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The Missouri Farm Real Estate Situation for 1930-1931

CONRAD H. HAMMAR AND R. P. CALLAWAY

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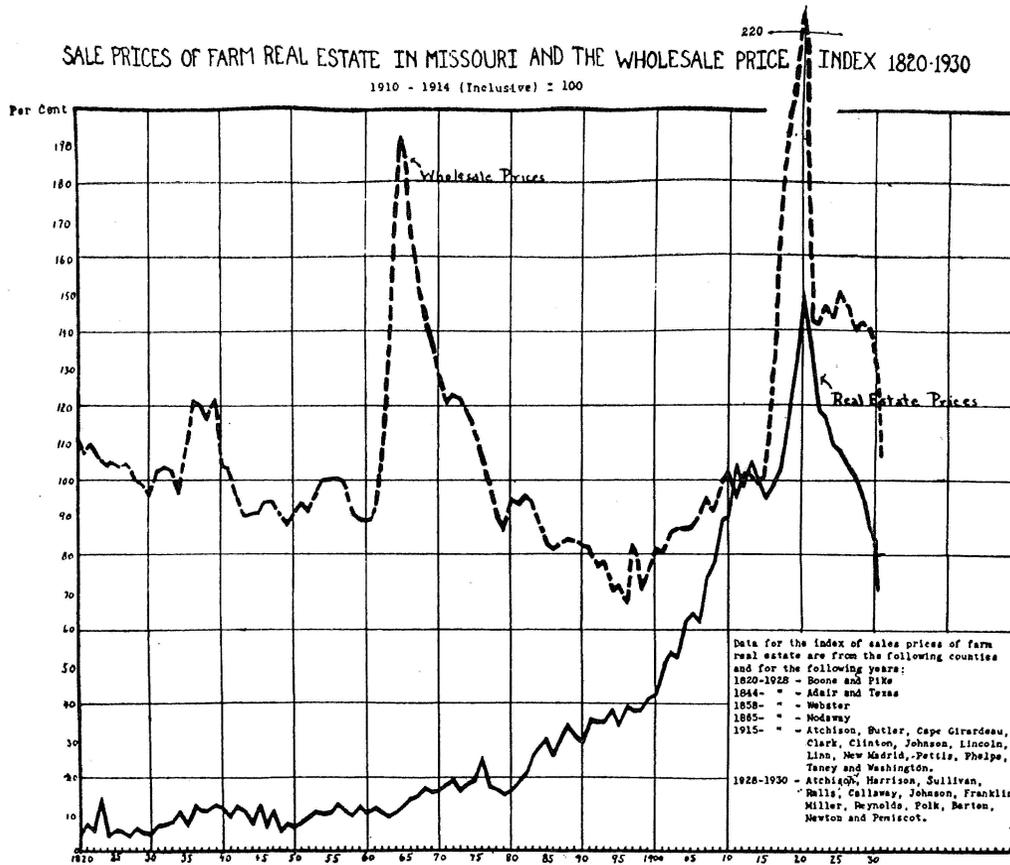


Fig. 1.—“Sales data for the years 1820 to 1914 were gathered by Professor O. R. Johnson, of the Department of Agricultural Economics of the University of Missouri. Those for the years 1915 to 1927 were secured under a cooperative agreement between Professor Johnson and Dr. L. C. Gray, of the Division of Land Economics of the United States Department of Agriculture. Data for succeeding years are from the present study.”

The Missouri Farm Real Estate Situation for 1930-1931¹

CONRAD H. HAMMAR AND R. P. CALLAWAY

PART I

THE SITUATION IN GENERAL

A sharp down-turn characterized the movement of farm real estate values in Missouri during the latter half of 1930 and the first half of 1931. The index² of value dropped from 83 for the first six months of 1930 to 72.5 for the corresponding period in 1931, a decline of 10.5 points or approximately 12 per cent.

Extreme pessimism as regards the anticipated future income to farm real estate engendered by drastic reductions in farm incomes (see Figure 2), an aftermath of rapid and consistent declines in farm product prices, both absolutely and relatively, is largely responsible for the greatest decline in Missouri farm real estate values since 1922.

To make the analysis of movements of farm real estate values in Missouri more comprehensible consideration will again be given, as was given in the "Missouri Farm Real Estate Situation for 1927-30"³, to the economic position of agriculture, in the United States and the world, as it relates to the general level of farm real estate values.

As depicted in Figure 1, movements of farm real estate values are to a considerable degree independent of those of the general price level.⁴ Farm real estate values reflect the anticipated relationship between prices paid by farmers on the one hand and those received on the other to a greater extent than the probable movement of prices in general.⁵ The relationship existing between these prices at any one time is prone to affect the judgment of what future relationships will be, a case in point being the appraisal of farm real estate during the War.

Despite the lack of correspondence at times between the movement of farm real estate values and the wholesale commodity price level, some consideration should be given the probable course of the latter. Fixed obligations, viz., interest payments and taxes, which are little affected by changes in the commodity price level, may at one level be easy of discharge, but at a lower level extremely difficult, a statement justified by the experience of the last ten years.

¹The text of this bulletin represents a revision of a manuscript with the same title submitted originally by Mr. Callaway to the Graduate School of the University of Missouri in partial fulfillment of the requirements for the Degree of Master of Arts.

²1927-100%.

³Missouri Agric. Experiment Station Research Bulletin 154.

⁴Wholesale prices of all commodities.

⁵See "Relation of Land Income to Land Value", by Clyde R. Chambers, U. S. D. A. Bulletin 1224

The outlook for gold production, and economies in its utilization as a monetary standard, are such that a downward trend in the price level is not unlikely.¹ The world's output of goods from a trend viewpoint, is apparently increasing faster than the production of gold and the efficacy with which the metal is used as a basis for credit.² (Suspension of the gold standard by a number of foreign countries, however, has cast some doubt as to the future importance of gold as the basic monetary metal.) Cooperation on the part of the central banks in each of the gold standard countries might do much to offset effects of the prospective decline in gold production.

Furthermore, certain moves to stem the deflation and even to engender a certain amount of inflation are apparent even within the United States. Nevertheless, except for cyclical fluctuations, there is little in the offing that would lead one to anticipate an increasing price level, and the statement made in last year's Missouri Farm Real Estate Situation³ that "we shall be forced to exert some ingenuity in the not distant future to stave off a declining price level" is, as far as trends are concerned, still applicable⁴. Indeed, the great decline in Missouri farm real estate values in 1930 and 1931 is apparently in part in anticipation of a declining price level.

For the immediate future the prospect is for a more favorable relationship between agricultural prices and commodity prices generally. With a cyclical rise in commodity prices such as normally accompanies the restoration of business confidence after a period of depression, prices of raw materials, among them farm products, usually rise more rapidly than the prices of finished products. Some response to the resulting improved income situation for agriculture may be expected on the part of farm real estate values. The response, however, will probably be a slackening of the decline in values rather than a tendency for these values to rise. That is, we may expect a partial repetition of the situation that occurred during the years 1923 to 1929, inclusive, when an increase in the prices received as related to prices paid exerted a stabilizing influence on farm real estate values. Indeed, in 1929, values, not only for Missouri but the United States generally, had almost ceased to decline. The situation in 1931, although somewhat analogous to that of 1921 and 1922, has the difference that it has arrived after an entire decade of liquidation for agriculture and particularly for farm real estate values, whereas 1921 and 1922 came after the greatest "boom" in farm real estate values ever experienced in the United States. That a greater

¹See "America Weighs Her Gold", by J. H. Rogers, Yale University Press, 1931, page 215.

²Trends estimated by Gustav Cassel, a Swedish economist. See "Principles of Economics", by Garver and Hansen, Ginn and Company, 1928, page 370.

³Op. cit. pages 6-7.

⁴1910-14 - 100%.

underlying strength in farm real estate values will develop in years subsequent to 1931 than in those subsequent to 1921 is not too much to expect. Hence, while values may decline during the remainder of the present depression somewhat more than they already have, it is quite unlikely that the decline will be as long drawn out as was that of the preceding decade. A stiffening of values in the near future is a distinct probability.

Farm Incomes Down Again in 1931

The index of the ratio of prices received to prices paid, indicative of the price relationships under which farmers secure their incomes, was in May, 1932 only 50 as compared to 66 for 1931 and to 75 for the year 1921, the lowest yearly average for the immediate post-war deflation (Figure 2). As estimated by the Division of Statistical and Historical

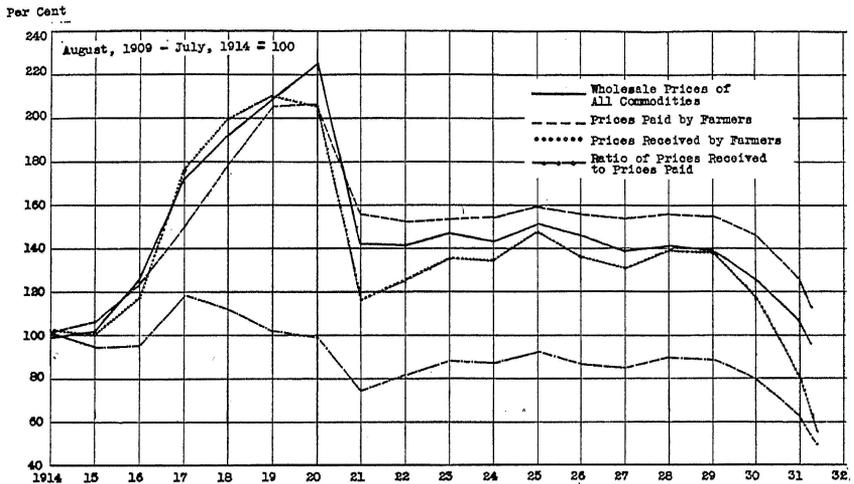


Fig. 2.—General Trend of Prices and Purchasing Power of Farm Products. 1914—April, 1932.

Research¹, Bureau of Agricultural Economics, gross agricultural income in the United States as a whole declined 21.5 per cent from 1929 to 1930 while expenditures, including operating costs, wages to hired labor, and taxes fell only 9.4 per cent. The effects on net farm income accompanying such unequal declines in receipts and expenses and an even more adverse situation in 1931 and early 1932 are further evidenced by a mounting volume of tax delinquency and of forced sales of farm real estate.² A further indication of the unfavorable price relationships that farmers have been laboring under is the comparatively low incomes they re-

¹Stauber, B. R., "The Farm Real Estate Situation, 1930-31", U. S. D. A. Circular 209, page 201, Table 6.

²See Table 4 and accompanying text.

ceived from 1920 to 1928.¹ Movements of farm real estate values have been responsive to these income situations.

Reduction of output fails to reduce costs as materially in agriculture as in most other industries and price declines act, in part, to force farmers with interest and taxes to meet to increase rather than cut production, thus giving impetus to further price declines. Furthermore, a given percentage loss on the volume of sales will, in most industries other than agriculture, quickly wipe out the capital investment.² The portion of the total supply coming from the least efficient establishments in agriculture will not be quickly diminished with even severe declines in the prices of farm products. A description of this situation is given by R. T. Ely³: "Land upon which labor and capital have been expended will long be cultivated, even if rent is a negative quantity. Better a very small return on capital than none. It will be cultivated so long as the returns on specialized fixed capital plus personal earnings equal wages. It will sometimes be cultivated longer, because men will hope for a change from year to year, not recognizing the true nature of their unfortunate condition."

Indeed, the stability of agriculture in providing at least a modicum of the necessities of life may prove its own undoing as far as adjustments during a period of depression such as the present are concerned. Despite the unfavorable level of agricultural prices and incomes during 1930, the farm population of the United States increased for the first time for nearly a decade. As Stauber in the *Farm Real Estate Situation for 1930-31*, writes⁴: "The industrial depression has served to focus attention on the relatively strong position, in times of adversity, of the farmer who has a substantial equity in his farm and can, if necessary, become almost entirely self-sufficient. The industrial depression, further, has contributed to the first net increase in farm population in years, and appears to have resulted in an increased rental demand. A slight decrease in taxes is likewise encouraging."

We cannot, however, agree with Stauber that the above facts are in any way favorable to farmers. An increased rental demand does have the tendency to bolster farm real estate values. Insofar as there is an accompanying increase in agricultural production, however, an offsetting decline in farm prices will occur and the net effect on real estate values must be counted ambiguous. On the other hand, so far as it is

¹See Fig. 4 page 9 Mo. Ag. Expt. Sta. Research Bul. No. 154.

²A manufacturing establishment and a farm each capitalized at \$25,000 will do volumes of business so widely divergent as \$200,000 for the former as compared to \$10,000 for the latter. A 5% loss will in 2.5 years wipe out the capital invested in the manufacturing plant whereas it would take 50 years in the case of the farm.

³Ely, R. T., "Outline of Land Economics", Volume 1, page 66.

⁴Pages 2 and 3.

effective, an increased rental demand will mean a lower wage and a lower labor income for the agricultural worker.

An increase in the agricultural population, with the disparity between agricultural and non-agricultural incomes as great as that for the year 1928,¹ which must be regarded as more typical than 1931, means merely that a desirable adjustment has been thwarted for the time being by the depression. The increase in farm population in 1930, if the decreases from 1920 to 1928 were desirable, cannot be considered encouraging from the standpoint of farm incomes. The increase is only dubiously encouraging as far as increased farm real estate value is concerned, if indeed increased farm real estate values in themselves are encouraging. An increased farm population means increased farm production and an increased farm production means lower prices, which in turn must be counted as one factor in reducing farm real estate values.

To count a decrease in farm taxes as encouraging is also somewhat questionable. The relationship between farm taxes and farm real estate values is not an entirely settled matter. The poverty of rural institutions such as roads and particularly schools is proverbial. To increase farm real estate values by restricting funds for rural education and even for rural roads would be highly discouraging from the standpoint of ultimate agricultural adjustment and probably even from the standpoint of increased farm real estate values. Perhaps the greatest reason why agriculture has been so slow to adjust to the new conditions since 1920 has been the inadequacy of its institutions to fit farm children for the complex demands of modern industrial life.

Population Versus Farm Production

Despite the 17 per cent increase in population in the world since 1900 and the 14 per cent increase (numerically 17,000,000) in the United States since 1920, farm incomes have suffered as a result of relative over-production of farm products.² The increase in population has been accompanied by relatively greater increases in the production of farm products coming at a time when the dietary habits of consumers (at least in this country) were changing rapidly,³ and exports of agricultural products were declining.

"By 1926", according to Baker⁴, "after five years of a remarkable increase in agricultural production, the relation of production to population was as opulent as at the beginning of the century. Agricultural production increased between 1921 and 1926 twenty-seven per cent,

¹See Figure 4 Mo. Ag. Exp. Sta. Research Bul. No. 154. Average industrial incomes were more than double the average farm income.

²For a general discussion of this topic see Gray and Baker, "Land Utilization and the Farm Problem", U. S. D. A. Misc. Pub. No. 97.

³See Fig. 7 Mo. Ag. Exp. Sta. Research Bul. No. 154.

⁴"Outlook for Land Utilization in the United States", U. S. D. A. Extension Circular 168, page 12.

whereas population increased 9 per cent." Production, he continues, has declined since 1926 largely as a result of adverse weather conditions.

The production of two important crops, wheat and cotton, has been increasing much faster in foreign countries than in the United States. Again citing Baker;¹ "Whereas production of wheat in the United States has remained more or less stationary for fifteen years, world production, excluding China, has increased about 20 per cent. Likewise, cotton production in the United States is about the same as fifteen or twenty years ago, but production in foreign countries has increased 40 to 50 per cent".

A stationary population, if not a declining one, is expected within 20 to 30 years in the United States and the highly industrialized countries of northern Europe, our principal export market.² Latest estimates of population growth in the United States indicate a maximum of approximately 165,000,000 persons in the year 1960.

Indeed, two major points regarding future farm real estate values in Missouri and the United States seem clearly established. While some evidences of a stabilized level of values does appear, prospects of increasing real estate values because (1) of a rapid increase in the ratio of population to agricultural production, or because (2) of a rapidly rising price level are, on the basis of present indications, practically non-existent.

Increased Efficiency of Agricultural Production

Under the incentive of low prices,³ accentuated by the burdensome fixed costs resulting from the immediate post-war deflation, and greatly facilitated by scientific research and its dissemination, production per man and per crop acre has increased greatly since the War.⁴

The increase in mechanization is commented on by O. E. Baker in the following terms⁵. "The introduction and increasing use of the automobile and tractor has permitted a reduction in the United States of over 8,000,000 horses and mules since the War, and thereby released about 25,000,000 acres of crops, which are now used mostly to feed meat and milk animals and to grow cotton. As about 200,000,000 acres were used for these purposes in 1919, it appears that the crop land released by the decline in horses and mules has provided an increase of about 12 per cent in 12 years in the acreage used for the production of meat, milk and cotton. That is an increase two-thirds as great as the increase in the nation's population."

¹Ibid, page 12.

²For a discussion of population growth see Baker op. cit. p. 15-16.

³See pages 6 and 8 of this report.

⁴See Baker, op. cit. Fig. 15.

⁵Op. cit., page 9.

Similar increases in efficiency have been made in animal husbandry. Thus the production of meat, milk and eggs per animal unit has increased rapidly since 1920.¹ These improvements in technique, following the more intensive application of science to agriculture and resulting in increased efficiency just described, have decreased, relatively, the need for land. The field for scientific achievement in agriculture can hardly be counted as exhausted. Furthermore, the use of the labor saving mechanical equipment and improved practices in feeding, breeding, etc., is even yet far from universal. Further great improvements in agricultural efficiency can, hence, be anticipated.

Trends in Farm Acreages and Number of Farms and Farmers

Total acreage in farms in the United States increased about 30,000,000² acres, or around 3 per cent, in the last decade, while crop acreage remained practically unchanged: decreases in the eastern half of the country offsetting increases in the western half.³ The remarkable increase in total agricultural production since 1920, reaching a peak in 1926 then fluctuating downward largely as a result of adverse weather conditions, must be attributed to factors other than increases in crop acreage.

The number of farms and the average acres per farm for the country have moved in opposite directions since 1920. Thus, the number of farms decreased from 6,448,343 in 1920 to 6,228,648 in 1930, while average acres per farm increased from 148.2 to 156.9 acres during the same period.

Both land in farms and number of farms in Missouri decreased during the last decade (Table 1). Although the number of farms has been decreasing steadily since 1900, the land in farms increased up to 1920, then declined somewhat from 1920 to 1930. The percentage change

TABLE 1.—CHANGES IN ACREAGE IN FARMS, NUMBER OF FARMS, AND SIZE OF FARMS IN MISSOURI, 1860-1930

Year	Acreage in Farms	Number of Farms	Size of Farm, (Acres)
1860	19,984,809	92,953	214.9
1870	21,704,220	148,680	145.9
1880	27,879,276	215,575	129.3
1890	30,780,290	238,043	129.3
1900	33,997,873	254,886	119.3
1910	34,591,248	277,244	124.8
1920	34,774,679	263,004	132.2
1930	33,743,019	255,940	131.8

¹See Baker, op. cit. p. 7.

²1930 U. S. Census (Press Release, October 15, 1930).

³Baker, op. cit., page 7.

in number of farms between 1920 and 1930 for the various counties in the State, has been somewhat irregular and ranged from an 18.8 per cent decline in Boone county to a 118.9 per cent increase in Pemiscot county.¹

Farm population in Missouri, consistent with the trend in the entire country, declined from 1,211,346 in 1920 to 1,114,484 in 1930, a decline of 8 per cent.

The remarkable feature about the number of farms and farmers in Missouri since 1920, however, has been their relative stability in the face of a drastically changed economic situation.² Land use patterns have in reality changed little, and farmers cannot be said to have swarmed to alternative occupations to a degree that, from many viewpoints, would seem justified.

Foreign Demand

Exports of the principal agricultural products have fluctuated about a declining trend since 1920 (Figure 3). The index of commodities exported was in 1931 only half that of the base year 1920. The significance of the decline since 1929 is rather obscure. What part is permanent and what part only temporary? The increased tariff barriers and consequent movement toward self-sufficiency on the part of the principal countries importing American farm products, is likely to have a permanent effect on the volume of exports. World production of cotton and wheat, as stated above, is increasing faster than production in this country. On the other hand, the effect of the present depression on the purchasing power of European peoples and the decline in total production of farm products during the last few years in this country may well be considered as transitory in character.

Increased tariff schedules on farm products now on an import basis, such as beef and dairy products, will do little to bolster farm incomes. J. D. Black³, writing in 1929, estimated the net effect of increased tariff duties on these products on an import basis as being only \$15 per farm. However, the cotton and tobacco farmers of the South and even the wheat farmers of the West receive no net benefit from tariff protection.

Unless offsetting factors come into play, a decreasing export demand will force a readjustment of farm real estate values in the areas which specialize heavily in products which we now export in large quantities, notably cotton and wheat. In the long run, a permanent decrease of considerable magnitude in the export demand for cotton and wheat will

¹See Fig. 10, Mo. Ag. Exp. Sta. Research Bul. No. 154.

²See "Type of Farming Areas in Missouri", by Hammar and Roth, in process of publication by Division of Farm Management, U. S. Dept. of Agriculture.

³"Agricultural Reform in the United States," McGraw-Hill and Company, page 231.

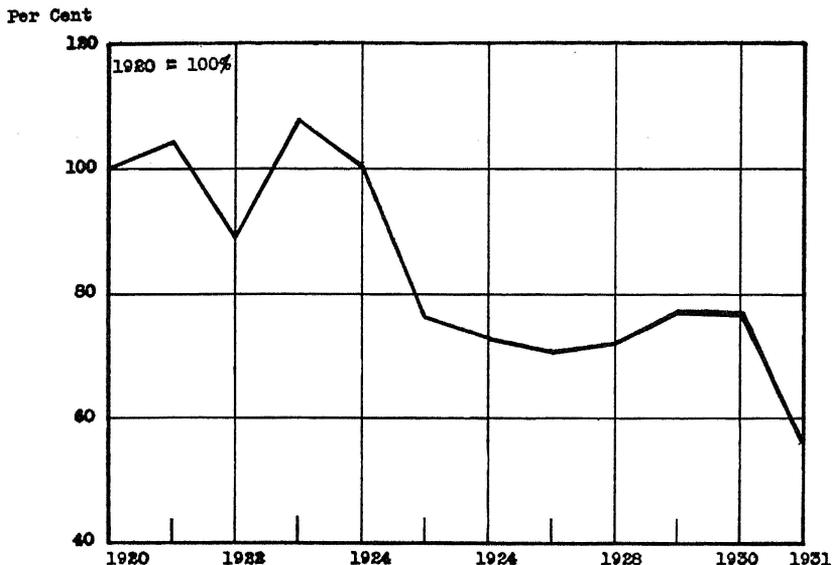


Fig. 3.—Index of Export Movement of Principal Agricultural Products, 1920-1931. Data taken from *Agricultural Situation*, U. S. D. A. Monthly Publication, No. 16, January, 1932.

react in an indirect way on farm real estate values in other areas also. It would not be likely that domestic consumption would increase enough to offset the decreased foreign demand for cotton and wheat except at drastically lower prices. Under these conditions some wheat and cotton land would go into the production of other farm products which will compete with products in other areas. In general, the effect of this possible decreased foreign demand would be to increase the proportion of land resources to population, thereby making farm real estate on the whole of relatively less importance and in turn of less value.¹

Quantitatively, the effects of these changes in tariffs and foreign demand on Missouri farm real estate values cannot be determined. Adverse effects on cotton production will work undoubted harm to the Southeast Missouri Lowlands which specialize heavily in its production. The decline in export demand for wheat, pork and lard will have some effect in other sections of the State, and the great obstruction to imports of manufactured products because of our high tariffs will undoubtedly act to increase costs generally. The direction of the effects on real estate values is clear.

¹The purchasing power of farm real estate in terms of other goods, not necessarily money.

Farm Real Estate Taxes in Missouri Down

Taxes on Missouri farm real estate, as is shown by Table 2, rose from \$6,307,586 in 1914 to \$20,662,928 in 1928 then fell to \$18,060,851 in 1930. Expressed as a percentage of the 1914 level, taxes rose to 328 per cent in 1928 then dropped off to 286 per cent in 1930. When corrected for changes in the value of the dollar these percentage figures became 100, 227, and 225 for the years 1914, 1928 and 1930, respectively. The change in taxes per acre is even more relevant from the viewpoint of farm real estate values. In terms of current dollars, the per acre tax increased from 18 cents in 1914 to 60.9 cents in 1928, then declined to 53.5 cents in 1930. The increase in the per acre tax from 1914 to 1930 when capitalized at the rate of 6 per cent represents a reduction of value of more than \$7 per acre.¹

A distribution of the county and state tax between farm and city real estate more equitable than now exists would permit farm real estate owners in Missouri to recoup a portion of the losses in value occurring from 1920 to 1931.

TABLE 2.—GENERAL PROPERTY TAXES ON MISSOURI FARM REAL ESTATE, 1914-1930*

Year	Taxes on Farm Real Estate	Taxes Corrected to Basis of Wholesale Prices of all Commodities, 1914=100	Taxes Per Acre in Cents
1914	\$6,307,586	\$6,307,586	18.0
1915	6,463,800	6,275,534	18.6
1916	6,760,242	5,352,527	19.5
1917	6,363,528	3,663,516	18.3
1918	8,181,383	4,219,383	23.6
1919	10,087,264	4,944,737	29.0
1920	11,911,439	5,240,404	34.3
1921	17,412,859	12,142,860	50.2
1922	17,396,351	12,216,540	50.3
1923	17,899,065	12,053,240	51.9
1924	17,674,197	12,239,750	51.4
1925	18,678,306	12,248,070	54.5
1926	19,373,194	13,134,370	56.7
1927	20,193,993	14,383,190	59.3
1928	20,662,928	14,309,510	60.9
1929	18,981,170	13,329,470	56.1
1930	18,060,851	14,187,630	53.5

*From "Accuracy and Flexibility of Farm Real Estate Assessments in Missouri", Mo. Ag. Exp. Sta. Research Bul. No. 169, p. 8.

Some evidence that farm real estate has borne a disproportionate share of state and county taxes is presented in Table 3. The ratios of

$$\frac{\$0.45}{.06\%} = \$7.50$$

TABLE 3.—RATIOS OF ASSESSED TO SALES VALUES OF FARM REAL ESTATE FOR JOHNSON AND HARRISON COUNTIES FOR THE YEARS 1914-1931, FOR THIRTEEN COUNTIES FOR THE YEARS 1927-1931, FOR ALL FARM REAL ESTATE IN MISSOURI FOR THE YEARS 1914-1930, AND FOR URBAN REAL ESTATE IN COLUMBIA, MISSOURI FROM 1914-1931**

Year	State as a Whole	Johnson and Harrison Counties	Thirteen Counties*	Columbia, Mo.
1914	15.8%	17.2%		27.0%
1915	15.2	17.09		21.7
1916	14.7	17.65		30.1
1917	14.6	16.15		23.6
1918	15.1	17.72		70.3
1919	17.4	16.84		59.1
1920	18.4	10.04		56.5
1921	47.6	56.89		49.4
1922	47.7	66.70		42.1
1923	51.2	70.34		55.0
1924	53.6	71.29		55.0
1925	58.2	76.92		54.0
1926	60.5	67.34		52.0
1927	62.5	64.05	62.1%	49.0
1928	64.3	68.88	64.9	44.0
1929	65.3	65.91	66.2	32.1
1930	66.0	84.21	77.0	44.1
1931		73.65	81.8	48.9

*Thirteen counties for which sale data were available (Figure 7).

**From Mo. Ag. Exp. Sta. Research Bul. No. 169. See Tables 22 and 23.

assessed to sales value (See fourth column Table 3) of urban real estate in Columbia,¹ Missouri has remained relatively constant over the period 1921 to 1931. Over the same period, the ratios for farm real estate, as measured by the changing ratios in Johnson and Harrison counties, have been definitely upward. The increase was from 56.9 per cent in 1921 to 73.7 per cent in 1931. A similar trend is shown in the ratios of assessed to sales value for farm real estate for the State as a whole from 1921 to 1930, and for the thirteen counties from which sales data were gathered from 1927 to 1931.

Vigorous attempts to correct the discrepancies existing in the ratios of assessed to sales values may bring about a relative, if not an absolute, decrease in taxes on farm property. Indeed, an absolute reduction may not even be desirable. Even under present conditions with regard to assessed valuations per capita taxes are higher in cities than in rural areas in Missouri. A broadening of the base of taxation for the support of rural education such as was accomplished by enactments of the last general assembly are perhaps better looked upon as a means whereby improved educational facilities may be provided for farm children rather than as a means of bringing about a reduction in farm real estate taxes.

¹Data on assessed and sales values for city real estate were available for Columbia alone. However, the situation as revealed above is apparently not unique to Columbia but rather characteristic of Missouri's larger cities generally. See pages 40 to 43 Missouri Agricultural Experiment Research Bulletin 169.

PART II.—THE SITUATION IN MISSOURI

The foregoing analysis applies only in a general way to Missouri farm real estate values, and applies even less specifically to values in various areas within the State. However, we must have in mind the influences affecting the general structure of farm real estate values before we can explain past movements or judge intelligently future movements of values in given areas.

Comparison of Movements of Value in Missouri, the West North Central Division, and the United States

Substantial declines in farm real estate values from 1930 to 1931 were registered, according to B. R. Stauber in the "Farm Real Estate Situation for 1930-31"¹, in nearly all sections of the country, and ranged from a fifteen point decline in the West South Central Division to a one point decline in the New England States. In the entire United States the decline averaged nine points (Table 4). In 1931, as depicted by Figure 4 weighted average values for the West North Central Division,

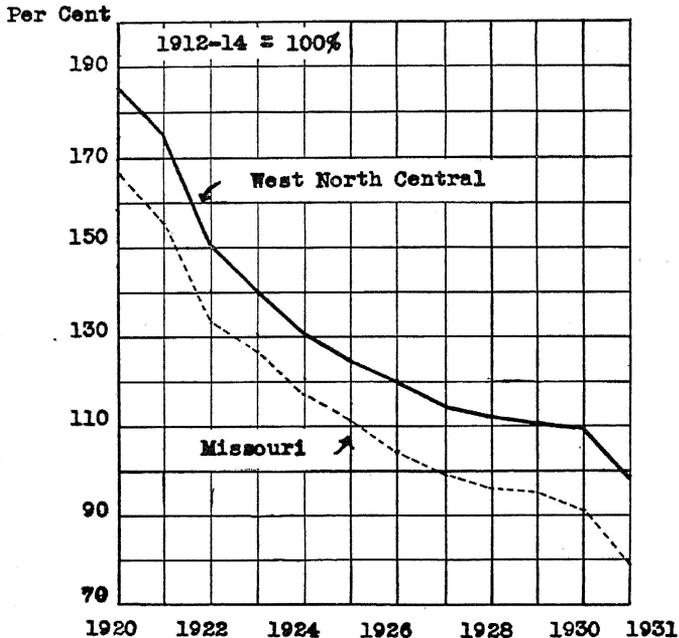


Fig. 4.—Movement of Farm Real Estate Values in Missouri and in Other States of the West North Central Division, 1920-31. (From "The Farm Real Estate Situation, 1930-31" by B. R. Stauber, U. S. D. A. Circular 209, Table I.)

¹Op. cit., pp 3-6.

TABLE 4.—INDEX NUMBERS OF ESTIMATED VALUE OF FARM REAL ESTATE PER ACRE FOR THE UNITED STATES, THE WEST NORTH CENTRAL DIVISION, AND STATES OF THE WEST NORTH CENTRAL DIVISION* 1914 TO 1931 (1912-1914=100 PER CENT)

Geographic Division and State	1914	1917	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
United States	103	117	170	157	139	135	130	127	124	119	117	116	115	106
West North Central	103	122	184	174	150	142	132	126	121	115	113	112	109	97
Missouri	103	115	167	156	133	127	117	112	104	99	96	95	92	79
Minnesota	105	138	213	212	187	177	170	159	155	145	140	138	133	116
Iowa	104	134	213	197	162	156	143	136	130	121	117	116	113	98
North Dakota	103	118	145	141	136	128	114	109	105	100	99	98	95	85
South Dakota	103	116	181	173	146	126	117	115	107	97	96	95	93	83
Nebraska	102	110	179	166	144	139	128	123	123	119	117	116	113	106
Kansas	99	115	151	149	130	127	118	115	113	113	113	113	113	103

*Taken from U. S. D. A. Circular 209, pages 8 and 9.

which includes Missouri, dropped below 100, or the 1912-14 level, for the first time. During the same year Missouri values continued their descent, reaching 79 per cent of pre-war, the lowest index of value for any state in the Division. Percentage declines from 1930 to 1931 in the individual states of the West North Central Division ranged from 6.2 per cent in Nebraska to 14.1 per cent in Missouri.¹

To what forces can we attribute the relatively large decline in farm real estate values in Missouri since 1930 as contrasted to the declines in other states of the West North Central Division and for the Division itself? Apparently, Iowa, Kansas, Nebraska and Minnesota farmers have found it possible, because of certain physical circumstances, to reduce their production costs somewhat more than have Missouri farmers. Although it is practically impossible to measure the exact degree to which changes in farming technique and operation have affected costs in the various states, there is one change that can be measured with a fair degree of accuracy, namely, the increase in the number of tractors in the respective states.

TABLE 5.—INCREASE IN NUMBER OF TRACTORS FROM 1925 TO 1930 IN MISSOURI AND IN THE OTHER STATES OF THE WEST NORTH CENTRAL DIVISION*

State	Number Tractors 1925	Number Tractors 1930	Tractors Per 1000 Acres of Crops 1925	Tractors Per 1000 Acres of Crops 1930	Percentage Increase 1925-1930
Missouri	12,745	24,999	.83	1.60	93.0
Minnesota	26,739	48,457	1.43	2.48	73.0
Iowa	37,230	66,258	1.69	2.92	73.0
North Dakota	17,483	37,605	.80	1.53	91.0
South Dakota	17,426	33,837	1.06	1.78	68.0
Nebraska	18,765	40,729	.91	1.82	100.0
Kansas	31,171	66,275	1.30	2.50	92.0

*Tractors per 1000 acres of crops cannot be considered a perfect criterion of the extent to which mechanization has taken place in the various states, because not only are tractors not all alike but the intensity with which they are used varies greatly.

¹Stauber, B. R. op. cit., page 4.

That the tractor has not been as generally adopted in Missouri as in other states of the West North Central Division is evident from Table 5. The number of tractors per 1000 acres of crops in Missouri was in 1925, with one exception,¹ the lowest for any state in the Division. While .83 tractors per 1000 acres of crops was used on Missouri farms in 1925, in the adjoining state of Iowa, 1.69 tractors were used and, despite the relatively marked increase in Missouri from 1925 to 1930, the number of tractors per 1000 crop acres remained in 1930, again with a single exception, the lowest for any state in the division. The average number of tractors per 1000 crop acres for the other six states in the division in 1930 was 2.17 as compared to 1.60 for Missouri.



Fig. 5.—Topographic Regions of Missouri

The relatively rough topography of the state must be counted as the chief reason why Missouri farmers have been so reluctant to increase the number of tractors used in their farm operations. In Figure 5 the topographic regions of the state are outlined. The Ozark Highland and the North Central Division of the Plains region, which together comprise nearly half of the land area in the state, are in the main ill-adapted to the most economical use of large implements and power units. The terrain

¹North Dakota.

in these areas is nearly always rolling and oftentimes hilly. Fields, relegated as they commonly are, to hilltops and plateau areas or to bottomlands which are usually narrow, are likely to be small. Farms, also, are relatively small in size as compared to the average of the other states in the Division and their restricted crop acreages are generally supplemented by extensive pasture areas, both of which factors tend to make animal power as cheap or cheaper than tractor power.

The development of the multiple hitch in recent years has also done much to improve the application of horse power to larger and more economic implements and has served to reduce and, under certain circumstances, even to completely nullify the advantages of tractor as contrasted to horse operation.

Evidence of the lack of adaptability of the Ozark Highland and the North Central Division of the Plains region to the use of the tractor is afforded, by data of the 1930 Census. In Figure 6, is given the distribution of tractors in the counties of the state. The concentration of tractors is definitely greater in the areas of comparatively level topography.

Soil type as well as topography has apparently influenced the distribution of tractors within the state. In the series of counties beginning



Fig. 6.—Distribution of Tractors in Missouri in 1930. Data from Federal Census. (Each dot represents 50 tractors.)

in the northwest corner of the state with Atchison county and extending along the Missouri River as far down as Howard and Cooper counties, the concentration of tractors is relatively great. Here we find a rolling topography combined with soils of high fertility. In contrast, we find in the block of counties, Barton, Vernon, Dade and Cedar, in the southwest quarter of the state, relatively few tractors. Although the topography in this latter area is, perhaps, better suited to the use of the tractor than is that of the former area, the soils are only of medium fertility. The lower total farm incomes in the latter area, because of relatively less fertile soils, may have been a factor in restricting the purchase of tractors even if their use did promise cost reduction.

In the lowlands area of Southeast Missouri the dominant factor in restricting the use of the tractor has been the type of farming, which leans heavily on cotton. The large number in St. Louis and St. Charles counties is probably a result of the inclusion in the census classification of small tractors used by truck gardeners.

As we have seen, within the state tractors have in general concentrated to the greatest extent in the areas having level to rolling topography and where soils are relatively fertile. Presumably, the same relationship exists between states. If this be true, the greater number of tractors in Iowa, Minnesota, Kansas and Nebraska can be thought of as having permitted a reduction in costs that the Missouri farmers have not in general been able to effect.

In economic terminology the lower farm incomes in the areas relatively unadapted to tractor operation can be thought of as coming about in the following manner: (1) reduction of cost in areas well adapted to tractor operation; (2) a somewhat greater output because of lowered costs ultimately affecting the amount of product supplied the general market; (3) with larger amounts supplied, market prices are lowered; (4) these lower prices react in ill favored areas, unable to effect similar cost reduction, so as to cause reduced farm incomes, and the reduced farm incomes are transmitted ultimately to farm real estate values, forcing them to somewhat lower relative levels.

The rate at which tractorization was taking place over the same group of states places Missouri in by no means as poor a light. In only one state, Nebraska, did the increase in tractors per 1000 acres of crop land, as in Table 5, between 1925 and 1930 exceed that in Missouri. In Kansas and North Dakota the increase was essentially the same as in Missouri, but in Minnesota, Iowa, and South Dakota it was much less. This small bit of evidence, while not conclusive, may point to rates of decline in farm real estate values in succeeding years for Missouri more

nearly equal to those of other states in the Northwest geographic division than was true for 1930 to 1931.

Soil deterioration may be a further factor in forcing the relatively heavy declines in Missouri farm real estate values. The soils of the state are more than usually subject to deterioration because of erosion. The junction of the two great river systems of the United States is effected on the east central border of the state. The physiographic pattern is relatively mature, dissection has preceded to an advanced degree, and drainage is often excessive. The average gradient of slopes within the state must be thought of as considerably greater than that in such glaciated areas as practically all of Iowa, Minnesota, and the eastern part of the Dakotas, and Nebraska. Furthermore, the humidity is greater on the average than in any other state of the Division, and, finally, certain sub-soil faults, such as those to which the Putnam and Grundy soils are subject, lead to increased erosion, because of excessive run-off, even in the relatively level areas of the State.

Certain differences in type of farming from state to state afford the basis for further explanations of the disparity of declines of farm real estate values. The declines in the prices of farm products during 1930 and 1931 were far from uniform, and the impact of the unequal declines was different in each area as the farming specialities varied. So complex are farming systems, however, and so obscure have been the effects of these varying price declines that they all but defy generalization.

Transfers of Farm Real Estate Increase

Concurrent with the decline in farm real estate values from 1930 to 1931 has come an increase in the number of transfers. As indicated in Table 6, the greater turnover resulted solely because of a marked increase in the number of forced sales. These stepped up from 136 for the first six months of 1930 to 294 for the corresponding period in 1931.

TABLE 6.—TRANSFERS OF FARM REAL ESTATE IN THIRTEEN MISSOURI COUNTIES*, FIRST SIX MONTHS OF 1929, 1930, 1931

Character of Transfer	1st 6 Months 1929		1st 6 Months 1930		1st 6 Months 1931	
	No.	Acreage	No.	Acreage	No.	Acreage
Warranty Deeds.....	1078	110,896	1162	108,127	1028	92,086
Trustee and Sheriff Deeds	159	25,745	136	20,130	294	46,895
Total.....	1237	136,641	1298	128,257	1322	138,981

*Selected counties from each type of farming area. See Figure 7. Data taken from Recorder's books.

During the same period the number of warranty deeds¹ decreased from 1162 to 1028. Both the trend in numbers of forced sales and in warranty deed transfers in Missouri are consistent with the trends in the entire country as indicated by Stauber in the "Farm Real Estate Situation, 1930-31".²

A falling off in transfers of warranty deeds from 1930 to 1931, as noted in Table 7, has occurred in every type of farming area except the Southwest Fruit and Dairy area, if the data for the individual counties are typical. The increase in Newton county, the representative county of the above mentioned area, can perhaps be attributed to the increased demand coming from those people who, faced with unemployment in the cities, have sought temporary refuge on the small farms of that section.³

TABLE 7.—ACREAGE TRANSFERRED BY WARRANTY DEEDS, IN MISSOURI COUNTIES, JANUARY 1, 1929 TO JUNE 30, 1931

County	Jan. 1—Dec. 31, 1929		Jan. 1—Dec. 31, 1930		Jan. 1—June 30, 1931	
	Number of Transfers	Acreage Transferred	Number of Transfers	Acreage Transferred	Number of Transfers	Acreage Transferred
Atchison-----	106	10,650	53	5,850	19	2,540
Harrison-----	161	14,955	155	14,534	86	8,975
Sullivan-----	169	15,891	162	12,656	83	7,087
Ralls-----	115	8,971	84	6,862	51	5,734
Callaway-----	216	22,763	174	10,414	61	7,713
Johnson-----	99	16,840	186	14,531	121	10,235
Franklin-----	187	14,208	195	15,954	105	7,281
Miller-----	*	*	*	*	68	6,534
Reynolds-----	217	23,119	233	26,090	86	13,308
Polk-----	166	20,878	259	24,946	108	9,533
Barton-----	191	21,581	162	16,662	67	6,655
Newton-----	191	24,744	284	20,667	189	9,413
Pemiscot-----	115	9,848	109	10,061	52	3,612
Total-----	1,933	204,448	2,055	188,227	1,028	92,086
Av. per Mo.---	161.1	17037.3	171.2	15,686.1	171.3	15,347.2

*Data for Miller county not available for 1929 and 1930, and not included in the total and averages for 1931.

Numbers of warranty deed transfers by counties for the years 1929, 1930 and the first six months of 1931 are given in Table 7. As stated above, the numbers of these transfers declined during the first six months of 1931 as compared to the year 1930.

Undoubtedly, prospective buyers rather than purchase during a period when prices were declining so rapidly preferred to wait. For much the same reason, those having farms and not forced to sell them probably also preferred to wait. The attitude of buyers on the one hand and sellers on the other can be expected to differ somewhat between various areas and counties of the state. Particularly sharp declines in numbers and acreages transferred occurred in Atchison, Callaway, Reynolds, Polk and Barton counties. In Atchison county of this group, it is probably the sellers who are withholding in hopes of a rising or less panicky market

¹Excludes gifts, transfers for "love and affection", and exchanges of property.

²Page 44.

³See "The Farm Real Estate Situation, 1930-31", by B. R. Stauber, pages 59-60, for a discussion of the city to farm movement.

TABLE 8.—ACREAGE TRANSFERRED BY TRUSTEE'S AND BY SHERIFF'S DEEDS IN THIRTEEN MISSOURI COUNTIES, JANUARY 1, 1929 TO JUNE 30, 1931

County	Trustee's Deeds						Sheriff's Deeds					
	1929		1930		1931*		1929		1930		1931*	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Atchison---	5	7711	2	280	3	668	5	504	1	40	---	---
Harrison---	38	4044	29	4211	55	9264	3	555	3	179	3	223
Sullivan---	28	3487	35	5187	50	8024	---	---	2	92	---	---
Ralls-----	2	247	4	426	16	2669	---	---	5	940	2	421
Callaway---	46	7583	73	12795	49	8819	---	---	---	---	---	---
Johnson---	14	1487	32	5083	21	3038	2	48	1	259	---	---
Franklin---	18	1983	22	2847	5	619	---	---	2	75	---	---
Miller-----	8	1332	16	2104	3	596	---	---	50	3296	2	165
Reynolds---	36	2330	3	160	---	---	41	2761	2	57	3	121
Polk-----	38	4660	46	5191	15	1619	---	---	1	320	1	100
Barton---	20	3951	23	3293	15	2786	2	290	2	180	2	50
Newton---	41	3302	25	2457	23	1665	4	480	24	4473	2	67
Pemiscot---	33	7487	21	5154	24	5981	14	3969	---	---	---	---
Total-----	327	42604	331	49188	279	45748	71	8607	93	9910	15	1147
Average Per Mo.---	27	3550	28	4099	47	7625	6	717	8	825	3	191

*1931 figures for only the first six months of the year.

later on, and in the other four counties it is perhaps the reluctance of the buyers to enter the field that has resulted in the decreased turnover.

In the first six months of 1931 an acreage nearly three-fourths as large as for all twelve months 1920 was transferred by forced sales (Table 8). The most sizable increases in the forced sales rate, on the basis of acreage transferred, occurred in Harrison, Sullivan, Ralls, and Pemiscot counties. Large fluctuations in the number of such transfers occurring in the same area in different years makes it difficult to discern definite trends. However, in Sullivan, Ralls and Callaway counties the trend has been definitely upward since 1929. Of particular significance is the small number of transfers in Atchison county which may be interpreted as an indication of the relatively strong position of farmers in an area of excellent soils and topography.

The effect of these forced sales upon the general level of farm real estate values in a particular area is difficult to measure. Many such tracts are bid in by creditors such as insurance companies, banks and others and withheld from the market because of the low level of prevailing prices. On the other hand, some creditors are constrained to sell at the time of foreclosure. No doubt the growing volume of these transactions in Sullivan, Harrison, Ralls and Callaway counties have in part served to depress values in these counties. In any event the presence of a large number of farms in weak hands, as indicated by these forced sales, will tend to prolong the depression in values.

Comparison of Values Based on Census and Sales Data

The sales data, upon which the analysis of farm real estate values in the study is based, were secured directly from the records of the County

Recorder of Deeds. With one exception¹, a single county was selected from each type of farming area, or sub-division thereof. The type of farming areas, dominant soil types, and the counties selected are shown in Figure 7.

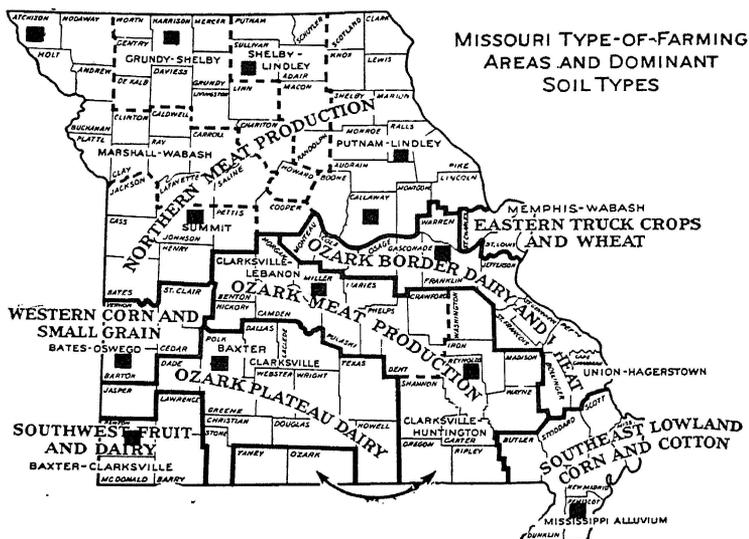


Fig. 7.—Missouri Type-of-Farming Areas and Dominant Soil Types.

All bona fide transfers of farm real estate, recorded during the period January 1, 1927 to July 1, 1931 for which considerations were given, were taken. Unfortunately, in a large number of transactions the true consideration was not given, and the transfers were recorded as being made for "one dollar and other considerations" or "for love and affection", etc. Even such considerations as are stated in the deeds are not necessarily accurate, but a questionnaire test² revealed them as closely representative of the actual sales value of the tracts transferred. The Federal Census of 1930 provides data for making a further test of the validity of sales values. Sales data for 1929 and 1930 are compared to census data in Table 9.

The average of sales values for the year 1930, as in the fourth column of Table 9 were lower than average census values in all counties except Sullivan and Atchison. In these two counties, sales values averaged only

¹Data were secured from two counties, Callaway and Ralls, of the Putnam-Lindley sub-area of the Northern Meat Production area.

²See Mo. Agr. Expt. Sta. Research Bul. No. 154, pages 31 and 32.

TABLE 9.—COMPARISON OF CENSUS AND OF SALES VALUES OF FARM REAL ESTATE, AND OF CENSUS AVERAGE SIZE OF FARM AND AVERAGE SIZE OF TRACT SOLD FOR 1930

Area	Census Values Per Acre 1930	Sales Value Per Acre 1929	Per Cent Sales of Census	Sales Value Per Acre 1930	Per Cent Sales of Census	Average Tract Size Sold	Average Size of Farm Census 1930	Per Cent Sales of Census
State*-----	\$51.78	\$51.83	100.1	\$46.67	90.1	101.4	131.8	76.9
Atchison Co.-----	118.02	125.45	106.2	123.87	104.9	144.3	201.0	72.0
Harrison Co.-----	62.53	77.00	123.0	58.97	94.3	73.4	140.0	52.4
Sullivan Co.-----	44.66	60.26	134.9	46.51	104.1	77.3	147.2	52.5
Callaway and Ralls Co.---	39.70	35.63	89.7	29.90	75.3	123.9	160.0	77.5
Johnson Co.-----	61.12	60.66	99.2	50.70	82.9	85.6	146.0	58.6
Franklin Co.-----	44.91	29.32	65.2	28.66	63.8	105.5	133.9	78.7
Miller Co.-----	27.38	21.09	77.0	25.69	93.8	114.2	159.6	71.5
Reynolds Co.-----	18.01	11.96	66.4	9.90	54.9	113.0	127.8	88.0
Barton Co.-----	42.53	43.39	102.0	39.29	92.3	93.2	149.0	62.5
Newton Co.-----	53.26	44.27	83.1	36.96	69.3	65.9	92.1	71.5
Pemiscot Co.-----	81.77	70.42	86.1	63.83	78.1	95.9	38.2	251.0

*Census average for State excluding St. Charles, St. Louis and St. Louis City counties.

slightly more than census values. A state weighted average of sales values, calculated by weighting county average values by the acreage in farms in its type of farming area was, for the year 1930, only 90.1 per cent of the average census value for the State.¹

At least two reasons why these sales values average somewhat lower than census average values may be advanced. First, sales data, because the majority of the transfers are made during the early part of the year, center about a date somewhat before July 1. The census data probably center around a somewhat earlier date since census taking began on April 1 and was completed shortly thereafter. In a period when values are falling those centering about a later date will always be lower than those centering about an earlier date. Indeed, if the 1929 rather than the 1930 sales values are used, the state weighted average is essentially the same as the census average.

In the second place, tracts sold are, in most counties, probably somewhat less well improved than the average farm for which the census is reporting. Actual field work by the investigator in Northeast Missouri² left the impression that the farms transferred were on the whole distinctly less well improved than were the average for the community. Apparently, because the average size of farm in Missouri is growing, a number of these transfers were of tracts that were being incorporated into adjacent farms. To some extent, this impression is borne out by the fact revealed in Table 9, that the tracts sold averaged much smaller in size than the average farm, the exception to the rule being Pemiscot county where peculiar conditions prevail.³ In general, it is the less well improved tracts, the ownership of which is being so transferred.

On the whole, the difference between census and sales values may be thought of as being explicable on the basis of these differences in farms and tracts being evaluated and not because of inaccuracies inherent in the considerations reported for the sales.

Further Declines in Average Missouri Values Since 1930

After declining more than 10 per cent from 1930 to 1931, weighted average sales values of Missouri farm real estate reached in 1931 but 71.8 per cent of the 1927 level, a drop of nearly a third in value in three and one-half years (Table 10). As depicted in Figure 1, Missouri farm real estate values are now at approximately the same level as in 1907.

The State average is a composite of averages of diverse individual areas, and is, therefore, a criterion of little value in judging the movement

¹Exclusive of St. Charles, St. Louis and St. Louis City counties.

²Audrain, Pike, Ralls, Marion and Callaway counties.

³See footnote, page 35, Missouri Research Bulletin 154.

TABLE 10.—MOVEMENTS OF FARM REAL ESTATE VALUES IN MISSOURI TYPE OF FARMING AREAS, 1927-1931*

State or Area	County	1927		1928		1929		1930		1931*	
		Dollars Per Acre	Index								
State-----	13 Counties	\$59.65	100%	\$53.75	90%	\$50.45	85%	\$40.53	67.9%	\$37.83	63.4%
State (Weighted Average)**		58.52	100	53.31	91	51.82	88	46.75	79.9	42.01	71.8
Northern Meat Production											
Marshall-Wabash-----	Atchison	135.24	100	133.11	98	125.45	93	123.87	91.6	94.48	69.9
Grundy-Shelby-----	Harrison	87.70	100	67.77	77	77.00	88	58.97	67.2	61.06	69.6
Shelby-Lindley-----	Sullivan	59.01	100	57.97	98	60.26	102	46.51	78.8	35.65	60.4
Putnam-Lindley-----	Ralls and Callaway	52.90	100	35.50	67	35.63	67	29.90	56.5	30.49	57.6
Summit-----	Johnson	67.78	100	67.91	100	60.66	89	51.75	76.4	61.44	90.6
Ozark Border-----	Franklin	27.76	100	24.39	88	29.32	106	28.66	103.2	26.36	95.0
Ozark Meat Production											
Clarksville-Lebanon----	Miller	25.08	100	22.14	88	21.09	84	25.69	102.4	19.55	78.0
Huntington-Clarksville----	Reynolds	13.81	100	10.09	73	11.96	87	9.90	71.7	10.27	74.4
Western Corn and Small Grain-----	Barton	50.56	100	45.08	89	43.39	86	39.29	77.7	41.01	81.0
Ozark Plateau Dairy-----	Folk	40.62	100	37.57	92	33.29	82	30.18	74.3	31.45	77.4
Southwest Fruit & Dairy---	Newton	49.73	100	53.35	107	44.27	89	36.98	74.3	31.29	62.9
Southeast Lowlands-----	Pemiscot	71.43	100	84.78	119	70.42	99	63.83	89.4	47.63	66.7

*All figures for 1931 are subject to revision when data for the later months of the year are obtained and added to those for the months already tabulated.

**Weighted by land in farms in "Type of Farming Areas" as given in the 1930 Census.

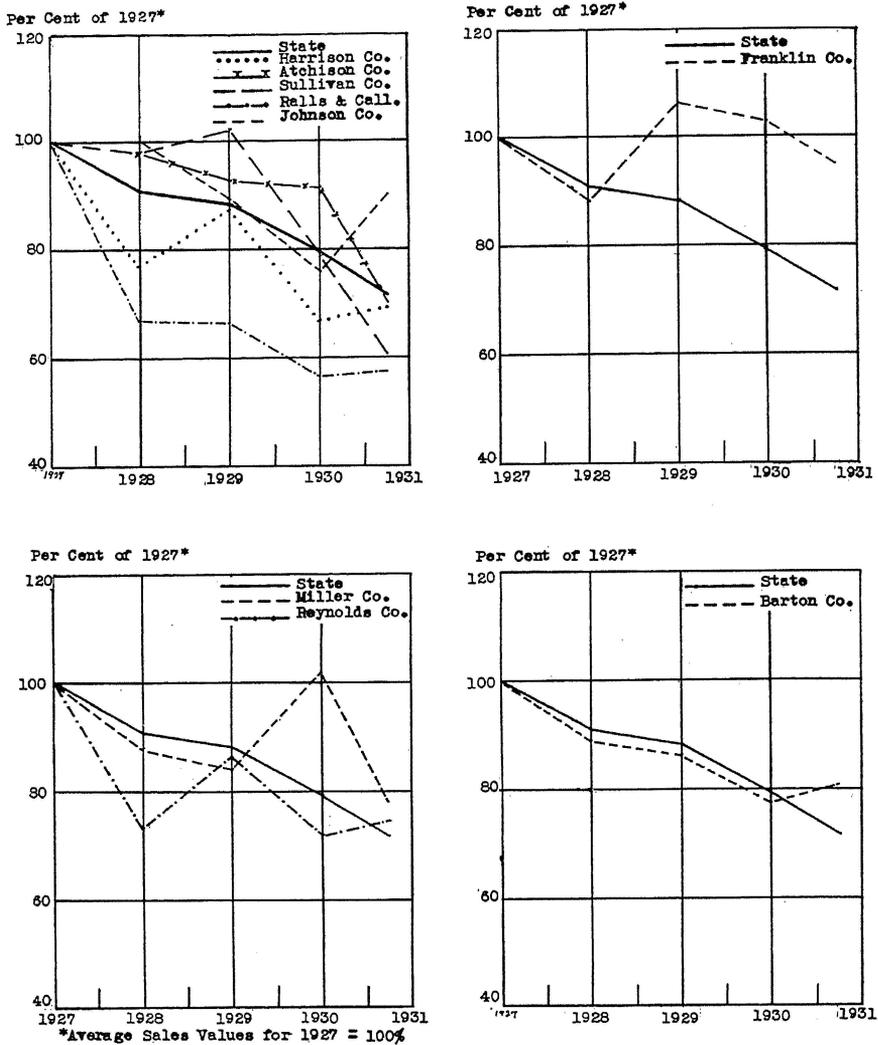
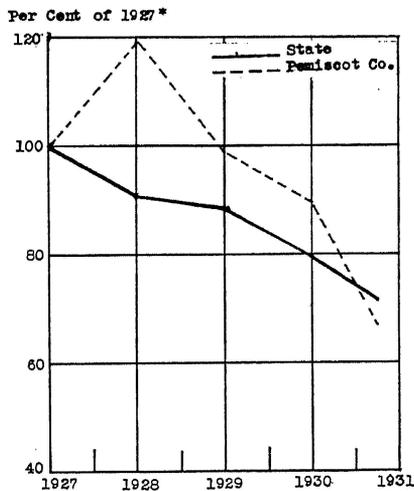
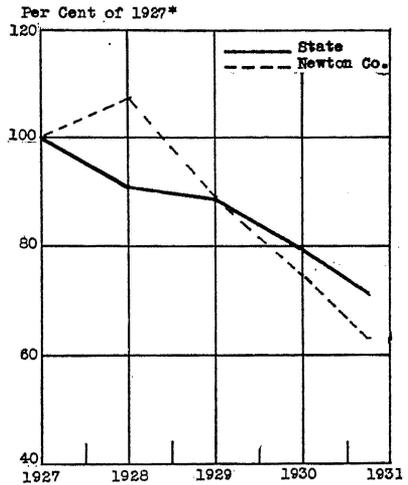
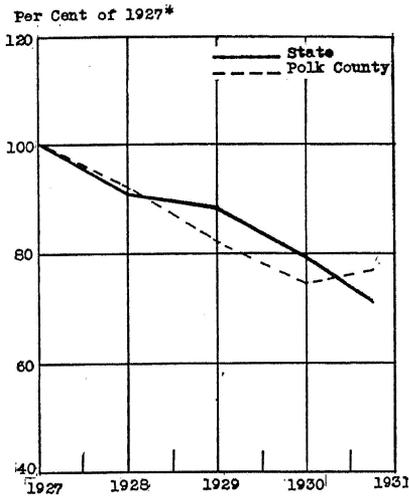


Fig. 8.—Movements of Sales Values of Farm Real Estate for the State of Missouri and for the Counties of the Type-of-Farming Areas. In relation to the State weighted average, values have fallen most in Ralls and Callaway Counties and have risen most in Franklin County.

of farm real estate values in any given area within the State. Changing economic forces such as price changes, improvements in technique, shifts in population, etc., do not affect values in such different areas as the Marshall-Wabash and the Ozark Border Wheat and Dairy to the same degree. Rarely would the combination of forces affecting farm real estate values in two such diverse areas be the same, and even if the



*Average Sales Values for 1927 = 100%

Fig. 8 (Continued).—Movements of Sales Values of Farm Real Estate for the State of Missouri and for the Counties of the Type-of-Farming Areas. In relation to the State weighted average, values have fallen most in Ralls and Callaway Counties and have risen most in Franklin County.

combination of forces was similar the differences in magnitudes of individual forces within the combination would still lead to differing effects.

That the movement of average sales values in the thirteen counties for which data were secured from 1930 to 1931 and also over the period 1927 to 1931 has been widely divergent is made evident in Table 10 and in

Figure 8. Although the State average declined from 1930 to 1931, in six¹ of the twelve counties average values increased somewhat. The greatest increase was registered in Johnson county where values moved from 76.3 per cent to 90.6 per cent of the 1927 level. Smaller increases occurred in Ralls and Callaway, Harrison, Reynolds, Barton and Polk counties. The significance of these increases will be taken up in the section dealing with individual areas. In the other six counties the decline in average values varied from 25.3 per cent in Pemiscot county to 8 per cent in Franklin county.

Without a directly relevant check upon sales values, as used in this study, their value in judging movements of farm real estate values in the counties for which sales data were available, and for other counties in the same type of farming areas, is limited. However, the trend in value as given by the 1925 and the 1930 Census furnishes a basis of comparison of some merit. In Figure 9, the 1930 Census value in each county is expressed as a per cent of the 1925 Census value. Declines in value have been greatest over the period 1925 to 1930 in the counties of the Grundy-Shelby, Shelby-Lindley and Putnam-Lindley sub-areas of the Northern Meat Production area and in the Southeast Lowlands area. The declines in these areas have been for the most part responsible for the drastic declines in the State average over the period. Some marked increases in value have occurred in counties which contain growing urban centers and in others adjacent to them. The most notable increase was in St. Louis county where values increased 45 per cent from 1925 to 1930. The 32 per cent increase in Camden county is largely a result of the extensive purchase of farm real estate by the Union Electric Company of St. Louis and the increased speculative value attached to the shore lands surrounding the Lake of the Ozarks. Increases in value have occurred in many Ozark counties.

In some respects this relative stability of farm real estate values in these Ozark counties is anomalous. In the first place, with the pronounced swing toward more concentrates and less pasturage in the production of beef, mutton and dairy products following the cheapening of concentrate feed grains, and the shift from horse power to motor power, pasture has become abundant relative to crop land in Missouri. This cheapening of pasture land must have militated heavily against farm real estate values in these Ozark counties where pasture comprises a larger percentage of total farm area than in any other region of the State.

Secondly, the Ozark area has apparently lost some advantage because of its inability to mechanize to the same degree that has evidently

¹Ralls and Callaway counties considered as one county.

TABLE 11.—MOVEMENT OF FARM REAL ESTATE VALUES IN THE STATE AND IN VARIOUS TYPES OF FARMING AREAS AS GIVEN BY THE 1910, 1920 AND 1930 FEDERAL CENSUSES

	1910		1920		1930	
	Value Per Acre	Per Cent	Value Per Acre	Per Cent	Value Per Acre	Per Cent
State	\$46.72	100	\$88.08	188.5	\$53.23	113.9
Marshall-Wabash*	87.25	100	164.83	188.9	100.39	115.1
Grundy-Shelby*	65.15	100	130.80	200.8	60.70	93.2
Shelby-Lindley*	49.81	100	97.10	194.9	47.24	94.8
Futnam-Lindley*	55.28	100	92.13	166.7	46.36	83.9
Summit*	58.17	100	103.07	177.2	56.62	97.3
Ozark Border*	31.22	100	49.24	156.7	38.21	122.4
Clarksville-Lebanon**	22.05	100	27.70	125.6	20.00	90.7
Clarksville-Huntington**	14.02	100	23.22	165.6	19.64	140.1
Ozark Plateau Dairy**	29.03	100	49.78	171.5	37.54	129.3
Western Corn and Small Grain	40.42	100	63.78	157.8	39.29	97.2
Southwest Fruit and Dairy**	33.61	100	62.36	185.5	44.18	131.5
Southwest Lowlands*	48.15	100	110.71	229.9	57.28	118.9
Group I	64.29	100	120.45	187.4	63.93	99.4
Group II	26.35	100	42.34	160.6	32.11	121.9

¹Excludes Jackson County.

*Counties in Group I.

**Counties in Group II.

The comparative stability of farm real estate values in these Ozark counties is in part accounted for by the relatively self-sufficient type of agriculture that persists in the area. Price changes are a small matter in areas where a large part of farm production is for home consumption, and though the level of farm incomes in the Ozark area is thought to be low it is also regarded as more than usually constant. The stability of farm real estate values during the great price rise between 1910 and 1920 bears out the presumption of relatively stable incomes.

Furthermore, the physical situation in the Ozark highlands is such as to practically preclude any great shifts in the type of farming. Whereas, the northern and particularly the northwestern part of the State could and did shift with profit into cereal production during the period of high grain prices during the War, the Ozark highlands continued its livestock production program with little interruption. In all parts of the Ozarks, pasture occupies most of the farm area and in the rougher sections centering about Iron and Reynolds counties cultivated fields are restricted to the narrow bottom lands of the valleys. In such circumstances crop lands are employed almost wholly as a supplement to pasture acreage rather than the other way around, as in other parts of the State. In other words, crop lands are used to provide winter feed for animals that are kept primarily to use abundant pasture acreages. Under these conditions the advantage of remaining in livestock production is so great that even considerable gains in grain prices induce no shifts in farm enterprises.

Because livestock and livestock product prices remained far more stable than the prices of grain during the period 1910 to 1930, the con-

TABLE 12.—COMPARISON OF MOVEMENTS OF CENSUS (1925 TO 1930) AND SALES (1927 TO 1930) VALUES IN THE COUNTIES FOR WHICH SALES DATA WERE AVAILABLE

County	Census		Sales	
	1925 Per Cent	1930 Per Cent	1927 Per Cent	1930 Per Cent
Atchison.....	100.0	82.5	100.0	91.6
Harrison.....	100.0	76.6	100.0	67.2
Sullivan.....	100.0	66.2	100.0	78.8
Ralls and Callaway.....	100.0	74.7	100.0	56.5
Johnson.....	100.0	89.5	100.0	76.3
Franklin.....	100.0	104.9	100.0	103.2
Miller.....	100.0	110.0	100.0	102.4
Reynolds.....	100.0	103.0	100.0	71.7
Barton.....	100.0	87.6	100.0	77.7
Polk.....	100.0	98.2	100.0	74.3
Newton.....	100.0	101.5	100.0	74.3
Pemiscot.....	100.0	81.7	100.0	89.4

tinued dependence upon a livestock form of farming has led to relatively stable farm incomes and real estate values in the Ozark region.

A contrast is made in Table 12 between the movement of farm real estate values as given by the census for 1925 and for 1930, and sales values from 1927 to 1930 in counties for which sales data were available. In every county in which declines occurred, except Atchison, Sullivan, and Pemiscot, the decline in sales value from 1927 to 1930 was greater than the decline in census value from 1925 to 1930. An upward trend in value in Franklin and Miller counties is evidenced both by the movements as reported by the census and by the sales data. On the whole, the trend in value in these counties as reported by the census has been less sharply downward than the trend in sales value. This has been especially true in Newton, Polk and Reynolds counties. In all three counties census values remained essentially constant from 1925 to 1930, and, while sales values declined in all three, the 1930 level of these values in relation to that of 1927 is remarkably alike in all of them. This similarity in the movements of sales values in all three counties suggests some validity for them despite the disagreement with census values. Only one plausible reason upon which to explain this disagreement suggests itself.

Subsequent to the collapse of business in late 1929, a considerable volume of technological unemployment in urban areas stimulated a return to the farm movement. The Ozark highland represents at once an area where land is low in price and where only a small acreage need be purchased to engage in intensive dairy or fruit farming operations. Declines in sales value in Reynolds and Newton counties from 1927 to 1929 were moderate but were large in 1930. This fact suggests that in

1930 the sample of transfers, upon which sales values are based, was unduly biased by the inclusion of large amounts of raw land moving into farms and was not representative of a cross-section of the farm real estate in the two counties as were the samples of 1927, 1928 and 1929. Together with the lag of owner's valuations this sample bias probably explains in large part the discrepancy in movements as indicated by census and sales values.

A further factor having some bearing on the differences in movements as between areas is that of mechanization already discussed in part in another connection on pages 17 to 20, inclusive. In Table 13 the number of tractors per 1000 acres of crop land for the years 1925 and 1930 are given for the type of farming areas. In the last column of this table is noted the percentage increase in number per 1000 acres of crop land between the two census periods. An increase took place in every area but in the Summit sub-area of the Northern Meat Production area and in the entire Ozark Highland region the increases were particularly notable.

Figure 8 reveals that in these same sections of the State real estate values, as reported by the census, held up relatively well, and the increase in mechanization as indicated by the progress of "tractorization" has apparently been a factor in enabling this greater stability in values. Other forces, such as the increase in the number of farms in certain counties, as mentioned above, have also contributed.

The downward trend in average Missouri farm real estate values over the period 1927 to 1931 has been the resultant of a perplexing combination of economic forces. As we have seen, the State average is a composite of diverse county averages. However, certain important and rather outstanding forces can be singled out.

A declining level of farm incomes, resulting from the declining level of prices for farm products and the concomitant decline in the ratio of prices paid to prices received by farmers is an influence of first importance.¹

Data relating specifically to average farm incomes in Missouri are not available. The most directly relevant substitute is the gross value of crops produced per acre corrected for changes in the purchasing power of the farmer's dollar, as in Table 14. For the State as a whole, the average value of crops produced per acre declined abruptly from a level of approximately \$19 for the years 1924 to 1929, inclusive, to \$13.86 for 1930. Not only adverse prices but a severe drought plagued Missouri farmers during the crop season of 1930 and despite the still lower prices

¹See pages 7 and 8 and Figure 2 of this report.

TABLE 13.—INCREASE IN NUMBER OF TRACTORS, BOTH ACTUAL AND PER THOUSAND CROP ACRES,
IN MISSOURI TYPE OF FARMING AREAS, 1925-1930

Area	Number of Tractors		Tractors Per Thousand Crop Acres		Per Cent Increase 1925 to 1930 in Tractors Per Thousand Crop Acres
	1925	1930	1925	1930	
State.....	12,745	29,999	.83	1.60	93.0
Marshall-Wabash.....	2,889	5,424	1.19	2.18	83.0
Grundy-Shelby.....	1,630	2,607	.97	1.54	59.0
Shelby-Lindley.....	640	937	.78	1.11	42.0
Putnam-Lindley.....	2,167	4,177	.98	1.88	92.0
Summit.....	1,024	2,734	.84	2.12	152.0
Ozark Border.....	1,444	2,528	1.15	2.00	73.0
Clarksville-Lebanon.....	368	686	.47	.87	85.0
Clarksville-Huntington.....	198	433	.34	.76	123.0
Western Corn and Small Grain.....	411	916	.57	1.24	117.0
Ozark Plateau Dairy.....	575	1,368	.37	.90	143.0
Southwest Fruit and Dairy.....	192	465	.36	.94	161.0
Southeast Lowlands.....	427	1,092	.38	.97	155.0

TABLE 14.—GROSS VALUE* OF CROPS PRODUCED PER ACRE IN MISSOURI TYPE OF FARMING AREAS, 1927 TO 1930

Area and Sub-Area	1924	1925	1927	1928	1929	1930
State**	\$18.15	\$19.86	\$19.44	\$19.99	\$18.77	\$13.86
Northern Meat Production Area						
Marshall-Wabash	21.22	21.91	21.93	22.26	18.41	15.46
Grundy-Shelby	15.57	18.18	18.59	19.15	16.71	11.94
Shelby-Lindley	15.06	17.60	14.20	18.44	16.44	11.62
Putnam-Lindley	16.86	17.84	16.19	18.21	15.21	10.79
Summit	16.74	15.25	18.66	19.01	15.70	11.44
Ozark Border Wheat and Dairy	18.07	19.98	18.68	18.73	17.18	13.86
Eastern Truck Crops and Wheat	21.31	32.57	26.84	32.97	30.76	27.42
Ozark Meat Production						
Clarksville-Lebanon	13.80	17.66	17.71	19.25	16.65	12.32
Clarksville-Huntington	15.76	20.55	21.12	21.38	24.77	11.75
Ozark Plateau Dairy	15.69	20.39	21.38	19.66	18.56	15.31
Western Corn and Small Grain	13.28	14.88	15.02	16.02	15.49	10.15
Southwest Fruit and Dairy	15.12	22.06	20.14	19.76	17.75	16.13
Southeast Lowland Corn and Cotton	32.99	29.97	29.61	23.10	33.37	16.05

*Gross value of all crops produced per acre of crop land corrected for changes in the prices of things farmers buy for use in living and production—1924=100. **Gross value per acre for the State increased in 1931 to \$15.29 per acre.

of 1931 the more normal season resulted in an increase of crop value to \$15.29 per acre.

Data for the individual areas for 1931 are not available but comparisons of 1929 and 1930 reveal that declines of varying intensity were common to all areas. In the Eastern Truck Crops and Wheat area comprising St. Louis and St. Charles counties, 1930 per acre crop values were only a little below those of 1929. In the Clarksville-Huntington sub-area of the Ozark Meat Production area, however, 1930 values were only 47 per cent of those of 1929 and in the Southeast Missouri Lowlands only 48 per cent. Without doubt such great declines in gross incomes per crop acre entirely wipe out for the time being any net return to land.

The extent of the decline in gross value in 1930, both in terms of actual value and values corrected for changes in the purchasing power of the farmer's dollar, is even more impressive when contrasted, as in Figure 10, with values in past years.

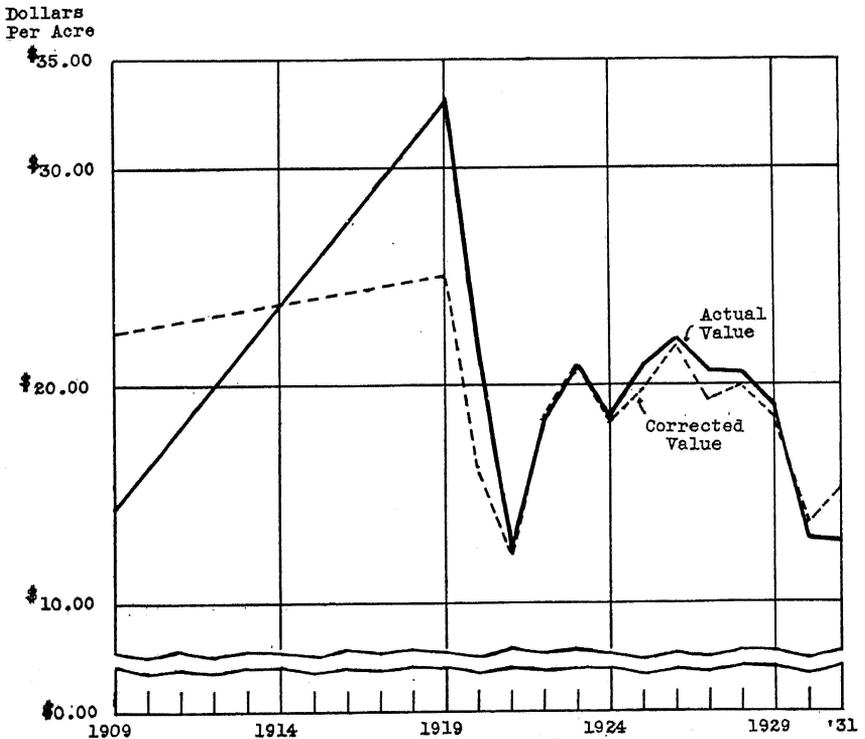


Fig. 10.—Changes in Per Acre Value of Crops Produced in Missouri, 1909-1931. Actual values corrected for changes in the price of things farmers buy for use in Living and Production. 1924=100%

For the period 1922 to 1929, the corrected and actual value return per crop acre remained fairly constant, averaging about \$20 per acre and ranging from \$18.63 in 1922 to \$20.97 in 1926 for the corrected values. The abrupt decline of about \$5 in per acre returns in 1930 was similar to though not so severe, as the drop in 1920 when the corrected value was reduced almost \$9 per acre from that of the preceding year. For 1921, a further decline to approximately \$4 per acre less than in 1920 took place. Unless 1932 returns reveal still further declines, Missouri farm incomes will not have suffered from reduced crop values as severely during the present depression as during that of 1920 and 1921.

The relation of crop returns and farm real estate values in 1930 and 1931 were strikingly different from these same relationships in 1920 and 1921. Real estate values were at their peak in 1920 and had declined only a little over 20 per cent from this peak by the end of 1921. In other words, at the close of 1921 farm real estate values over the State still averaged about \$70 per acre and the crop return of that year grossed only \$12.24 per acre. Though farm real estate values by the end of 1930 had shrunk to an average of less than \$50 per acre the adjusted gross value of crops produced during that year of severe drought was \$13.86 as compared to \$12.24 for 1921. A great liquidation in real estate values in relation to value production per crop acre had clearly taken place during this period, and is additional evidence that, while further declines in farm real estate values may well occur, a greater resistance to such declines will occur in the near future than occurred during the period 1921 to 1929.

Gross Rents Rise in Relation to Values

As stated in the "Missouri Farm Real Estate Situation for 1927 to 1930", gross cash rents have tended to fall somewhat less rapidly than farm real estate values, and in 1932 the ratio of gross cash rents to farm real estate values reached a high mark for the post-war period at 6.90 per cent, as compared to 5.77 per cent for 1921 and approximately 4 per cent for 1920. On the whole this increase in ratios merely kept pace with the increase in taxes during the period up to and including 1929. Since 1929, however, ratios have continued to increase while taxes have fallen and some net increase in return to land ownership or to the factor land is indicated.

With a ratio of gross cash rents to land value (See Table 15) of 6.90 per cent, approximately 2 per cent can be subtracted and still leave 5 per cent as a net return to land. Such a level of ratios, while not being high, is far greater than that received during the high farm real estate values of 1920 when, according to the data from U. S. Department of

TABLE 15.—RATIOS OF GROSS CASH RENTS TO LAND VALUES FOR CASH RENTED MISSOURI FARMS* 1921 TO 1932

Year	Gross Cash Rents	Land Values	Ratios of Rents to Values
1921	\$6.00	\$104.00	5.77%
1922	4.60	80.00	5.75
1923	4.50	80.00	5.62
1924	4.50	74.00	6.08
1925	4.50	70.00	6.43
1926	4.15	67.00	6.19
1927	4.00	64.00	6.25
1928	4.00	62.00	6.45
1929	4.10	60.00	6.83
1930	3.90	56.90	6.85
1931	3.40	50.00	6.80
1932	2.90	42.00	6.90

*As reported by correspondents of the United States Crop Reporting Service.

Agriculture Bulletin 1224, the return over a large part of the Middle West could not have been more than 2.5 to 3 per cent. Apparently most if not all of the tendency to anticipate increases in rents has disappeared, and this strengthening in the return is to be counted as a further indication that farm real estate values in Missouri are not far from their lowest post-war level and should stabilize shortly despite the declining prices of the present depression.

Movements in the Northern Meat Production Area

The Putnam-Lindley Area (Ralls and Callaway Counties).—The declining level of farm real estate values in these counties has, at least temporarily, been checked. The index of sales value per acre moved from 56.5 per cent of the 1927 level in 1930 to 57.6 per cent for the first six months of 1931,² (Table 16). In actual values, the increase was from \$29.03 per acre to \$30.49 per acre.

TABLE 16.—SALES VALUES OF FARM REAL ESTATE IN CALLAWAY AND RALLS COUNTIES, 1927-1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	66	5680.0	\$310,030	\$52.90	100.0
1928	64	6527.0	231,737	35.50	67.0
1929	86	8369.0	298,168	35.63	67.0
1930	92	11402.0	340,961	29.90	56.3
1931	61	7807.0	238,051	30.49	57.6

¹Chambers, C. R. The Relation of Land Incomes to Land Values.

²When reference is made in the following sections to sales values for the year 1931, the fact that data for only the first six months of the year were available should be kept in mind.

At first glance, the apparent stability of values in these counties seems anomalous. The trend of prices for the most important farm products of these counties and the area was downward. Grain prices dropped 19.6 per cent from July of 1930 to March of 1931, and during the same period, prices of meat animals dropped 16.5 per cent. From price implications the prospect was for declining farm incomes.

However, the year 1930 was one of severe drought, the precipitation at Mexico, in the heart of the area, totalling only 22.53 inches, as compared to a normal average of 38.64 inches. Even this small rainfall was badly distributed and the months of July and August were periods of almost unbroken drought.¹ The Putnam soil which dominates the upland is unfortunately subject to drought because of its impervious subsoil which restricts the upward movement of water. Residents of long standing counted 1930 as the poorest crop year since the year 1901.

To many real estate owners in the area not yet wholly recovered from the price declines of the post-war period, the poor harvest of 1930 was undoubtedly a great blow. Faith in the prospects of farming in the area may have and apparently did reach a low ebb, as evidenced by the low prices paid for farm real estate in the considerable number of transactions for which data are available for the years 1930 and 1931. Apparently, the severity of the weather exigencies were sufficient to bring the liquidation in farm real estate values in Callaway and Ralls counties to a close abruptly and somewhat earlier than might otherwise have been the case. A comparison of values reveals that the 1930 and 1931 levels were well below those of 1910, which stood in Callaway county at \$46.57 and in Ralls county at \$53.30 per acre and were not far from the 1900 level which was \$18.54 per acre and \$24.79 per acre, respectively. The stiffening of values in 1931 probably resulted from the conviction that, in years of more normal wealthy conditions, returns to farming in the area will justify the low levels at which farm real estate values now stand.

Reference to Table 10 reveals that the liquidation of values in Ralls and Callaway counties has, during the last four years, been more severe than in any other of the counties for which data were available. Values in 1931 were only 57.6 per cent of those for 1927. In 1927, values in Ralls and Callaway counties were 90.4 per cent of the weighted average for the State. In 1931, they were only 72.6 per cent of the State average. A similar comparison based on census data reveals that in 1920, per acre values in Callaway county were 92.3 per cent and those of Ralls were 96.8 per cent of those for the State.

¹Precipitation at Mexico in July was .07 inches and for August .84 inches, according to reports of the U. S. Weather Bureau. See Climatological Data, Volume XXXIV, No. 13, Columbia, Missouri.

This comparatively great decline of values in these two counties was explained in the "Missouri Farm Real Estate Situation for 1927 to 1930", as resulting from a relative loss in comparative advantage in crop production because of certain soil faults and inability to mechanize on the one hand, and relatively few alternative farm enterprises to which to turn on the other. No further discussion of this point will be offered here.

With regard to the future of values in these counties and the Putnam-Lindley sub-area of the Northern Meat Production area, there is some reason to be hopeful. Liquidation in the area has been severe and values are now low not only in relation to the State weighted average but in relation to those of other counties and areas. Thus in 1920, Newton county farm real estate values were, according to the census, \$70.05 per acre as contrasted to the \$81.30 and \$85.30 per acre for Callaway and Ralls counties, respectively. At present, however, these northeast Missouri county lands can be purchased at prices as low as those in southwest Missouri. Thus in 1930 sales values in Callaway and Ralls counties actually averaged lower (\$30.49 per acre) than in Newton county (\$31.29 per acre).

Marshall-Wabash Sub-Area (Atchison County).—The average sales value of farm real estate in Atchison county fell below \$100 per acre for the first time since before the War. In 1931, sales values stood at \$94.48 per acre, as compared to \$123.87 in 1930, and were only 69.9 per cent of the 1927 level (Table 17). Because of the small sample of sales in 1930 and 1931 the figures for these years are somewhat less trustworthy than those for the preceding years.

TABLE 17.—SALES VALUES OF FARM REAL ESTATE IN ATCHISON COUNTY, MISSOURI, 1927-1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	47	6230.74	\$842,664	\$135.24	100.0
1928	41	5083.08	676,640	133.11	98.0
1929	36	4693.00	588,765	125.45	93.0
1930	26	3753.16	464,928	123.87	91.6
1931	16	2217.78	208,966	94.48	69.9

A series of data relating to sales value of farm real estate in Atchison county has been prepared by J. B. Shaum of Tarkio, Missouri and is presented in Table 18 and Figure 11. The data extend back to the year 1900 and show a striking resemblance, as far as movements are concerned to that for the State as given in Figure 1. However, because Mr. Shaum's

TABLE 18.—MOVEMENTS OF SALES VALUES* OF FARM REAL ESTATE IN ATCHISON COUNTY, 1900-1930

Year	Total Acreage	Average Per Acre
1900	7277	\$45.42
1901	10615	53.83
1902	7047	57.28
1903	2717	66.47
1904	6230	71.28
1905	6480	78.25
1906	6232	88.20
1907	3894	93.58
1908	3223	96.30
1909	5570	100.09
1910	3266	110.52
1911	4361	112.77
1912	3427	110.93
1913	8966	104.90
1914	4665	118.35
1915	3821	126.25
1916	4145	116.07
1917	7571	123.93
1918	10850	137.84
1919	11761	150.90
1920	10801	208.05
1921	3072	184.53
1922	4243	165.52
1923	3403	162.57
1924	3930	148.23
1925	3227	165.42
1926	5458	133.43
1927	5938	130.29
1928	7959	123.81
1929	8095	119.59
1930	8129	96.99

*Including warranty, quit claim and trustee's deeds transfers. Data compiled by J. B. Shaum, Tarkio, Missouri.

data include quit claim and trustee's deeds as well as warranty deeds, the movement of values as indicated by them is somewhat at variance with that as indicated by data of the present study. Because of the inclusion of the quit claim and trustee's transfers the values as reported by Mr. Shaum averaged somewhat lower than those arrived at when warranty deed transfers alone are considered. Furthermore, the discrepancy is apparently a growing one. In 1927, the difference was only \$5 per acre, in 1928 approximately \$9, in 1929 was \$6, but in 1930 was nearly \$27 per acre. The inference from this widening margin between the warranty deeds alone and the warranty, quit claim, and trustee's deeds is that the volume transfers involving these deeds increased after 1927 and was particularly important for the year 1930. However, in 1931 the 16 warranty deed sales in Atchison county averaged only \$94.48 per acre which is a trifle lower than the \$96.89 per acre as reported by Shaum for 1930.

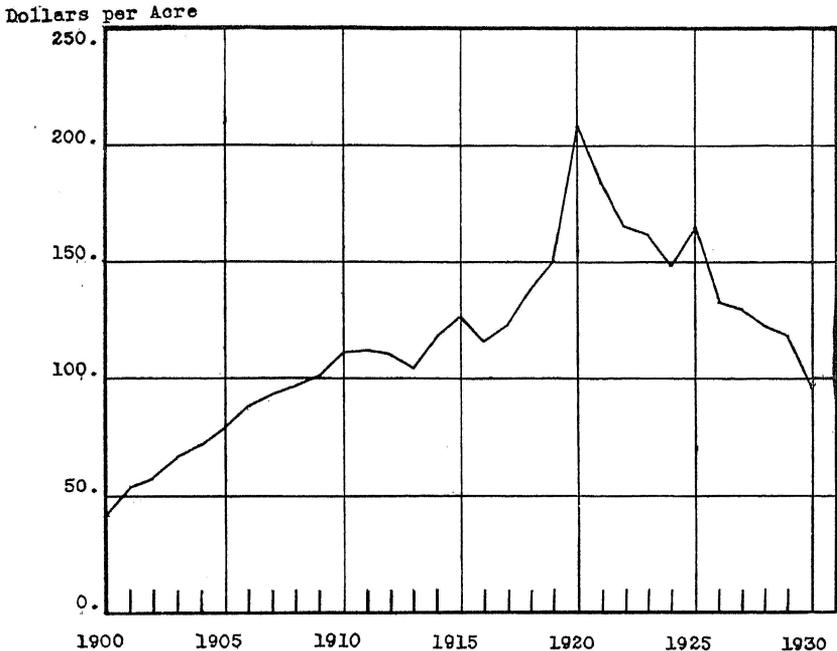


Fig. 11.—Movement of Sales Values of Farm Real Estate in Atchison County, 1900-1931. Sales include Warranty, Quit Claim, and Trustee's Deeds. Data compiled by J. B. Shaum, Tarkio, Missouri.)

The downward movement of sales value in Atchison county was apparently nearly arrested in the years 1927 and 1928 and by 1930 values had sunk only to 91.6 per cent of the 1927 level, as compared to 79.9 per cent for the weighted index for the State as a whole. The great slash in values in the county apparently came in the first six months of 1931, when the index dropped to 69.9 per cent of the 1927 level or actually two points below that for the State average, which stood at 71.8. Thus, while in 1930 the decline in Atchison county was relatively unimportant and much smaller than the average for the State, that for 1931 was strikingly large by comparison. Undoubtedly values in Atchison county, during the period 1927 to 1929, inclusive, and extending on into 1930, had been maintained at a relatively high level because of the exceptional profits to be made in beef production. Prices for beef were almost at their cyclical peak, prices for hogs were high, and the farmers of Atchison county in the Marshall-Wabash area were generally reaping large profits.

A farm management study of 66 Nodaway county farms made in 1928 by Professor O. R. Johnson, Department of Agricultural Economics, University of Missouri, shows an average gross income of \$8475¹ which, after subtracting current expenses and a 5 per cent return to investment, leaves a labor income for the farm family of \$2573. While the less profitable of these farms earned a much smaller labor income, the 20 most profitable received an average gross income of approximately \$14,000 and a labor income of essentially \$5000.

The results of a similar study in Atchison county for the year 1931, in which the Division of Farm Management of the Bureau of Agricultural Economics of the United States Department of Agriculture collaborated with Professor Johnson, presents a remarkable contrast. The average gross income for 140 farms was \$3686. However, when current expenses and decrease in inventory, which amounted to \$4401, are subtracted, the average farm income for the year was a net loss of \$714. When a 5 per cent return is allowed on invested capital, this loss is increased to \$1440.

Inasmuch as Nodaway county is similar to Atchison county² as far as physical conditions and type of farming are concerned, the income data for the two counties are directly comparable. In 1928, farming in the two counties not only provided returns which amply justified the level of values in the area, but provided also an acceptable labor income. By contrast, in 1931 returns were so low that even if nothing was assumed for return on invested capital, there would still have been a negative labor income.

From the results of these studies one might have concluded that the level of farm real estate values in these counties was relatively low in relation to farm returns in 1928 and altogether too high in 1931. However, farmers tend to value their real estate on a much longer income period than a single year, and one cannot conclude from the data of these two studies that farm real estate values in this area were either too high or too low. These studies do indicate the cyclical fluctuations to which farm incomes in these two counties and in the Marshall-Wabash area generally, where a highly specialized type of farming dependent upon a ready market for its products is employed, are subject. They indicate also the need for caution in assuming the high fixed costs to which the average farm investor must obligate himself if he wishes to undertake to farm in the area. In other words, the effects of the business cycle on the return to farming in the area are such that no one can afford

¹Includes value of products used by farm family, but not house rent.

²The two counties are adjacent to one another.

to buy farm real estate without first taking account of the stage in the cycle that has been approached.

We may, also, assume that if the present depression is a genuine cycle from which recovery to prices approximating the 1921 to 1929 level will ultimately be made, 1930 and 1931 farm real estate values in the area may have been unduly affected by these cyclical exigencies. In other words, farm real estate values may have been driven, in 1931, to rather lower levels than the general run of farm returns in the area would justify. There is, indeed, little reason to suppose that Atchison County farm real estate values should remain in relation to 1927 values, relatively lower than those for the State as a whole.

The Grundy-Shelby Area (Harrison County).—In Harrison county, as in Callaway and Ralls counties, a slight upturn occurred in 1931. The index of sales value moved from 67.2 per cent to 69.6 per cent of the

TABLE 19.—SALES VALUES OF FARM REAL ESTATE IN HARRISON COUNTY, 1927-1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	55	4435.8	\$389,000	\$87.70	100.0
1928	68	4722.7	323,443	67.77	77.0
1929	52	4366.8	336,247	77.00	88.0
1930	64	4699.09	277,085	58.97	67.2
1931	19	1795.5	109,635	61.06	69.6

1927 level, or from an average per acre value of \$58.97 to \$61.06 (Table 19). Over the period 1927 to 1930 the downward trend in sales values in Harrison county was somewhat more rapid than that of the weighted average of sales values for the State as a whole. The weighted State average declined from 100 per cent in 1927 to 79.9 per cent in 1930, whereas Harrison county values declined from the same percentage level in 1927 to 67.2 per cent in 1930. The decline in sales value in this county was similar to, although not so severe as, that in Callaway and Ralls counties over the same period.

Much the same reasons can be advanced for the relatively heavy declines in value in this county that were advanced in the case of Callaway and Ralls counties. The combination of farm enterprises is quite similar in all three. From the standpoint of tractor operation, the topographical features of Callaway and Ralls counties are perhaps about equal or even more desirable than those of Harrison county, as is evidenced to some extent by Table 13, which shows the relative degrees of tractorization by type of farming areas. Soils in Harrison county are, however, superior in quality to those of Callaway and Ralls counties because of a higher nitrogen content, lower acidity and a more porous

sub-soil. Consequently, soil deterioration has probably been less of an influence in lowering the level of sales value in Harrison county than in Callaway and Ralls counties.

The apparent stability of value, that obtained in both Harrison and Callaway and Ralls counties in 1931 came after heavy declines in value from 1929 to 1930. The combined effects of price declines and the 1930 drought on farm incomes in 1930 may have served to lower farm real estate values in these counties to a level somewhat lower than subsequent experience will justify.

The Shelby-Lindley Area (Sullivan County).—After remaining essentially constant for the three years 1927 to 1929, during a period of relatively high beef and hog prices, farm real estate values in Sullivan county broke abruptly in 1930 and declined to 78.8 per cent of the 1927 level (Table 20). The rather meager data of 1931 indicate that the decline

TABLE 20.—SALES VALUES OF FARM REAL ESTATE IN SULLIVAN COUNTY, 1927-1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	81	6493.71	\$383,166	\$59.01	100.0
1928	71	5616.47	325,562	57.97	98.0
1929	75	6129.90	369,364	60.26	102.0
1930	58	4488.19	208,541	46.51	78.8
1931	22	2501.59	89,205	35.65	60.4

continued for the first six months of the year and the 22 sales averaged only \$35.65 per acre, as contrasted to \$60.26 per acre for 1929. The 1931 average at only 60.4 per cent of the 1927 level represents a more rapid decline than for the State as a whole, and one about equal to the decline that took place over the period 1927 to 1931 in Ralls and Callaway counties.

The average values for 1930 and 1931 are probably for a somewhat different cross-section of Sullivan county farm real estate than is that for the earlier three years. When values are stable, the sample of sales will more nearly represent a typical cross-section of farm real estate within the county. During a period of rapidly declining prices, however, farms in strong hands do not come on the market and the poorer farms are weighted more heavily in the sales sample. We may think of the values in 1930 and particularly in 1931 as unduly biased because of the above considerations, and just as the values in 1930 for Callaway and Ralls counties probably represented a liquidation that had somewhat overrun itself so the 1931 values may represent a similar situation for Sullivan county.

The stability of values in Harrison, Callaway and Ralls counties and the slight upturn in Johnson county (see below) affords evidence that in the areas which these counties together with Sullivan county represent, farm real estate values are not far from their post-war low. Indeed, there seems to be a definite tendency for values to stabilize in these areas at 60 to 70 per cent of the 1927 level, despite the drastic declines in farm prices that has characterized the years 1930 and 1931.

The Summit Area (Johnson County).—Despite an apparent upturn in 1931 as compared to 1930, values of farm real estate in Johnson county over the entire period, 1927 to 1931, should probably be thought of as exhibiting a high degree of constancy. The low average value per acre of \$51.75 in 1930 is apparently unrepresentative of the general level of real estate values in the county since the census data of that year indicate a value of \$61.12 per acre. Quite probably also the average sales values of \$61.44 per acre for the first six months of 1931 is biased in the other direction and is unrepresentatively high (Table 21). So meager a

TABLE 21.—SALES VALUES OF FARM REAL ESTATE IN JOHNSON COUNTY, 1927-1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	100	6987.45	\$473,618	\$67.78	100.0
1928	96	8397.71	570,270	67.91	100.0
1929	77	6279.10	380,877	60.66	89.0
1930	54	4643.53	240,322	51.75	76.0
1931	24	1546.49	95,011	61.44	91.0

sample of sales as only 24 may easily be unreliable. Nevertheless, the indications are that values have not suffered a great deal in Johnson county and in the Summit area since 1927, and, as the analysis of census data reveal¹, 1930 values in Jackson county, which is adjacent to the northwest corner of Johnson county, were higher than those of 1925. Indeed, in 1930 Jackson county values were only 7.6 per cent lower than the high point in 1920, and were actually 14 per cent above the 1925 level. Figure 9 indicates that the effect of the stabilizing influence on farm real estate values of the growing urban centers of Missouri extends outward from these centers in concentric rings; the effect declining rapidly as the distance increases. While Johnson county is at some distance from Kansas City it is quite possible that a certain part of this influence may have affected values, particularly in the northwest part of the county. The effect on values in Cass and Lafayette counties, both of which are at much the same distance from Kansas City as parts of Johnson county, is evident.

¹See Figure 9.

A second factor operating to maintain farm real estate values relatively well in Johnson county is the type of farming that characterizes the area. The combination of farm enterprises emphasizes dairying to a far greater extent than is true in any other sub-area of the Northern Meat Production area. The prices of dairy products, though declining considerably from 1929 to 1931, were by no means as seriously affected during the first stages of the present depression as were the prices of grains or meat animals. Thus, between the years 1929 and 1931, grain prices declined 48 per cent, meat prices 40 per cent, and prices of dairy products only 33 per cent. The stability of dairy products prices relative to those for meat animals and grains has continued throughout the present depression (up to the present writing in April, 1932) and has apparently had an effect on farm real estate values in Johnson county and in the Summit area.

A further factor that may be of some import is the degree of mechanization that has taken place in the area. By 1930, there were in the Summit area more tractors per 1000 acres of crop land than in any other type of farming area except the Marshall-Wabash. The number in the Summit and in the Marshall Wabash areas was essentially the same: 2.12 as compared to 2.18 per 1000 crop acres in 1930. Furthermore, the rate of mechanization between 1925 and 1930 was far more rapid in the Summit Area than in any other sub-area of the Northern Meat Production Area and was exceeded only by that of the Southwest Fruit and Dairy and the Southeast Lowlands Areas. In some respects, the physical conditions in the Summit Area are more favorable to tractor operation than in any other large section of the State. The Summit and Oswego soils which dominate the area are not as fertile as the Marshall and Wabash to the north, though not greatly inferior to them. The topography of the Summit Area represents an extension of the Great Plains Region into Missouri and is on the whole somewhat more gentle than the long roll of the Marshall-Wabash Area. Thus in the Summit Area, good soils and a relatively level topography have favored the rapid mechanization which has apparently upheld farm real estate values.

The Ozark Border Area (Franklin County).—A small decline in sales values occurred in Franklin county from 1930 to 1931. Actual values declined from \$28.66 per acre to \$26.36 per acre and as a percentage of the 1927 level from 103 per cent to 95 per cent (Table 22). Additional supporting evidence that values have been essentially stable in Franklin county is to be found in the census data for the years 1925 and 1930, which reveal that values increased from \$42.80 per acre in 1925 to \$44.91 per acre in 1930.

TABLE 22.—SALES VALUES OF FARM REAL ESTATE IN FRANKLIN COUNTY, 1927-1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	58	5639.14	\$156,553	\$27.76	100.0
1928	37	4016.57	97,982	24.39	88.0
1929	39	3352.87	98,299	29.32	106.0
1930	38	4009.38	114,931	28.66	103.0
1931	15	1395.35	36,775	26.36	95.0

Several reasons can be advanced why values have held up so well. In the first place, Franklin county, like Johnson, is near a rapidly growing urban center. In fact, it is, on the average, not more than 50 miles from St. Louis, and the eastern edge is 25 miles from St. Louis proper and much closer to the periphery of the greater St. Louis area. The increases in value from 1925 to 1930, as revealed by the census, in Jefferson and St. Charles counties, which are adjacent to both Franklin and St. Louis counties, are further evidence of the influence of St. Louis on farm real estate in the proximate hinterland.

A second factor that has contributed to the stability of values in Franklin county is the type of farming that characterizes the county and the Ozark Border Wheat and Dairy Area. Dairying is of even greater importance in this area than in Johnson county and in the Summit Area, and the comparatively well maintained price level for dairy products during the years 1930 and 1931 has undoubtedly been a factor in maintaining farm real estate values in Franklin county.

An additional contributing factor may have been the character of Franklin county's population. In 1930, 15.3 per cent of the population were of foreign born German parentage, as compared to 6.1 per cent for the state as a whole. A much larger percentage of the people living in the county are of German extraction many of them, perhaps a majority, representing the first and second generation of the native born. The settlement may be thought of as compactly German and as peculiarly retentive of an European thriftiness and regard for land because of the continuing influence of new arrivals. In 1930, according to the census, only 35.3 per cent of the owner-operated farms in Franklin county were mortgaged as compared to an average of 48.5 per cent for the state. This freedom from debt mitigates the effects of the price decline on farm incomes and exerts an indirect effect on real estate values. Only 5 forced sales of real estate occurred in Franklin county in the first six months of 1931 affording further evidence of the relatively strong financial position of the real estate owners in the county.

Despite the fact that a large part of Franklin county, and of the entire Ozark Border Dairy and Wheat Area, is decidedly rolling, with nu-

merous ridges and hills and a wide-reaching drainage system, there were, in 1930, two tractors per 1000 crop acres as compared to 1.6 for the State and 2.18 for the Marshall-Wabash Area. The extent to which this comparatively high degree of "tractorization" has reduced costs and in turn has bolstered farm incomes cannot, by any objective measure, be determined. Nevertheless, we can assume with a fair degree of certainty that, in general, some reduction in costs and in turn a somewhat higher income has followed the extensive adoption of the tractor, and its complement of implements, in Franklin county and in the Ozark Border Area.

The Ozark Meat Production Area

Clarksville-Lebanon Sub-area (Miller County).—With the artificial stimulus to farm real estate values, incident to the purchase of land for the Bagnell Dam, gone, average sales value of farm real estate in Miller county have declined, and stood, in the first six months of 1931, at only 78 per cent of their 1927 level, as compared to 102 per cent in the year 1930 (Table 23). The great decline in 1931, as indicated by sales values,

TABLE 23.—SALES VALUES OF FARM REAL ESTATE IN MILLER COUNTY, 1927 TO 1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	25	2476.00	\$61,880	\$25.08	100.0
1928	36	3816.95	84,525	22.14	88.0
1929	46	4899.81	103,329	21.09	84.0
1930	53	6055.26	155,550	25.69	102.4
1931	19	2392.00	46,775	19.55	78.0

may be only questionably representative of the actual course of farm real estate values in the county, and the small sample of only 19 sales is not to be regarded as highly reliable. Indeed, the average value of \$19.95 per acre in 1931 is dubiously low, as compared to the \$27.38 per acre as reported by the 1930 census. At any event, values in Miller county have held up somewhat better than have those for the state as a whole and probably also for most of the counties of the Clarksville-Lebanon sub-area of the Ozark Meat Production Area. Because of the power site development, the movement of values in Miller county is not entirely representative of its type of farming sub-area for the period under consideration. However, Miller county values were at much the same level in 1931, as compared to 1927, as were those of the adjacent Huntington-Clarksville sub-area and Ozark Plateau Dairy Area which stood at 74.4 and 81 per cent of their 1927 level as compared to 78 per cent for Miller County.

The type of farming in Miller county and the Clarksville-Lebanon sub-area of the Ozark Meat Production Area runs largely to meat and poultry products and, particularly in the eastern part of the area, makes quite a place for dairying. Prices of meat, dairy and poultry products have shown considerable resistance to cyclical declines, and have doubtlessly exerted a stabilizing influence on real estate values in the area.

Cost reductions, because of mechanization, have obviously been and will continue to be relatively unimportant in a region with so broken a topography as the Miller county area. Furthermore, the effects of the inflation of the war period on farm real estate values in Miller county and the whole Ozark region was mild and values were not raised to the same exaggerated levels as in the northern part of the state prior to 1920, and, hence, have not been subject to the same severe declines.

The Clarksville-Huntington Sub-Area (Reynolds County).—A small upturn in average sales values as indicated by the 22 transfers for the first six months of 1931 in Reynolds county in the Clarksville-Huntington Sub-Area of the Ozark Meat Production Area may or may not be significant. Sales values in Reynolds county have shown a disconcerting tendency to fluctuate quite widely. Thus, they moved from 100 per cent of the 1927 level in 1927, down to 73 per cent in 1928, up to 87 per cent in 1929, down to 71.7 per cent in 1930, and up to 74.4 per cent in 1931. (Table 24).

TABLE 24.—SALES VALUES OF FARM REAL ESTATE IN REYNOLDS COUNTY, 1927 TO 1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	31	3946.08	\$55,515	\$13.81	100.0
1928	43	4029.40	40,682	10.09	73.0
1929	41	3018.24	36,120	11.96	87.0
1930	54	6105.76	60,422	9.90	71.7
1931	22	3218.67	33,062	10.27	74.4

The complexity of the physical situation in this county makes it unusually difficult to secure a representative cross-section of land conditions in a sales sample. The range over which the type of land use in the county extends is unusually great. Thus, the bottom and terrace lands of the valleys are employed in relatively intensive cropping uses. The slopes and plateau areas may be used for timber growing and grazing, and the more delectable sites from a scenic viewpoint are often made into resort properties. At present, the investigators have no way of

accurately determining just what cross-section of physical conditions and land uses the sales sample represents.

Sales values in Reynolds county had not, by 1931, declined quite as greatly as for the state as a whole. A number of explanations may be offered. In the first place, the farming of the county, because of the comparative lack of roads and railroads, is relatively self-sufficient and, hence, uninfluenced by changes in money values such as have occurred recently. Livestock production is the major farm enterprise and, inasmuch, as meat prices have held up relatively well, farm incomes have not been so greatly affected as might otherwise have been the case. The census reveals a considerable increase in farms and area of land in farms in Reynolds county between 1925 and 1930. That unemployment in the cities may have increased the demand for the cheap Ozark lands in this county is quite within the realm of possibility. While stony and often infertile, these lands cost little and afford, what is at a premium during such a drastic depression period as the present, a chance to secure one's own food, to get away from high urban rents, and to employ the labor of the entire family more effectively than can often be done in the cities. Possibly, also, a demand for resort lands because of the increasingly adequate state highway system may have had some effect on farm real estate values in the county.

A further feature with regard to average sales values in this county is the wide disagreement with average values as reported by the census. Not only are sales values consistently much lower than census values, but sales values have declined, whereas, census average values actually increased between 1925 and 1930. The reason why sales values are so much lower than census values, undoubtedly, lies in the difference in the sample of real estate represented by each. Sales values undoubtedly emphasize far more than do census values, the timbered and cut-over tracts. Furthermore, with the number of farms and lands in farms increasing in the county, sales transfers would include a far greater proportion of tracts moving from a cut-over and a timber category into farms than would be included in a census enumeration of all farms. With employment in cities at high levels in 1927, 1928 and 1929 it is probable that the influx of settlers and the movement of cut-over and timber lands into farms occurred chiefly in the years 1930 and 1931, rather than in the earlier three years. The relatively low level of values for 1930 and 1931 would thus be explained by the exceptionally large number of transfers of cut-over and timber tracts included in the sample of sales for those two years.

The Western Corn and Small Grain Area (Barton County).—Sales values of farm real estate in Barton county moved upward slightly

from 1930 to 1931, and reached 81 per cent of the 1927 level as compared to 77.7 per cent in 1930. (Table 25).

TABLE 25.—SALES VALUES OF FARM REAL ESTATE IN BARTON COUNTY, 1927 TO 1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	66	5716.6	\$289,079	\$50.56	100.0
1928	56	5506.8	248,261	45.08	89.0
1929	42	4370.0	189,649	43.39	86.0
1930	35	3261.0	128,127	39.29	77.7
1931	14	1280.0	52,501	41.01	81.0

The small sample of only 14 sales in 1931 makes an average based upon them only dubiously reliable, however, and a cautious statement would go no further than to say that the average derived from the 1931 sales probably indicates a stabilizing of values in the county.

Based on the 1927 level, sales values in Barton county declined somewhat more from 1927 to 1930 than the weighted average of sales values for the State. In 1930 the weighted average value for the state, based on the 1927 level, was 79.9 as compared to 77.7 in Barton county. The trend in value as given by the census from 1925 to 1930 is much like the trend in sales values from 1927 to 1930.

Farm real estate values in Barton county have shown remarkable stability considering the type of farming practiced in the area. Grains have an important place in the cropping system and comprise, on the average, more than 40 per cent of the total crop and pasture area. Next to pasture, corn is the most important single crop enterprise. Considering the importance of the corn enterprise, relatively little emphasis is given the livestock enterprises. For example, there are on the average only about 8 hogs per 100 acres of crops and pasture in the Western Corn and Small Grain Area, of which Barton county is representative, as contrasted to 14 in the Putnam-Lindley and 12 in the Shelby-Lindley sub-areas of the Northern Meat Production Area. A similar situation exists with respect to the beef cattle, dairy cow and poultry enterprises. Grain prices declined much more in 1930 and 1931 than the prices of such products as meats, dairy products and fruits, and a greater discounting of real estate values than actually occurred might easily have been anticipated.

Furthermore, farmers in Barton county and in the entire Western Corn and Small Grain Area have apparently been tardy in mechanizing their farm operations.¹ In 1930, there were only 1.24 tractors per 1,000

¹See Table 13 above.

crop acres as compared to an average of 1.6 for the state and 2.18 for the Marshall-Wabash Area.

In fact, to explain the stability of values in Barton county, one must apparently fall back upon the rather lame conclusion that changes in the prices of farm products are not as readily transmitted to farm real estate values as in most sections of the state. Federal census figures over this period bear out this assumption.¹ According to data of the census, values in the Western Corn and Small Grain Area, of which Barton county is representative, moved from 100 per cent in 1910 to 158 per cent in 1920, and values for the state as a whole, from 100 per cent to 189 per cent over the same period. By escaping the excessively heavy inflation in farm real estate values, farmers in Barton county and in the Western Corn and Small Grain Area have undoubtedly been in a somewhat stronger position, in the period from 1920 to 1931, to resist the heavy liquidations in value common to so many other areas in the state. Evidently, a smaller proportion of farm real estate values in Barton county in 1920 was based on anticipated increases in net rents than was true for the state as a whole or particularly such areas as the Marshall-Wabash, Grundy-Shelby and Shelby-Lindley sub-areas of the Northern Meat Production Area. Curiously enough, despite the fact that the Barton county area is a plains section, the values of its farm real estate behave much more nearly like those of the relatively rugged Ozark section than like those of other more nearly level areas in the northern part of the state.

The Ozark Plateau Dairy Area (Polk County).—Average sales value of farm real estate in 1931 in Polk county increased somewhat over the 1930 level and stood at 77 per cent of the 1927 level as compared to 74 per cent in 1930. (Table 26).

TABLE 26.—SALES VALUES OF FARM REAL ESTATE IN POLK COUNTY, 1927 TO 1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	65	4716.9	\$191,623	\$40.62	100.0
1928	105	7688.8	288,888	37.57	92.0
1929	119	8470.7	282,024	33.29	82.0
1930	90	7964.9	240,400	30.18	74.0
1931	37	2915.6	93,270	31.45	77.0

The average of the 37 sales in 1931 was \$31.45 per acre as contrasted to an average of \$30.18 per acre for the year, 1930, and \$40.62 per acre for the year 1927. Average values as given in the census reports in 1925 and 1930 show a stable rather than a declining level of values in Polk county.

¹See Table 11 above.

In 1927, the average sales value was around \$4 per acre less than the average census value in 1925, but by 1930 average sales value had declined to only \$30.18 per acre, as contrasted to an average census value of \$43.15 per acre in the same year.

Several explanations were offered in the section dealing with movements of value in the state as a whole for the widening gap between average sales values on the one hand, and average census values on the other. One possibility suggested was that the quality of farm real estate being transferred declined over the period, 1927 to 1931. The expansion in the volume of sheriff's and trustee's deed transfers from 1929 to 1930 may be considered as some evidence of an increased proportion of tracts of less than average quality being included in the sales sample. There is some reason to believe that the relatively poorer tracts in the county would, on the average, be the first to come on the market during a period of declining farm incomes such as in 1930.

The contraction of the volume of sales in 1931 has probably been a factor in the stability of farm real estate values in 1931 in Polk county, as evidenced by the movement of sales values from 1930 to 1931. Apparently, the combined effects of the drought, the declining level of farm prices and the increase in tracts offered for sale forced down values in 1930 in Polk county to a lower level than was justified from the viewpoint of a prospective farm income over a longer period of time. Farm real estate values in Polk county as reported by the census, were in 1930 more than \$17 per acre lower than 1910 values.

As in Franklin and Johnson counties, the farming of Polk county emphasizes dairying and livestock production. In both of these counties real estate values have been well maintained and the stability of Polk county values for 1931, as compared to 1930, apparently rests upon much the same foundation.

The Southwest Fruit and Dairy Area (Newton County).—Sales values of Newton county farm real estate continued to decline from 1930 to 1931. Average values declined from \$36.96 in 1930 to \$31.29 per acre in 1931 and as a per cent of the 1927 level, from 74 per cent to 63 per cent. (Table 27). Over the period, 1927 to 1929, sales values maintained themselves reasonably well. Since 1929, the declines have been heavy and in both 1930 and 1931 sales values in Newton county were, in relation to 1927 values, lower than was the weighted average for the state. The discrepancy between county and state averages was in 1930 more than 5 points and in 1931 nearly 9 points.

Census average values in Newton county not only maintained themselves, but even increased somewhat from 1925 to 1930. During the same period there has been a considerable movement of land into farms

TABLE 27.—SALES VALUES OF FARM REAL ESTATE IN NEWTON COUNTY, 1927 TO 1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	106	5923.3	\$294,615	\$49.73	100.0
1928	115	5543.2	306,855	53.35	107.0
1929	106	6491.1	287,410	44.27	89.0
1930	54	3558.35	131,546	36.96	74.0
1931	28	1442.87	451,148	31.29	63.0

such as has occurred in Reynolds county. The number of farms increased from 3127 to 3380, and the land in farms from 278,000 acres to 311,000 acres over the period.

There has also been an increasing number of small farms in the county. The number of farms from 20 to 49 acres in size increased from 723 to 1027, and those of from 10 to 19 acres in size from 99 to 177 over the period 1920 to 1930.

Tracts of real estate moving into the category of land in farms have undoubtedly been weighted more heavily in values as derived from the sales sample than in the average value for the entire county. Such tracts are commonly poorer in quality than the general run of farm real estate. Beginning with the present depression, there is some reason to believe that the movement of land into farms was accelerated and these relatively low valued tracts would, therefore, have been a larger factor in determining the level of sales values during 1930 and 1931 than in the years 1927, 1928 and 1929. The sharp increase in warranty deed transfers in 1930 and 1931, as shown by Table 7, in Newton county may be taken as an indication of an accelerated rate of movement of real estate into farms. If the movement of values from 1925 to 1930, as indicated by the census, is correct, the decline in sales values in the years 1930 and 1931 probably represent a decline in the average quality of the tracts transferred rather than an actual decline in sales value for farm real estate throughout the county.

The Southeast Missouri Lowlands (Pemiscot County).—Farm real estate values in Pemiscot county continued their descent to lower levels in 1931. The index of value declined from 89 per cent in 1930 to 67 per cent in 1931, and in the averages from \$63.83 per acre to \$47.62 per acre. (Table 28)

Weighted average values for the state declined from 100 per cent in 1927 to 79.9 per cent in 1930, whereas sales values in Pemiscot county declined from 100 per cent to 89.4 per cent over the period. In 1931, however, sales values declined more in Pemiscot county than sales values for the state and reached 67 per cent of the 1927 level as compared to

TABLE 28.—SALES VALUES OF FARM REAL ESTATE IN PEMISCOT COUNTY, 1927 TO 1931

Year	Number of Sales	Acreage Transferred	Consideration	Per Acre	Per Cent of 1927
1927	48	3258.7	\$232,784	\$71.43	100.0
1928	29	2705.1	229,332	84.78	119.0
1929	51	3956.7	278,695	70.42	99.0
1930	31	2974.8	189,913	63.83	89.0
1931	12	1705.0	81,200	47.62	67.0

71.8 per cent for the state. However, the small sample of only 12 sales in 1931 can hardly be counted as representative of the actual cross-section of farm real estate in the county.

Since this area is heavily specialized in corn and cotton, the heavy declines in the prices of these two products in 1930 and 1931 has, undoubtedly, served to lower farm incomes to such low levels as to essentially wipe out, for the time being, any net return to the land factor. Some idea of the relative severity of the decline in prices of these products can be gotten from the following figures. From 1929 to 1931, grain prices fell from 121 per cent of the 1910 to 1914 level to 63 per cent, and prices of cotton and cotton seed from 145 to 63 per cent of the same level.¹ In the Southeast Lowlands Corn and Cotton Area the two crops, corn and cotton, comprise more than 65 per cent and in Pemiscot county approximately 75 per cent of the total crop and pasture area. All of the cotton and most of the corn in this area is sold for cash.

Movements of Sales Values by Soil Types

Perhaps the most difficult problem, in connection with studying the movement of farm real estate values is that of securing a sample that is representative of the farm real estate in the area under consideration. In areas such as a county, where many different grades of farm real estate are found there is little assurance that the transfers occurring from year to year represent an accurate cross-section of all the farm real estate in that particular area. In one year the transfers may more nearly represent the best grade, whereas, in some other year they may more nearly represent the poorest grade of farm real estate.

Values based upon a composite of different grades of farm real estate in an area where these grades vary widely are of limited use in determining the value to be assigned to any particular grade of farm real estate. The average investor in farm real estate is usually most interested in

¹See "The Agricultural Situation", Bureau of Agricultural Economics, U. S. D. A., Vol. 16, No. 4, April, 1932.

determining the value of a particular grade or a composite of a few rather than a composite of many grades of farm real estate.

To a great extent these inaccuracies, resulting from the inclusion of all warranty deed transfers that occur during a specified time and in a given area in the sales sample, are eliminated when the sample is selected so as to include only transfers of a particular grade of farm real estate. In the approach to the study of movements of farm real estate values by soil type we have a distinct improvement over the approach used in the preceding analysis, in that two of the major factors producing variation in farm real estate values are largely accounted for since topography is closely correlated with soils.

TABLE 29.—MOVEMENTS OF SALES VALUES OF FARM REAL ESTATE BY SPECIFIC SOIL TYPES, 1927-1931

Year	No. Sales	Acreage	Value per Acre	Index
<i>Shelby Loam*</i>				
1927	26	1433	\$54.55	100.0
1928	26	1418	57.69	106.0
1929	16	659	61.75	113.0
1930	24	1339	45.88	84.0
1931	9	498	34.90	64.0
<i>Baxter Silt Loam**</i>				
1927	29	1074	\$37.59	100.0
1928	50	1976	36.90	98.0
1929	33	1120	32.95	88.0
1930	32	1487	32.43	86.0
1931	13	579	26.37	70.0
<i>Marshall Silt Loam***</i>				
1927	26	3068	\$135.25	100.0
1928	15	1759	149.37	110.0
1929	15	1867	123.97	92.0
1930	13	1182	155.98	115.0
1931	8	745	113.38	84.0
<i>Putnam Silt Loam****</i>				
1927	9	831	\$54.03	100.0
1928	9	583	51.67	96.0
1929	9	711	61.74	114.0
1930	21	3564	43.21	80.0
1931	16	2989	40.67	75.3

*Transfers in Sullivan and Harrison Counties.

**Transfers in Newton and Polk Counties.

***Transfers in Atchison County.

****Transfers in Callaway and Ralls Counties for 1923 to 1929, and in Callaway, Ralls, Audrain, Pike and Marion for 1930 and 1931.

Of course, one should not assume that the soil type represents a constant in respect to quality and topography, but rather a high degree of constancy. For instance, the Shelby silt loam of the Shelby series in Harrison county is considered superior in quality and less rough and

hilly, on the average, than the same soil type found in Sullivan county. Similar variations could be pointed out for other soil types within the State. However, these variations in quality and topography within the same soil type are comparatively small. And even a small sample of sales can be expected to be reasonably representative of average conditions within the soil type.

In 1931 sufficient data were secured to justify an analysis of movements of sales values for a few soil types; namely, the Shelby loam, and Baxter, Marshall and Putnam silt loams.

Sales values each of the soil types declined from 1930 to 1931. Values for both the Shelby loam and Baxter silt loam were lower, and values for the Marshall silt loam and Putnam silt loam were higher in 1931, in relation to 1927 values, than the weighted average for the state, as is evident from a comparison of Tables 29 and 10. Considerable year-to-year fluctuations are to be noted. For the Baxter silt loam, however, movements of sales values from 1927 to 1931 were consistently downward. Of the four soil types listed sales values from 1927 to 1931 for the Marshall silt loam, the most fertile soil of the four, have shown the most stability.