2
Average value of farms	$16,080	$11,736
Average amount of mortgage	$4,419	$5,117
Ratio of mortgage to value	27.5	43.6
Average size, acres	†	144.6
Average value per acre	*	$ 81.13
6. Value of all mortgages‡	$445,731,000	$495,569,400

* Data not available.

† The 1920 census does not give size of mortgaged farms.

‡ This is an estimate. The census reports mortgage indebtedness for full-owner farms only. In this estimate the part-owner and the managed farms are assumed to have the same proportion of debt as the full-owner farms. The Bureau of the Census used this method in a 1920 estimate (mimeographed release). The mortgage debt in 1920 on rented farms was estimated as 11.7 per cent of the value of all rented farms. The Bureau of Agricultural Economics, U. S. Dept. Agr., obtained a figure of 9.2 per cent for the United States in a special survey made in 1920. It is here assumed that the debt on rented farms increased between 1920 and 1925 at the same rate as the encumbrance on full-owner farms, which increased from 14.3 to 22.1 per cent.

The principal circumstance making one doubt the adequacy of the above explanation is the actual increase of $700 in the average size of the mortgages during this period. So far as census data are available,

there never has been a time when mortgages and land values have not increased together. During this period, however, many old mortgages were rewritten at higher amounts, in order to liquidate short-time debts incurred just before the break in prices of farm products, or to cover new losses arising from operations in 1921, 1922, and 1923. These increases may have been large enough to more than offset the decrease in size of mortgages written against new purchases after land values broke in 1921.

TABLE III

PERCENTAGE OF OWNED FARMS MORTGAGED IN MINNESOTA COMPARED WITH NEIGHBORING STATES AND WITH THE UNITED STATES, 1890 TO 1925

Area	1925	1920	1910	1900	1890
Minnesota	48.6	52.4	46.9	43.3	45.4
North Dakota	63.8	71.1	50.2	30.3	47.9
South Dakota	62.4	57.0	37.4	35.3	51.1
Montana	54.6	59.5	20.6	13.4	14.4
Iowa	55.6	54.2	51.2	52.1	52.8
Wisconsin	55.9	59.1	51.1	44.9	42.1
Illinois	35.5	38.5	38.4	37.9	36.3
East north central states*	39.4	42.6	40.5	38.5	37.1
West north central states†	51.2	51.8	45.6	43.1	47.3
United States	35.5	37.2	33.2	30.0	27.8

* Ohio, Indiana, Illinois, Michigan, and Wisconsin.

† Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

But this explanation takes no account of the fact that not only were old mortgages increased on many farms, but that some farms with no mortgages in 1919 now have mortgages. The effect of this is to increase the number of mortgages and decrease the average size, because such mortgages are likely to be small. If popular impression is in any way a safe guide in this matter, it suggests an increase in number of mortgages from this source that would more than offset the decrease from causes already mentioned.

If a considerable number with mortgages failed to answer the mortgage questions, as was suggested in the opening paragraph of the study, this would account for everything that appears in the data. It would give too small a percentage of mortgaged farms, but probably would not greatly affect the size of mortgages—there is little reason to suppose that more small mortgages would not be reported than large ones, or vice-versa.

Survey Data

Data on this point substantiate these conclusions. In the fall of 1924 a survey was made of 240 farmers in six areas in Minnesota located as indicated in Table IV. Of the 172 of these farmers who owned their farms, 106, or 65.5 per cent, had mortgages on them.

This is to be compared with the 50.4 per cent census average for the counties in which these areas are located. The 240 farmers were taken at random in each area. That they constituted fairly representative samples of the counties in which the surveys were made is shown by the close correspondence with the county averages in mortgage debt per farm and ratio of debt to value. Also, as shown in Table V, while there are slight differences in the average size of mortgaged farms when compared by counties, the average size of farms in six counties departs only 3 acres from the Census average for the six counties in which the survey was taken.

TABLE IV

COMPARISON OF DATA FOR 172 FARMS IN 6 COUNTIES WITH CENSUS DATA FOR 1925 AND 1920

Area	Survey				Census 1925			Census 1920		
	No. of owned farms	Per cent farms mortgaged	Ratio of debt to value	Mortgage debt per farm	Per cent farms mortgaged	Ratio of debt to value	Mortgage debt per farm	Per cent farms mortgaged	Ratio of debt to value	Mortgage debt per farm
Steele	30	60.0	40.2	$6,100	42.0	49.7	$7,620	49.8	30.6	$5,054
Cottonwood.....	13	84.6	40 0	9,763	60.5	44.4	9,880	65.8	24.8	5,334
Pope	30	50.0	40.0	5,700	50.5	37.9	5,194	52.3	26.7	3,592
Norman	20	85.0	49.7	4,812	53.9	40.8	4,519	53.4	26.6	2,620
Chisago	39	48.7	40.0	4,266	43.7	38.3	3,613	43.3	26.3	2,548
Hubbard	40	65.0	30.6	1,567	57.7	37.2	1,811	64.2	23.9	1,320
Average for all		65.5	40.3	4,776	50.4	42.4	5,072	53.4	26.7	4,257
Average for state		...	...	....	48.6	43.6	5,117	52.4	27.5	4,119

TABLE V

COMPARISON BY COUNTIES OF 1925 CENSUS AND 1924 SURVEY FOR SIZE OF MORTGAGED FARMS

	Steele	Cottonwood	Pope	Norman	Chisago	Hubbard	Average*
Census, 1925.....	135	190	190	157	100	132	146
Survey, 1924.....	107	197	176	234	112	115	149

* Average for state, 145 acres.

Moreover, the six surveys seem fairly to represent the state as a whole in both these respects. Of the 106 owner-operators who had mortgages on their farms in 1924, 36 did not have when the 1920 census was taken, 22 had been re-written at a higher amount, 32 had been renewed at the same figure, and only 16 had not been disturbed (Tables VI and VII). This represents a great deal of mortgage activity, making possible a considerable change in the mortgage status of the farmers. The point in which we are mainly interested here is the change in size of mortgages and percentage of farms mortgaged. Twenty-two mortgages were increased an average of $1,740, considerably more than

the census average for the state; 36 new mortgages were written for an average of $4,680, somewhat less than the state average. The original data show that of the 36 new mortgages 8, averaging $2,071, were entirely to finance or cover indebtedness in connection with buildings or general farm expenses; 24, averaging $5,520, were to cover land purchases only; and 4, averaging $4,575, were to cover purchases plus building or other farm expenditures.

Unless the 28 new mortgages covering purchases represent a smaller proportion of farmers buying on mortgage than for the same number of farmers making purchases in these areas before 1920, the 8 new mortgages written for other purposes represent an addition to the percentage of farms mortgaged, and as their average is only $2,071, they would reduce the average size of all mortgages and offset in part the increase of $1,740 in the amount of the 22 old mortgages. As already indicated, more of the farmers buying recently may have paid cash in full, but surely not enough more to offset the 11 new mortgages. The sample is very small, however, and not too great reliance can be placed in it. It is entirely possible that more than 52.4 per cent of the farms in these areas were mortgaged in 1920; and that a careful survey then might have given a figure also over 60 per cent.

Calculations from the data in Table VI show that of the new mortgage debt for other than purchase, 62 per cent arose from new building operations, 8 per cent from purchase of new equipment, and 30 per cent from general farm expenses, chief of which was taxes. In Hubbard County three of the farms borrowed on mortgages to clear land. The new mortgages written for these purposes in 1920, 1921, and 1922 were mostly to cover obligations incurred before the break in farm prices came, and were carried for a time on notes or open accounts. The new mortgage debt incurred for these purposes in 1923 and 1924 represented the beginnings of a revival of agricultural development.

Additional evidence of the same general nature is contained in the results of two surveys of rural living in Minnesota made in 1925 and 1926, respectively.[6] The 1925 survey included 123 owner operators who paid at least $125 interest on mortgage and other debts (about $25 in one new cut-over county). At least 60 per cent had mortgages on their farms, as compared with the 1925 census average of 47 per cent. The 1926 survey included 149 owners who paid at least $125 interest on mortgage and other debt (about $100 in one partly cut-over county). At least 64 per cent had mortgages on their farms as compared with 52 per cent in the 1925 census. The two surveys include 12 sections well distributed over the state, and the farmers were chosen entirely at random.

[6] Unpublished data from surveys made by Carle C. Zimmerman, Rural Sociologist, Minn. Agr. Expt. Station.

TABLE VI

MORTGAGES OF 172 OWNER FARMERS IN MINNESOTA WRITTEN OR INCREASED BETWEEN 1920 AND 1924

(Classified according to purposes.)

County	No. of farms	Old mortgages renewed*		Old mortgages increased							
				To buy more land		To finance new buildings		To purchase equipment		To finance general expenses	
		No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Steele	16	10	$ 42,700	0	$ 0	2	$ 3,500	2	$1,000	0	$ 0
Cottonwood	8	5	56,800	0	0	0	0	0	0	0	0
Pope	14	11	53,960	0	0	3	8,140	1	1,000	2	5,000
Norman	16	9	41,600	2	5,000	2	2,600	3	2,500	4	3,000
Chisago	14	6	18,700	0	0	0	0	0	0	0	0
Hubbard	21	13	19,300	0	0	2	2,500	1	800	4	3,200
All areas	89†	54	$233,060	2	$5,000	9	$16,740	7	$5,300	10	$11,200

* Twenty-two renewed for higher amount, 32 at same amount.

† Not including 16 mortgages not disturbed.

County	Old mortgages increased all purposes*		New mortgages							
			To buy land		To erect buildings		To buy equipment		To finance general expenses		All purposes*	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Steele	2	$ 4,500	4	$34,600	3	$14,700	0	$ 0	1	$1,000	6	$ 44,900
Cottonwood	0	0	3	23,600	0	0	0	0	0	0	3	23,600
Pope	6	14,140	1	7,000	2	2,500	0	0	1	900	3	10,400
Norman	7	13,100	8	27,800	0	0	0	0	2	3,800	8	31,600
Chisago	0	0	7	35,000	2	7,700	0	0	1	1,000	8	43,700
Hubbard	7	6,500	5	4,500	1	1,500	0	0	2	2,750	8	8,750
All areas	22	$38,240	28	$132,500	8	$26,400	0	$ 0	7	$9,450	36	$168,350

* The number of mortgages does not total as given because some mortgages were written for more than one purpose.

TABLE VII

MORTGAGES OF 172 OWNER FARMERS IN MINNESFTA WRITTEN OR INCREASED BY YEARS BETWEEN 1920 AND 1924

(Classified according to purposes.)

Years	No. of farms	Old mortgages renewed		Old mortgages increased							
				To buy more land		To finance new buildings		To purchase equipment		To finance general expenses	
		No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
1920.....	10	3	$ 13,500	0	$ 0	0	$ 0	0	$ 0	1	$ 4,500
1921.....	17	4	9,100	0	0	1	600	1	500	2	700
1922.....	18	13	70,800	1	2,000	2	4,000	0	0	2	1,100
1923.....	16	10	35,200	0	0	2	3,500	2	1,500	1	400
1924.....	28	24	104,460	1	3,000	4	8,640	4	3,300	4	4,500
All years.....	89	54	$233,060	2	$5,000	9	$16,740	7	$5,300	10	$11,200

Years	Old mortgages increased all purposes*		New mortgages									
			To buy land		To erect buildings		To buy equipment		To finance general expenses		All purposes*	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
1920.....	1	$ 4,500	8	$ 27,900	2	$ 6,500	0	$ 0	1	$1,000	7	$ 35,400
1921.....	2	1,800	10	58,800	5	18,900	0	0	1	1,000	13	78,700
1922.....	5	7,100	5	11,700	0	0	0	0	2	4,800	5	16,500
1923.....	3	5,400	3	9,200	1	1,000	0	0	2	1,150	6	11,350
1024.....	11	19,440	5	24,900	0	0	0	0	1	1,500	5	26,400
All years.....	22	$38,240	28	$132,500	8	$26,400	0	$ 0	7	$9,450	36	$168,350

* The number of mortgages does not total as given because some mortgages were written for two or more purposes.

In the 1926 survey, 59 owner farmers in two areas were studied especially from this point of view. On January 1, 1925, when the census was taken, 35, or 60 per cent of the 59, had mortgages on their farms. The nearest comparable 1925 census figure is 48 per cent. Fourteen of these 35 mortgages had been written since January 1, 1920. Eight were new mortgages; and 6 were old mortgages renewed, all for an increased amount. Of the 8 new mortgages, 3 were entirely to purchase land and one was for the purpose of buying more land and covering general expenses. The rest were for buying equipment, erecting buildings, and covering general expenses. The average size of the 6 old mortgages was $18,000 before renewal and $23,400 after renewal. The new mortgages averaged only $6,100. The nearest comparable average mortgage debt, as shown by the 1925 census, for these two areas was $9,000. The survey data show about $9,600. The old mortgages renewed are larger than the census average shown and the new mortgages are less.

Between January 1, 1920, and January 1, 1925, only 13 of the 35 mortgaged owner-operators covered in the survey made any payments on the principal. One of these resulted from a sale of part of the land and another from inheritance. The average for the remaining 11 was $1,260, or $252 per year. This is an extremely poor showing and indicates forcefully the severity of the present agricultural depression. From January 1, 1925, to the time the survey was made only 8 had made payments on the principal of their mortgages.

Further evidence that the census data are too low is found in a survey made at the beginning of 1924 in Kittson, Marshall, Polk, Red Lake, and Wilkin Counties by the Division of Agronomy and Farm Management, of the University of Minnesota, under the supervision of Dr. Andrew Boss. Of 106 owner farms studied, 90, or 83 per cent, were mortgaged. The 1925 census average for these counties is 61 per cent. Even allowing for the fact that the sample probably was not entirely random, as indicated by a considerably larger average value and size of farms than was reported by the 1925 census, there is still evidence that the census data are too low.

It seems that there is more mortgage indebtedness on Minnesota farms than the 1925 census data indicate. The 1920 census data, also, may be too low. We can not be sure, therefore, that the number of farms mortgaged has increased since 1920.

The impression is common among farm mortgage agencies in the Northwest that there has been a considerable increase in mortgage indebtedness. From the end of 1919 to 1924, federal land bank loans in Minnesota made a net increase of 135 per cent and the number of loans increased from 4,052 to 7,729, or 91 per cent. The volume of

joint stock land bank loans increased 46.6 per cent. Net loans of insurance companies increased 104 per cent between 1919 and the end of 1923. The Minnesota Rural Credit Bureau began to operate in 1923 and by the end of 1924 had loaned approximately 32 million dollars, involving a little more than 6,000 loans. The loans made since 1920 by the Minnesota Rural Credit Bureau, the Federal Land Bank of St. Paul, the joint stock land banks, and insurance companies are recorded in Table XXV. The farm mortgage companies report an increase in volume of business with the exception of some private investment companies.

Table II estimates, even on the basis of the census figures, an increase of $49,000,000, or 11 per cent, in the total farm mortgage indebtedness. The rest of the apparent increase mentioned may merely represent a shifting to those agencies of mortgages formerly held by banks, private institutions, and individuals. This no doubt occurred in large volume, especially from banks to the Minnesota Rural Credit Bureau, but it hardly seems that such shifting could account for all the increase in volume of loans reported by the loaning institutions named.

Changes Since 1890

The 1890 census was the first to report the percentage of farms mortgaged. Table III traces the changes that have taken place in Minnesota and neighboring states and for the United States as a whole. In several of the west north central states, especially the Dakotas and Minnesota, there was a decline between 1890 and 1900. The group as a whole showed a decline from 47.3 per cent in 1890 to 43.1 per cent in 1900. This no doubt reflects the rapid expansion to new lands and the homestead movement that was going on during this period. For the rest of the states in the Northwest and even the states mentioned, since 1900, and for the United States as a whole, as indicated in Figure 1, the percentage of farms mortgaged has gradually increased. For the United States as a whole it has been at the rate of about 3.0 per cent each ten years. As there was a decline of 1.7 per cent from 1920 to 1925, there will be less than the usual increase in the present decade, unless a rapid swing forward sets in soon, or unless the census data are in error, as above suggested.

There is nothing alarming about this increase. In fact, it would be remarkable if it had not occurred. The average value of farms in Minnesota and the west north central group of states multiplied by six between 1890 and 1920, and multiplied by more than two when prices are expressed in terms of dollars of the same value, that of the year 1925 (Table VIII). The decline in values between 1920 and 1925 was only a little more than the decline in the general price level. If

no more farms were mortgaged now than in 1890, the situation would be that those buying farms now, many of them young men buying their first farms, at an average of $12,717, are as able to pay cash for them, or are able to pay off their mortgages as rapidly as when farms were worth $2,910 on the average. These $2,910 in 1890 were worth $5,728 in dollars of 1925. Surely it can not be said in fairness that Minnesota farmers are going backward just because they have not quite kept up in wealth with the rapid increase in land values. As before stated, it would be remarkable if they had kept up.

TABLE VIII

INCREASE IN VALUE OF FARMS FROM 1890 TO 1925

Year	Values in actual dollars			Values in 1925 dollars			Index number used*
	United States	West north central states	Minnesota	United States	West north central states	Minnesota	
1925.....	$ 7,776	$14,875	$12,717	$8,125	$15,543	$13,288	95.7
1920.....	10,284	22,307	18,496	7,584	16,450	13,640	135.6
1910.....	5,471	10,464	8,085	8,456	16,173	12,496	64.7
1900.....	2,896	4,385	4,329	5,701	8,632	8,522	50.8
1890.....	2,909	3,245	2,910	5,726	6,388	5,728	50.8

* Bureau of Labor index of wholesale prices, expressed in terms of prices in 1925. For 1910, 1920, and 1925, the index used is the average of the monthly indexes for the six months preceding the date of taking the census.

In this connection, it must not be forgotten that a good part of the value of our farms must be earned on the land in each generation. One farmer pays off his mortgage, sells his farm, and moves to town with all his wealth. The man who buys it probably has to start with a new mortgage. Or perhaps the farmer passes the farm on to one of his sons, in which case the son who gets the farm probably has to mortgage it to pay the other heirs. Only if land values were standing still and if farms were being passed to heirs unencumbered, could it be said that agriculture was not holding its own if the percentage of mortgaged farms was increasing. Agriculture in the United States is doing far better than that—it is keeping nearly constant the percentage of farms mortgaged, at the same time financing the transfer to the cities of a large group of retired farmers in each generation and paying off a large group of heirs who have left the farm. It has financed a large part of the expansion of agriculture that has taken place when some of the other sons have been helped to start in new farming areas. It has also provided the education (often not very good) for the young people who leave the farms for the city. The flow of wealth from the city to the country is a mere dribble compared with all this in the other direction.

The Farm Owner's Equity

It is the custom of many persons to focus attention upon the absolute size of the farm mortgage today as compared with that in earlier times, and to point out, as is done in Table IX, that the mortgages averaged $5,117 in 1925 and only $814 in 1890, and thus make it appear that the farmers are getting more and more in debt on even the farms that they own.

TABLE IX

CHANGES IN MORTGAGE DEBT AND OWNERS' EQUITIES ON MORTGAGED OWNER-OPERATED FARMS, MINNESOTA, 1890 TO 1925

Year	Value per farm	Mortgage debt per farm	Owner's equity per farm	Percentage increase in debt	Percentage increase in equity	Ratio of debt to value
1925.....	$11,736	$5,117	$ 6,619	15.8	—43.2	43.6
1920.....	16,080	4,419	11,661	137.1	124.3	27.5
1910.....	7,062	1,864	5,198	62.4*	85.0†	26.4
1900.....	3,957‡	1,148§	2,809	41.1	59.6	29.0*
1890.....	2,574	814	1,760	...	...	31.6

* Increase 1890 to 1910, 129 per cent.

† Increase 1890 to 1910, 195.3 per cent.

‡ Estimated. The average value of mortgaged farms in 1920 and 1910 is nearly the same as the average value of all fully owned and partly owned farms. For 1920, the respective figures are $16,511 and $16,080; and for 1910, $7,538 and $7,062. For the two periods, the average value of owned farms exceeds that of mortgaged farms by 4.5 per cent. It is assumed that about the same relation existed in 1900. The average value of owned farms in 1900 was $4,070, which, reduced by 4.5 per cent, amounts to $3,957.

§ The ratio of debt to value in 1890 and 1910 for mortgaged farms is given in the census. The ratio in 1900 is estimated at 29 per cent by interpolation from 1890 and 1910.

Table IX sets over against these figures the increase in the owner's equity per farm, that is, the value of the farm over and above the mortgage. It appears that from 1890 to 1910 the equities increased more rapidly than the debt, and from 1910 to 1920 only a little less rapidly. While the total mortgage debt of all the owner farms of Minnesota was increasing from $37,709,000 in 1890 to $254,475,000 in 1920, or 575 per cent, the owner's equities were increasing from $176,552,000 to $1,877,000,000, or 963 per cent. Relatively, the farmers were getting less in debt. At least, they were getting more out of debt. This relationship is usually stated in terms of the ratio of debt to value of mortgaged farms, as in the last column of Table IX. The mortgaged owner-operators of Minnesota farms owned all but 27.5 per cent of the value of their farms in 1920, as compared with all but 31.6 per cent in 1890.

All these figures are expressed in terms of the dollar of 1925 in Table X. It thus appears that even absolutely the debt increased very little from 1890 to 1920. The increase from $814 to $4,419 in mortgages on Minnesota owner-operated farms now appears to have been an increase only from $1,602 to $3,259, or 103 per cent.

TABLE X

CHANGES IN MORTGAGE DEBT AND OWNERS' EQUITIES ON MORTGAGED OWNER-OPERATED FARMS, MINNESOTA, 1890 TO 1925, EXPRESSED IN DOLLARS OF 1925

Year	Wholesale price index*	Value per farm, 1925 dollars	Mortgage debt per farm, 1925 dollars	Owner's equity per farm, 1925 dollars	Percentage increase in debt	Percentage increase in equity
1925.....	95.7	$12,263	$5,347	$6,916	64.1	−19.5
1920.....	135.6	11,855	3,259	8,596	13.1	7.0
1910.....	64.7	10,915	2,881	8,034	27.5	45.3
1900.....	50.8	7,789	2,260	5,529	41.1	59.6
1890.....	50.8	5,066	1,602	3,464	...	...

* Bureau of Labor Statistics, index of wholesale prices reduced to 1925 basis. For 1910, 1920, and 1925, the index used is the average of monthly indexes for the six months preceding the date of taking the census.

To explain the abrupt change after 1920, other circumstances should be considered. A large proportion of the mortgages in force in 1925 were contracted between 1918 and 1921, when land prices were high. Most of those that were drawn for five years have been renewed. The value of the average mortgaged owner-operated farm in Minnesota has declined from $16,080 in 1920 to $11,736 in 1925. If there had been no increase in the average size of the mortgages, if it had remained at $4,419 instead of increasing to $5,117, the ratio of debt to value would still have increased from 27.5 per cent to 37.5 per cent, owing to the decline in land values, and the owners' real equities would have fallen off 37.2 per cent during the five years.

How this increase has worked may be illustrated by a particular farm, bought, let us say, in 1919, for $21,000.

	1919		1925
Bought for	$21,000	Could be sold for.....	$16,000
Paid cash	14,000	Payments on principal.....	none
Mortgage	7,000	Mortgage	7,000
Equity	14,000	Equity	9,000
Equity in 1925 dollars.....	10,728	Equity in 1925 dollars.....	9,000
Ratio debt to value.....	33.3	Ratio debt to value.....	43.7

If the operator had paid off $1,000 on the principal in 1920 and just held his own since, his ratio of debt to value would be 37.5 instead of 43.7 in 1925. If this operator, while paying nothing on his principal, had increased his mortgage to $8,000 when renewing it, his ratio of debt to value would be 50.0 instead of 43.7 in 1925. The opposite of this was taking place between 1890 and 1920, when land values were rising. A farmer who paid $5,000 cash on a $10,000 farm in Minnesota in 1910, without paying a cent on the principal, had his equity increased from $5,000 to approximately $19,000 by January, 1920, land values increasing from $45 to $109 per acre, or 142 per cent, during that period. Even when this $5,000 and $19,000 are expressed in the 1925 price level, the real equity on the farm had increased from $7,728

to $14,112. From 1890 to some time after 1910, the effect of this in raising owners' equities in mortgaged farms was so great that it more than offset the increasing number and size of mortgages.

Since 1920-21 transfers of land have been fewer and old mortgages have been largely renewed at their original high figures, with the result that the mortgaged owners' real equity in the farm is less today than it was in 1910. This is a serious situation. It means that a large part of the material gains from agricultural progress since 1910 have been wiped out so far as the present generation of farmers is concerned.

Movements in Land Prices

Nor is it proper to lay the blame for much of this on the agricultural population. Figure 2 shows that movements in the general level of prices have been the major factor in the movement of land values. A permanent change in general price levels should be fully and immediately reflected in land prices. Most of the small movements in price level, however, are obviously temporary, and farmers, like other business men, can be expected to adjust their business affairs on this assumption. By no means do all business men so adjust their affairs; but we still insist that they should, and we ask the same of farmers. The longer contin-

RELATION OF LAND PRICES TO OTHER PRICE LEVELS, BASIS 1910 CONDITIONS

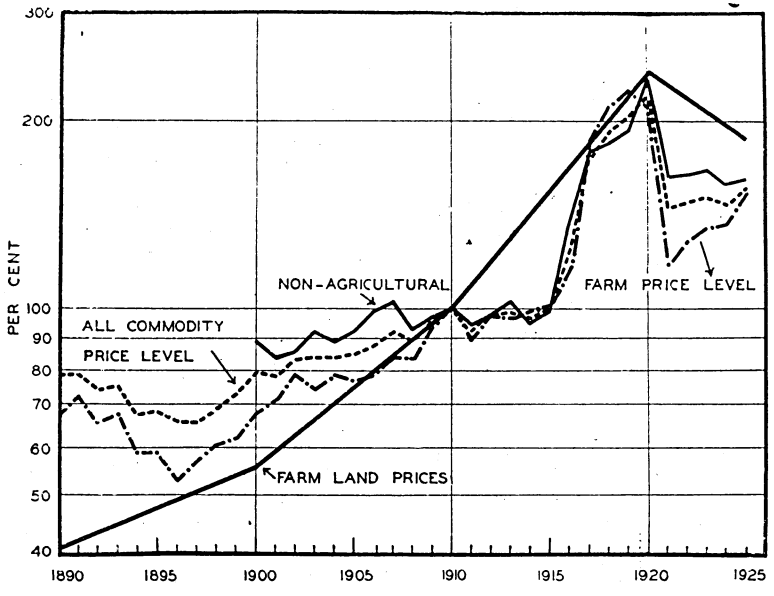

Fig. 2. Changes in prices of Minnesota farm land from 1890 to 1925, compared with changes in all commodity and other price levels. In general, the movements of land prices have followed movements in the general level of prices.

uous movements of the price level, however, such as from 1897 to 1916, nearly everyone takes at face value, and until more is known about them and their causes, there is nothing else to do. The rapid upward price level movement from 1917 to 1920, followed by the sudden downward movement of 1921 and 1922, belongs in the class of short-time swings which should have been recognized as such and discounted. But business in general failed to do this, and it would be unfair to hold the agricultural class especially at fault for their failure in this respect. A sharp break in prices was expected immediately at the close of the World War. When it did not come, but was followed by a second period of inflated prices, both business men and farmers lost their balance. Some eminent economists concluded that the new high price level had come to stay. That they were partly right is evidenced by the fact that price levels have not yet returned to their pre-war level,

RELATION OF LAND PRICES TO COMMODITY PRICE LEVELS, BASIS 1890 CONDITIONS

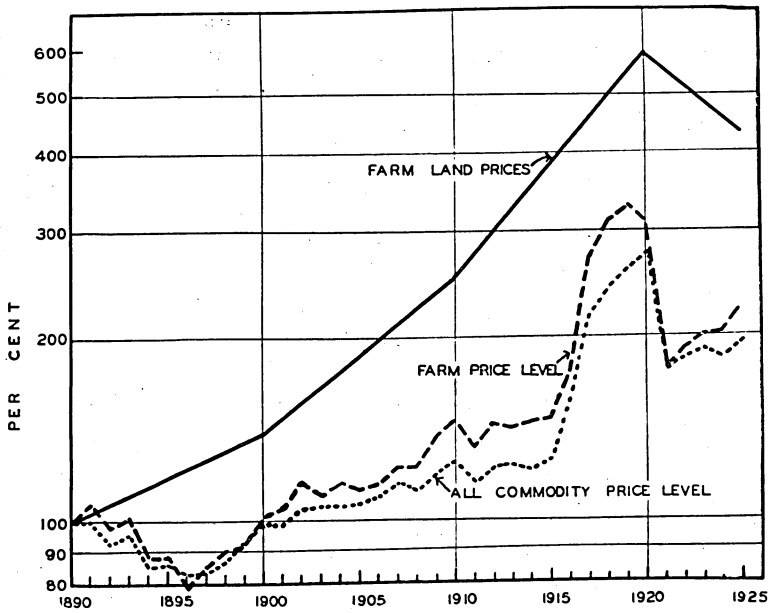

Fig. 3. This chart is like Figure 2 except that it starts with 1890 as the base point of 100 (data in Table XI). This means that the curves compare conditions at any point with those in 1890. It appears that prices of farm products have been above the all-commodity or general price level ever since 1900 except for a brief period in 1921, and that they are now considerably higher relatively. Farm land prices rose until 1920. They rose from 1890 to 1900 when prices were just holding their own. There was a large increase in improved land during this decade (Table XII).

but for several years have been fairly stable at between 50 and 60 points above the pre-war level, and that there are better reasons for

believing they will not decline far than for thinking they will sink to the level of 1913.

Farm land prices in Minnesota rose considerably faster than the general price level, from 1910 to 1920, and have declined at about the same rate since (Fig. 2 and Table XI). The net result of the whole movement is a farm land price now 75 per cent above 1910, and a general price level only 57 per cent above 1910. Data of the Minnesota Tax Commission show that from 1914-15 to 1920 land values rose only 96 per cent as compared with 130 per cent for the general price level.

This does not mean, however, that farm land prices are now too high. Included in the value of farm land is the value of buildings. It appears that even when adjustment is made for the changing price level, buildings increased in value per acre during the period (Table XII). Improvement in roads and transportation should also help to make land values rise faster than the general price level.

TABLE XI

COMPARISON OF MOVEMENT OF MINNESOTA FARM VALUES AND COMMODITY PRICE LEVELS, 1899 TO 1925

	Value of farm land per acre	Index numbers 1910 = 100				Index numbers 1890 = 100		
		Value of farm land per acre	Farm commodities	All commodities	Non-agricultural products*	Value of farm land per acre	Farm commodities	All commodities
1890.....	$ 18.22	39.9	79.6	67.6	...	100	100	100
1900.....	25.21	55.3	79.6	68.2	89	140	101	100
1910.....	45.62	100.0	100.0	100.0	100	250	148	126
1920.....	109.23	239.4	223.3	211.1	236	599	312	280
1925.....	79.63	174.6	157.3	153.1	161	437	226	197

* Index on 1910-14 basis back to 1910 obtained from supplement to Agricultural Situation, p. 30. Index from 1900 to 1910 obtained by letter from Bureau of Agricultural Economics, Washington, D. C.

The percentage of land improved has remained nearly constant since 1900. This is because new land has been taken into farms at about the same rate that land already in farms has been cleared.

TABLE XII

CHANGE IN IMPROVEMENTS PER ACRE ON MINNESOTA FARMS, 1890 TO 1925

	Percentage of farm land improved	Census value of buildings per acre	Value of buildings per acre in dollars of	
			1910*	1925*
1890.....	59.6	†	....	....
1900.....	70.3	$ 4.20	$ 6.43	$10.63
1910.....	71.0	8.79	8.70	14.53
1920.....	71.1	18.23	11.70	19.35
1925.....	‡	19.86	12.01	19.86

* Adjusted on the basis of an index compiled from value of building material and wages of labor, with allowance for the fact that the census valuations always lag behind current prices.

† Not available.

‡ Not obtained in 1925 census—probably a slight increase.

More important than either of the foregoing is the fact that prices of farm products rose much faster than other prices from 1900 to 1915. The index for prices of farm products rose 32 points during the period; for non-agricultural products, 10 points; and for the general price level, 21 points. This is shown clearly in Figure 2.

Subtracting the adjusted value of buildings given in Table XII from the value of land and buildings at each decade, both expressed in 1925 dollars, gives the values in the last column of Table XIII. The increase since 1890 is no more than is warranted by the land improvements and the rise of prices of farm products above that of the general price level.

TABLE XIII

VALUE PER ACRE OF LAND AND BUILDINGS, BUILDINGS, AND LAND ALONE, MINNESOTA, 1890 TO 1925

	Value of land and buildings, 1925 dollars*	Value of buildings, 1925 dollars†	Value of land, 1925 dollars
1890	$35.86	‡	‡
1900	50.21	$10.63	$39.58
1910	70.52	14.53	55.99
1920	80.55	19.35	61.25
1925	83.21	19.86	63.35

* It is assumed that the estimate for land and buildings combined is not affected by the lag in valuation of buildings.

† From Table XII.

‡ Data not available.

Changes in Size and Number of Farms

Somewhat related to changes in mortgage debt are changes in size and number of farms. The land in farms in Minnesota increased until 1920 (Table XIV). The figures for the 1900 census are usually considered much too high because of the method of taking that census. This has accentuated the increase for that decade, and reduced the increase for the following decade. The rate of increase between 1910 and 1920 was only 9.2 per cent. The slight decrease since 1920 may actually represent a certain amount of abandonment of land that took place in certain parts of the state; but more likely it represents omissions in census taking. The large increase in number of farms between 1920 and 1925 is also believed by many to be due in considerable part to the method of taking the 1925 census. While the total acres for farms have been decreasing, the number of improved acres increased until 1910. The 1925 census obtained no data as to improved land, but an estimate on the basis of crop acreage would be about 115 acres.

Small farms are to some extent a substitute for mortgage debt. The smaller the farms purchased, the more likely they are to be paid for in full, or nearly so. On the other hand, if farms are too

small, those who purchase them on mortgages will pay off the mortgages slowly. The more valuable the mortgaged farms in Minnesota are, the greater is the tendency for a higher percentage of their value to be mortgaged (Fig. 4). This relationship does not always hold true because of other conditions which may conceal the general tendency.

TABLE XIV

NUMBER OF FARMS, ACRES OF LAND IN FARMS, ACRES PER FARM, AND IMPROVED ACRES PER FARM IN MINNESOTA BY CENSUS YEARS, 1890 TO 1925

Census year	Number of farms	Acres of land in farms	Acres per farm	Improved acres per farm*
1925.....	188,231	30,059,137	159.7	125.0†
1920‡.....	178,478	30,221,758	169.3	120.4
1910.....	156,137	27,675,823	177.3	125.8
1900.....	154,659	26,248,498	169.7	119.2
1890.....	116,851	18,663,645	159.7	95.2

* "Improved land includes all land regularly tilled or mowed, land in pasture which has been cleared or tilled, land lying fallow, land in gardens, orchards, vineyards, and nurseries, and land occupied by farm buildings." Census 1920, Vol. V, p. 23.

† Not reported in 1925 census. Figures are estimated by finding ratio between improved land and crop land harvested as reported for 1919 in the census of 1920 and assuming the same relationship between crop land harvested and improved land in 1924. If data for land in farmsteads were available in the 1925 census a more direct method of computing would be available.

‡ Data 1890 to 1925. See 14th census, Vol. V, p. 47.

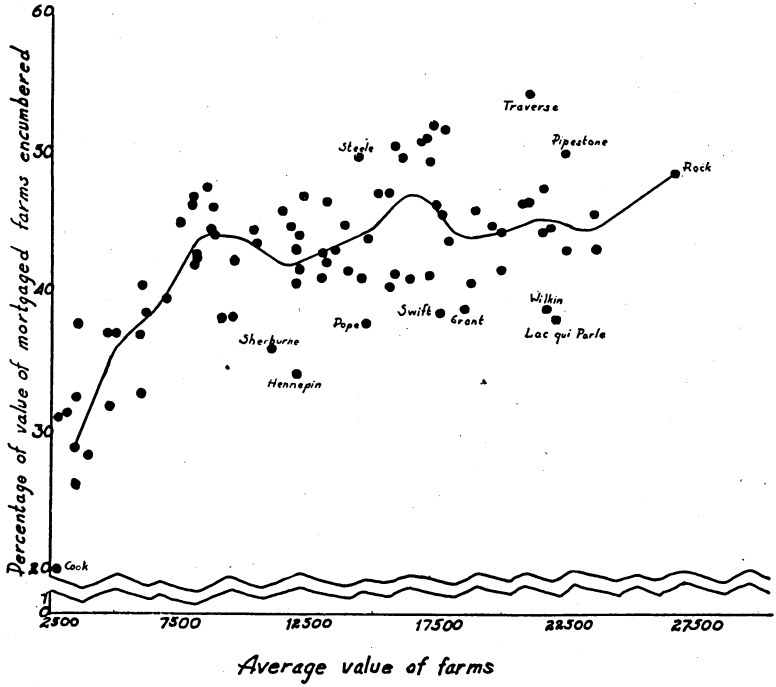

Fig. 4. Increase in Mortgage Indebtedness with Value of Farms, by Counties, 1925

Change in Tenancy

It is not always realized that tenant farming and mortgage indebtedness are substitutes one for the other. The sooner young men are able to buy farms on mortgages, the less tenancy there will be. The percentage of Minnesota farms rented has increased from 12.9 to 27.1 since 1890 (See Appendix, Table III), about 3 per cent each ten years. In the five years from 1920 to 1925 the increase was 2.4 per cent as compared with 3.7 per cent during the preceding ten years. This represents an appreciable speeding-up of the rate of increase since 1920. In absolute numbers, there were 6,945 more tenants in 1925 than in 1920, and only 26 more full owners. This increase in number of rented farms is due to the fact that many tenants have remained tenants who in ordinary times would have bought farms under mortgages. They have done this (1) because they have saved little during the last five years, (2) because they have been waiting for the price of land to reach bottom before buying, (3) because the old incentive to purchase in order to realize upon the rise in value of land has been weakened considerably, and in some cases (4) because they have been marking time while waiting to decide whether or not they should continue farming. Some part of the increase in tenancy is no doubt due to foreclosures. Most of those who have had farms come back into their hands have rented them to farmers' sons wanting to become tenants, to farmers who have lost their farms, or to neighboring farmers who have operated them as additional rented land. That the last has happened frequently is demonstrated by the increase of 3,612 (18 per cent) in the number of partly owned farms during this period.

The "Agricultural Ladder"

The relation between tenancy and mortgage indebtedness is so immediate that it is worth while to analyze tenancy in some detail. It has been customary to assume that tenancy is merely a step, or rung, in the ladder by which the farm population ascends to full ownership; that most tenants were formerly laborers and eventually became mortgaged owners and then owners free of mortgage. To this succession of tenure stages, the term "agricultural ladder" has commonly been applied. In 1920, out of each 1,000 male persons 10 years of age or over working on Minnesota farms, 166 were laborers on the home farms, 200 were laborers on other than home farms, 156 were tenants, 6 were managers, 246 were mortgage owners, 193 were owners free of mortgage, and the status of 33 was unknown. This gives a clear picture of the relative importance of the steps in the agricultural ladder in Minnesota. Roughly, 37 per cent were in the labor stage, 16 per cent were in the tenant or manager stage, and 47 per cent were in the owner stage, of whom more than half had mortgage debt.

Not all farmers, however, pass over the same route to ownership. The "agricultural ladder" is too simple a description of what happens. Some pass directly from farm laborers on the home farms to tenants, and some work as laborers on other farms before becoming tenants. In the former case, probably the parents help the son or son-in-law financially. Many get enough help from parents that they omit the tenant stage altogether. Some inherit the home farm in full or in part, in the latter case having to pay off the other heirs. Some earn money while working in cities, mines, or forests that is used as cash payments on land purchases. The last is especially true in the cut-over section of the state.

TABLE XV

How Farm Owners Acquired Status in Four Southern Minnesota Counties*

	Per cent
Home farm to owner (never were tenants)	40.0
Home farm to hired laborer to owner	21.6
Home farm to hired laborer to tenant to owner	14.5
Home farm to tenant to owner	13.4
Other industry to owner	5.7
Other industry to hired laborer to owner	1.5
Other industry to hired laborer to tenant to owner	2.2
Other industry to tenant to owner	1.1

* Courtesy of Dr. W. J. Spillmann. These unpublished data were obtained in a survey of 738 owner farmers in four southern Minnesota counties by the United States Department of Agriculture in 1917.

Many owners do not climb to ownership over all the rungs of the agricultural ladder. Only 14.5 per cent of those raised on the farm and 2.2 per cent of those coming from other industries among 738 owner farmers in 1917, were first farm laborers working out, then tenants, and finally owners (Table XV). About one-tenth of the owners came from other industries. This figure is too high for the period since 1921. The recent depression in agriculture has reduced the rate at which people go from other industries into agriculture. Of the 90 per cent who came out of agriculture direct, 21.6 per cent omit the tenant stage only, 13.4 per cent the hired laborer stage only, and 40.0 per cent both. A total of 36.1 per cent included the hired laborer stage somewhere, and 27.9 per cent the tenant stage. To these figures may be added 3.7 per cent for hired laborers and 3.3 per cent for tenants that came out of other industries.

Inquiries as to farm experience were included in the 1920 census for the first time. Of every 100 Minnesota farm owners in 1920, 38 reported previously operating a farm as a tenant and 45 reported working on a farm for wages. For each 100 in the tenant stage in 1920, 57 had previously worked for wages. These percentages are little higher

than those in Table XV, which include only four southern counties in 1917.

Figure 5 is conclusive evidence that there is such a thing as an agricultural ladder. As farmers grow older, a smaller and smaller percentage are tenants. In 1920 less than 14 per cent of those from 45 to 54 years of age were tenants, as compared with 65 per cent of those under 25 years. Figure 5 also shows that between 1890 and 1920 the

PERCENTAGE OF TENANCY IN EACH AGE GROUP FOR FARM CENSUS YEARS FROM 1890 TO 1920 FOR MINNESOTA

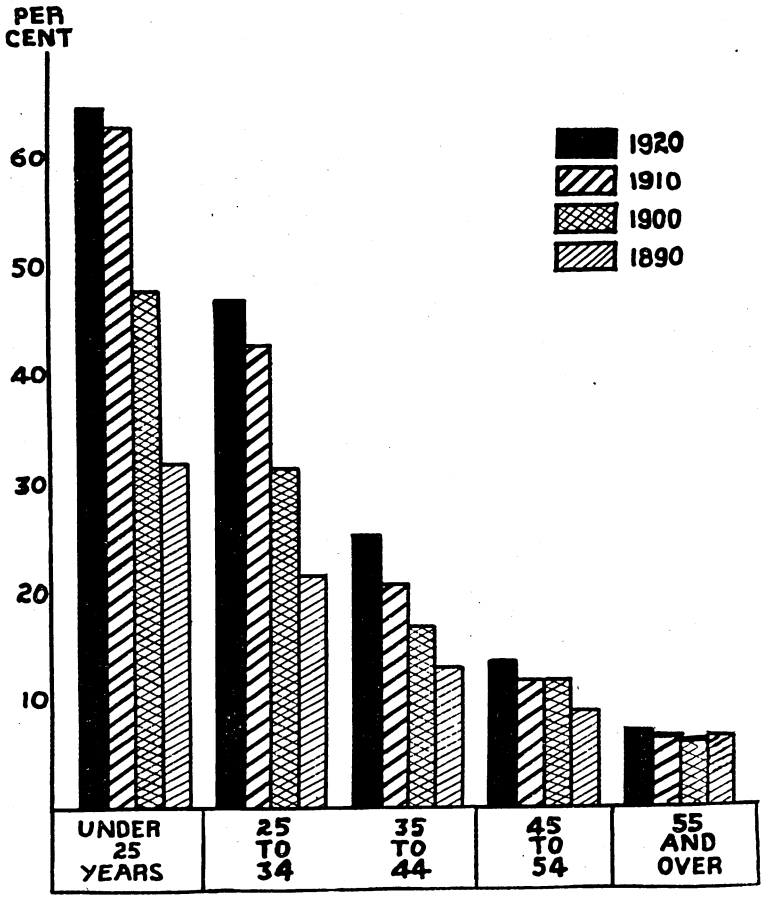

Fig. 5. As farmers grow older a smaller and smaller percentage of them are tenants. Between 1890 and 1920 the percentage of tenants in each age group increased very perceptibly. This chart indicates that the rate of ascent on the agricultural ladder is declining. Data from Tenancy in United States, Census Monograph IV, p. 92.

percentage of tenants in each group increased very perceptibly. In the most numerous group, 25 to 34 years old, for example, only 21 per

cent of the farm operators were tenants in 1890, as compared with 47 per cent in 1920.

There is further evidence in Figure 5 that the rate of ascent of the agricultural ladder is slowing down. Between 1890 and 1910 the percentage of tenancy increased most rapidly in the lowest age group; in the next decade, in the 25-to-34 age group; and between 1910 and 1920, in the 35-to-44 age group. Between 1910 and 1920 the change is very pronounced. This could indicate, however, that fewer young men are now passing through the tenancy stage, and those that became tenants while young are still tenants in unusual numbers. Up to 1900, at least, it seems that farmers' sons were becoming tenants at earlier ages. The smallness of the increase in the 25-and-under group between 1910 and 1920, is probably accounted for by the fact that the war experience kept more than the usual number of farmers' sons from becoming tenants. There is little evidence of an increasing "permanent tenant"

INCREASE IN LABORERS AND TENANTS, 1880 TO 1910

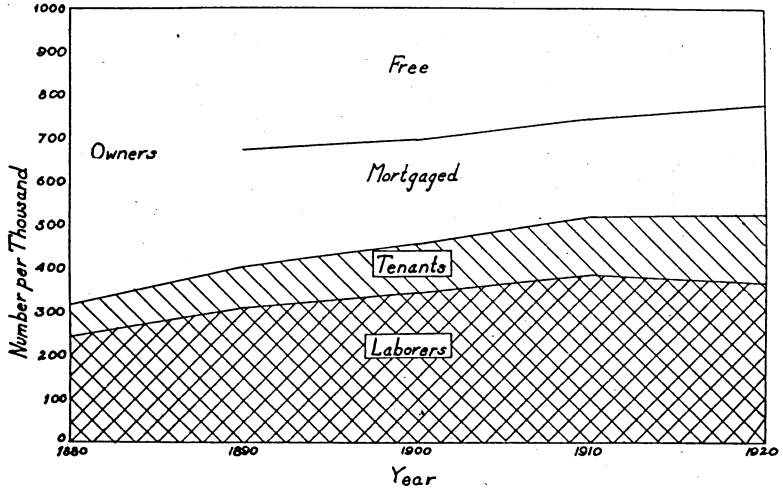

Fig. 6. Laborers as well as tenants increased faster than owners in Minnesota from 1880 to 1910. Between 1910 and 1920 both owners and tenants increased in relative numbers. This may reflect the decrease in size of farm families and the growing tendency of farm boys to leave the farms early in life.

class. In 1890, but 66 out of every 1,000 farm operators in Minnesota were still tenants at 55 years of age and over; and in 1920, the number had increased to only 70.

The whole story of the agricultural ladder can not be told, however, in terms of tenants and owners. Tenancy takes the place of the farm laborer stage as well as of the owner-operator stage. Laborers working on Minnesota farms were increasing more rapidly than tenants in

actual numbers from 1880 to 1910. There were 141 more farm laborers in each 1,000 in 1910 than in 1880, as compared with an increase of only 60 in the number of tenants in the same period. Both tenants and laborers were increasing at the expense of owner operators and as has already been pointed out, free owners at the expense of mortgaged owners. Between 1910 and 1920, however, both owners and tenants increased in relative numbers. The decrease in laborers was in those working at home. This probably reflects the decrease in size of farm families and the growing tendency of farm boys to leave the farms early (Fig. 6).

The census of 1925 reports 35 per cent of all cash tenants and 30 per cent of all share or other tenants in Minnesota as renting from relatives. A study of cash rents made by the United States Department of Agriculture in 1920 showed that cash rents on farms rented from relatives averaged nearly a third less than on other farms in Iowa and southern Minnesota.[7] In the rest of Minnesota the difference seemed to be less, but still was significant. Share leases also favor tenants that are related to the landlords.

Tenancy in Relation to the Credit Problem

It is not the purpose of this study to analyze the tenancy problem, but merely to show its relation to the credit problem. Young men ordinarily become tenants because they do not have money enough or financial backing enough to buy farms. If they could get more financial backing, or credit on less security, fewer would be tenants and more would be owners. Also, many would become tenants sooner than at present. But these would not necessarily be desirable changes. It is a mistake to have young men become tenant operators before they are old enough and experienced enough to become successful managers. It is an even more serious mistake for them to become owner operators before they are ready. As long as they have only limited capital, they can earn a larger return upon it by using it as a tenant's working capital than as an owner's fixed investment in land. Working as a farm laborer, even as a hired laborer away from home, is an excellent experience for a young man. This is especially true if his employer is more successful or more progressive than his father, which is often the case. Tenancy, especially on a share basis, is a valuable apprenticeship in farm management, especially if under a progressive landlord or one who has been a successful manager. More liberal credit arrangements, therefore, might easily do more harm than good. They would lead to a waste of the human and soil resources of the nation.

[7] Relation of Land Income to Land Values, by C. R. Chambers, U.S. Dept. Agr. Bull. 1224, pp. 54, 100-102. 1924.

On the other hand, keeping a young man a farm laborer after it is time for him to marry and establish a home for himself is extremely disheartening and a waste of the best resources of the nation. It is almost as disheartening and wasteful to keep a farm family in the tenant stage after it is ready to establish a farm home of its own.

Mortgage Encumbrance in Minnesota as Compared with That of Other States

A smaller proportion of the owner-operated farms in Minnesota in 1925 were mortgaged than in any neighboring states except Illinois (Table III). It had relatively fewer mortgaged farms than the aver-

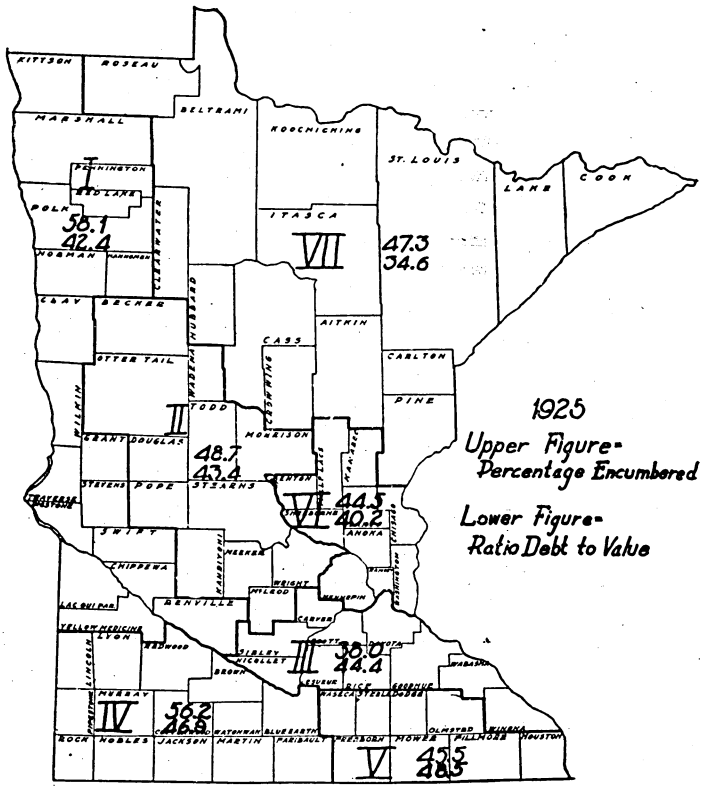

Fig. 7. Percentage of owner farms encumbered and ratio of debt to value of full owner mortgaged farms, by sections, 1925. The state is divided into 7 sections according to type of farming and other geographic conditions. These sections are designated as follows:

I Northwest small grain section
II Central small grain and dairy section
III Southeastern small grain and dairy section
IV Corn, small grain, hogs, and beef cattle section
V Corn, small grain, and dairy section
VI Potato, truck, and dairy section
VII Cut-over section.

age of all the west north central states (Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas); but more than the average of all the east north central states (Wisconsin, Illinois, Michigan, Indiana, and Ohio). The figures indicate that the percentage of mortgaged farms in Minnesota decreased between 1920 and 1925 as in all neighboring states except South Dakota and Iowa. The percentage of mortgage indebtedness increased less between 1900 and 1920 than in all neighboring states except Iowa and Illinois. Between 1890 and 1900 the states west of Minnesota showed large decreases in the percentage of farms mortgaged; those to the east, small increases. Minnesota showed a small decrease. About the same comparison can be made as to ratio of debt to value of mortgaged farms. Iowa and Wisconsin had appreciably higher ratios than the rest of the group in 1925—Iowa, because of a spectacular increase, and Wisconsin, mostly because it always has been high. Iowa showed a much larger increase in the average size of mortgages between 1920 and 1925; and South Dakota and Illinois a somewhat larger increase.

It thus appears that Minnesota occupies an intermediate position between the east central and the west central states in most phases of mortgage encumbrance. Wisconsin has always had a great deal of mortgage encumbrance and very little tenancy. Many of its people came from countries of Europe where the ownership of small farms under mortgages has become an established arrangement. Also, its type of farming favors such a system of tenure. The Dakotas and Montana show the influence of being comparatively new regions with a relative scarcity of capital.

Distribution of Mortgage Indebtedness Within the State

This comparison with neighboring states helps us to understand conditions in different sections of Minnesota. The percentage of farmers in Minnesota reported encumbered and the ratio of debt to value, by sections, is given in Tables XVI and XVII for the census years from 1890 to 1925.

TABLE XVI

PERCENTAGE OF OWNED FARMS REPORTED ENCUMBERED, BY SECTIONS, IN MINNESOTA, 1890 TO 1920*

Section	1925	1920	1910	1900	1890
State	48.6	52.4	46.0	43.3	45.4
I	58.1	59.4	60.1	51.9	51.9
II	48.7	51.7	47.2	47.7	49.9
III	38.0	42.8	32.0	35.2	37.5
IV	56.2	59.3	56.2	55.0	53.5
V	45.5	48.9	40.7	38.9	46.1
VI	44.5	47.3	41.6	36.9	36.4
VII	47.3	54.3	37.1	16.4	17.6

* See Figure 7 for outline of sections.

Sections I and IV have a high percentage of farms mortgaged, like Iowa and eastern North and South Dakota. Section IV is much like Iowa in its mortgage encumbrance. Sections III, V, and VI resemble western Wisconsin rather than Wisconsin as a whole. Section VII, the new cut-over section, shows the same sort of increase in mortgage indebtedness that occurred in Montana and to a lesser extent in North Dakota. Previous to 1900 few farms in this section were sufficiently developed to warrant loans being made on them as security. After from 20 to 25 acres have been cleared and subdued, the farmer often wishes to borrow money in order to clear enough land to provide an income large enough that he need not work away from home. As his cleared acres increase, he needs better buildings, more dairy cows and machinery. For these reasons, the percentage of mortgaged farms grew rapidly in Section VII and by 1925 nearly equaled the average for the state.

TABLE XVII

RATIO OF DEBT TO VALUE OF MORTGAGED FARMS, BY SECTIONS, IN MINNESOTA, 1890 TO 1925

Section	Percentage of farm value mortgaged			
	1925	1920	1910	1890
State	43.6	27.5	26.4	31.6
I	42.4	25.4	25.6	32.5
II	43.4	28.9	25.8	31.5
III	44.4	29.2	27.8	33.0
IV	46.9	26.1	26.8	30.7
V	48.5	30.1	29.8	34.3
VI	40.2	28.4	24.7	25.2
VII	34.6	25.5	21.4	20.0

From 1920 to 1925 the percentage of farms mortgaged decreased in all sections of the state. The lowest decline was 1.3 per cent in Section I, where conditions are probably more stable than in any other area. The "land boom" of the post-war period is thought to have disturbed this area very little. The greatest reduction in the percentage of farms mortgaged was in Section VII, where it amounted to 7 per cent. The reduction in the other areas varies from 2 to 5 per cent. The explanation of this reduction has already been given. Some of the differences shown are probably due to the functioning of the credit mechanism.

All sections show an increase in the ratio of indebtedness to value on owner mortgaged farms. The smallest increase was 9.1 per cent in Section VII and the largest, 20.8 per cent in Section IV. Data for the various sections of the state as to changes between 1920 and 1925 in per cent mortgaged, value of farm land and buildings, and ratio of mortgage debt to value are given in Table XVIII.

TABLE XVIII

CHANGES IN PERCENTAGE MORTGAGED, VALUE OF LAND AND BUILDINGS, AND RATIO OF DEBT TO VALUE, MINNESOTA, BY SECTIONS, 1920 TO 1925

Section	Per cent mortgaged	Value of land and buildings	Ratio of debt to value
I	−1.3	−31.0	+17.0
II	−3.0	−25.3	+14.5
III	−4.8	−25.2	+14.2
IV	−3.1	−36.5	+20.8
V	−3.4	−25.1	+18.4
VI	−2.8	−15.3	+11.8
VII	−7.0	+10.8	+ 9 1

These data show that in Section VII the value of land and buildings increased 10.8 per cent, in other sections it decreased from 15 to 36 per cent. This explains why the ratio of debt to value in Section VII increased less than in other sections. The same relationship appears for the other areas, those with the largest decrease in land values having the largest increase in ratio of debt to value, and thus in order down to those with the smallest decrease in land values. The decrease was greatest after 1920 where land values increased most between 1915 and 1920 and where the mortgages were largest absolutely as well as relatively. As has been explained, the absolute increase in mortgage indebtedness shown in 1925 was largely due to the refunding into mortgage indebtedness of non-mortgage indebtedness contracted prior to 1920.

Geographic Comparison of Mortgage Encumbrance and Tenancy Combined

It will be remembered that when the value of rented farms was combined with the mortgage indebtedness to discover the value of farm real estate not owned by those who operate the farms, the percentage was 48.8 for Minnesota in 1925. This means that the operators of Minnesota farms own only 51.2 per cent of them. Similar data for 1890, 1910, 1920, and 1925 for Minnesota and neighboring states are given in Table XIX. This percentage has declined rapidly in all since 1910, less in Minnesota than in the Dakotas, but more than in Wisconsin and Illinois. In Minnesota, the Dakotas, and Wisconsin, the percentage was lower in 1890 than in 1910; in Illinois and Iowa, the decrease has been continuous since 1890. In Iowa, only a little more than a third of the land is really owned by those who operate it, and there was the startling decrease of 9.0 per cent between 1920 and 1925. In Minnesota the comparable decrease was 5.7 per cent; in South Dakota, 10.3 per cent.

CHANGES IN PERCENTAGE OF TENANCY FOR THE UNITED STATES, VARIOUS GROUPS OF STATES, AND FOR MINNESOTA AND NEIGHBORING STATES, 1880 TO 1925

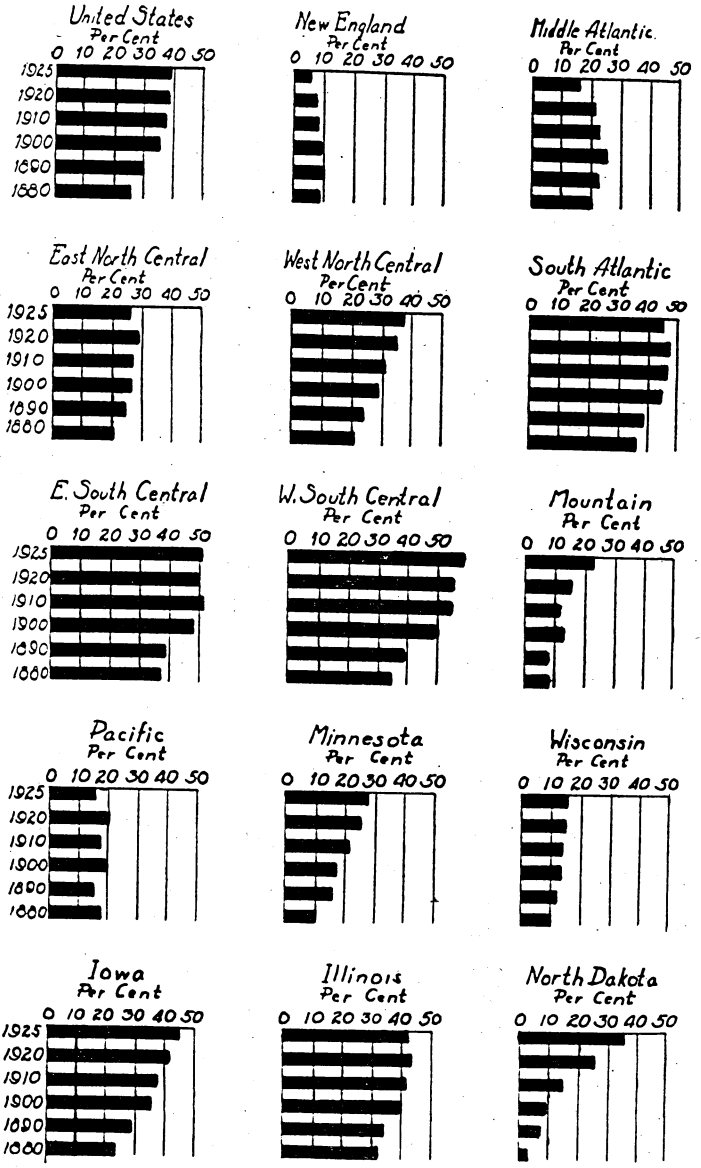

Fig. 8. In the period between 1910 and 1925, tenancy actually decreased in the New England and the Middle Atlantic states, and between 1920 and 1925 it decreased in the South Atlantic states. In the Atlantic Coast states as far south as Virginia, the recent tendency has been for tenancy to decline. Tenancy increased only 1.6 per cent in Wisconsin from 1910 to 1925 and only 0.6 per cent in Illinois, while it increased 6.1 per cent in Minnesota. During the same 15 years it increased 20.1 per cent in North Dakota. Between 1920 and 1925, tenancy in the United States increased only 0.5 per cent.

TABLE XIX

PERCENTAGE OF REAL ESTATE VALUES OWNED BY OPERATORS IN MINNESOTA AND NEIGHBORING STATES, 1890 TO 1925

Areas	1925	1920	1910	1890
Minnesota	51.2	56.9	65.5	51.9
North Dakota	50.5	56.4	72.1	69.1
South Dakota	43.1	53.4	63.2	59.6
Montana	57.2	64.7	72.5	86.7
Iowa	35.4	44.4	51.5	54.8
Wisconsin	57.5	61.5	66.0	65.5
Illinois	39.4	40.1	45.8.	52.9

Progress of Individual Farmers

Altho the farm wealth of Minnesota and neighboring states is passing more and more into the hands of landlords and mortgage holders, the progress of individual owner-operators may not be so discouraging. Discussion of farmers' conditions in recent years has been too much in terms of those who bought land between 1918 and 1921. In the survey of 172 owner-operated farms made in the fall of 1924, 49 had bought farms between 1916 and 1921, and 36 before 1900. After deducting gains in gifts received since the time of purchase, all groups show a net gain except that of 1919-20, when land prices were at their highest (Table XX). Farmers who bought before the land boom all made substantial net gains and even those who bought after 1920 made some gain, on the average. Many of the older farmers, who purchased land in the earlier years, had prospered and sold out prior to the time of the survey. It is probable that those not included in the earlier periods because they had sold their farms previous to the survey would have shown a higher net gain than the average for those who continued to farm. On the other hand, numerous instances were related by farmers and bankers of individuals who had bought land at peak prices in 1919 and 1920, who had, prior to the survey, lost their farms, with whatever equity they had in them. The 1921-24 group in Table XX contains only 2 farms purchased in 1924, 2 in 1923, and 4 in 1922, leaving 11 purchased in 1921. Many of the farms bought in 1921 were purchased for considerably more than they would sell for in 1924.

The average net gains per farm for these 7 groups, after deducting gains from inheritance since purchase, were $14,751; $13,523; $11,255; $5,824; $6,297, —$89 and +$249. The large losses sustained by some in the last two groups were possible because these individuals had a considerable accumulation when they bought their farms. In many instances persons buying farms during the land boom period sold other farms at high prices just prior to their new purchase.

TABLE XX

NET GAINS OR LOSSES PER FARM, GROUPED ACCORDING TO TIME OF PURCHASE*

	1880-90	1891-1900	1901-10	1911-15	1916-18	1919-20	1921-24
No. of farms	11	26	35	32	21	28	19
Average acres per farm	211.3	151.3	188.3	138.8	138.6	110.0	114.7
Net assets per farm at purchase	$ 889	$ 1,118	$ 3,169	$ 4,813	$ 6,729	$7,690	$7,112
Net assets per farm in 1924	15,912	15,730	15,005	10,761	13,405	7,790	7,570
Gain in net worth from time of purchase to 1924	15,023	14,612	11,836	5,948	6,676	100	458
Gain from gifts	272	1,089	581	124	379	189	209
Smallest net gain or largest loss for any farm	5,375	3,025	3,050	1,865	1,100	−10,800	−8,960
Largest net gain for any farm	44,629	45,200	36,175	20,800	25,650	6,910	5,210

* Source of data, 1924 survey.

The survey farms are regrouped according to time of purchase in Table XXI. The second column of the table gives the number of owner-operated farms in each group. The rest of the table gives the relation of total liabilities to total assets at the time of the survey, in the following order: (1) the number of farmers having no liabilities, (2) the number whose total liabilities were respectively from 1 to 20 per cent, 21 to 40 per cent, 41 to 60 per cent, 61 to 80 per cent, and 81 to 100 per cent of their total assets. The data indicate two important conclusions: (1) that excessive debt is confined to farmers in the last three groups. Only one farmer among 104 who had bought farms before 1916 had debts amounting to more than 61 per cent of his assets, while 12 out of 68 who purchased farms after 1916 were indebted for more than 61 per cent and 6 for more than 81 per cent of their total assets. (2) Of the farm owners included in this survey, 3.5 per cent are near bankruptcy, and 4 per cent more probably do not have reserves sufficient to remain solvent if crops should fail for a year or two or if the price level for the products they have to sell should decline still lower for a considerable time.

The data given were taken four years after deflation set in, and in the meantime many farmers in Minnesota had gone bankrupt and many more had turned over their farms to their creditors without legal proceedings. An inquiry conducted by the United States Department of Agriculture in 1923 found that between 1920 and March, 1923, 4 per cent of the owner-farmers in fifteen corn and wheat producing states had lost their farms by foreclosure and 4.5 per cent more had let their farms go to creditors without legal proceedings.[8] This inquiry also found that the number of tenants who lost their savings was materially larger than the number of owners.

[8] The Year in Agriculture, 1923, by Henry C. Wallace. U.S. Dept. Agr. Yearbook, pp. 9-10.

TABLE XXI

TOTAL LIABILITIES COMPARED WITH TOTAL ASSETS, FARMS GROUPED BY PERIODS OF PURCHASE

Purchase periods	Total No. of farms	No. of farmers having indebtedness indicated					
		No debt	1-20 per cent	21-40 per cent	41-60 per cent	61-80 per cent	81-100 per cent
1881-90	11	7	4	0	0	0	0
1891-1900	26	17	8	1	0	0	0
1901-10	35	7	18	7	3	0	0
1911-15	32	9	9	10	3	1	0
1916-18	21	3	4	8	4	1	1
1919-20	28	4	5	7	6	2	4*
1921-24	19	1	2	9	3	3	1
Total	172	48	50	42	19	7	6
Per cent	100.0	28.0	29.0	24.5	11.0	4.0	3.5

* In one case the percentage of liabilities was 122.

The progress of the farmers with mortgages in 1924 and of the 172 owner-operators is analyzed in further detail in Table XXII. On the average, the mortgage indebtedness of the mortgaged group appears to have increased slightly, but the increase in farm values from $8,500 to $11,800 since purchase had more than offset this, so the percentage of debt had decreased from 55.7 to 40.3 per cent. For the whole group, both unencumbered and encumbered owners, the ratio of debt to value had decreased more than half. In due time, however, these owner-operators will retire or die and their farms will pass into the hands of new owners under heavier mortgages. This will probably keep the percentage of owners' equities from ever rising greatly. Even while this particular group has been reducing its ratio of debt to value from 49.7 to 23.3, new farmers have been buying farms under heavy mortgages, so the community average has probably been increasing.

TABLE XXII

VALUE AND DEBT AT PURCHASE AND IN 1924 ON OWNER-OPERATED FARMS IN 1924 SURVEY

	Mortgaged owner-operated farms in 1924	All owner-operated farms
No. of farms	112	172
Value of real estate per farm		
At purchase	$ 8,500	$ 7,650
In 1924	$11,800	$12,600
Debt per farm at purchase	$ 4,700	$ 3,800
Mortgage debt per farm, fall of 1924	$ 4,800	$ 2,935
Percentage of debt at purchase	55.7	49.7
Percentage of mortgaged debt in 1924	40.3	23.3
Decrease in percentage of mortgage indebtedness by 1924	15.4	26.4

At the rate of payment of mortgage principal indicated in Table XXII, farmers will be a long time in getting out of debt. The increase in land values has increased their equities. It is sometimes urged that

farmers should not worry about getting out of debt. Corporations do not worry greatly over their bonded debt so long as it is in reasonable proportion, and why should farmers worry over mortgage debt? One significant answer to this is that if each generation of farmers does not pay off a good part of its mortgage debt, and the farms continue to make their contribution to the city in the form of payments to retiring farmers and heirs to farm estates, it will be only a short time until all the land will be owned by landlords and mortgage holders. It is probable, however, that less farm wealth will be bequeathed to the city in the future, as smaller farm families mean fewer city heirs.

Sources of Long-term Loans

The principal sources of long-term loans used by Minnesota farmers are local banks, former owners of the land, the Federal Land Bank of St. Paul, Minnesota Rural Credit Bureau, retired farmers and other individuals, investment companies, life insurance companies, and joint stock land banks.[9] With the exception of the federal land banks, joint stock land banks, and the Minnesota Rural Credit Bureau, there are no satisfactory sources of data as to the volume of loans furnished by the various agencies. Table XXIII presents data gathered for small groups in six Minnesota counties in the fall of 1924. While the sample is small, the data probably show fairly well the relative importance of the principal sources. As might be expected, the largest volume of loans from any single source was from former owners of the land, with local banks ranking second. The former owners were supplying a little more than one fourth of the mortgage loans. No other source of long-term farm credit has been or probably could afford to be as liberal in assisting tenants with little credit or capital other than stock and machinery to become independent operators of their own farms. In Hubbard County, in the cut-over region, there are few retired farmers because of the relative newness of farming. Hence in this area less than one-tenth of the loans were from this source.

Retiring farmers often give credit for a large part of the selling price when disposing of their farms. It is not uncommon for the purchaser to make an initial payment of even less than 10 per cent of the purchase price. Sometimes a contract for deed is given and at other times the seller takes a mortgage on the farm. Another method, used when the seller wants considerable cash, is for the buyer to borrow as much as possible on a first mortgage and the seller to take a second mortgage for the unpaid balance. When land prices have gradually advanced for several years, owners are much more willing to sell with small payments down; when the land market is stagnant,

[9] By source is meant the person or institution that advances the money direct'y to the farmer and not the ultimate resting place of the loan.

it is often the only way a sale can be made. The plan usually works out well when prices of land are advancing, but when the farms have been purchased just preceding a great deflation, it has too often resulted in the loss of the invested capital.

TABLE XXIII

PERCENTAGE OF MORTGAGE LOANS ON OWNER FARMS FROM VARIOUS SOURCES, MINNESOTA, 1924

Source	Steele County	Cottonwood County	Polk County	Norman County	Chisago County	Hubbard County	All areas
	per cent	per cent	per cent	per cent	per cent	per cent	per cent
Local banks	31	8	14	23	28	26	21
Former owner	24	35	28	27	26	10	27
Federal banks	1	1	37	21	14	5	12
Joint stock land banks	0	5	6	1	1	4	3
Minnesota Rural Credit Bureau	0	15	1	6	18	43	10
Private and retired farmers	21	2	7	7	10	3	9
Investment company	3	20	1	6	2	7	8
Life insurance company	0	10	6	6	0	0	4
Relatives	20	4	0	3	1	2	6

Local banks were the source of about one-fifth of the owner-farmers' mortgage loans. This figure is probably too high, as in many cases the loans reported as obtained from banks were made by the banks as agents of insurance companies and investment companies. The farmers obtaining the loans did not know, in many cases, whether the bank made the loan directly or merely acted as agent. It is apparent that with the exception of the former owners of the land, farmers still go oftener to their local banks for mortgage loans than to any other one source. In some states, the state department of banking collects data on farm mortgage loans carried by state banks, but in Minnesota such data are not segregated for state banks. The total loans secured by farm real estate held by national banks in Minnesota as of June 30, 1925, amounted to $22,077,000.[10] We do not know how many loans were originally made to farmers and later sold; neither do we know how many were bought from a mortgagee or how many were on farms in other states or on rented farms. If the above sum was all on Minnesota farms, on the basis of a total estimated mortgage indebtedness of $495,569,400 as of January 1, 1925, the national banks held 4.5 per cent of the total. Reports of the comptroller do not show the amount of farm mortgage loans held by national banks in Minnesota in 1920. It has been estimated that 26 per cent of all loans were held by Minnesota banks in 1920.[11] The amount of loans carried by banks as invest-

[10] Report of comptroller of currency, 1925, p. 632.

[11] Farm Mortgage Loans by Banks, Insurance Companies, and Other Agencies, by V. N. Valgren and Elmer E. Engelbert. U.S. Dept. Agr. Bull. 1047, p. 3.

ments must not be confused with the amount originally made by them. Many of the loans they make are sold to insurance companies, to loan companies, to investment banks, and to an individual clientele.

The Federal Land Bank of St. Paul ranked third in importance as a source of farm loans in Minnesota and the Minnesota Rural Credit Bureau fourth. Practically all loans made by these institutions are on owner-operated farms. The joint stock land banks make some loans on rented farms. There is nothing to prevent an owned farm from becoming a rented farm after the loan is once closed. In the survey, the Federal Land Bank was found originally to have made 12 per cent and the Minnesota Rural Credit Bureau 10 per cent of the total volume of mortgage loans. The amount of net loans outstanding as of January 1, 1925, and January 1, 1920, for the Federal Land Bank of St. Paul, the joint stock land banks, and the Minnesota Rural Credit Bureau, together with the percentage that the outstanding amounts were of the estimated mortgage debt on all owner-operated farms is shown in Table XXIV. These percentages and the percentage of loans supplied by each of the three sources as found in the 1924 survey check rather closely. In the survey, the credit bureau was found to have supplied 10 per cent of the loans and the calculated figure is 9.3 per cent. After only two years of operation the Minnesota Rural Credit Bureau had loans outstanding equal to between 9 and 10 per cent of the total mortgage debt on owner-operated farms.

TABLE XXIV

NET LOAN OF FEDERAL FARM LOAN SYSTEM AND MINNESOTA RURAL CREDIT BUREAU IN MINNESOTA, 1920 AND 1925

	January 1, 1925		January 1, 1920	
	Volume	Mortgages on owner-operated farms	Volume	Mortgages on owner-operated farms
		per cent		per cent
Federal Land Bank of St. Paul...	$34,382,200	9.7	$14,607,900	4.6
Joint stock land banks.....	33,748,339	9.5	5,953,600	1.9
Minnesota Rural Credit Bureau..	32,296,148	9.3	*	*

* Not in operation. Organized in 1923.

The Federal Land Bank of St. Paul, on January 1, 1925, was supplying about 9.7 per cent of the mortgage loans on owner-operated farms and the four joint stock land banks about the same percentage (Table XXIV). Together they had outstanding about 19 per cent of the loans on owner-operated farms, as compared with 15 per cent as found by the survey. Part of this discrepancy is due to the fact that the federal land bank began loaning in 1917 and the joint stock land banks in 1919. In the meantime, some of the farms with federal farm

loans had become rented farms, for which class mortgage data were not obtained in the survey. Moreover, joint stock land bank loans are sometimes originally made on rented farms. Together, the three institutions were supplying between 28 and 30 per cent of the mortgage loans on owner-operated farms on January 1, 1925. In 1920, they were supplying only 6.5 per cent.

TABLE XXV

NUMBER AND AMOUNT OF LOANS MADE, FROM DATE OF ORGANIZATION TO END OF 1927, BY YEARS

Year	Federal Land Bank of St. Paul			Joint stock land banks*			Minnesota Rural Credit Bureau†		
	No. of loans	Amount	Interest rate	No. of loans	Amount	Interest rate	No. of loans	Amount	Interest rate
			per cent			per cent			per cent
1927.....	835	$4,940,800	5	116	$ 993,200	5½	971	$ 3,787,200	5¼
1926.....	1,053	6,544,500	5	164	1,141,162	5¼-6	1,511	5,914,900	5¼
1922.....	572	2,850,200	5-5½	618	5,440,010	5¼-6	1,317	6,144,200	5¼
1924.....	737	4,284,500	5½	274	2,377,800	5½-6	5,338	27,590,400	5¼
1923.....	1,324	6,696,500	5½	1,636	13,574,100	6	794	3,867,100	5¼
1922.....	1,849	8.338,400	5½-6	1,451	13,685,750	6			
1921.....	722	3,937,400	6	22	124,800	6			
1920.....	615	3,616,400	5½	31	850,000	6			
1919.....	1,430	5,921,700	5½	661	5,953,600	6			
1918.....	1,478	4,792,900	5½						
1917.....	869	1,164,500	5-5½						

* No report for loans in 1927 was received from the Des Moines Joint Stock Land Bank.
† Not organized until 1923.

The Federal Land Bank of St. Paul began operations in 1917. The first joint stock land bank operating in Minnesota was chartered in 1918 but transacted little business until the following year. Four more were chartered in 1919 and one in 1922. Two of these five joint stock land banks later combined with others so that at the beginning of 1927 there were but four operating in Minnesota.[12] The Minnesota Rural Credit Bureau was organized and began accepting applications for loans in the latter half of 1923. The annual number of loans and the volume of loans made from the time of organization to the end of 1927 by the foregoing organizations, together with the prevailing rate of interest, are shown in Table XXV. Both the federal land bank and the joint stock land banks loaned nearly 6 million dollars in 1919. The slump in loans made in 1920 and 1921 was due to the litigation then in process to determine the constitutionality of the federal farm loan act. The volume of loans made in 1922 and 1923 by the federal

[12] The four joint stock land banks operating in Minnesota were:
Southern Minnesota Joint Stock Land Bank, Redwood Falls, Minn.
Bankers Joint Stock Land Bank, Milwaukee, Wis.
Des Moines Joint Stock Land Bank, Des Moines, Iowa.
Minneapolis Joint Stock Land Bank, Minneapolis, Minn.

farm loan banks in Minnesota is the largest reached by them. This may be partly accounted for by the accumulation of applications from the two previous years. Their amortization plan of loaning and the relatively low interest rates charged were also factors. Other important factors were the shifting of loans from mortgage companies, owing to the great contraction of their market for loans among individuals, and also the considerable number of farmers who just at that time were funding their non-mortgage debts into mortgages. The large volume of loans made by the Minnesota Rural Credit Bureau in 1924 largely accounts for the reduced volume by the federal land bank and the joint stock land banks during that year. The volume of loans made by the Federal Land Bank of St. Paul in 1925 was lower than in any year since 1917. Conservatism and the desire to safeguard the institution from unsound loans may account for this. The investigation of joint stock land banks by the Treasury and the fact that one of the four banks operating in Minnesota was placed in receivership on July 1, 1927, may largely account for the low volume of loans made by them in 1927.

The Minnesota Rural Credit Bureau did a big business in 1924—made 5,338 loans and loaned $27,590,400. Great pressure for money was brought to bear through local banks in order to liquidate, so far as possible, their "frozen" loans to farmers. There was a reaction against this activity in the 1925 session of the state legislature. The law was revised and the bureau reorganized. From 1925 to 1927 less than 1,300 loans per year were made, as compared with over 5,000 in 1924.

The growth in the outstanding volume of loans in these new institutions has been continuous and pronounced. The Federal Land Bank of St. Paul, from the time of its organization to the end of 1927, made 11,484 loans and loaned $53,087,600. At the end of the tenth year of operation the number of loans outstanding was 2,844 less and the money outstanding was $9,469,800 less than the total loans to that date. This difference is due partly to the refunding of old loans into larger ones, partly to loans paid off, and partly to amortization payments. At the end of 1927, the joint stock land banks had made 4,973 loans representing $44,140,422. From 1923 to the end of 1927 the Minnesota Rural Credit Bureau had made 9,961 loans representing $47,303,800. The institutions are too new to make a safe prediction from the data at hand, but if not disturbed or curbed by legislative action, it seems probable that their business will continue to expand for several years.

Both the Federal Land Bank of St. Paul and the Minnesota Rural Credit Bureau have been less appreciated by the farmers in the southern

tiers of counties in Minnesota than elsewhere in the state. Loans are available in the southern counties from other sources at nearly the same rates, especially from retired farmers and insurance companies. Besides, many farmers do not yet appreciate the amortization feature in farm loans. The Rural Credit Bureau has probably loaned more liberally in the cut-over section than has the Federal Land Bank of St. Paul. In Hubbard County, for example, 43 per cent of the total volume of loans among the farmers visited during the 1924 survey were obtained from the former as compared with about 9 per cent from the latter, including loans made by the joint stock land banks.

In both number and volume, and both absolutely and relatively to the total number and value of farms, the loans of the Minnesota Rural Credit Bureau have been larger in the northern and western counties than in the southern counties. (See Appendix, Table I.) The northern part of the state has been most discriminated against by the insurance companies. This is partly because the companies have regarded the loans in the southern part of the state as being more conservative, and partly because the loans per farmer are necessarily much smaller in the less developed sections of the state. The expense of examining the title and handling the management is as much for a $1,000 loan as for a $10,000 loan. In addition, the mineral and oil reservations commonly found in deeds to land in the cut-over section have been found objectionable to the insurance companies and also to some commercial loaning companies. In some cases, former deeds have reserved the right to repurchase the land for a stipulated sum in case oil or mineral is found on the land at any subsequent time. The federal land bank and the Minnesota Rural Credit Bureau are permitted under certain conditions to make loans to farmers having such titles to their farms. Loans may be made by the federal land banks on lands where oil, gas, and mineral rights have been reserved or leased, provided such lands are primarily agricultural. The land bank, however, inquires into the extent to which exercise of such rights may interfere with the use of the land for agricultural purposes and requires the borrower to include in his mortgage a statement of all his rights under such reservation and leases and an agreement to apply his royalties to the payment of the mortgage. Life insurance companies are still holding about twice as large a volume of farm loans in Minnesota as the federal and joint stock land banks combined. Life insurance companies are slowly taking up the idea of making amortized loans on farms. Their loans in Minnesota increased from $34,000,000 in 1914 to $116,000,000 in 1923. The financing of long-term loans by relatives and retired farmers is also relatively more important in the southern part of the state.

On January 1, 1925, the Minnesota Rural Credit Bureau, the Federal Land Bank of St. Paul, and joint stock land banks loaning on farms in Minnesota are estimated to have each held about 7 per cent of the estimated total mortgage indebtedness. National banks held 4.5 per cent, state banks 20 per cent, and insurance companies 27 per cent (Table XXVI). This accounts for the sources from which 72.1 per cent of the total mortgage indebtedness is obtained. It will be remembered that the total mortgage indebtedness on January 1, 1925, was estimated to be $495,569,400. Deducting the amount of mortgages held by the sources named, there remains $139,798,400 in mortgages to be held by former owners, retired farmers, and miscellaneous sources.

TABLE XXVI

ESTIMATED PERCENTAGE OF LONG-TERM MORTGAGE LOANS OBTAINED FROM SEVERAL SOURCES IN MINNESOTA

Date	Source	Amount	Percentage of total
Jan. 1, 1925	Minnesota Rural Credit Bureau	$ 32,296,000	6.5
Jan. 1, 1925	Federal Land Bank of St. Paul	34,382,000	6.9
June 30, 1925	National banks*	22,077,000	4.5
Jan. 1, 1925	Joint stock land banks	33,748,000	6.8
June 30, 1925	Insurance companies†	136,000,000	27.4
Jan. 1, 1925	State banks‡	99,268,000	20 0
	Total	$357,771,000	72.1

* Report of comptroller of the currency, 1925, p. 632.

† The amount held by national banks is known. It equals 4.7 per cent of the estimated total mortgage indebtedness. V. N. Valgren, in U.S. Dept. Agr. Bull. 1047, estimated in 1920 that all classes of banks in Minnesota held 26 per cent of the total amount of farm indebtedness. It is here assumed that the ratio is about the same in 1925. Deducting 4.7 per cent leaves 21.3 per cent to be held by state banks of all kinds. This method is used only for the lack of data for a better approach.

‡ Estimated actual for Dec. 31, 1923, was $116,496,565 as shown by report of association of life insurance presidents.

Data for the amount of loans held by the Minnesota Rural Credit Bureau, the Federal Land Bank of St. Paul, and the joint stock land banks are official and complete. In estimating the total debt it has been assumed that the value of part-owner farms bears the same relation to the indebtedness as that of full-owner farms. On the basis of a survey made in 1920, the United States Bureau of Agricultural Economics estimated that tenant farms in Minnesota were mortgaged for 11.7 per cent of their value. It has here been assumed that the ratio of debt to value on tenant farms changed after 1920 to the same degree as it did on owner farms. The insurance company figure is estimated from the amount of loans outstanding on January 1, 1924, it being assumed that the rate of increase in 1924 was the same as during the previous year.

The foregoing discussion of the principal sources of farm mortgage loans leads to the conclusion that comparatively few farmers are fully acquainted with the advantages of the long-term amortization type of loan. The improvements and the farm itself are investments of such a nature that the returns from them are spread over many years. When interest rates are generally low, farmers are able, especially in the older communities, to obtain local money from private sources at a rate of interest as low as that offered by the Minnesota Rural Credit Bureau or the Federal Land Bank of St. Paul, or even lower. However, most of these local loans are for five years or less and may need to be renewed at a time when interest rates are high, and perhaps when, owing to money stringency, it may be difficult to borrow from new sources. At such a time institutions are usually able to make only a small percentage of the loans demanded. It seems reasonable to suppose that if the majority of farmers had their loans on an amortization basis, some of the hardships caused by a money stringency might be eliminated. Even if rates are not higher when the short term loans mature, there is in most cases a renewal expense to pay at the end of each five years until the loan is liquidated. With the amortization loan, there are no renewal expenses. The farmer, instead of the lender, occupies the preferred position. If he wishes to pay off all his loan or any part of it in or after five years, or pay more rapidly than the contract calls for, he may but can not be compelled to do so. If interest rates have risen, he continues to pay at the old rate. If they have declined, he may pay off his old loan and take out a new one.

The farmer may get application blanks on which to apply for a state loan from the county auditor of the county in which he lives. In the case of the Federal Land Bank of St. Paul, the farmers have organized national farm loan associations in all parts of the state to handle co-operatively the mortgage needs of its members. National farm loan associations are fairly well distributed over the entire state, so that some association is within the reach of every farmer (Fig. 9).

Second Mortgage Loans

The second mortgage obligations found among the farmers included in the Minnesota survey were provided for as follows: Commercial banks, 61.5 per cent; retired farmers and relatives, 15.4 per cent; investment companies, 7.7 per cent. No special institutions have been developed in Minnesota or elsewhere to handle second mortgages. The specialized first-mortgage loaning agencies are performing a splendid service for the man who has capital or additional credit to finance 50 per cent of the value of his land and 80 per cent of the value of his buildings. Evidently many will remain tenants until late in life if

they must wait until they are able to finance themselves to this extent. As land values become stabilized and more accurate methods of farm appraisal are worked out and used by loaning agencies, society may safely provide means of financing tenants for a very much higher percentage of farm values. The risk on second mortgages is higher, and the rate charged should be sufficient to cover the additional risk. The same general organizations might provide the second mortgage facilities, but the means and method of financing should be entirely separate.

Commission mortgages were formerly common in Minnesota. Before present marketing facilities for farm loans were provided, local brokers waxed fat on commission mortgages taken from farmers as pay for securing a market for their mortgage loans. If the rates charged the farmers were 7 to 10 per cent, a first mortgage was often

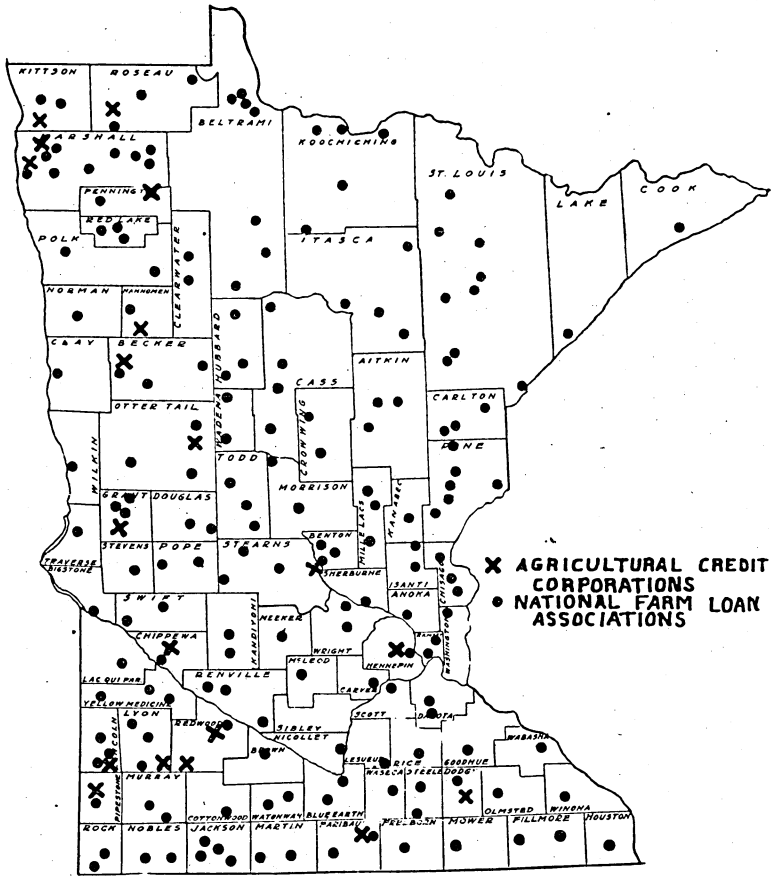

Fig. 9. Distribution of Agricultural Credit Corporations and National Farm Loan Associations in Minnesota on April 1, 1926. (Data supplied by Federal Land Bank of St. Paul.)

drawn and sold at 6 per cent interest, and a commission mortgage or second mortgage payable yearly in amounts equal to from 1 to 4 per cent of the face of the loan was taken as pay for the services of the broker. The margins taken on commission mortgages tend to be less now than before the advent of special credit institutions, and usually the local brokers' services are paid as a cash fee, which is deducted at the time of final settlement with the farmer. This seems to be a more business-like way of paying for the service than the commission mortgage.

Mortgage Interest Rates

The 1920 census contained an inquiry as to the interest rates paid on farm mortgages by owner operators. Figure 10 gives the results as county averages. The range is from 5.0 per cent in Carver County to 7.1 per cent in Koochiching County. The rates are, in general,

MORTGAGE INTEREST RATES IN 1920, BY COUNTIES

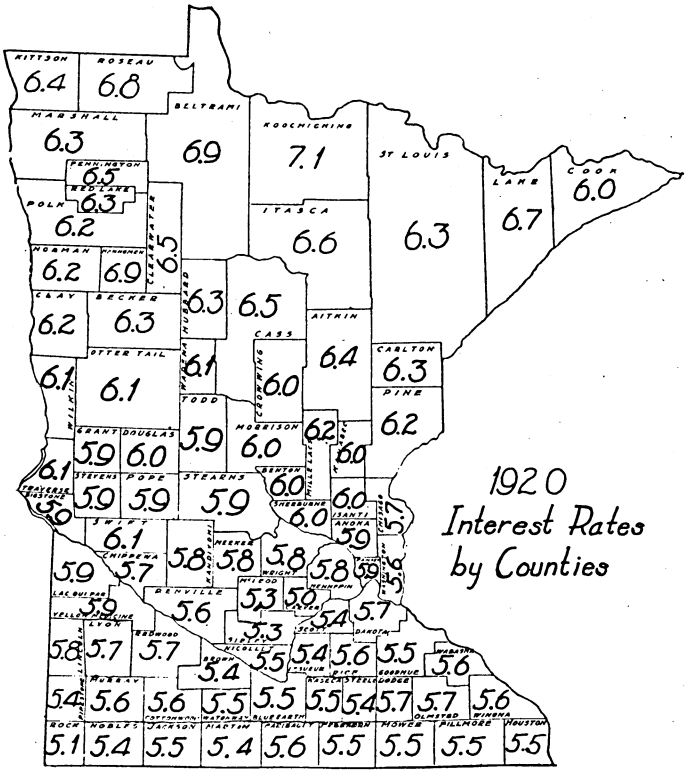

Fig. 10. The interest rates ranged from 5 per cent in Carver County to 7.1 per cent in Koochiching County. In general, rates are lowest in the counties west and south of the Twin Cities and highest in the counties north and northwest.

lowest in the counties west and south of the Twin Cities, and highest in the counties north and northwest. Figure 11 gives these rates and also the rates in 1890 according to the nine districts into which the state is divided for crop reporting purposes by the United States Department of Agriculture. The decrease for the state in this 30-year period is 2.6 per cent, ranging from 2.0 per cent in District 9 to 3.2 in District 2. (The 1890 rate for District 3 could have represented only the immediate vicinity of Duluth.) Farm mortgage interest rates tend

MORTGAGE INTEREST RATES IN 1890 AND 1920, BY CROP REPORTING DISTRICTS

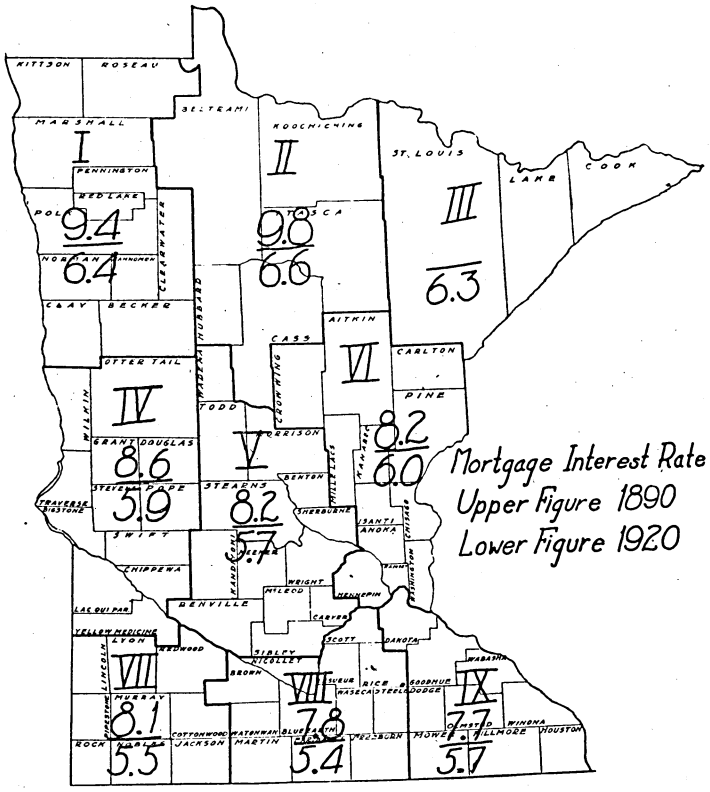

Fig. 11. The average decrease in interest rates for the state in the 30-year period was 2.6 per cent, ranging from 2.0 per cent in District I to 3.2 per cent in District II.

to be low near the larger cities. In 1890, capital for farm development was very scarce in Minnesota. No census of interest rates was taken between 1890 and 1920. The rate of interest charged by banks on farm mortgages in 1920 was one per cent higher than the average rates for farm mortgage loans from all sources. Loans from relatives, former

owners, and retired farmers tend to be at lower rates than loans from local banks. Loans from public agencies have also been at lower rates than from local banks, in many parts of the state. The banker's rates declined about one per cent, on the average, from 1921 to 1926, the decline ranging from 2.6 per cent in District 7 to 0.5 per cent in District 6 (Table XXVII). If the average rate for mortgage loans from all sources declined in the same proportion, a census taken in 1926 would have shown a state average of 5.2 per cent. Probably other rates declined less than banker's rates.

TABLE XXVII

INTEREST RATES ON FARM MORTGAGES IN MINNESOTA; ALL FARM MORTGAGES IN 1920; LOCAL BANK MORTGAGES, 1921 AND 1926

Districts	1920 census all farm mortgages	Local bank mortgage loans	
		1921	1926
	per cent	per cent	per cent
1	6.4	7.0	6.3
2	6.6	8.1	7.3
3	6.3	8.0	7.0
4	5.9	6.5	5.4
5	5.7	6.3	5.6
6	6.0	6.7	6.2
7	5.5	7.6	5.0
8	5.4	6.2	5.4
9	5.7	6.1	5.5
State	5.8	6.8	5.9

Rates in the cut-over section are surprisingly low. This is because land companies selling cut-over land furnish most of the credit. Studies of farms in northern Minnesota made by the Division of Agricultural Economics in 1919 and 1920 contain reports of 296 purchases on contract at an average interest rate of 6.1 per cent, and 161 purchases on mortgages at 6.5 per cent interest. But the rates on farm mortgage loans from local banks averaged 7.4 per cent. The land companies find it easier to ask $5 or $10 extra per acre for land than to ask 7 or 8 per cent interest on mortgages—$25 to $30 an acre for used land seems not half so unreasonable to a buyer from Illinois as 7 or 8 per cent interest on a loan, and yet it amounts to about the same.

There are good reasons for assuming that the activities of the new sources of loans have lowered the interest rate on farm mortgages. (1) Federal land banks have standardized farm mortgages. The federal appraisers, presumably, are not influenced by local considerations. Mortgages are deposited as security for bonds, which are instrumentalities of the government and for which the twelve banks are jointly liable.[13] (2) The market for mortgage bonds has been broadened.

[13] The government does not guarantee these bonds, but being instrumentalities of the government they are tax free.

Bonds are now issued in denominations as low as $40. The bonds are suitable investments for savings banks, and are eligible as security for deposits of government funds. Further, the income from farm loan bonds is exempt from federal, state, and local taxation.

There is also some statistical evidence that federal land banks have lowered interest rates paid by farmers on mortgages. The margin between the rates charged by savings banks on first mortgage farm loans in Minnesota and the average rates earned by ten high-grade railroad bonds and the average rate on prime commercial paper, is less now than before the federal land bank began operating (Fig. 12). The activity of the federal land bank in Minnesota is probably one of the factors affecting this change. Another factor is the decreasing risk in connection with farm loans as farm communities are developed. Since 1920, the market outlets for farm loans through farm mortgage companies have been demoralized. The Federal Land Bank of St. Paul

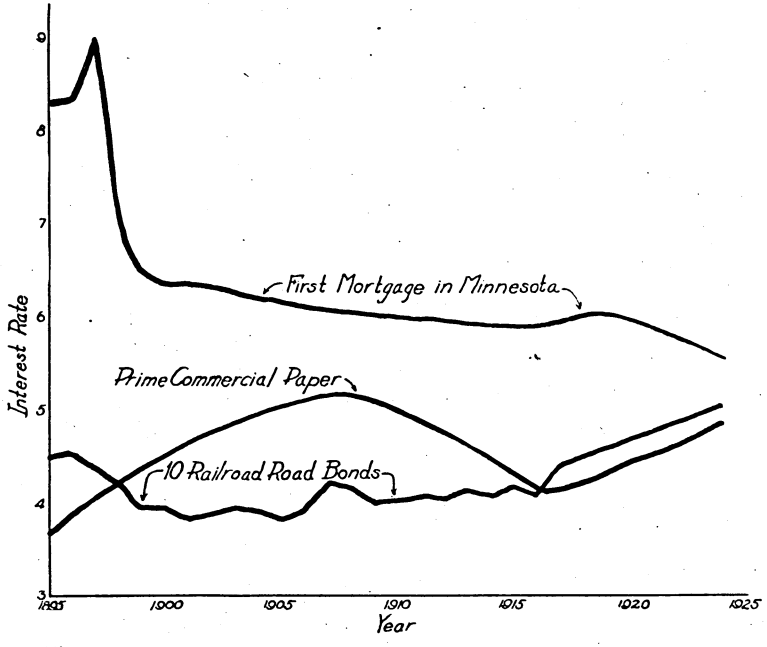

Fig. 12. Curves showing rates charged by savings banks on first mortgage farm loans, the average rates earned by ten high grade railroad bonds, and the average rate on prime commercial paper from 1895 to 1924.

and the Minnesota Rural Credit Bureau probably have lowered the rate of interest that Minnesota farmers would otherwise have paid for loans between 1920 and 1927.

The rate charged by savings banks does not tell what the farmer had to pay for money, but rather the rate at which the broker of farm

mortgages could sell them. If money in the community was plentiful, the broker usually worked on a narrow margin. If not, he often charged all the traffic would bear. Another source of gain to the farmer from federal land banks is the savings on margins and commissions formerly taken by the local brokers of farm mortgages, and the elimination of the expense of frequent renewals. No commissions are charged on loans made under the farm loan act and the interest can not exceed 6 per cent. At present the interest rate charged by the Federal Land Bank of St. Paul is 5 per cent. Farmers having loans made when the interest rate was 5.5 and 6 per cent may liquidate them by taking a new loan at the lower rate of interest when the old loans have run five years.

The federal farm loan banks on January 1, 1927, had $1,077,858,723 outstanding to the farmers of the United States on real estate security. Even if the saving to the farmers in interest and commissions is assumed to be but 0.5 per cent, which is a most conservative estimate, this would amount to an annual saving of over 5 million dollars. If the level of rates on loans from other sources has also been lowered, this will represent a vastly larger saving.

The loans in Minnesota of the Federal Land Bank of St. Paul and of the Minnesota Rural Credit Bureau on January 1, 1927, amounted to $81,194,800. Assuming the same average saving of 0.5, these institutions are saving the farmers of Minnesota annually $406,000 just on the money loaned by them. A saving of 0.5 per cent on the total estimated mortgage indebtedness on Minnesota farms on January 1, 1925, would amount to an annual saving to the farmers of 2⅓ million dollars.

SHORT-TERM CREDIT

Short-term credit is here defined as credit for a year or less, because a majority of the short-term loans made to farmers in Minnesota are for a longer period than six months, the usual upper limit named for a strictly short-term loan. Such a limit is far better suited to commercial than to agricultural loans. The principal sources of such credit are country banks, stores, and private individuals, the country bank being by far the most important source.

In this section, short-term credit will be considered under two heads, that secured by personal notes or chattel mortgages, called personal or collateral loans, and that provided by merchants, called mercantile credit. Usually, when collateral or personal cash loans are made the intention is to repay the principal at the end of a period not exceeding one year. These loans are often continued by renewals for

an indefinite time. After a period of prosperity in which farmers have been encouraged by business men and bankers to extend their credit, an abnormal proportion of these short-term loans become a part of the fixed indebtedness and eventually are incorporated with the mortgage indebtedness. Credit at mercantile establishments for more than 30 days is here considered as mercantile credit.

As already explained, little information is available as to short-term credit. What is here presented is mostly obtained from the survey made in the six Minnesota areas in 1924.

TABLE XXVIII

COLLATERAL AND PERSONAL LOANS FROM SURVEY OF 6 MINNESOTA AREAS, 1924

County	Area No.	Tenants	Owner-operators	Both
A. Percentage Borrowing				
Steele	1	40	47	40
Cottonwood	2	85	46	72
Pope	3	40	37	38
Norman	4	47	50	49
Chisago	5	..	44	..
Hubbard	6	..	45	..
Average		61	44	49
B. Average Amount per Debtor				
Steele	1	$1,488	$1,444	$1,453
Cottonwood	2	1,735	1,747	1,737
Pope	3	1,024	1,199	1,152
Norman	4	1,340	1,388	1,360
Chisago	5	....	1,032	....
Hubbard	6	....	389	....
Average		1,581	1,143	1,294
C. Average for the Class				
Steele	1	$ 577	$ 700	$ 670
Cottonwood	2	1,488	780	1,258
Pope	3	480	352	384
Norman	4	657	1,028	848
Chisago	5	....	450	....
Hubbard	6	....	175	....
Average		958	505	631

Sixty-one per cent of tenants and 44 per cent of owner-operators were using short-term credit in 1924 (Table XXVIII). A greater frequency of collateral loans among tenants would be expected, especially after a period of depression in farm prices, as tenants have no opportunity to convert credit obligations contracted in a period of prosperity into long-term farm mortgage loans. The average amount owed by all farmers of the indebted class was $1,294 per person, and the average for both debtors and those not so indebted was $631. The average amount per debtor for farm owners was $1,143 and for tenants $1,581. Apparently, the tenants in Area 2 were the most heavily involved. The indebtedness per farmer in the various areas is not strictly comparable, as in the wheat region a considerable portion of the grain crop had

been marketed and the proceeds applied to reduce indebtedness, while in the corn and hog areas, many hogs had not been marketed at the time the survey was taken. A few tenants in Area 1 had borrowed in order to purchase feeders, which would increase their indebtedness. The farmers in Areas 1 and 4 depend less on dairying than those in the other areas, and dairying was relatively profitable from 1921 to 1923. The average personal cash loan for all tenants was $958, for all owner-operators $505, and for tenants and owner-operators, $631.

TABLE XXIX

PERCENTAGE OF PERSONAL OR COLLATERAL LOANS FOR VARIOUS PURPOSES IN SIX AREAS OF MINNESOTA

Purposes	Steele County, Area 1	Cottonwood County, Area 2	Pope County, Area 3	Norman County, Area 4	Chisago County, Area 5	Hubbard County, Area 6	Average for all areas
			Owners				
Land	65	0	19	42	45	32	40.0
Buildings and improvements	25.5	91	20	0	29	24	27.0
Equipment and machinery	3.5	..	7	15	10	6	7.5
Livestock	3.5	..	7	..	1	5	2.0
Operating expenses	1.5	9	39	43	10	26	21.0
Miscellaneous*	1	..	8	..	5	7	2.5
			Tenants				
Rent	10	..	5	16	..	..	5
Equipment and machinery	33	45	33	51	..	..	44
Livestock	50	46	33	21	..	..	40
Operating expenses	7	3	3	7	..	..	4
Miscellaneous*	..	6	26	5	..	..	7

* Under miscellaneous are such items as school, sickness, bank stock, and automobiles.

Purpose of Short-Term Loans

In the six areas surveyed, 40 per cent of all collateral and personal loans was for financing land purchases (Table XXIX). Two classes of people make up the bulk of those borrowing on short-term notes in order to purchase land: (1) The successful farmer out of debt who wishes to buy a small adjoining tract; and (2) the farmer who is related to the person from whom the land is bought. Such notes are usually renewed from year to year until paid. Loans for buildings and other improvements come next and then operating expenses. One of the items frequently mentioned under operating expenses is labor for seasonal work. Farmers complained that the wages they were compelled to pay to harvest the crop at the right time were too high when compared with the selling price of the crop. The fact that some tenants were compelled to borrow money with which to pay their rent may suggest that some rents were still too high for the prevailing farm price level. It may have been due to dependence mostly upon one crop,

which failed. Most of the tenants owed considerably more on their livestock, machinery, and equipment than the owners and were not far along the road to ownership. Tenants ordinarily borrowed more for living expenses than owners, many having started the year without reserves.

Security

Table XXX indicates that bankers and others who loan money to farmers for short and intermediate periods are not too particular about security. When 70 per cent of the owners and 38 per cent of the tenants can borrow money without pledging any definite property in payment of the debt, they enjoy a very high credit rating. The forms of security required in Minnesota are limited. The practice of having a neighbor sign a note with the borrower was generally unpopular. Usually, either a plain note is accepted or a note secured by a chattel mortgage on livestock, machinery, or other equipment. The consensus of opinion among bankers interviewed seemed to be that losses had been considerably less from small unsecured loans than from large secured loans. More information is needed as to the cost of the risk on loans to various classes of farmers and in different systems of farming. It may be socially desirable to underwrite such risks by adding the cost to the interest rate. If so, it would be necessary to spread the cost over a wide territory. Careful investigation in this field might lead to social and economic gains and increase individual opportunities.

TABLE XXX

SECURITY FOR PERSONAL OR COLLATERAL LOANS, 1924 SURVEY

Form	Owners	Tenants
Farmer's note	70	38
Chattel security	28	54
Plain note plus one signer	1	4
Plain note plus two signers	1	..

Need for Better Bank Loan Practices

Generally, the country banks of Minnesota have taken pride in assisting the farmers to promote their business. During the period of rising prices, from 1897 to 1920, bankers generally were assiduous in fostering cordial relationships with the farmers. This is desirable. But people who find themselves beginning to prosper often borrow or buy on credit too freely for their own good. Bankers should be better informed on the agricultural situation. Many bankers make loans to farmers in order that they may plant more wheat or buy more cows

or sheep, when a knowledge of production trends and price levels would dictate exactly the opposite policy.

A better business relationship would be developed if bankers would compel each farmer to make a financial statement before loaning to him, and if they would more carefully analyze the purposes for which he wishes to borrow. The financial statements now required by the federal reserve banks and the intermediate credit banks before farm paper will be discounted, are satisfactory and should be used by all country banks. The old system, under which the banker took a pleasant drive through the country during the summer, getting a bird's-eye view of the farms and the condition of the crops and livestock, and then loaned liberally the balance of the season, if conditions looked good to him, must give way to risk analysis as a basis for sound investment.

Period of Collateral or Personal Loans

More than half of the collateral and personal loans to both farm owners and tenants in these areas were drawn for from nine months to a year. Only 25 and 31 per cent, respectively, were due in six months, and only 7 and one per cent, respectively, in less than 90 days (Table XXXI). Such loans are often too large to be paid from current earnings. A survey of country banks would probably show that the conventional banking theory that country banks can not safely make loans to farmers for more than six months does not conform to practice. Bankers are more interested in having ample assets back of their loans than they are in having all their loans paid at maturity. In a panic period, however, when deposits are declining, the effect of having a considerable portion of the bank's assets in comparatively long-term paper is often a shortage of funds for meeting the demand of current loans. Bankers are prone to forget this in prosperous times. Since the federal reserve system has been created, loans having sufficient security that they can be rediscounted may be of more importance than the length of time for which the loan is made. The country bankers' problem of a money reserve has been greatly simplified since the federal reserve banks began mobilizing the liquid reserves of the country. Dairying and diversified farming in Minnesota have further simplified the short-term credit problem for both the farmer and the banker. Further diversification will help still more. Where there is a steady flow of income as distinguished from the "after harvest" settlement, as with the general grain farmer, it ought to be feasible to operate short-term loans on the basis of from three to six months.

TABLE XXXI

PERIOD OF COLLATERAL AND PERSONAL LOANS IN SIX AREAS SURVEYED

Period	Owners, per cent	Tenants, per cent
60 days or less	1	..
90 days	6	1
6 months	25	31
9 months to a year	54	57
More than a year	5	..
Indefinite	9	11

Mercantile Credit

Few Minnesota farmers use much store credit. The practice of merchants "grub staking" the farmers during the planting, harvesting, and marketing of the annual crop seems to be rapidly disappearing. Only 13 per cent of the owner operators and 17 per cent of the tenants were using such credit (Table XXXII). In North Carolina, Georgia, and Tennessee, where farmers generally can not obtain funds from banks, mercantile credit is used very extensively. Surveys in Georgia in 1923 found 100 per cent of the farm owners using mercantile credit and from 30 to 50 per cent of owners and tenants combined.[14] The relative volume of mercantile credit in Minnesota is less than one per cent of the total farm debt, being a matter of convenience rather than another method of borrowing. Mercantile credit is used to a greater extent in new sections of the state and in one-crop sections than in the older and diversified sections. In a few instances farmers were getting 5 per cent discount for cash. There seems to be a slight tendency in this direction.

TABLE XXXII

AMOUNT OF MERCANTILE CREDIT IN SIX AREAS SURVEYED

County	Area	Owners		Tenants	
		Percentage using such credit	Amount per borrower	Percentage using such credit	Amount per borrower
Steele	1	10	$296	30	$106
Cottonwood	2	7	150	18	234
Pope	3	0	0	10	20
Norman	4	20	242	10	350
Chisago	5	23	170	..	...
Hubbard	6	15	120	..	...
Average	All	13	$189	17	$169

The rate of interest on mercantile credit is rather indefinite. If interest was charged, it was usually 8 per cent. Many farmers were carried without interest for a few months by hardware dealers, lumber

[14] Farm Credit, Farm Tenancy, and Farm Taxation, by Nils A. Olsen, C. O. Brannen, G. F. Cadish, and R. W. Newton, U.S. Dept. Agr. Yearbook, p. 229.

dealers, general merchandise dealers, and doctors. Merchants of the South often charge tenants from 30 to 40 per cent for credit, and the average rate charged in North Carolina in 1922 was 26 per cent.[15] Mercantile credit is usually carried as an open account, and except in the case of farm machinery, where a conditional sales contract is often used, no particular security is pledged. Crop liens are practically unknown in connection with mercantile credit in Minnesota.

The high concentration of the use made of mercantile credit, as shown in Table XXXIII, is significant. Fifty per cent of mercantile credit extended to farm owners is used for rather durable additions to the farm capital—building material and machinery. Tenants still have the hardware stores to aid them in obtaining the machinery necessary to operate their farms. Of their mercantile credit, 71 per cent was for hardware and implements.

TABLE XXXIII

PURPOSES SERVED BY MERCHANT CREDIT IN SIX AREAS STUDIED

Owner-Operators	Per cent
Implements and hardware	31
Food and clothing	61
Building material	19
Miscellaneous	4
Tenants	
Implements and hardware	71
Garage bills	26
Miscellaneous	3

Fewer of either owners or tenants were using the merchant as a source of credit than we have been accustomed to expect. This indicates that the practice of paying cash for groceries and supplies is becoming common. Only one owner operator out of eight and one tenant out of six were using store credit. Several farmers and merchants said that the use of credit for buying feed and supplies declined rapidly after 1920, principally because:

1. Credit extended by wholesale houses to merchants was restricted after 1920, compelling the merchant, in turn, to restrict the amount of credit extended to farmers.

2. Competition of cash-and-carry stores and of mail-order houses has compelled more merchants to mark their goods on a cash-sale basis.

3. As farmers generally milk a few cows, they are able, like their city friends who receive a regular income, to pay their bills at the end of each month. In many cases, however, the farmer pays every two weeks, as the cream checks are received.

[15] Farm Credit in North Carolina, by Fred R. Yoder, H. S. Beachley, and A. J. Honeycutt, Bull. North Carolina Dept. of Agr., p. 24, Raleigh.

To farmers who are buying lumber, machinery, and supplies on credit, the suggestion is made that it probably would be better to discontinue this practice and make a greater use of banks. Merchants who sell for cash should be able to sell more cheaply than those who extend credit freely. Experience has proved that mercantile credit is more expensive than bank credit. The advice is not to use more credit, but to purchase credit where it is the cheapest.

Interest Rates on Short-Term Credit

The latest published information on rates of interest on short-term loans in Minnesota is for 1916.[16] In Figure 13, interest rates in 1916 are summarized by crop reporting districts. The rates ranged from

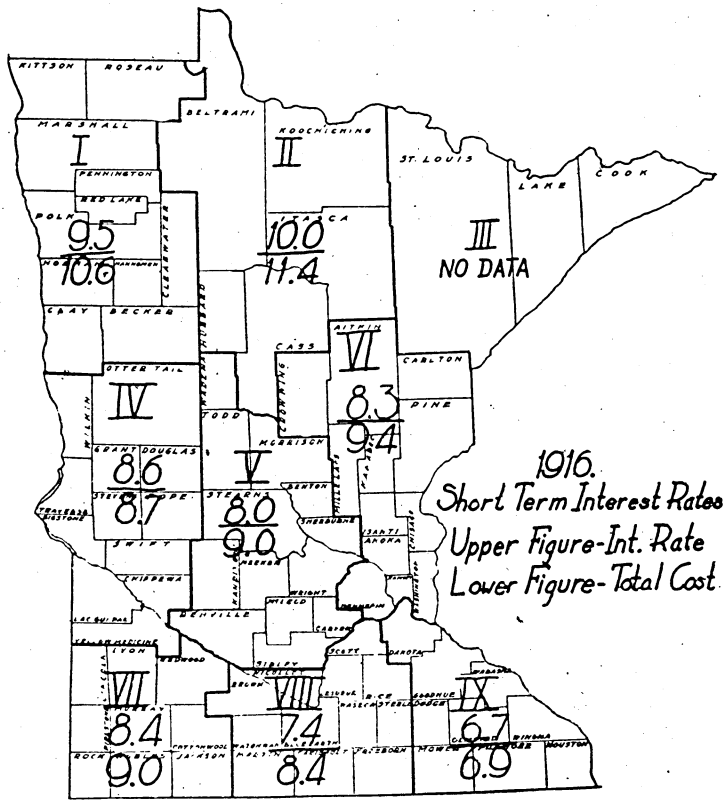

Fig. 13. Short-Term Interest Rates in Minnesota by Crop Reporting Districts, 1916

6.9 per cent in District 9 to 11.4 per cent in District 2. They average about 2.5 per cent higher than the interest rates on farm mortgages

[16] Factors Affecting Interest Rates and Other Charges on Short-Time Loans, by C. R. Thompson, U.S. Dept. Agr. Bull. 409, p. 4. Rates quoted are the average total cost of loans including discounts, bonuses, and other extra charges, as reported by correspondents.

in 1920. The difference is in about the same proportion in the various districts except Districts 1 and 2, where the mortgage loans average 3.2 per cent higher, while in District 9, in the southern part of the state, the spread is only one per cent. As already explained, mortgage rates are surprisingly low in the cut-over region because land companies furnish so much of the credit. The comparison really should be with the bankers' rates on farm mortgages, which were probably about 6.6 per cent in 1920. Scarcity of capital is no doubt a factor in the higher rate in some parts of the state, but more important factors are the greater risks associated with loans in small-grain and new regions, and the higher unit costs of operating the smaller banks found in some of these areas. Rates also tend to be higher on small loans.

TABLE XXXIV

PERCENTAGE OF SHORT-TERM LOANS MADE AT THE VARIOUS RATES OF INTEREST; 1924 SURVEY

County	Interest rates to owners, per cent							Rates to tenants, per cent			
	4	5	5½	6	7	7½	8	5	6	8	10
Borrowed from Banks											
Steele	..	..	..	..	..	..	100	..	..	100	..
Cottonwood	..	..	..	20	..	..	80	..	6	94	..
Pope	..	..	..	..	..	..	100	..	..	100	..
Norman	..	..	..	8	..	8	84	..	..	100	..
Chisago	..	..	..	..	47	7	46	..	..	..	..
Hubbard	..	..	..	..	..	..	100	..	..	..	..
Borrowed from Private Individuals											
Steele	..	14	15	71	..	..	..	..	100	..	..
Cottonwood	..	..	..	..	..	..	..	100	..	..	..
Pope	..	..	..	..	..	..	..	..	..	..	..
Norman	..	..	..	..	..	..	..	..	100	..	..
Chisago	100	..	..	..	..	..	..	..	..	..	..
Hubbard	100	..	..	..	..	..	..	..	..	..	..
Borrowed from Relatives											
Steele	75	25	..	..	..	..	..	..	..	..	..
Cottonwood	..	100	..	..	..	..	..	..	..	..	..
Pope	..	..	..	..	..	..	..	..	..	..	..
Norman	100	100	..	..	..	..	..	..	..	..	..
Chisago	100	..	..	..	..	..	..	..	..	..	..
Hubbard	..	..	..	100	..	..	..	..	..	..	..

All other sources at 8 per cent except one loan at 6½ per cent.

The most recent data available on short-term interest rates in various sections of Minnesota are those obtained in the 1924 survey. The rates reported by the borrowers were lowest from relatives, highest from banks, and between the two from private individuals (Table XXXIV). The data show a general tendency for banks in all parts of the state to charge local farmers the maximum legal rate of interest.[17] One reason for this is that since 1920 country banking has not been profitable. All bankers agree that higher rates are needed. In Steele, Pope, and

[17] The legislature of 1923 changed the maximum legal rate from 10 to 8 per cent.

Hubbard Counties, all owner-farmers interviewed said they were paying 8 per cent interest; likewise the tenants in Steele, Pope, and Norman Counties. Only 6 per cent of the tenants in Cottonwood County enjoyed a bank rate of less than 8 per cent. For all areas combined, the owners were paying interest at the following rates:

85.0 per cent were paying 8.0 per cent.
2.5 " " " " 7.5 " "
7.8 " " " " 7.0 " "
4.7 " " " " 6.0 " "

The interest rate on the bulk of the loans to owners from private parties and from relatives was from 4 to 5 per cent; to tenants, more often 5 and 6 per cent. Since 1924, there probably has been some reduction in interest rates, especially in the southern counties. Banks are being consolidated and in some cases liquidated. On January 1, 1926, there were 302 fewer banks in Minnesota than on January 1, 1920. Unless a local monopoly rate prevails, rates on short-term notes may be expected to decline somewhat from the level of 1924.

Short-Term Credit in Cut-Over Areas

The special study made of settlement conditions in northern Minnesota and the neighboring cut-over area in 1919 and 1920 brought out important facts relative to short-term loans. Settlers have important needs for credit, such as lumber and building materials, horses, dynamite for clearing land, and farming equipment. They need credit for groceries, feed, and other supplies, when they have little income (Table XXXV). The majority of these loans were obtained on notes and chattel mortgages, but some were obtained on real estate mortgages. No federal land bank loans are included in this tabulation. The average interest rate for short-term loans was 7.7 per cent; for real estate mortgages, 6.5 per cent.

TABLE XXXV

PURPOSES OF 633 LOANS OBTAINED BY SETTLERS IN MINNESOTA AND MICHIGAN, SUBSEQUENT TO FIRST PURCHASE OF LAND

Purpose of loans	Loans	Average interest rate,* per cent
Buy stock	157	7.6
Buy more land	46	6.4
Pay off land debt	205	6.7
Building	103	6.5
Living expenses	38	8.4
Feed	27	8.1
Clearing	17	8.1
Machinery	10	6.6
Miscellaneous	37	7.6
All sources	633	7.2†

* Not including rates on federal farm loans.
† Real estate mortgages, 6.5 per cent; short-time loans, 7.7 per cent.

Interest rates on loans were higher in northern Minnesota than in northern Michigan, the average for Minnesota alone being 8.6 per cent on note-secured loans and 9.3 per cent on chattel mortgage loans, or 8.7 per cent on both combined. On note-secured loans from banks alone, the average rate in Minnesota alone was 8.9 per cent, ranging from 8.2 per cent in one area to 9.7 per cent in another. The average rate on all short-term loans in the cut-over regions of the Upper Peninsula of Michigan and of Wisconsin were about 7.6 per cent, and in the cut-over region of Lower Michigan they were still lower.

Several land companies in 1920 and 1921 were providing considerable short-term credit for settlers on the basis of either chattel mortgages or clauses in contracts that allow them to add the amount of such loans to the purchase price of the land. The land company most liberal in this respect was advancing funds for buildings, livestock, machinery, dynamite, and living expenses for the settlers while they were clearing the land, and machine and horse labor at land clearing. The settlers on this project had increased their debts an average of $874 during the first two years after settlement, but they had cleared over 10 acres of land and added $900 to their building, livestock, and equipment inventory.[18]

INTERMEDIATE CREDIT

Intermediate credit is commonly defined as credit for periods of from six months to three years. As notes commonly run for more than six months and real estate mortgages are sometimes made for less than three years, there is some overlapping of sources of short-term, intermediate, and long-term credit. Direct sources of intermediate credit to the farmer are individuals, savings banks, trust companies, country banks, co-operative credit associations, agricultural credit corporations, cattle loan companies, trade and mercantile institutions, and co-operative marketing associations.[19] The secondary sources through which the primary sources rediscount are individuals who buy such paper from banks for investments, intermediate credit banks, and federal reserve banks.[20] The intermediate credit banks may in turn sell their debentures to federal reserve banks, insurance companies, various kinds of banks and trust companies, and individuals.

[18] Settlement and Colonization in the Great Lakes States, by J. D. Black and L. C. Gray, U.S. Dept. Agr. Bull. 1295, p. 73. 1925.

[19] Farmers get a considerable amount of intermediate credit from the country banks through the process of renewing their notes. The principal sources of intermediate credit in Minnesota are trade and mercantile companies and banks.

[20] The agricultural credit act of 1923 amended the federal reserve act to permit the federal reserve bank to rediscount farm paper from member banks for a period up to nine months.

Until 1923 there were no special governmental institutions organized to supply the farm credit needs of the intermediate type. After the break in prices in 1920 and 1921, many farmers found it impossible to pay their debts to the banks, and with declining deposits the banks, in turn, were hard pressed. Many economists, farm leaders, and bankers were of the opinion that banks organized primarily to supply industry and trade were not in position to supply farmers' intermediate credit needs. It was said that commercial banks must keep their funds invested in short-term paper in order to be able to repay depositors on short notice. On June 7, 1921, Congress provided for a Joint Commission of Agricultural Inquiry. In its report this commission said: "The Commission believes that the difficulties of agriculture are in part due to the credit restrictions and limitations of the past 18 months, and in part are due to the fact that the banking machinery of the country is not adequately adapted to the farmers' requirements."[21] In 1923 Congress provided for twelve intermediate credit banks. One such bank serves each federal land bank district and is located in the same city as the district federal land bank. The bank serving this district is located in St. Paul and has the same officers as the land bank except that a special officer is manager. The position of the intermediate credit banks in financing agriculture has been said to be similar to that of federal reserve banks in financing commercial and industrial enterprises. Such a statement can be made because the farmers of the country never really understood that federal reserve banks were established to help them as well as trade and industry. They did not appreciate the federal reserve banks because most rural banks did not and do not now belong to the system.

A farmer can not borrow directly from intermediate credit banks. He must borrow through co-operative marketing associations, agricultural credit corporations, livestock loan associations, or local banks. If loans were to be made direct to farmers, cumbersome machinery would be needed. As it is, the farmer must learn to help himself through his own co-operative organizations or through agricultural credit corporations if he is not well served by his local bank. The direct loans to farmers' co-operative associations are made only on the basis of agricultural commodities, and the loans are secured by warehouse receipts. The federal farm loan board has approved the following commodities, when properly stored, as acceptable for security on warehouse receipts: Grain, cotton, wool, tobacco, beans, rice, alfalfa, red-top and clover seed, hay, nuts, dried fruits, maple syrup, honey, broom corn, and canned fruits

[21] Report of the Joint Commission of Agricultural Inquiry, Part II, p. 7.

and vegetables.[22] The board may add other commodities to the list when it has determined whether they can be stored so that warehouse receipts based on them will make good collateral. Potatoes, an important product in Minnesota, handled to some extent by co-operatives, do not appear in the list of approved commodities.

Volume of Business of Intermediate Credit Banks

The amount of direct loans to co-operative marketing associations and the commodities loaned upon by the twelve intermediate credit banks at the close of business December 31, 1927, are given in Appendix Table 2. Co-operative marketing associations in the St. Paul district, which serve Minnesota, North Dakota, Wisconsin, and Michigan, were using this source of credit to the extent of $847,848. In the Springfield, Omaha, and Spokane intermediate credit districts, co-operatives were borrowing still less. Districts in which tobacco, cotton, and raisins were marketed co-operatively had the largest borrowers. Co-operatives in the Berkeley district borrowed nearly 6 million dollars on raisins alone.

The most valuable field of service for the intermediate credit banks has been in financing co-operative marketing organizations. On December 31, 1927, the direct loans to co-operative marketing associations in the United States totaled $31,990,597. The service to co-operatives has been particularly valuable in the South and West. On December 31, 1927, loans to co-operatives in the intermediate credit districts surrounding New Orleans, Berkeley, and Wichita ranged from 4 to 6 million dollars. They were about half as large in the Baltimore and Columbia districts; between one and 2 millions in the Louisville, Houston, and St. Louis districts; and less than one million in the St. Paul, Springfield, Spokane, and Omaha districts.

On April 7, 1928, the Intermediate Credit Bank of St. Paul rediscounted notes for banks, agricultural credit corporations, and livestock loan companies to the extent of $7,550,013 (Table XXXVI). On December 31, 1925, these three institutions were rediscounting only $3,040,847, and on December 31, 1926, $4,440,464. This represents a rapid expansion of business. This increased demand for loans has come largely through the agricultural credit corporations and almost none of it through the banks. A partial explanation for this is the acute psychological conditions surrounding solvent banks. In communities where one or more banks have failed, the solvent banks have frequently deemed it necessary to invest their surplus funds in paper having a daily market in order to protect themselves against possible "withdrawal runs."

[22] Federal Farm Loan Board, Circular 15, p. 18. 1925.

The Intermediate Credit Bank of St. Paul has financed the North Dakota Wheat Growers' Association and the Northern Wisconsin Co-operative Tobacco Pool for the crop seasons of 1923 to 1927. It has financed the Door County Fruit Growers' Union of Sturgeon Bay, Wisconsin, during the crop seasons from 1924 to 1927 and expects to finance the 1928 crop. It also has financed the North Dakota Co-operative Wool Marketing Association on the 1925, 1926, and 1927 clip. Intermediate credit has not been available to potato co-operatives. Co-operative butter marketing organizations have not needed credit of the intermediate type. There is a possibility of cheese being favorably passed upon as a suitable product for warehouse receipt loans, and if it is, the Wisconsin cheese producers will undoubtedly make some use of such credit.

TABLE XXXVI

REDISCOUNTS AND DIRECT LOANS OF INTERMEDIATE CREDIT BANKS AT CLOSE OF BUSINESS, APRIL 7, 1928*

District	Rediscounts†			Direct loans
	State banks	Agricultural credit corporations	Livestock loan companies	Co-operative marketing associations
Springfield	.....	$ 667,927	.....	.....
Baltimore	$203,512	1,907,733	.....	$ 1,696,301
Columbia	38,787	6,165,573	.....	890,000
Louisville	41,613	211,646	.....	1,395,768
New Orleans	.....	5,731,578	$ 145,318	4,090,004
St. Louis	32,434	557,118	672,928	767,451
St. Paul	52,165	7,497,848	.....	579,172
Omaha	.....	.....	5,576,941	344,041
Wichita	42,506	217,833	501,178	4,264,659
Houston	1,268	673,620	6,856,196	1,500,000
Berkeley	.....	3,174,965	5,545,297	6,864,476
Spokane	.....	2,816,241	2,573,141	371,604
Total	$412,286	$29,604,084	$21,870,999	$22,763,476

* Data from monthly statement of Federal Farm Loan Board.

† National banks were rediscounting $7,900 with the Springfield bank. Savings banks and Trust companies, Houston, $20,000.

Various reasons have been advanced as to why greater use has not been made of the intermediate credit banks. One reason is that the individual farmer has found it difficult to establish relations with his district bank, as he can not borrow directly. Local banks, unless hard pressed, are inclined not to rediscount in order to extend the volume of their loans. Further, until March, 1927, banks were not permitted to charge an interest rate of more than 1½ per cent above the intermediate rediscount rate on rediscounted paper. In March, 1927, the margin allowed was increased to 2½ per cent. There is no limitation as to the margin taken by the local bank if its paper is rediscounted with

the federal reserve banks and the rediscount rate from the latter has been below that of the intermediate credit banks. Furthermore, the law limits the volume of rediscounts that a bank may have with intermediate credit banks to 2½ times its capital and surplus, while there is no such legal limit in rediscounting either with federal reserve banks or with city correspondent banks.

On January 1, 1927, there were 51 agricultural credit corporations in North Dakota, 7 in Wisconsin, and 18 in Minnesota. Two new credit corporations were organized in Minnesota during the last half of 1926 and three were discontinued. The location of the corporations in Minnesota on April 1, 1926, is shown in Figure 9. Following is a list:

Agricultural Credit Corporations—Minnesota

Farmers Credit Company, Claremont, Minn.
Otter Tail Loan & Investment Company, Fergus Falls, Minn.
Farmers Credit Company, Goodridge, Minn.
Greenbush Credit Company, Greenbush, Minn.
National Credit Company, Herman, Minn.
Farmers Credit Company, Kennedy, Minn.
Lake Park Cattle Loan Company, Lake Park, Minn.
Bankers Dairy Credit Corporation, Minneapolis, Minn.
Montevideo Agricultural Credit Company, Montevideo, Minn.
Farmers Credit Company, Oslo, Minn.
Farmers Credit Company, Redwood Falls, Minn.
Northwestern Agricultural Credit Corporation, St. Cloud, Minn.
Farmers Credit Company, Stephen, Minn.
Farmers Credit Company, Tyler, Minn.
Walnut Grove Credit Company, Walnut Grove, Minn.
Mahnomen County Cattle & Credit Company, Waubun, Minn.
Faribault County Credit Company, Wells, Minn.
Northwest Farmers Credit Association, Pipestone, Minn.

Indications are that the agricultural credit corporations in Minnesota will form the chief connecting link between the farmer and the Intermediate Credit Bank of St. Paul. These institutions are organized under the state general incorporation law.[23] Shortly after Congress provided for the intermediate credit bank system a number of banks in Minnesota organized small agricultural credit corporations with a minimum capital of $10,000. Following good banking standards, the management of the bank in St. Paul refused to rediscount all poorly secured paper. Its acceptance of well secured paper has given a much needed service to many banks. Many of these early corporations had either liquidated or were inactive by the beginning of 1927. As, theoretically, the intermediate credit banks are not to compete with local banks, the advisability of establishing a large number of small organiza-

[23] The Minnesota legislature passed a special incorporation law intended for them during 1923-24 session, but because of restrictive features on loans, it has not been used.

tions may be questioned. A few large organizations are now reaching out over a large territory for loans, notably those in Minneapolis and Pipestone. There will probably soon be enough large agricultural credit corporations that their service in connecting the individual borrower with the Intermedite Credit Bank of St. Paul will be available to any farmer in Minnesota. A mere statement of the problem is sufficient to show that there are many unsolved problems in connection with the operation of such contact institutions.

The following extracts from letters indicate some of the services that may be rendered by the intermediate credit bank, through agricultural credit corporations:

From Mahnomen County Cattle Credit Company, March 30, 1926—

> "Most of the money we are loaning through our Association is for milk cows, steers, sheep, and hogs. We have found the Federal Intermediate Credit Bank of St. Paul very liberal on loans that are used to buy livestock.
>
> "Last year we shipped in two or three carloads of cows and steers together with two carloads of sheep. These proved to be very profitable to the farmers. We are planning on shipping in some more steers this spring, as last year the farmers made on the average $30 per head."

From the Lake Park Cattle Loan Company, March 31, 1926—

> "In reference to the method of operation of the Lake Park Cattle Loan Company, I wish to say that it is organized primarily for the purpose of lending money to farmers to carry on their farming operations by rediscounting such notes as it may become possessed of with the Federal Intermediate Credit Bank of St. Paul. These loans are proving very popular in this locality, as they provide the farmer with a reasonable amount of capital on easy terms. The rate of interest after April 1 will be 6½ per cent to the borrower, with loans made for from 9 months to a year with the privilege of renewal."

From Farmers Credit Company of Oslo, April 2, 1926—

> "Your favor of March 27 to the Farmers Credit Co. is received. . . . . The principal aim of our association is to make short-term loans and in that way be able to liquidate bank indebtedness. In this way it has worked out fine."

Agricultural credit corporations will probably increase in importance, but the system is too young for any prediction as to its future development. Livestock loan companies are finding intermediate credit banks a helpful source of credit for livestock production, as credit is needed for a considerable time. State and national banks are rediscounting in only a limited way. As agricultural credit corporations become more generally available, as cattle loan companies are organized, and as cooperative marketing associations become more efficient in grading, processing, and warehousing, the importance of the specialized intermediate credit agencies will probably increase.

THE PROBLEM OF THE LOCAL BANK

By far the most important part of our whole agricultural credit system is the commercial bank. As an agency for supplying credit and other needs of agriculturists, it has been rapidly expanding in importance. The increase in banking resources in Minnesota from 1900 to 1925 was 735 per cent when expressed in current dollars, and 328 per cent if expressed in dollars of 1913. Per capita bank deposits have increased greatly in every county in Minnesota (Fig. 14). The banking power increased relatively more rapidly in the middle west than in other sections of the country from 1900 to 1924 (Table XXXVIII). The eastern states lost 12 per cent in relative banking

BANK DEPOSITS PER CAPITA IN 1912 AND IN 1920

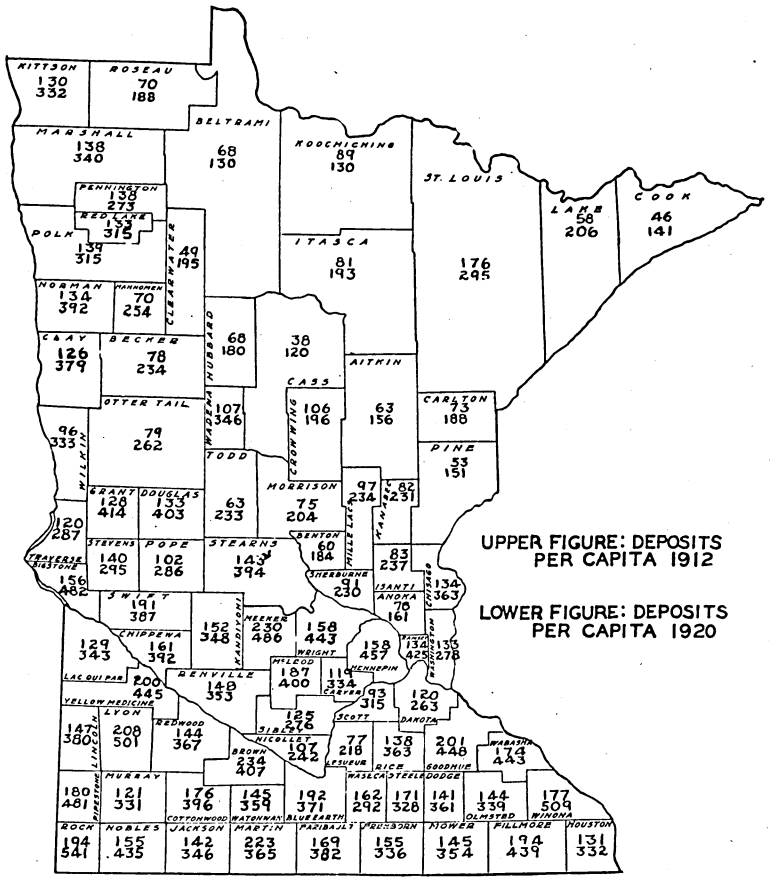

Fig. 14. Bank deposits per capita increased in every county in Minnesota between 1912 and 1920.

power during the first quarter of the nineteenth century, and the Middle West gained 16 per cent.

TABLE XXXVII

GROWTH OF BANK RESOURCES IN MINNESOTA FROM 1900 TO 1925

Date	Bank resources, millions*	Index number, wholesale prices†	Index number, dollars of 1913
June 30, 1900.....	$ 141.3	82.0	172.3
June 30, 1925.....	1,179.9	159.0	737.8

* Report of comptroller of currency, 1925, p. 94.
† All-commodity index number, U. S. Bureau of Labor.

The rapid growth of the banking habit in the United States in the last century is partly responsible for the growth of banks. The custom of using checks instead of cash in the settlement of money obligations is now widespread. The usual estimates are that at least 80 per cent of all payments are made by check. Checks are thus more important as a circulating medium in the United States than gold, silver, or currency. This change has enhanced the importance of bank deposits and of bank credit in the economy of the nation, and has made the regulation and supervision of the banking system a matter of greater importance and consequence to the welfare of the people.

TABLE XXXVIII

CHANGE IN GEOGRAPHICAL DISTRIBUTION OF BANK RESOURCES OF THE UNITED STATES FROM 1900 TO 1924

	Percentage of resources of all banks*		Percentage of change
	1900	1924	
East	66	54	—12
South	4	8	4
Middle West	8	24	16
Pacific Coast	4	7	3

* U.S. Dept. Agr. Yearbook, 1924, p. 194.

Banks Have Not Stood the Test

Yet in spite of this growth and great importance, the local banks have not stood the test in the financial upheaval through which we have just passed. Since 1919, 291 state banks and 65 national banks have failed, as compared with only 67 state banks and 6 national banks in the twenty-five years between 1894 and 1919 (Table XXXIX). Soon after the depression began, in June, 1920, state banks that had been borrowing heavily during prosperity began to fail. One bank was closed in 1920, but was reopened in about a month. The next year, 19 banks were closed, but 13 were later reopened. In 1922, only 15 banks were closed, and 8 reopened. Many people thought the worst was over; but

then came 1923, with 43 banks closing and only 16 reopening later; then 1924 with 46 closing and only 14 reopening; 1925 with 36 closing and 3 reopening; 1926 with 78 closing and 4 reopening; and 1927 with 53 closing.

TABLE XXXIX

BANK FAILURES IN MINNESOTA, 1894–1927*

Year ended	State banks, savings banks, and trust companies		National banks	
	No. of failures	No. of banks	No. of banks	No. of failures
Aug. 31				
1894	2	216	79	
1895	5	232	79	
1896	6	218	76	
1897	7	206	71	3
1898		204	70	
1899		236	69	
June 30				
1900	2	252	76	
1901	2	275	92	
1902		307	117	
1903		350	171	
1904	13	386	213	
1905	3	456	224	1
1906	1	486	237	
1907	2	602	245	
1908	1	639	262	
1909	1	641	268	
1910		645	270	
1911		725	272	
1912	4	759	272	
1913		803	271	
1914	1	835	273	1
1915		925	277	
1916	1	1,014	281	
1917		1,105	287	
Dec. 31				
1918	2	1,148	294	1
1919	14	1,148	305	
1920	1	1,184	331	
1921	19	1,195	341†	
1922	15	1,175	330	
1923	43	1,159	344	3
1924	46	1,088	334	8
1925	36	1,057	318	11
1926	78	956	287	30
1927	53	882	285	13
Total	368			71

* National bank data to 1921, from report of comptroller of currency for 1920. Remaining data from annual reports of the comptroller. State bank failures up to 1918 from report of the comptroller of the currency for 1920 and from 1918 to 1927 from data furnished by the State Banking Department.

† As of September 6, 1921.

While this large number of failures is a result of the depression, nevertheless it shows weaknesses in the system. The banking system must meet the needs of depression as well as of prosperity. When

from 46 to 78 state banks in one state fail in one year, the evidence of weaknesses in the groundwork of the system is conclusive. It is significant that the failures did not assume large proportions until four years after the depression, when ample credit was available for liquidating good but slow loans.

That Minnesota has been in the same plight as other states in the Northwest is shown by Table XL. For the seven-year period ending June 30, 1926, 316 banks failed in North Dakota, 239 in South Dakota, 183 in Montana, 34 in Wisconsin, and 212 in Iowa. In all states except Wisconsin, the percentage of state banks failing has been considerably higher than that of national banks. Wisconsin probably had, prior to 1920, more effective bank control laws than had many neighboring states. So far as banking laws and regulations have anything to do with bank failures, it would be the rules and regulations effective in the years just prior to 1920 that would have any bearing on failures following 1920. The statement that Wisconsin's rules and regulations were, prior to 1920, probably superior to those of the other states would require considerable investigation in order that one could be sure of his basic facts. The statement, however, is suggested by the fact that Wisconsin banking laws show that at least as early as 1915 the banking department strictly controlled the establishment of new banks.

The mere fact that a majority of banks in the chief agricultural states did not fail is evidence that it is possible to have such a banking system that an abnormal number of failures need not occur during severe depressions.

TABLE XL

BANK CLOSURES IN NORTHWEST STATES, 1920-26*

Year June 30	North Dakota		South Dakota		Montana		Wisconsin		Iowa		
	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	Private
1920.....	2	0	1	0	0	0	0	0	0	0	2
1921.....	51	3	1	1	10	3	0	0	2	2	4
1922.....	12	2	5	0	11	7	1	0	6	0	0
1923.....	19	3	7	5	29	12	3	1	3	2	3
1924.....	127	20	117	7	64	23	11	2	17	2	8
1925.....	31	6	31	8	5	7	6	2	52	7	9
1926.....	36	4	49	7	5	7	8	0	63	16	13
Total....	278	38	211	28	124	59	29	5	143	30	39
Percentage closed†	38.9	21.0	37.7	20.6	48.1	20.6	3.6	3.3	36.7	8.3	66.1

* Report of comptroller of the currency, 1920-26.

† Based on number of banks in 1920, as shown by comptroller's report.

Why Banks Have Failed

The first approach to the reasons for bank failures is to examine the reasons given by the State Banking Department for closing the banks. Associated with frozen assets as causes of particular closures, were mis-

management, depleted reserves, criminal irregularities, worthless paper, and too much real estate; with depleted reserves were associated mismanagement, insufficient business, too large loans, and criminal irregularities; with excess loans were associated depleted reserves and too many second mortgages. These causes might readily be reduced to two—criminal irregularities and mismanagement. The first is not important. Frozen assets, depleted reserves, and excess loans appear most frequently as evidence of mismanagement.

As 15 of the 34 banks with depleted reserves re-opened, it appears that greater effort on the part of the officers of some of the banks in attempting to increase reserves by rediscounting would have kept these banks from being closed. The three banks closed because of excess loans all reopened.

Many of the banks that have failed since 1920 are still in the process of liquidation. The policy of the liquidation department is not to rush the sale of assets where there is a fair possibility of saving the depositors' money by waiting. The liquidation department deserves credit for keeping the costs of liquidation low. A man is left in charge of the closed bank only as long as he is producing economical results in the way of collections. Slow items are left to be collected by local agencies.

TABLE XLI

REASONS FOR STATE BANK CLOSURES, 1920 TO MARCH 18, 1926*

Cause of closure	No. closed	No. reopened
Criminal irregularities	7	0
"Frozen assets"	108	32
Depleted reserves	34	15
Excess loans	3	3
Too much accommodation paper and one-man bank	2	0
Worthless loans	2	0
Mismanagement and irregularities	4	1
Foreign paper	9	5
Too much real estate	1	0
Failure of correspondent bank	1	0
Run on account of North Dakota paper	1	0
Bankruptcy of president	1	0
Run on bank	2	0
Too many unsecured loans	1	0
Local quarrel	1	0
Total	177	56

* As given by A. W. Smith, examiner in charge of liquidation for the closures of Minnesota state banks.

A closer approach to the problem may be obtained from a letter sent out in September, 1924, by A. J. Veigel, state superintendent of banks. This letter undoubtedly sums up Mr. Veigel's conclusions as to the causes of bank failures and losses in other banks as he has found them

in recent years. The principal causes he mentions are the following:

1. Excessive loans to officers. The department insists that this class of loans be reduced or eliminated. "What we need is bankers without other interests to take up their time and money."

2. Large and excessive loans. "If the note pouch contains small and diversified loans, the total losses are usually much smaller than if the average loan is large." The legal limit of loan to any one individual or firm is 15 per cent of the capital and actual surplus (Ch. 103, Sess. Laws, 1919). "If the surplus, as shown on the books, is impaired, only the unimpaired surplus can be used in figuring excessive loans."

3. Outside paper. This means loans to individuals or corporations not in the immediate territory of the bank. "Usually the bank's officials know little if anything about such paper, and are obliged to take the word of somebody else that it is good. Somebody often gets a commission on such paper and the rate of interest is usually high."

4. Exchange of paper, meaning the exchange of paper between banks with the written or oral agreement to take it back if not paid when due.

5. Other real estate and second mortgages. Banks should not hold large amounts of real estate, and "second mortgages should not be taken except to secure previous debts."

6. Too many banks. "Our department is encouraging and even urging certain banks to consolidate, where conditions warrant such action."

7. Too small minimum capital. "We believe that the minimum capital of banks, which is now $10,000 to $25,000, according to the size of the city, should be increased. That would add a margin of safety for depositors, to which they are entitled."

8. Too much borrowing.

9. "One man bank." This means a bank whose directors are mere "dummies" or "rubber stamps." "It is the duty of directors to know what is going on in a bank."

Failures Due to Too Small Banks and Too Many

It is common opinion that banks fail largely because they are small and their resources are inadequate. Of banks capitalized for $15,000 or under, 21.2 per cent failed during the period; of those capitalized for $35,000 and over, 21.9 per cent; and of those between $15,000 and $35,000, 21.7 per cent (Table XLII). There is no evidence that small capitalization is a cause of failure. The reason that more banks of the lesser capital stock fail is that there are more of them. The losses sustained by the failure of a large bank are usually several times those sustained by the failure of a small bank. Probably, however, people

are more disturbed over the failure of ten banks of $10,000 capital each than by the failure of one bank of $100,000 capital. Capital stock is not a good measure of the size of a bank's business. But the fact that 346 banks out of 432 with capital stock of $12,000 or less safely weathered the storm of depression between 1920 and 1926, suggests that a small bank can be as safely managed as a large one.

TABLE XLII

NUMBER AND PERCENTAGE OF MINNESOTA BANKS CLOSED ON BASIS OF CAPITAL STOCKS FOR PERIOD 1920 TO END OF 1926*

Capital stock†	Banks	Closed‡	Closed
			per cent
$10,000	401	80	20.0
12,000	31	6	19.4
15,000	153	38	24.8
20,000	102	16	15.7
25,000	234	57	24.4
30,000	56	12	21.0
32,000	1		
35,000	6	1	16.7
40,000	19	2	10 5
50,000	79	17	21.5
60,000	8	3	37.5
75,000	7	2	42.9
100,000	23	2	8.7

* Savings banks and trust companies not included.
† As of June 20, 1920.
‡ Capital Trust Bank of St. Paul not included.

The total number of national and state banks, including trust companies and savings banks, per $1,000,000 deposit, for each county in 1920, with the percentage of closures in each county for the years 1920 to 1925, inclusive, is shown in Figure 15. In general, the more banks per $1,000,000 deposits, the larger the percentage of failures. The relationship is by no means close and there are many outstanding exceptions.[24] Too many banks is probably the largest single cause of bank failures. The argument against small banks is not so much on the score of their being small as that small banks may mean too many banks, too high unit costs of operation, too much competition for loans, and a general weakening of the whole banking system.

Failures Due to Agricultural Loans

There can be no doubt that the depression in agriculture following 1920 is the first cause of the epidemic of bank failures. If evidence is needed, it is given in the two maps in Figure 16, the upper showing the proportion of bank loans to agriculture, and the lower, the

[24] The simple coefficient of correlation was 0.35 out of a possible 1.00.

NUMBER OF BANKS PER MILLION DOLLARS OF DEPOSITS AND PERCENTAGE OF BANKS FAILING BETWEEN 1920 AND DECEMBER 31, 1925

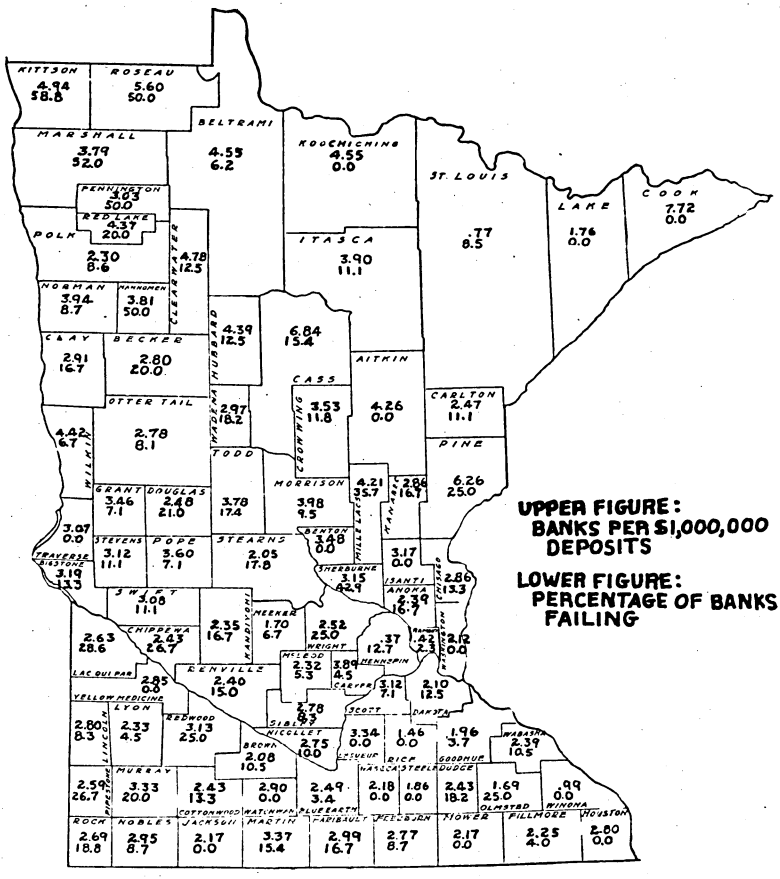

Fig. 15. In general, the more banks per million dollars deposits the larger the percentage of failures.

number of bank failures. Failures are most numerous where agricultural loans are high. Failures in Minnesota have been most numerous in relation to the population away from city centers, even after allowance is made for difference in size of banks. By types of farming, they have been most numerous where farming includes the most cash crops, the Red River Valley having suffered most and the dairy region least (Fig. 17).

The fundamental reason why more banks fail in the farming centers than in the industrial centers when a general depression strikes the

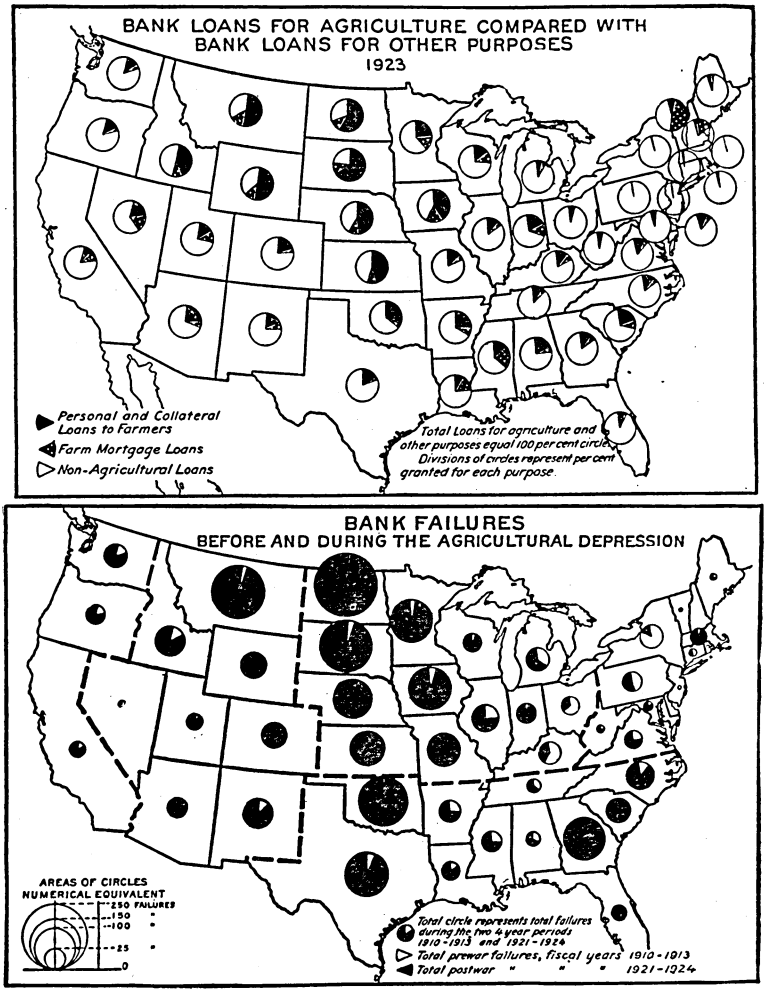

Fig. 16. Maps from U.S. Dept. Agr. Separate No. 1915. Farm Credit, by Nils A. Olsen.

Upper.—A department survey shows that bank loans for agricultural purposes in 1923 amounted to about 14 per cent of the total loans and discounts of all state and national banks. Farm mortgage loans amounted to 4.5 per cent and personal and collateral loans to 9.5 per cent of bank loans to farmers.

Lower.—Bank failures between June 30, 1920, and June 30, 1924, totaled 1,960, as compared with 202 during the four years 1910 to 1913. Most of these were in the farming sections of the country. While the depression in agriculture was a large factor in these failures, inadequate resources and inefficient banking methods were important contributing causes.

country is that agriculture can not adjust itself to a lower price level as quickly as can industry. When an industrial plant can not sell its products at a price sufficient to cover cost of operation, it is closed. This reduces production and keeps the price of the product from falling so far as it otherwise might. Part of the loss of shutting down is shared by the unemployed laborers. When the closed plant ceases to buy raw materials, the prices of raw materials decline rapidly and the producers on the farm and elsewhere find themselves sharing some of the loss. As the supply of manufactured goods declines and the price offered for them approaches the former level, the plants are opened again and laborers are hired at a wage much nearer the former wage level than would likely have been possible had the plant continued in operation.

LOCATION OF STATE BANK FAILURES, 1920 TO 1926, INCLUSIVE

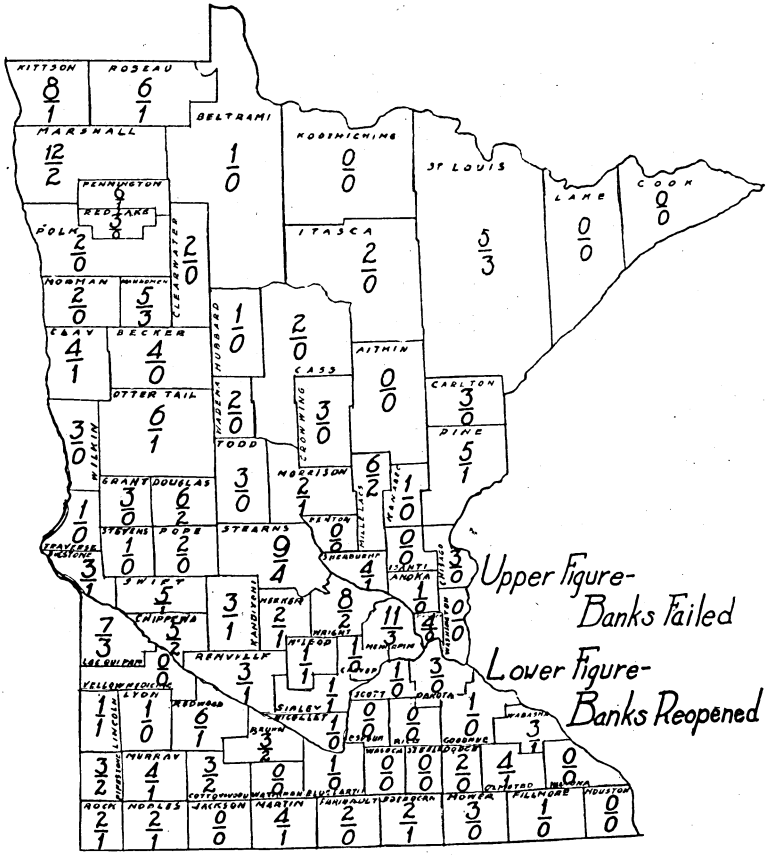

Fig. 17. Failures have been most numerous in relation to population away from the city counties even after allowance is made for the difference in size of banks.

The farmer, on the other hand, can not close down. He can not stop milking the cows, cultivating the corn, or cutting his grain and come back a few months later and start the farm factory going again. When prices broke in 1920, the farmers' crops were already planted with costly seed and labor and could not be harvested until months later. Moreover, farming is to a large extent a family business with three-quarters of the man labor performed by the owner and his family. If the farmer leaves the farm, he loses a home as well as a job. With a fall in prices, the hired help may be dismissed, but taxes and interest must be paid when due and the family must live. When prices decline sharply, the farmer often feels that more must be produced to meet the fixed annual expenses. Repairs are delayed, improvements are postponed, but men, women, and children work harder and longer in order to produce more at lower prices to maintain the necessary income.

Also, ownership of a farm is an individual matter and the risks of ownership are not scattered, as is usually the case with a corporation. It takes the major part of a man's lifetime to become a complete farm owner; hence most farmers are in debt. Much of the capital invested in farming is more or less fixed. A dairy cow does not reach her prime for five or six years and does well to pay for herself when eight years old. Tile drains and buildings require many years to pay for themselves. The cost of removing stumps and stones must be spread over many years. Because of this, the rate of turnover in agriculture is very slow compared with that in industry, hence agriculture adjusts itself much more slowly to deflation.

The effects of the foregoing are most clearly seen in a comparison of prices of farm products and other products from 1914 to 1926 with those of 1913, as in Figure 18. Beginning in June, 1920, all prices fell rapidly. But the wholesale price index for all commodities fell only from 231 to 170, while the index of farm prices fell as follows:

Date	Farm price level, per cent of 1913[25]
January, 1920	247
June, 1920	237
January, 1921	143
June, 1921	114

In May, 1920, the price of wheat was $3.00 a bushel. By the following December the price had declined to $1.68. In June, 1920, corn was selling at $2.00 and in December at 76 cents. As agriculture was unable to curtail its production to suit the new economic conditions, its products continued to fall in price while factory products soon began to recover. This reduced the purchasing power of farm products, as shown in the lower curve in Figure 18.

[25] Bureau of Labor Statistics, Bulletin 367, p. 18.

However, the reason that so much of the agricultural bank paper of the period of depression is not liquid is not that price levels are so far out of line now as that the things the farmer sells are now so much cheaper than during the war and the two post-war years when he contracted his debts. On the basis of war incomes, many farmers bought machinery, buildings, land, automobiles, and better livestock on credit at high prices. It is difficult to pay interest and principal with farm commodities from 25 to 50 per cent below the level at which the debts were incurred. Farmers who did not go into debt at war prices have continued to progress financially. The farmer may greatly curtail his buying by getting along without many things he would like to have, but he can not avoid paying for the goods he bought at a war time price level of 200 to 270.

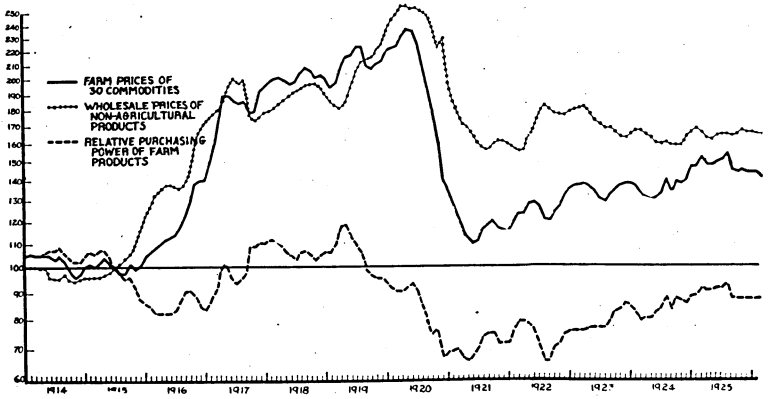

Fig. 18. Relationship of Wholesale Prices of Agricultural and Non-agricultural Products and Their Ratio from 1914 to 1926. Base Year, 1910-14

The great increase in taxes and railroad rates after 1920 added still further to the farmers' disadvantage. Taxes in Minnesota for 1921-22 were 246 per cent of what they were in 1913-14;[26] the average freight rates on 50 representative agricultural products in the United States were 159.8 per cent of the 1913 rate.[27] The rate on wheat from Tracy to New Ulm, Minnesota, on January 1, 1913, averaged 121.7 per cent of the 1913 rate. The rate on oats from McIntosh to Minneapolis, in 1923, was 144.2 per cent of the 1913 level.[28]

Failures Due to Bad Management

If banks are to be kept from failing in periods of depressed prices, they must be reasonably well managed. Neither poor management nor depression alone ordinarily will cause bank failure, but a combination of

[26] U.S. Dept. Agr. Yearbook, 1922, p. 1002.
[27] U.S. Dept. Agr. Yearbook, 1922, p. 1011.
[28] U.S. Dept. Agr. Yearbook, 1922, p. 1014.

the two. A poorly managed bank will get along till a crisis comes and will then be wiped out.

The bankers did their worst banking just at a time when their best was needed. Their experience had been such as to unfit them for handling the problems of 1919 and 1920. During the preceding 23 years of rising price levels for farm products, farm incomes had gradually increased. Rising incomes had resulted in an increased capitalization of farms. The result was that loans to farmers had generally been good. Country bankers had found by experience that the farmers' business was sound, and they competed for it actively. Excessive loans on real estate were usually well secured by the time the loan matured, because of rising land values. The increased demand for food following the opening of the World War, in August, 1914, caused prices of farm products to rise sharply. Bank deposits increased rapidly (Fig. 19). Farmers soon paid their current obligations to the banks and to the

CHANGES IN SAVINGS ACCOUNTS, TIME CERTIFICATES, AND CHECKING ACCOUNTS FOR MINNESOTA STATE BANKS

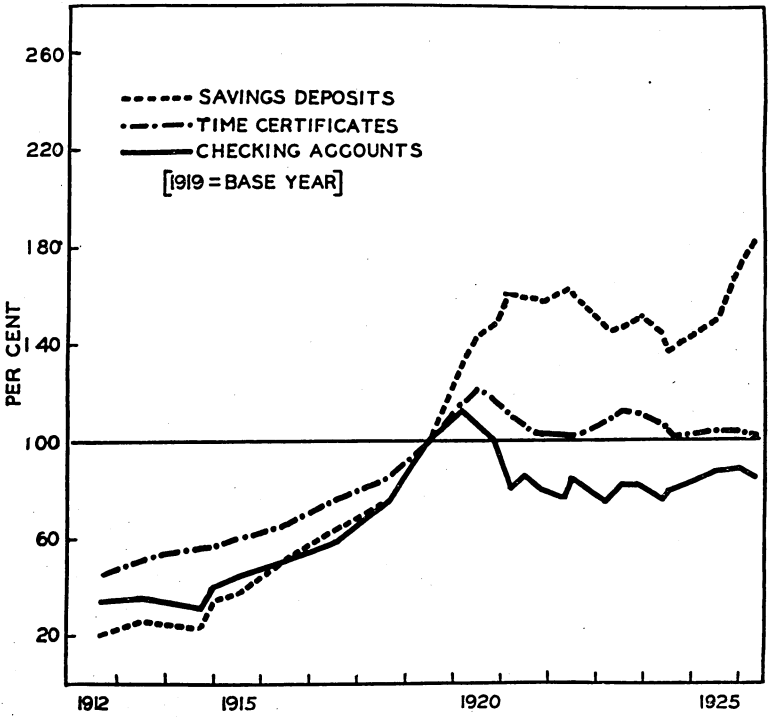

Fig. 19. Checking accounts increased 156 per cent, savings deposits 192 per cent, and time deposits 95 per cent from June 23, 1915, to February 28, 1920. Checking accounts declined about 36 per cent in 1920. Savings accounts have continued considerably above the 1919 level while checking accounts at the end of 1925 were roughly on the 1918 level.

business men. Prosperity became rampant and business conditions changed. The rapidly growing deposits neutralized the seasonal fluctuations in demands for money and many bankers became more careless in extending credit. It was well known that many loans made would need to be renewed at maturity. Banks that had been persistent borrowers paid off their debts with the large supply of loanable funds that came to them. The new prosperity filled both bankers and their customers with a spirit of optimism. Bankers began to encourage borrowing by farmers and business men in order to employ their loanable funds. Because of profits from increased value of inventory between purchase and sale, customers responded readily to the easy credit opportunity. When the war ended, expansion halted for a time, as depression was generally expected. Soon, however, prices began rising again because of heavy purchases by Europe on money borrowed in the United States and the $25 per capita contributed in the United States to the Red Cross.

The banks further expanded their loans. People who had been saving during the war cashed their liberty bonds freely in order to spend the proceeds. Conservatism gave way to extravagance and speculation. Old standards of credit analysis and principles of lending were forgotten, and as the "economic spree" continued, loans were made with almost unbelievable liberality.

In order to obtain high interest rates and liberal discounts collectable on customers' notes, banks began to borrow larger and larger amounts as the period of expansion continued. Borrowings increased during the war period, especially in the period after the United States entered the war, but they increased more rapidly in 1919 and 1920 while the land boom was rampant (Table XLIII). Few bankers were concerned with the fact that the rapid inflation of values was largely caused by the great expansion of bank credit in the banking system, and the failure of the Federal Reserve Bank to raise the discount rate so that the government might float the Victory loan at a low rate of interest.

Finally, as the expenses of business overtook business profits, the expanding price level and the shrinking value of the dollar came to an abrupt end in June, 1920. Banks soon found that owing to falling incomes, farmers were unable to reduce the amount of their short-time current loans. At first it was generally expected that prices would soon recover, and the banks had to renew loans and did so rather willingly. This necessitated more borrowed money to maintain the reserves, which were declining rapidly owing to declining deposits. Bills payable and notes rediscounted for state banks increased over 11 million dollars after June, 1920, and did not reach their height until late in 1921 (Table

XLIII). The increase in borrowed money after June, 1920, was about seven times the total amount borrowed in 1915.

TABLE XLIII

MONEY BORROWED BY MINNESOTA STATE BANKS AT VARIOUS DATES BETWEEN 1910 AND 1927*

Date	Thousands
June 30, 1910	$ 486
June 7, 1911	1,177
June 14, 1912	790
August 9, 1913	1,110
June 30, 1914	1,208
June 23, 1915	1,713
June 30, 1916	2,006
July 25, 1917	3,489
June 29, 1918	6,977
June 30, 1919	4,199
December 31, 1919	8,117
June 30, 1920	17,044
October 6, 1920	24,177
November 15, 1920	27,461
February 21, 1921	28,241
June 30, 1921	28,194
October 6, 1921	28,504
December 31, 1921	27,815
June 30, 1922	20,658
June 30, 1923	13,608
June 30, 1924	9,897
June 30, 1925	4,586
December 31, 1925	3,975
March 15, 1926	3,338
June 30, 1926	4,337
November 13, 1926	4,390
December 31, 1926	4,072
December 31, 1927	2,839

* From Abstracts of the State Banking Department.

In attempting to maintain their reserves against declining deposits and slow liquidation, the banks raised the rate of interest on time deposits. Probably this was a mistaken policy, as it appears to have resulted only in withdrawal of small funds from banks that did not raise their rate of interest and their deposit in those that did. Bank expenses were increased when they should have been lowered. It is questionable whether a higher rate of interest induces an immediate increase in savings.

Too frequently credits to farmers and merchants were so excessive that the face of the loan was greater than the value of the security or any security that the debtors could offer on the basis of the new price level. The volume of losses from such loans need not be very large to cause a small bank to fail. Too many banks of all sizes had paid 20 per cent dividends in 1919 and 1920 instead of creating a large re-

serve for losses. Where the farmer could supply ample land security, hundreds of banks were saved by the farmer funding his current indebtedness into a long-time real estate loan. The Minnesota Rural Credit Bureau probably saved scores of banks by accepting several hundred marginal land loans during 1924. Loans made by the Minnesota Credit Bureau also gave the farmer an opportunity to save his farm and home by spreading the payment of his debt over several years with a low rate of interest.

COMMERCIAL STATE AND NATIONAL BANKS IN MINNESOTA

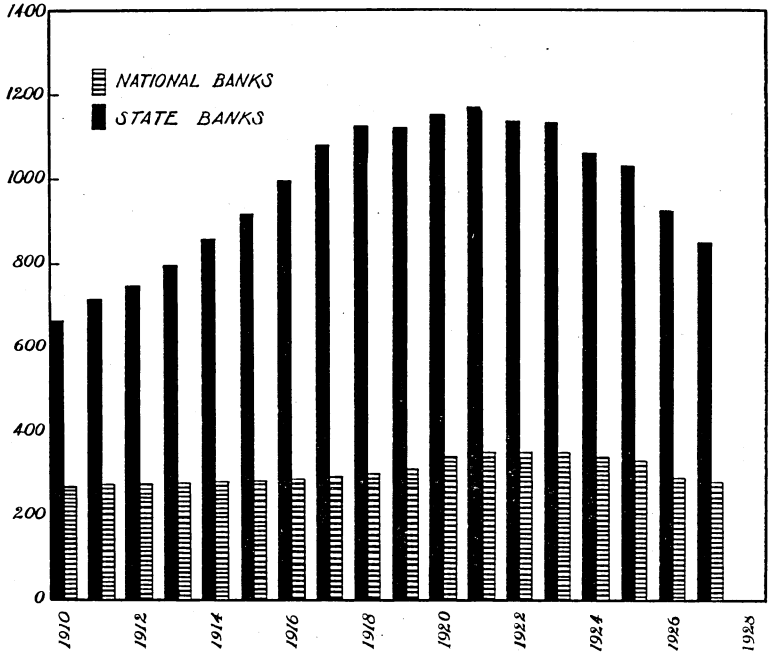

Fig. 20. Through consolidation and failures the number of state commercial banks and national banks in Minnesota at the end of 1927 has been reduced to the level of 1915.

The period of adjustment to the new price level was marked by political unrest, bankruptcy, bank failures, and reversion of land to former owners. The public knows little of the hundreds of owners of bank stock that have been compelled to pay assessments to put their banks on a solvent footing. Through consolidations and failures the number of banks in 1927 was reduced to that of 1915, as shown in Figure 20 and Table XXXIX. As a whole, the banks of Minnesota are now thought to be in better financial condition than at any time since 1920. Most banks are independent of outside capital.

"Frozen Assets"

Probably the term "frozen assets" has been too freely used as an explanation of bank failures. It is true that banks found themselves in too many instances with slow notes of farmers and merchants in their files. However, if there had been ample security behind these slow notes, they could have been rediscounted or the security sold and thus liquidated. It is doubtful if a well-secured note, even in the depths of depression, could not have found a market. But the so-called "frozen" notes found in the bank files were often entirely unsecured, often signed by individuals or corporations whose financial rating never warranted a credit extension as large as the face of the notes, and in many cases the secured notes were secured by property that had come to be worth less than the face of the note. Thus in many cases the notes were worthless or nearly so. That many of the "frozen credits" were worth less than their par value is shown by the fact that many banks failed long after credit became plentiful. As has been said on several occasions, the "frozen assets" have often proved to be "rotten" when they started to "thaw."

Banking Regulation as a Means of Improvement

In general, there are three lines of attack on the problem of improving country banking. One is to set up more overhead institutions to work with the banks and co-ordinate their activities. It seems that with the three types of federal banking institutions we can rest for a while and learn to make proper use of what we have. Another is to adopt research and educational programs for the purpose of improving local management. The possibilities of this have been barely scratched. The third is to develop a higher order of regulation of these activities. The third method everyone turns to first. And surely banking is a type of business that must submit to a large measure of public supervision and control.

In Minnesota, public interests have been safeguarded by an efficient Department of Banking; but the powers of the department have been limited in some important respects. The general philosophy has been the same as in other central western states, namely, that the public would be best served if individuals were allowed to engage freely in the banking business with as little supervision and control as possible. Under this system, many small independent banks have developed, the capital of which has been largely contributed by the community in which the bank is located. The officers and directors of each bank usually are local men interested in using the funds of the bank to develop local industries. Prior to 1920, charters were granted without much restraint. People in Minnesota have generally objected to

control of local banks by outside capital. Branch banking never made any substantial progress and was prohibited by law in 1923. (Chapter 170, Session Laws 1923.) The capital requirements established by law have been so low that a bank could be established at every hamlet or country trading center.

Prior to 1919 the number of banks that might be established at one point to compete for business was unlimited, with the result that the number of small banks increased rapidly. It is not unusual to find two or more banks in small towns where there should be only one. The cost of credit has been needlessly high—the entire banking buisness of most communities could have been easily performed with one overhead charge instead of two or more. Surely two banks of $50,000 capital each could be run more cheaply and serve the community better than four banks of $25,000 capital each.

The advice given by Kelsey S. Chase, superintendent of banks in 1912, is to the point. He says, "There have been thirty-five banks chartered during the past six months, almost all of which were organized with a capital of $10,000. The prosperity of Minnesota and of any community within the state is not enhanced by a large number of banks, but its prosperity does depend in part upon the strength of its existing banks. Almost any three or five individuals can organize and operate a bank for a time, and no one can lawfully prevent them, even tho the incorporators might be absolutely incompetent and financially irresponsible. Often the seed which later develops into a second bank in a community where only one bank is needed is sown through local jealousies and factional quarrels. Irresponsible parties who have been denied loans by the existing bank are often the most aggressive agitators for a second bank."[29]

Prior to 1910, banks and other financial institutions in Minnesota were under the jurisdiction of the public examiner. Private banks were not under state supervision until 1907. The laws of 1907 compelled private banking institutions to incorporate as banks or discontinue business, so there were no private banks in operation by November 1, 1909.[30] The establishment of the Department of Banking, in 1909, to enforce all banking laws was a decided step forward. While the legislature has always been friendly to the requests of the banking department for increased funds, the work required of the department has grown so rapidly that appropriations have not been sufficient to meet the increased demands. Salary limitations have greatly hampered the department. After a man is well trained to do bank examination work, he ordinarily has little difficulty in securing a $5,000 position with a

[29] Third annual report, Dept. of Banking, p. XXIX.
[30] Report, Dept. of Banking, 1910, p. IV.

private enterprise. This is more than the upper limit established by law to be paid to the superintendent of banks.

The work of the superintendent of banks[31] under the law is to exercise a constant supervision over the books and affairs of all state banks and other financial corporations and, through the examiners provided for, visit all state banks at least twice each year and investigate the character and value of their assets. He is required further to investigate the method of operation and conduct of such corporations and their system of accounting, and to ascertain whether such methods and systems are in accordance with the law and with sound banking principles. He may examine, or cause to be examined, on oath, any officer, agent, customer, or depositor of any bank on matters touching the business thereof, and compel access to such books, accounts, documents, and property as he may desire to inspect. No examiner may examine any bank in which he is interested directly or indirectly.

Changes in Banking Laws

During the last few years, marked progress has been made in remedying elements of weakness in the law relating to bank regulation and administration. The following are the more outstanding changes made. The Minnesota State Bankers Association has almost without exception taken the lead in securing these reforms.

1. Perhaps the most important change has been that of granting to the State Securities Commission control over the granting of the initial charter for any kind of bank to be organized under the laws of the state. (Chapter 86, Session Laws, 1919.) Heretofore, weak, unnecessary, and poorly managed state banks have been organized by itinerant promotors who were interested only in collecting a liberal fee.[32] The law of 1919 enables the commission to deny a new charter where the need for additional banking facilities does not appear to exist, or where added competition would endanger the solvency of existing banks, or if the commission is not satisfied that the proposed bank will be safely managed. The practical working of this law is shown by the fact that 20 out of 42 applications for charters from July 1, 1923, to June 30, 1924, were denied.

2. Closely connected with the power granted the State Securities Commission to prevent, under certain conditions, an increase of state banks, is the permission given to existing banks to consolidate. With the written consent of the superintendent of banks, one bank may consolidate with another, but the transfer of assets and liabilities to another bank shall be without prejudice to the creditors of either. (General

[31] Changed to commissioner of banks in 1925.
[32] Third annual report, Dept. of Banking, p. 7.

Statutes, 1913, 6373.) The consolidation of two banks may make one strong bank in place of two weak ones. The department has been encouraging such procedure. A. J. Veigel, superintendent of banks, says "Many cities and especially villages have too many banks. If a bank does not have enough business to pay reasonable salaries, dividends, charge off losses, and build up a surplus, it will probably not be a safe bank indefinitely. Our department is therefore encouraging and even urging certain banks to consolidate when the conditions warrant such action."[33]

3. The reorganization bill of 1925 changed the term of office of the superintendent of banks from two to six years. The effect of this change is to make the office less subject to political disturbances and influence. The activities of the Department of Banking in protecting the public interest must necessarily often interfere with the private activities of individuals having more or less political influence; hence the more nearly management can be divorced from political influence, the more efficient the management may become.

4. An important safeguard incorporated in the laws of 1925 deals with restrictions on loans to officers and directors. "No cashier or other officer or employee of a bank shall sell to such bank, directly or indirectly, any mortgage, bond, note, stock or other security whatsoever without the written approval of the board of directors filed in the office of the bank—and a copy sent to the State Superintendent of Banks." (Chapter 305, Session Laws 1925.)

"Every state bank shall be protected by good and sufficient sureties against unlawful acts of any of its officers or employees. The bonds must be satisfactory to the Superintendent of Banks." (Chapter 351, Session Laws 1925). This provision is an important recent safeguard adopted by law. Probably the law did not go far enough in this respect. A perusal of the annual reports of the banking department over a number of years conveys the impression that the banking department frequently felt that too many banks were managed like a private land company. The Royalton and Bowlus cases, described in the 1912 report of the banking department, show the extreme to which a bank may be looted by over-loaning to officers and companies in which the officers are interested. The day has passed when any banker may regard a bank as a private institution in the same sense as a real estate office.

5. The state banking department has for many years recommended to the legislature an increase in the minimum capital of banks, but the matter was not acted upon favorably until 1927. The 1927 legislature amended the former law regulating capital and surplus requirements as follows:

[33] Letter to all state banks and trust companies, dated September 22, 1924.

Old law			New law		
Population of municipality	Minimum		Population of municipality	Minimum	
	Capital	Surplus		Capital	Surplus
			500 or less*	$10,000	$ 2,000
1,000 or less	$10,000	$2,000	500 to 1,000	20,000	4,000
1,000 to 1,500	15,000	3,000	1,000 to 2,500	25,000	5,000
1,500 to 2,000	20,000	4,000	2,500 to 100,000	40,000	8,000
2,000 or more	25,000	5,000	100,000 and over	50,000	10,000

* Left to discretion of securities commission, where there is no bank.

Under both the old law and the 1927 law there must be a paid-in surplus equal to not less than one-fifth of the capital stock. The new requirements apply only to banks hereafter organized, so if the present banks, as seems likely, constitute the bulk of the banks for a considerable period, the gains to depositors through a greater margin of safety are deferred to the future. A qualification should be noted—the 1927 legislature amended the banking laws so that no state bank or trust company shall accept deposits in a sum exceeding 25 times the amount of its capital and surplus. The increased capital requirements should tend to reduce the demand for new banks. Wyoming, Idaho, and Utah recently increased the required minimum initial capitalization of new banks to $25,000. In fact, the minimum is now $25,000 in most states.[34] Minnesota's minimum requirement appears to be rather conservative.

With the advent of improved roads and the general use of motor vehicles, there is less need for a small bank at every cross-road. No doubt people would be willing to travel a little farther for banking services if it would bring greater security for their deposits and help to insure a continuous loaning service instead of the recent disreputable situation, as a result of which in some communities there is practically no adequate banking service. Banks with larger capital and surplus would also have an advantage in being able to take care of the needs of the larger borrowers in the community, as the state law limits the size of loan to any one individual or corporation to 15 per cent of the capital and surplus of the bank. The considerable decrease in the value of a dollar from 1913 to 1926 makes the nominal increase in capital and surplus larger than the real increase in terms of purchasing power.

Further Changes Proposed

It is believed that the following further changes would assist still more in preventing epidemics of bank failures such as the recent one.

1. The appropriations for carrying on the work of the banking department ought to be increased and the salaries for the super-

[34] Frank W. Simonds, Deputy Manager, A. B. A., *American Bankers Association Journal*, p. 327. November, 1925.

intendent and experienced examiners should be increased sufficiently to enable the department to compete successfully with private business for trained and experienced men. Chapter 136, General Laws 1919, provides that certain fees are to be charged for the examination of state banks, savings banks, trust companies, and building and loan associations, such fees to be paid into the state treasury and credited to the general revenue fund of the state. The fees earned by the department under this law during the fiscal years 1923 and 1924 amounted to $156,805.[35] The total expenses of the department for the two years were $269,657. Deducting the fees earned, the amount paid by the state for the two years is $112,852—an average of $56,426 a year. The small additional appropriation required to obtain and retain a competent personnel would be good economy for the people of the state.[36]

2. Another change in the law thought to be desirable is to reduce the number of mandatory examinations from two to one, because more time would be available for optional examinations where these are most needed. Many banks are run so conservatively that more than one examination a year seems to be useless.

3. Some plan should be evolved for giving the banking department control over the qualifications of local bank officers. At present no such control exists after a bank is once established. The basis of such control might be a licensing system by means of which minimum standards could be set up and enforced, such as are enforced for druggists. Through a licensing system the managers of banks might be required to have a knowledge of banking laws, to know something about price levels and business cycles, banking and investment principles, and to have had a reasonable amount of banking experience.

4. Greater protection should be provided savings depositors in commercial banks. It is proposed that the assets in which savings deposits are invested should be segregated and that it be unlawful to pledge any such assets as security for borrowed money. It is believed that savings depositors, more than checking depositors, suffer deprivation from bank losses. Furthermore, a bank usually borrows in order to make loans to customers having checking accounts. A checking account usually represents but a small part of the assets of any individual, and a partial loss of such accounts seldom results in actual personal deprivation. It seems appropriate to segregate the investments made with time deposit funds, and to make such securities not subject for any liability of the bank other than that to its time depositors.

5. County clearing-house associations should be established. The clearing-house idea is a part of the program of the clearing-house sec-

[35] Department of Banking, Thirteenth Ann. Rept., p. 10.

[36] The 1927 legislature allowed an increase of $8,500 to the banking department.

tion of the American Bankers' Association, by whom it has been advocated for several years.[37] The clearing-house movement began in Chicago about 1905, after the Walsh bank failures, and has since spread to 32 cities and to a few country communities. The plan consists simply of a voluntary examination by an examiner employed by the association, who concentrates his attention on a few banks and whose reports serve as the basis of a credit bureau for improving banking conditions in the territory of the association. In organizing such an association, the banks of one county or of several counties combine for mutual protection, and agree upon certain banking standards. These standards should soon become the basis of increased public confidence.

A managing committee is selected and an examiner employed. The duties of the examiner are to make periodic thoro examinations of each bank in the association. All assets of the bank are examined, all notes and other assets and securities are carefully checked, and intra-bank borrowings detected. After such examination, the actual position of each bank is determinable. A complete report is made, which would furnish a basis of appraisal of the bank's ability to pay its depositors. The report should be frank and open and presented in person to the directors of each bank. Under the clearing-house system, no excuse exists for serious losses, and the public would be protected to the fullest extent.

Unless bankers can be held responsible for the banks that fail, there is no valid argument against the justice of government guaranty of bank deposits. When the federal government, the state, or a county deposits money in a bank, it usually requires a bond from the bank guaranteeing the safety of the deposit. The individual has as much right to be insured as has the government. State guaranty laws have generally been unsuccessful because insurance was attempted without respect to the risk and also because of political control. There are insurance companies that will insure bank deposits but not without selecting the risks to be insured.

The depositors have a right to some basis of discrimination between banks. Under the clearing-house system, the banks themselves provide such a system. Banks not managed according to the principles adopted by the association are expelled or forced to conform. Knowing the risks, the association ought to be in a position to see that no depositor ever loses a dollar.

There are two main objections to the plan. Some say that the jealousy and distrust among neighboring bankers makes it impossible

[37] The Way to Sounder Banking, by C. B. Hazelwood, *American Bankers Association Journal*, p. 256. October, 1925.

to get bankers to co-operate in this way. This objection was raised when the system was first proposed for city bankers. Some of the city bankers were slow to join, but all managers of large city banks are now thoroly convinced that the plan has materially advanced their welfare. The bankers' opposition can not be well founded, because any plan to strengthen the banking system benefits the largest as well as the smallest bank.

It may also be objected that as banks operate on a narrow margin, few could afford to join a country clearing-house association. If we assume an association with 25 member banks with each bank contributing $250 annually, a fund of $6,250 would be provided—an amount sufficient to hire a good manager and a stenographer. It is doubtful if $250 could be used in any other way to purchase as much protection, confidence, and good will. It is claimed that membership in a city clearing house has increased deposits, and it should increase deposits in country banks even more. The probable benefits of the clearing-house organization seem to more than justify the expense.

The country clearing-house plan, then, ought to reduce risks and losses, increase profits in banking, and at the same time help to meet the rather insistent demands of those interested in the integration of banks through branch banking. It has possibilities of being an effective and sensible solution of the present demand for guaranty of individual bank deposits.

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APPENDIX

TABLE I

NUMBER AND AMOUNT OF MORTGAGE LOANS, FORECLOSED LOANS, AND DELINQUENT INSTALLMENTS HELD BY MINNESOTA DEPARTMENT OF RURAL CREDIT, DECEMBER 31, 1926

County	Mortgage loans		Delinquent installments		Foreclosed loans	
	Number	Amount	Number	Amount	Number	Amount
Aitkin	325	$ 758,600	46	$ 6,451	4	$ 8,538
Anoka	88	311,900	9	2,025	none	
Becker	312	1,631,100	60	18,897	11	80,516
Beltrami	243	493,700	45	6,492	6	19,605
Benton	21	95,900	1	194	none	
Big Stone	31	234,100	9	3,797	none	
Blue Earth	30	275,100	1	200	none	
Brown	32	322,500	none		none	
Carlton	156	306,300	13	1,309	3	5,126
Carver	17	142,700	3	569	none	
Cass	334	736,600	53	5,710	17	52,466
Chippewa	46	412,200	1	406	2	18,680
Chisago	110	540,000	6	775	2	15,425
Clay	162	1,116,000	21	7,664	4	25,499
Clearwater	307	1,055,100	50	9,889	6	29,592
Cook	none		5	1,462	none	
Cottonwood	39	420,000	none		none	
Crow Wing	130	373,900	8	1,758	none	
Dakota	74	356,100	24	4,682	4	12,152
Dodge	25	215,100	none		none	
Douglas	79	521 800	12	4,580	none	
Faribault	36	408,200	7	2,440	none	
Fillmore	17	158,500	2	1,164	none	
Freeborn	30	282,700	2	559	none	
Goodhue	7	43,800	none		none	
Grant	82	630,700	4	985	none	
Hennepin	61	244,100	5	2,341	none	
Houston	11	88,700	1	252	1	7,714
Hubbard	133	367,800	15	2,241	1	4,721
Isanti	162	634,900	9	1,327	1	2,863
Itasca	98	218,700	10	802	none	
Jackson	30	338,900	5	1,741	none	
Kanabec	204	779,600	22	3,244	1	5,518
Kandiyohi	50	345,300	3	1,489	1	9,084
Kittson	338	1,785,500	70	22,322	18	97,395
Koochiching	45	77,800	3	220	none	
Lac qui Parle	56	555,100	3	1,938	none	
Lake	3	6,200	none		none	
Lake of the Woods	152	229,800	28	2,881	none	
LeSueur	17	120,500	none		none	
Lincoln	77	771,800	8	3,079	none	
Lyon	56	608,600	4	932	none	
McLeod	8	75,500	none		none	
Mahnomen	170	844,700	41	14,829	5	50,885
Marshall	605	2,710,700	114	37,154	34	223,877
Martin	23	242,300	1	375	none	
Meeker	34	259,100	none		none	

TABLE I—*Continued*

NUMBER AND AMOUNT OF MORTGAGE LOANS, FORECLOSED LOANS, AND DELINQUENT INSTALLMENTS HELD BY MINNESOTA DEPARTMENT OF RURAL CREDIT, DECEMBER 31, 1926

County	Mortgage loans		Delinquent installments		Foreclosed loans	
	Number	Amount	Number	Amount	Number	Amount
Mille Lacs	93	338,600	5	1,100	1	3,259
Morrison	141	650,500	10	2,679	2	25,226
Mower	5	53,500	none		none	
Murray	28	305,200	7	3,803	none	
Nicollet	28	175,700	none		none	
Nobles	6	49,600	none		none	
Norman	140	842,100	27	6,507	4	48,992
Olmsted	4	32,700	none		none	
Ottertail	375	2,065,400	26	6,158	1	4,929
Pennington	317	1,498,000	82	21,514	28	171,859
Pine	280	813,800	20	3,522	2	18,281
Pipestone	6	53,500	1	936	none	
Polk	490	2,949,000	63	20,476	13	141,132
Pope	63	481,100	11	5,093	none	
Ramsey	29	107,400	4	459	none	
Red Lake	210	880,800	24	8,854	7	35,205
Redwood	23	237,500	3	1,547	none	
Renville	75	694,100	7	3,209	none	
Rice	6	48,900	none		none	
Rock	3	29,000	none		none	
Roseau	536	1,521,400	87	13,356	12	45,444
St. Louis	65	132,000	8	751	none	
Scott	36	287,000	6	1,707	none	
Sherburne	93	343,600	6	2,050	none	
Sibley	10	111,500	1	287	none	
Stearns	66	460,800	7	1,899	1	4,833
Steele	7	76,000	none		none	
Stevens	45	382,200	1	188	none	
Swift	102	907,000	20	6,727	1	7,555
Todd	161	839,400	10	2,398	none	
Traverse	45	355,300	5	3,173	1	10,336
Wabasha	21	172,100	5	1,097	none	
Wadena	179	747,300	34	5,744	2	7,845
Waseca	11	84,700	none		none	
Washington	77	449,700	15	5,161	none	
Watonwan	14	128,100	none		none	
Wilkin	38	325,700	2	432	1	7,560
Winona	24	222,300	1	2	2	18,454
Wright	30	187,100	3	1,000	none	
Yellow Medicine	25	260,500	1	619	none	

TABLE II

DIRECT LOANS OF THE TWELVE FEDERAL INTERMEDIATE CREDIT BANKS TO CO-OPERATIVE MARKETING ASSOCIATIONS, CLOSE OF BUSINESS DECEMBER 31, 1927

District	Tobacco, Beans(a) Red-top seed(b)	Wheat, Dried fruit(c)	Cotton, Alfalfa seed(d) Raisins(e)	Wool
Springfield	$ 50,000	.....	.....	.....
Baltimore	2,298,198	.....	.....	.....
Columbia	.....	.....	$2,665,000	.....
Louisville	1,950,409	.....	.....	.....
New Orleans	.....	.....	4,880,721	.....
St. Louis	51,600(b)	.....	658,210	.....
St. Paul	.....	$ 826,682	.....	$ 1,166
Omaha	.....	550,000	.....	209,970
Wichita	.....	1,160,000	5,240,000	43,745
Houston	.....	.....	1,500,000	.....
Berkeley	250,000(a)	407,705(c)	5,950,000(e)	21,055
Spokane	60,000(a)	37,400(c)	54,000(d)	135,506

District	Canned fruits and vegetables	Rice, Honey(f)	Total direct loans
Springfield	.....	.....	$ 50,000
Baltimore	.....	.....	2,298,198
Columbia	.....	.....	2,665,000
Louisville	.....	.....	1,950,409
New Orleans	.....	.....	4,880,721
St. Louis	.....	$ 659,238	1,369,048
St. Paul	$ 20,000	.....	847,848
Omaha	.....	.....	759,970
Wichita	.....	.....	6,443,745
Houston	.....	.....	1,500,000
Berkeley	611,241	1,155,646	8,395,647
Spokane	511,149	31,945(f)	830,009

TABLE III

PERCENTAGE OF TENANCY IN MINNESOTA AND NEIGHBORING STATES COMPARED, 1890-1925

Area	Percentage of farms rented				
	1925	1920	1910	1900	1890
Minnesota	27.1	24.7	21.0	17.3	12.9
North Dakota	34.4	25.6	14.3	8.5	6.9
South Dakota	41.5	34.9	24.8	21.8	13.2
Montana	21.4	11.3	8.9	9.2	4.8
Iowa	44.7	41.7	37.8	34.9	28.1
Wisconsin	15.5	14.4	13.9	13.5	11.4
Illinois	42.0	42.7	41.4	39.3	34.0
East north central states	26.0	28.1	27.0	26.3	22.8
West north central states	37.8	34.2	30.9	29.6	24.0
United States	38.6	38.1	37.0	35.0	28.4

TABLE IV

AMORTIZATION PLAN USED BY FEDERAL LAND BANK

Principal $1000 Rate 5% Semi-Annual Installments $30.00 Final Installment $46.58

Amortization table

Year due	No.	Interest*	Principal*	Date paid	Initial	Balance
1920	1	$25.00	$ 5.00	———	———	$995.00
1920	2	24.88	5.12	———	———	989.88
1921	3	24.75	5.25	———	———	984.63
1921	4	24.62	5.38	———	———	979.25
1922	5	24.48	5.52	———	———	973.73
1922	6	24.34	5.66	———	———	968.07
1923	7	24.20	5.80	———	———	962.27
1923	8	24.06	5.94	———	———	956.33
1924	9	23.91	6.09	———	———	950.24
1924	10	23.76	6.24	———	———	944.00
1925	11	23.60	6.40	———	———	937.60
1925	12	23.44	6.56	———	———	931.04
1926	13	23.28	6.72	———	———	924.32
1926	14	23.11	6.89	———	———	917.43
1927	15	22.94	7.06	———	———	903.13
1927	16	22.76	7.24	———	———	903.13
1928	17	22.58	7.42	———	———	895.71
1928	18	22.39	7.61	———	———	888.10
1929	19	22.20	7.80	———	———	880.30
1929	20	22.01	7.99	———	———	872.31
1930	21	21.81	8.19	———	———	864.12
1930	22	21.60	8.40	———	———	855.72
1931	23	21.39	8.61	———	———	847.11
1931	24	21.18	8.82	———	———	838.29
1932	25	20.96	9.04	———	———	829.25
1932	26	20.73	9.27	———	———	819.98
1933	27	20.50	9.50	———	———	810.48
1933	28	20.26	9.74	———	———	800.74
1934	29	20.02	9.98	———	———	790.76
1934	30	19.77	10.23	———	———	780.53
1935	31	19.51	10.49	———	———	770.04
1935	32	19.25	10.75	———	———	759.29
1936	33	18.98	11.02	———	———	748.27
1936	34	18.71	11.29	———	———	736.98
1937	35	18.42	11.58	———	———	725.40
1937	36	18.13	11.87	———	———	713.53
1938	37	17.84	12.16	———	———	701.37
1938	38	17.53	12.47	———	———	688.90
1939	39	17.22	12.78	———	———	676.12
1939	40	16.90	13.10	———	———	663.02
1940	41	16.57	13.43	———	———	646.59
1940	42	16.24	13.76	———	———	635.83
1941	43	15.90	14.10	———	———	621.73
1941	44	15.54	14.46	———	———	607.27
1942	45	15.18	14.82	———	———	592.45
1942	46	14.81	15.19	———	———	577.26
1943	47	14.43	15.57	———	———	561.69
1943	48	14.04	15.96	———	———	545.73
1944	49	13.64	16.36	———	———	529.37
1944	50	13.23	16.77	———	———	512.60

* The columns headed "Interest" and "Principal" show the portion of each $30 amortization installment applied on interest and principal, respectively. The amount taken for interest becomes less with each successive payment, while the amount on the principal increases each time. The balance column shows the debt remaining after each installment has been paid. It is entirely extinguished with the 72nd payment (36 years).

TABLE IV—*Continued*

AMORTIZATION PLAN USED BY FEDERAL LAND BANK

Principal $1000 Rate 5% Semi-Annual Installments $30.00 Final Installment $46.58

Amortization table

Year due	No.	Interest*	Principal*	Date paid	Initial	Balance
1945	51	12.81	17.19	———	——	495.41
1945	52	12.38	17.62	———	——	477.79
1946	53	11.94	18.06	———	——	459.73
1946	54	11.49	18.51	———	——	441.22
1947	55	11.03	18.97	———	——	422.25
1947	56	10.56	19.44	———	——	402.81
1948	57	10.07	19.93	———	——	382.88
1948	58	9.57	20.43	———	——	362.45
1949	59	9.06	20.94	———	——	341.51
1949	60	8.54	21.46	———	——	320.05
1950	61	8.00	22.00	———	——	298.05
1950	62	7.45	22.55	———	——	275.50
1951	63	6.89	23.11	———	——	252.39
1951	64	6.31	23.69	———	——	228.70
1952	65	5.72	24.28	———	——	204.42
1952	66	5.11	24.89	———	——	179.53
1953	67	4.49	25.51	———	——	154.02
1953	68	3.85	26.15	———	——	127.87
1954	69	3.20	26.80	———	——	101.07
1954	70	2.53	27.47	———	——	73.60
1955	71	1.84	28.16	———	——	45.44
1955	72	1.14	45.44	———	——	

* See footnote, p. 97.