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The Accuracy and Flexibility of Rural Real Estate Assessment in Missouri

CONRAD H. HAMMAR

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ABSTRACT

(1) Property taxes on Missouri farm real estate have increased from \$6,307,586 in 1914 to \$18,060,851 in 1930. The tax per acre increased from 18 cents to 53.5 cents during the same period.

(2) Data on 2451 transfers of farm real estate from 13 counties scattered over the state revealed that ratios of assessed to sales values varied from less than 20 per cent to more than 290 per cent.

(3) A classification of these sales data revealed further a strong tendency to over-assess tracts of low total and per-acre value and a somewhat weaker tendency to over-assess tracts of small size in acres.

(4) Correlations of assessed and sales values indicated that the accuracy with which assessing of farm real estate was done varied greatly from county to county.

(5) Assessing was least accurate in counties where sales values and physical conditions were most uniform and most accurate where conditions were diverse and lacking in uniformity.

(6) Poorer soils were assessed at a higher ratio in relation to sales values than the better soils.

(7) Because of these administrative faults the property tax, as far as farm real estate is concerned is distinctly, and sometimes highly, regressive in operation.

(8) Township assessors in Livingston county made changes in assessments approximately once every two years during the period 1914-1931, but the number of changes in particular years varied from 8.1 per cent in 1915 to 99.3 per cent in 1918.

(9) Such changes as were made tended to be small and indicated a misplaced belief on the part of the assessors in the accuracy of their valuations.

(10) A study of the movements of assessed and sales values of farm and city properties indicates that lags in assessed valuations tend to favor the owners of property the value of which is rising most rapidly, falling least rapidly or rising when the value of other property is falling.

(11) On the whole, farm real estate was under-assessed in relation to city property between 1910 and 1920 and heavily over-assessed from 1921 to 1931. Lags in assessments heightened the land boom which ended in 1920 and have since 1921 contributed to the plight of agriculture in Missouri.

(12) Unfortunately for the farmer the lags in assessments favored him when taxes were low (1910-1920), but penalized him when taxes were high (1921-1931).

(13) Analysis of ratios of assessed and sales values for 13 Missouri counties indicates a wide difference in ratios between counties and shows seven northern counties to have been assessed at decidedly higher ratios than six southern counties.

(14) A reorganization of assessment procedure in Missouri is greatly needed and should take two forms (a) organization for more accurate original assessments and (b) establishment of a system of supervision of assessments dealing directly with the problem of equalization.

(15) A plan for providing for such a supervisory system is outlined and recommended.

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The Accuracy and Flexibility of Rural Real Estate Assessment in Missouri

CONRAD H. HAMMAR

INTRODUCTION

While the general property tax, under which the tax on farm real estate is administered, is in such universally bad repute that many wish to do away with it entirely, there still remain several reasons for spending effort on the technique of improving it.

First, it is so firmly established that, like the poor, it is likely always to be with us. Vested interests have grown up under it and oppose changes to other systems. Often, indeed, those who stand most to benefit by departures from dependence on the property tax are lethargic in their support of alternative systems. Further, the property tax stands, in most states, entrenched behind constitutional and legislative obstructions which hamper modification by their requirements of impossible majorities, etc.

Second, a considerable and insistent group of economists, political scientists, and people generally regard land, the value of which constitutes the major portion of the value of real property, as peculiarly liable to taxation. Land values, they state, are in larger part a social product. The income from land, hence, belongs to society. Groups and individuals holding these opinions are reluctant to see taxes on property reduced not because the property tax fits well into their concept of ideal taxation, but because almost the only present means of taxing land is under the general property tax.

Third, a great diversity of opinion regarding proper substitutes for the property tax prevents the concerted action that might otherwise be brought to bear against it. Often the voter regards his alternatives as the gloomy choice between two necessary evils. The fear is often felt that any change merely means added taxes rather than a better distribution of old taxes.¹ The rapidly increasing tax levies of preceding

¹See W. B. Henderson, Proc. National Tax Assn. 1919, p. 68.

decades has tended to lend a *prima facie* support to such fears in states where tax reforms have been in progress.¹

Fourth, the general property tax does suit rather well a certain type of community. Thus, it serves with fair justice for the local levies in a farming area. In its wider applications and where it is applied to many kinds of property, it is much less adequate.

While the trend in taxation is toward a lesser dependence upon the general property tax, particularly for state revenues, the progress of the movement is so slow that 41 of the 48 states in 1922 still collected more than 80 per cent of their state and local taxes from general property sources.² That this form of taxation has withstood so well the attacks upon it must be credited in large part to its fiscal expediency. Its great advantages lie in the comparative simplicity of its administration and the fact that it can be made to yield a closely predictable income. Few, if any, other taxes are its equal in this latter respect. Inheritance taxes, license taxes, sales and business taxes and even income taxes all yield a fluctuating revenue, the amounts of which are not easily forecast prior to the date of collection. Over an area as large as a state these fluctuations will be within moderate limits³ but for the smaller local taxing division the variation is commonly so great that many of the above taxes can be used only as a supplementary rather than a principal tax. So great is the weight of this factor of expediency that some form of the general property tax is likely always to remain the predominant fiscal device for the local community in the United States despite the fact that, as it is administered at present, it conforms only poorly to the criterion of ability to pay.

The General Property Tax in Missouri.—In Missouri local revenues⁴ indeed, are collected almost exclusively through the general property tax as is illustrated below. More than 90 per cent of the total of local tax revenues were, in this state, collected under the general property tax in each of the three years, 1927, 1928 and 1929. For rural civil subdivisions the percentage is in all likelihood even greater since these governing bodies have access to practically no other source of tax revenue, the poll tax by common consent being unused.

In the case of state revenues the property tax is less important. Both gasoline taxes and motor vehicle licenses provided somewhat greater sums to the state government in 1928, as in Table 2, than did the property tax. However, the property tax even for state purposes remains an important fiscal device.

¹See Isidore Loeb, *ibid.* p. 78.

²See Table 43, p. 106. National Ind. Conf. Bd. Cost of Government in the United States, 1928-1929.

³The great decline in the Federal Income Tax receipts during the depression of 1930 and 1931 however, illustrates that even over areas greater than any state fluctuations in receipts can still be large.

TABLE 1*.—SOURCES AND PERCENTAGE DISTRIBUTION OF LOCAL TAX REVENUE FOR MISSOURI 1927, 1928, 1929
(Amounts in Thousands of Dollars)

	1927				1928				1929			
	Prop-erty Taxes	Other Taxes	Licenses and Permits	Total	Prop-erty Taxes	Other Taxes	Licenses and Permits	Total	Prop-erty Taxes	Other Taxes	Licenses and Permits	Total
Amount.....	95,155	264	5,471	100,890	96,535	254	7,151	103,951	101,682	268	7,254	109,204
Pct.....	94.32%	0.26%	5.42%	100.00%	92.87%	0.25%	6.88%	100.00%	93.11%	0.25%	6.64%	100.00%

*Arranged from Tables 40 and 41, National Industrial Conference Board Rpt. Cost of Government in United States. 1928-1929.
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TABLE 2*.—SOURCES AND PERCENTAGE DISTRIBUTION OF STATE TAX REVENUES FOR MISSOURI, 1928

	General Property Tax	Special Property Taxes	Inheritance Tax	Income Tax	Other Special Taxes	Gasoline Taxes	Motor Vehicle Licenses	Business Licenses	Non-Business Licenses and Permits***	Total
Amount.....	\$6,430,440	\$1,927,835	\$3,039,729	\$3,697,603	\$398,942	\$6,634,239	\$8,615,033	\$2,965,414	\$347,803	\$34,057,036
Pct.....	18.88%	5.66%	8.93%	10.85%	1.17%	19.48%	25.30%	8.71%	1.02%	100.00%

*Arranged from Tables 38 and 39 *ibid.*

**Does not include gasoline taxes.

***Does not include motor vehicle licenses.

Movements of Farm Property Taxes in Missouri.—Taxes on Missouri farm real estate in 1930 were almost three times as great as in 1914, while land values had fallen to essentially their 1914 level. (See Table 3.) In current dollars the taxes of 1914 were \$6,307,586, while in 1930 they had risen to \$18,060,851. Certain changes in the price level had taken place in the period intervening between these two years and, when these are taken account of, the increase is considerably reduced; the 1930 taxes amounting to \$14,187,630, which is only 225 per cent of the 1914 figure, as contrasted to 286 per cent when both are placed in current dollars. (See Figure 1.)

Perhaps the situation will be more clearly portrayed if we consider the increase in taxes on an average Missouri farm. In 1914 such a farm would have consisted of 125 acres of land and its complement of buildings and would have had a sale value of \$6200* and its assessed value would have been 16 per cent of its sale value or essentially \$1000. The tax rate in that year averaged \$1.57 per \$100 of valuation and the taxes themselves on this average farm would have amounted to \$15.70. By 1930 the average sized farm had increased a trifle to 132 acres, but taking again 125 acres, the census value in 1930 would have been \$6656. The assessed value of the real estate on this 1930 farm, however, would have been \$4393 and, with a tax rate of \$1.315 per \$100 of valuation, the taxes would have been \$57.77 or 368 per cent as large as in 1914. In other

TABLE 3.—GENERAL PROPERTY TAXES ON MISSOURI FARM REAL ESTATE 1914-1930

Year	Missouri Farm Property Taxes		
	Current Dollars	1914 Dollars	Per acre in cents (Current Dollars)
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

Acreeage in farms secured by straight line interpolations for between census years.

*1910 figures are used here for the 1914 real estate and assessed valuations.

words, taxes in 1914 were only 0.25 per cent of real estate values. In 1930 they were 0.87 per cent of the sales value of the farm real estate. Thus, while in 1914 real estate taxes were a very minor item in the budget of the farmer, they had, in 1930, become a very important deduction from spendable farm income and amounted in that year to almost 1 per cent of value of farm land and buildings.

Millions
of Dollars

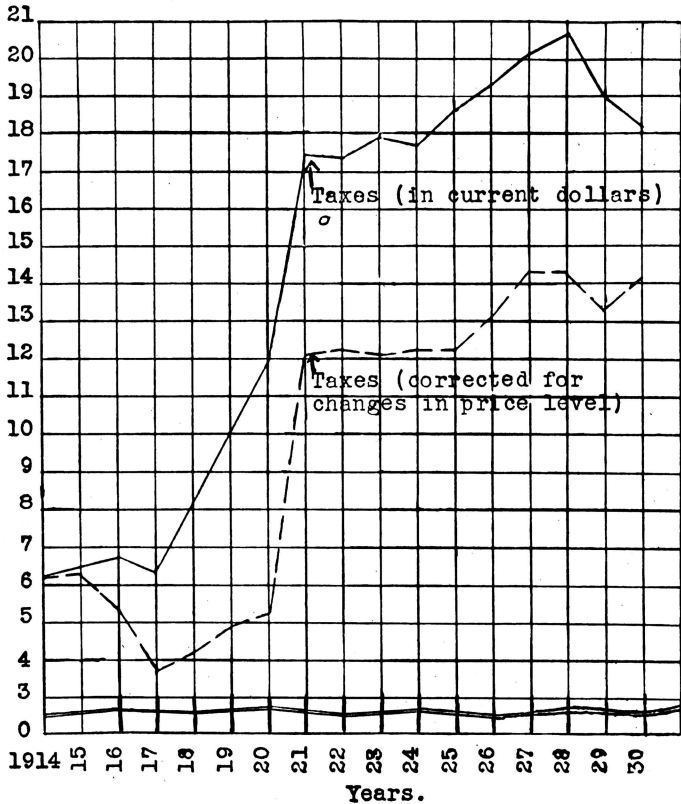


Fig. 1.—Movement of Taxes, on Farm Real Estate in Missouri 1914 to 1930. A small tendency for taxes (in current dollars) to decline in 1929 and 1930 is about compensated for by declines in the price level and 1930 taxes are still essentially at the peak of 1927 and 1928.

The foundation of the property tax system and the equitability of its application is determined by the assessment of property and, for farmers particularly, property consists largely of real estate. While the assessment of property under the tax levy of 1914 was a matter of some indifference to the farmer, it could hardly be regarded so in 1930. When taxes appropriate 1 per cent of values each year the difference

between a net gain and a net loss for the year's operation may at times be determined by the tax bill. Laxity of real estate assessment, common throughout the entire United States, undoubtedly dates back to the period when property taxes were so small as to be a matter of indifference. At present the same inaccuracies in real estate assessment loom up in certain cases as decided obstructions to success in farming.

Furthermore, the equitability of general property taxation rests firmly on the shoulders of the assessors. Authorities are in universal agreement that accuracy at the source is a prime requisite. In fact, it is quite obvious that if the assessor cannot accurately appraise the value of property, dealing as he does with each specific tract, boards of equalization can hardly be expected to do so. Simpson¹ in "The Tax Situation in Illinois" finds that equalization in both the city of Chicago and in various counties of the state has been wholly ineffective in correcting inaccurate assessments. William B. Fellows writing as early as 1912 insisted that if property taxation were to be equitable "original assessments must be correct."² Correcting them later is practically impossible.

Purpose of Present Study.—The present study is concerned primarily with assessment and its auxiliary equalization. The equity of the general property tax is determined almost entirely by the quality of the original assessment of the property taxed. Opportunities for an inequitable distribution of taxes are great enough under American practices in any case. When the job of assessing is badly done, the situation is still further aggravated. The improvement of assessments and equalization is indeed the major problem in the reform of the general property tax. The matter of collection and other aspects of the administration of the tax are comparatively simple.

The perfection of assessments will by no means make the general property tax an ideal fiscal device. Only very roughly do the results of this tax conform to the ability-to-pay theory or any of the other criteria by which the excellence of a tax is commonly judged. Accurate assessment and equalization are still a prime requisite, however, because: (1) only when the tax is carefully administered is it possible to pass judgment upon the effects of the tax itself and (2) mal-administration of assessments has led in many states to an objectionable regressive taxation.

The subject matter herein has further been limited almost exclusively to the assessment of rural real estate, leaving the problem of the assessment of urban real estate and of personal property for other studies. The study of the assessment and taxation of personal property

¹Simpson: "The Tax Situation in Illinois", pp. 17-21.

²Proceedings of the National Tax Association, VI. p. 469.

is by itself so complex and extensive that it must be reserved for separate treatment. A somewhat different method must be employed in the study of the assessment of urban as compared to rural real estate and only a small amount of data on the urban situation, and that largely for comparative purposes, will be included.

RESULTS OF PRESENT ASSESSMENT PRACTICE IN MISSOURI

The Accuracy of the Assessment Pattern.—A number of measures have been evolved to test the accuracy of the assessment pattern. The first of these relates to the ratio of assessed to sales values of individual tracts of real estate. Sales values are assumed to be correct values and are used as a standard by which to judge the accuracy of assessments.

While sales values are not, in fact, always dependable indices of actual values they are in most cases the best criteria that can be secured. They emerge as a compromise between two or more parties with conflicting interests, both of whom have, presumably passed judgment before the price is finally set. Mistakes are made but such is the faith of legislatures in sales value as representative of true value that a number of them have stipulated that assessments shall be made to coincide with values as determined by transactions between willing buyers on the one hand and willing sellers on the other. In Missouri the statutes provide that the assessments shall be based on the true value in money,¹ leaving to the assessors and courts the determination of what shall constitute true value. In the case of real estate the only considerable source of data on values open to the assessor is that arising out of transactions in real estate. Sales values may, therefore, be accepted as the guide that assessors in Missouri follow, or better, attempt to follow, in making their appraisals.

When a frequency distribution of the ratios of assessed to sales values of 2451 tracts of Missouri farm real estate² for the years 1927 to 1931 is constructed, the range in ratios runs from less than 20 per cent to more than 290 per cent. As an extreme, certain tracts were assessed, in relation to sales values, at nearly 30 times as much as others. The most usual assessment was between 50 and 60 per cent of sales value though the average ratio was considerably higher at 63.9 per cent of sales values.

¹Sec. 12802 Revised Statutes—1919.

²Sales data were obtained originally in connection with the Missouri Farm Real Estate Situation 1927-1930, Missouri Experiment Station Research Bulletin 154. Data are from the following counties: Ralls, Callaway, Sullivan, Harrison, Atchison, Johnson, Barton, Newton, Polk, Reynolds, Pemisnot, Franklin and Miller. These counties were chosen as representing the various type of farming areas of the state. See Figure 3.

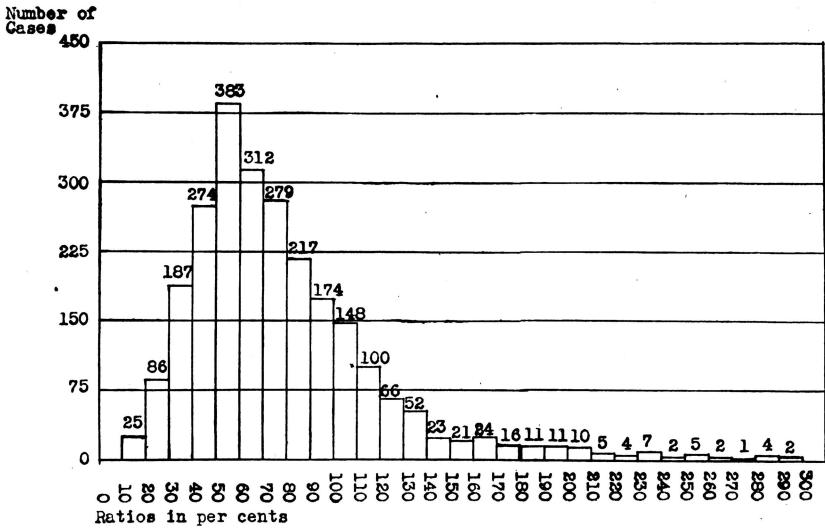


Fig. 2.—Histogram of Ratios of Assessed to Sales Values of Tracts of Farm Real Estate Changing Hands During the Period 1927-1931. Data from thirteen Missouri Counties; Callaway, Ralls, Sullivan, Harrison, Atchison, Johnson, Barton, Newton, Polk, Reynolds, Pemiscot, Franklin, and Miller.

Assessors most commonly assessed these farm properties at from 50 to 60 per cent of sales values, though the range was from less than 20 to more than 290 per cent.

Average assessments below 100 per cent of sales value are to be expected and are not worthy of comment. The striking thing about the frequency distribution above is its great dispersion indicating the haphazardness and lack of uniformity of assessments. Given two farms both salable on the market for \$1000 the appraisal for assessment, within the range indicated by this frequency distribution, could be from less than \$200 on the one hand, to nearly \$3000 on the other hand. Assuming a tax rate of \$1 per \$100 of valuations taxes would vary because of differences in assessments alone from \$2 to nearly \$30 on tracts or farms of the same value. Such discrimination may mean the difference, in depression years, between loss and profit. It invariably means a comparative hardship on the persons paying on the higher assessments.

Assuming for the moment that a 100 per cent ratio for all properties would represent perfect assessment, then 21.0 per cent of the properties were assessed at more than 100 per cent and 1.7 per cent at more than 200 per cent of sales values. On the other hand, the valuations for 79.0 per cent were below 100 per cent (in a few instances an even 100 per cent) and 23.3 per cent were paying on an assessment of less than 50 per cent of sales value.

Relation of Assessment to Size of Tract Sold.—When ratios of assessed to sales values are plotted in relation to sizes of tracts (indicated by sales values) as in Table 4, certain further relationships of significance become apparent. The dispersion of the ratios, as indicated in Figure 2,

is not the same for all sizes of tracts sold, measuring size by the amount of money involved in the exchange. For the smaller sizes the difference between extremes is greatest. Thus, tracts selling for less than \$1000 were assessed at ratios of sales values from less than 20 per cent to nearly 300 per cent.

As the size of transaction increases, the dispersion decreases and for exchanges involving \$10,000 or more the coefficient of variation is much smaller than for those below \$10,000. In fact, there is a fairly uniform decline in the coefficient of variation for the different classes as grouped in the last column of figures in the inset table in the right-hand corner of Table 4. Thus while the variation in ratios for the first class of tracts selling for less than \$1000 is indicated by a coefficient of 47.05, that for the class of \$12,000 or more drops to 24.29, a difference of 48.4 per cent. The owners of larger properties can expect to find their assessments relatively uniform and it is the small property owner that finds himself most often at the extremes; sometimes assessed at practically nothing and again at far above the sales value of his property.

When the means of the classes of ratios are compared, a further and equally striking situation is revealed.¹ The smaller properties are assessed at a much higher ratio to sales value on the average than the larger. Thus, while the average ratio for all classes is 63.4 per cent, the average for properties selling for less than \$1000 was 100.4 per cent. The decline in the value of the means as the tracts increase in size is marked until reaching the class of properties that have exchanged hands for sums ranging between \$6000 and \$7000. From this point, and indeed before this point, the standard error of the mean is so large that further declines or changes cannot with security be counted significant. We cannot indeed, from the implications of the standard errors of the means, be certain that the difference between any two contiguous classes save only the smaller two, is significant. However, when the class interval is increased to \$5000 as in Table 5, the difference between the two lower class intervals, as indicated by the standard errors of the means, is again significant.

TABLE 5.—FREQUENCY DISTRIBUTION OF RATIOS OF ASSESSED TO SALES VALUE WHEN CLASS INTERVALS ARE INCREASED TO \$5000.

Class Interval Dollars	No. of Cases	Mean	Standard Deviation	Coefficient of Variation	Standard Error of the Mean
0-4999.99	1803	80.68	42.16	64.36	.993
5,000-9999.99	435	65.51	25.00	38.16	1.200
10,000-38,000	213	64.05	18.22	38.45	1.251

¹For an analysis of similar data drawn from rural districts in Minnesota see Clarke and Jesnes, Minn. Agri. Expt. Bull. No. 277, Aug. 1931.

TABLE 6.—FREQUENCY DISTRIBUTION OF RATIOS OF ASSESSED TO SALES VALUES WHEN TRANSFERRED TRACTS ARE GROUPED ACCORDING TO VALUE PER ACRE

Data From Thirteen Missouri Counties in the Period 1930-31

Per cent Assessed as of Sales Value																																			
Acres	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	Total			
700													1																				1		
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Total	4	3	17	35	55	61	52	50	41	39	29	19	12	8	7	4	6	2	3	3	1	1	6	4	1	1	3	1	468						

Please Note:

The data in Table 6 should be transposed with that in Table 8.

Class Interval	No. of Cases	M	σ	σ/M	$100\sigma/M$
240-720	31	93.5	34.23	36.61	± 6.25
180-240	31	97.5	51.72	53.04	± 9.44
160-180	42	95.6	33.72	35.28	± 5.27
140-160	10	88.9	30.17	33.93	± 10.06
120-140	36	93.9	50.63	53.94	± 8.55
100-120	31	95.2	51.10	53.67	± 9.32
80-100	102	89.1	58.05	65.19	± 5.78
60-80	35	96.8	38.30	39.57	± 6.57
40-60	107	82.3	44.90	54.55	± 4.36
20-40	38	84.5	49.66	59.49	± 8.17
0-20	5	154.0	98.50	63.96	± 49.25

Size of Tract

Means, standard deviations, coefficients of variation and standard errors of the means for various class intervals are included in the small insert table in the upper right hand corner of the main table.

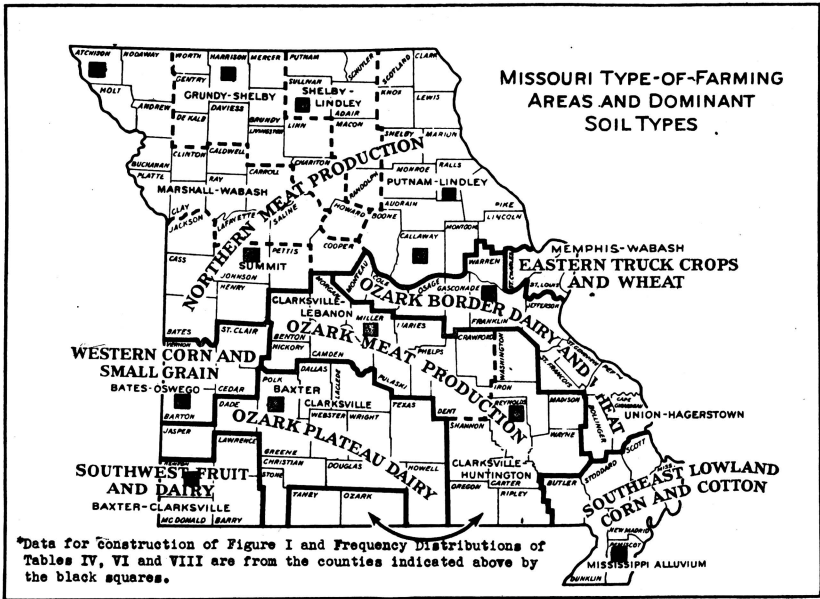


Fig. 3.—Missouri Type of Farming Areas and Dominant Soil Types*.

Table 6 was constructed to reveal the relationship between ratios of assessed to sales value and value per acre of the properties sold. Only the 468 sales for the years 1930-31 were included. The same skewed distribution as was secured in Table 4 is immediately apparent, as is also the same distinct but somewhat irregular tendency for the mean, standard deviation, and coefficient of variation to decrease as value per acre increases. In Table 7 the class interval has been increased and the decline in constants is regular. Again, however, the difference between means is significant, or beyond the range likely to occur merely because of random errors of sampling, only between the first two classes.

TABLE 7.—FREQUENCY DISTRIBUTION OF RATIOS OF ASSESSED TO SALES VALUE PER ACRE WHEN THE CLASS INTERVAL IS INCREASED TO \$25 PER ACRE
Data as in Table 6

Class Interval Dollars	No. of Cases	Mean	Standard Deviation	Coefficient of Variation	Standard Error of the Mean
0-24.99	149	113.32	60.1	53.04	4.94
25-49.99	174	88.65	41.16	46.43	3.13
50-84.99	113	71.75	26.62	37.10	2.52
85-160	32	63.29	18.24	28.82	3.27

TABLE 8.—FREQUENCY DISTRIBUTION OF RATIOS OF ASSESSED TO SALES VALUES WHEN TRACTS CHANGING HANDS ARE GROUPED ACCORDING TO SIZE IN ACRES
Data as in Table 5

Dollars per Acre	Per cent Assessed as of Sales Value																															Total			
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300				
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Total	4	3	17	35	54	60	53	50	42	40	28	19	12	8	7	4	6	2	3	3	1	1	6	4	2	3	1	468							

Class Interval	No. of Cases	M	σ	σ/M	100 σ/M
85-160	32	63.3	18.24	28.82	± 5.17
70-85	20	74.3	34.13	45.94	± 7.83
65-70	21	71.8	31.77	44.24	± 7.11
60-65	20	66.2	23.72	35.83	± 5.44
55-60	16	60.8	19.13	31.48	± 4.94
50-55	36	78.3	19.89	25.41	± 3.36
45-50	15	85.0	45.49	53.51	± 12.16
40-45	38	77.3	25.07	32.45	± 4.12
35-40	28	82.8	27.22	32.87	± 6.32
30-35	39	96.0	47.36	49.35	± 7.90
25-30	54	95.4	47.34	49.61	± 6.81
20-25	31	103.0	45.50	44.19	± 8.06
15-20	39	114.2	49.13	43.03	± 7.98
10-15	32	114.3	65.17	57.02	± 1 0
5-10	30	101.2	50.25	49.65	± 9.32
0-5	17	149.2	91.01	61.00	± 22.75

Means, standard deviations, coefficients of variation and standard errors of the means for various class intervals are included in the small insert table in the upper right hand corner of the main table.

The accuracy of assessments may still further be tested, by grouping the ratios on the basis of size of tracts as in Tables 8 and 9. In this case also the means, standard deviations, and coefficients of variation are largest for the lowest class interval and thereafter decline, though, in this case, the decline is very irregular when the class interval is small as in Table 8. When the class interval is increased as in Table 9 the tendency for the mean to decline not only disappears but is reversed though the size of its standard error casts a cloud on the significance of the change. Standard deviations and coefficients, however, decline regularly.

TABLE 9.—FREQUENCY DISTRIBUTION OF RATIOS OF ASSESSED TO SALES VALUES WHEN TRACTS ARE GROUPED ACCORDING TO ACREAGE AND WHEN THE CLASS INTERVAL IS INCREASED

Class Interval Acres	No. of Cases	Mean	Standard Deviation	Coefficient of Variation	Standard Error of the Mean
0- 99.99	287	87.37	52.2	54.41	3.09
100-239.99	150	95.06	45.73	48.11	3.75
240-380	31	93.49	34.23	36.61	6.25

From the implications of all three distributions as portrayed in Tables 4, 6 and 8 we are led to agree with Clarke when he said in discussing similar data "that there was a distinct and uniform tendency to under assess high value farms and to over assess low value farms and that this tendency arose not from any marked bias in connection with the number of acres in the farm, but rather because assessors showed a very strong disposition to undervalue acres with a high sale value and to overvalue acres with a low sale value."¹

In Missouri, however, the greatest overvaluation occurs for properties having the smallest value (either per acre or in total). In fact, after the properties attain a total value of more than \$5,000 or a per acre value of more than \$25 per acre the tendency to overvaluation largely disappears. However, it is upon these lower valued properties, presumably in the hands of the poorer people of the community, that the overvaluation for purposes of property taxation is most significant and most harmful. Indeed, this tendency to overvalue the small property has made the property tax highly regressive in operation. In a manner that is not called to the public's attention, as in the case with tariffs and other indirect taxes, the property tax has, by such features as this, been made to tax the poor for the benefit of the relatively wealthy and to counter balance such taxes as the income tax which is, in Missouri, progressive.

As far as the technique of assessment is concerned, this discrimination against the poorer tax payer seems to arise from two causes: first,

¹Clarke, George B., *The Journal of Farm Economics*. XII, No. 4, October, 1930, p. 581.

carelessness on the part of the assessor and second, either deliberate or unconscious discrimination. The charge of carelessness is supported by the fact that the range of assessment¹ ratios is greatest for the lowest valued tracts. Such tracts constitute the small fry for the assessor. The total tax levied against the individual owners of such properties is not large even if the tract is greatly overassessed. The owners of the tracts constitute the least vocal and powerful members of the community which the assessor serves.

Such reasoning, however, does not explain why the average valuation for these smaller valued properties is so much higher than for any other group. Englund² seems to think that the ease with which the smaller properties can be examined and appraised is a factor tending to raise the level of their assessed values. However, the range over which the ratios of assessed to sales valuations of these properties extend suggests that they are the least carefully examined of all properties.

A more satisfactory explanation would probably begin with the fact, recognized by Englund,³ that the assessors, all of them men of very moderate circumstances, are unduly impressed by large values. The position and influence of the larger property owners is undoubtedly a further factor. The wealth of such tax payers has been accumulated in part because of attention to details, among them the assessed valuation of their property or properties. Such people are likely, furthermore, to be better acquainted with the role that personalities play in governments and to recognize the lack of conviction that the assessor often has in his own valuations. Furthermore, while protests over valuations which total only very small sums are made in most cases only with reluctance, protests which involve thousands of dollars may be made much more readily. These smaller realty owners, it may be assumed, seldom know what values have been attached to their properties, since they rarely, if ever, keep books or go to the trouble of inquiring. They are, in fact, the group least able to take care of themselves and, hence, are least well taken care of.

A Measure of Inter-County Accuracy.—A somewhat different test of the accuracy with which the job of assessing individual rural real estate properties is done can be derived from a comparison of the accuracy of assessments in various counties. One method of making this comparison would be that of contrasting frequency distributions classified on the

¹As an extenuating circumstance from the viewpoint of the assessor, however, the possibility of much inaccuracy in evaluating for sale and purchase these low valued properties must be conceded. Part of the great range in assessed-sales ratios in these lower classes must be assigned to randomness in the sales values themselves.

²Englund, Eric, "Assessment and Equalization of Farm and City Real Estate in Kansas". Kansas Agri. Exp. Sta. Bul. 232, p. 29.

³Ibid., same page.

basis of total value, value per acre, or total acreage of the tracts sold as in the preceding tables. The comparison of these frequency distributions, however, is not only difficult, but likely to be inconclusive. Another method permitting the direct comparison of certain statistical constants was therefore devised.

The first step was the correlation of assessed and sales values for the various counties of the state as in Table 10. The data used was the same as that used in the construction of Table 4. The per acre sales values were correlated directly with the per acre assessed values.

The coefficients of correlation secured were not, on the whole, high and ranged from .387 in Atchison county to .833 in Reynolds county. Because the sample of sales from each county was relatively small the standard error was often rather large.

TABLE 10.—RELATIONSHIP OF ASSESSED TO SALES VALUES FOR THIRTEEN MISSOURI COUNTIES—1927-1931 EXPRESSED IN TERMS OF COEFFICIENTS OF CORRELATION

County	Number of Cases	Coefficient of Correlation	Standard Error of r	Coefficient of Determination
Atchison	129	.387	.073	.150
Harrison	223	.544	.047	.296
Sullivan	249	.635	.030	.429
Ralls	72	.594	.077	.352
Callaway	175	.652	.044	.425
Johnson	272	.561	.042	.315
Barton	164	.437	.064	.191
Newton	331	.667	.029	.445
Polk	322	.624	.034	.390
Pemiscot	69	.538	.087	.290
Franklin	167	.626	.047	.392
Miller	154	.774	.033	.390
Reynolds	124	.833	.028	.694
All Counties	2451	.713	.010	.508

Even these low coefficients understate rather than overstate the actual conditions in these various counties. A sample of unsorted sales is a heterogeneous group from a number of standpoints. They may be classified into far more homogeneous categories on the basis of soils, topography, per cent of land tillable, etc. Such classifications would avoid the correlation, spurious in some respects, that results merely from the differences between classes rather than the differences between individual observations.

Soil Types and Assessment Accuracy.—Thus in a group that included instances of sales of both high-valued Marshall soils and comparatively low-valued Shelby soils, there might well be a low correlation between the assessed and sales values for sales involving either Marshall or Shelby alone, but a comparatively high correlation if the two groups are combined. While the assessor may distinguish clearly the Marshall

from the Shelby in his evaluating, he may do a much less accurate job in distinguishing differences in farms all on the Shelby or all on the Marshall.

Indeed, smaller coefficients of correlation between assessed and sales values are discovered when sales are classified on the basis of soils, enabling classes having a higher degree of homogeneity than that possessed by the ungrouped data of Table 10 to be analyzed. A sufficient number of sales of pure soil types are available in only a few cases, and correlations were run for Marshall silt loam, Wabash (all textures), Clarksville stony loam, Baxter gravelly loam, and Shelby loam. While the coefficient of correlation between assessed and sales values for all sales in Atchison county is $r = .387$, that for the 49 sales of Marshall silt loam is $r = .356$. Similarly, the correlation for the Wabash soils was only $r = .356$, which is also slightly below the coefficient for the entire county. In all cases the coefficients for the sales classified according to soil types are below those for the ungrouped data. The differences are commonly rather small and are greatest in the case of the Shelby soils from both Harrison and Sullivan counties as contrasted to the constants for those counties as a whole. These smaller coefficients are, however, more representative of the actual consideration given sales values by the assessors than are the higher coefficients for the counties.

Coefficients of correlation, however, measure degrees of association rather than the actual portion of the variation accounted for or explained. A better measure of the actual effect of sales value on the appraisal of real estate by the assessor is afforded by the coefficient of determination as in the last columns of Table 10 and 11. These coefficients indicate the percentage of variation in assessed values explained by variations in sales values.

TABLE 11.—VARIATION IN ASSESSED VALUES ON DIFFERENT SOIL TYPES

County	Soil Type	No. of Cases	Average Sales Value	Average Assessed Values	Standard Deviation of Sales Values	Standard Deviation of Assessed Values	r	r ²
Atchison	Wabash	27	\$118.37	\$78.37	46.00	16.19	.367	.135
Atchison	Marshall	49	124.88	88.24	38.27	14.93	.356	.127
Miller	Clarksville	64	18.11	11.84	11.12	6.23	.715	.511
Newton	Baxter	61	60.33	23.98	61.26	7.03	.547	.299
Harrison	Shelby Loam	68	52.41	36.00	22.48	12.48	.322	.104

Admitting that sales values are not a perfect expression of land value, we may still regard these coefficients of determination as good indices of the accuracy of assessments. These indices vary from .150

to .694 for the counties (Table 10), and from .104 to .511 for the soil types (Table 11).

Significantly, the accuracy of assessments varies greatly from county to county. Particularly well has the work been performed in Miller and Reynolds counties. A comparison of coefficients of correlation reveals that the degree of accuracy attained in Reynolds county is nearly five times as great as the degree attained in Atchison county.

Furthermore, facts seem to bear out the judgment that variations in accuracy of assessment are due almost entirely to the diligence and care, or lack of it, which the assessors themselves have bestowed upon their task. If, for instance, we compare the physical situation in Reynolds and Miller counties where the assessment is most accurate and in Atchison and Barton counties, where it is least accurate, we are impressed with the fact that the task of evaluation should have been easier where the accuracy is lowest and *vice versa*.

A comparison of soil maps of Atchison county on the one hand and Reynolds on the other makes apparent immediately that the soil pattern of Reynolds is far more complex than that of Atchison. If a comparison of topographic conditions in the two counties was also possible, even a greater degree of disparity would, undoubtedly, be unearthed. Reynolds county is situated in the heart of the oldest and most dissected portion of the Ozark highland region. Its topographic pattern is very complex, varying from steep slopes to essentially smooth bottom land. The physical quality of Reynolds county land is further complicated by the greatly varying stone content of its soil. Atchison county, on the other hand, has a relatively uniform and gentle topography. Only the Missouri River bluffs can be counted as hilly. The remainder of the county has a uniformly easy slope that is admirably adapted to agricultural operations as is indicated by the fact that 95.9 per cent of the total acreage in the county was in farms in 1930, as compared with 31.5 per cent in Reynolds county. The soil pattern in Atchison is, furthermore, relatively simple and the soils almost uniformly stone-free.

A similar comparison of Barton and Miller counties, would reveal the topography and soil features rather simple in Barton and relatively complex in Miller. Thus, running through the list of correlations for the respective counties, it is apparent that where the topography and land patterns are relatively uniform and simple, as in Atchison, Harrison, Barton, and Pemiscot counties, the coefficients of correlation are low. The other counties with higher coefficients of correlation are characterized by far more complex physical conditions.

A more exact measure of the complexity of the land pattern than that afforded by the survey of the soil maps is that found in the coefficient of variation in sales values. If land conditions, both as to soils and

topography, vary widely there should be a corresponding variation in sales values.

In Table 12 are presented the means, standard deviations, and coefficients of variation for the sales data for the thirteen counties. Comparing the coefficients of variation, last column of Table 12, with the

TABLE 12.—VARIABILITY OF SALES VALUES IN THIRTEEN MISSOURI COUNTIES 1927-1931

County	Average Sales Values per Acre	Standard Deviation of Sales Values	Coefficient of Variation of Sales Values
	M	σ	σ/M
Atchison.....	\$116.95	\$12.60	.108
Callaway.....	34.15	23.16	.355
Harrison.....	67.77	27.18	.402
Johnson.....	64.68	33.24	.514
Ralls.....	39.90	20.72	.519
Sullivan.....	54.32	28.36	.522
Barton.....	51.77	30.48	.589
Polk.....	37.18	23.53	.633
Franklin.....	32.19	20.80	.646
Miller.....	22.88	16.44	.719
Newton.....	52.38	48.97	.935
Reynolds.....	11.17	12.84	1.150
Pemiscot.....	70.13	33.58	.479
Thirteen Counties..	50.43	38.37	.761

coefficients of correlation in Table 10, reveals immediately that coefficients of correlation are high where coefficients of variation are high. Apparently a high degree of variability enforces a high degree of attention on the part of the assessor to the task at hand and the task of evaluation is well done. On the other hand, where land conditions are uniform and land values do not vary greatly, the tendency is to assess everyone much alike.

The extreme of this latter situation is found in Atchison county where 64 out of the 110 properties, selling between 1927 and 1930, were assessed at from \$90 to \$95 and 44 at a straight \$95 per acre. In no other county of the 13 was the situation so extreme, although there was a marked tendency to assess at \$50 per acre in Harrison and between \$25 and \$30 per acre in Barton county. Where the task of assessing is easiest, it is very badly performed. Indeed, so great is the relaxation of attention in counties where the task of valuation is easiest that the final assessment pattern is far less accurate than in counties where the task itself is more exacting.

Apparently inaccurate assessment patterns are related also to low tax rates. In Table 13 are given simple averages of tax rates¹ for the 13 counties for the five-year period, 1926-1930. Comparison with the coefficients of correlation as in Table 10 will reveal the existence of a small

¹As tabulated in the biennial reports of the State Auditor.

degree of positive correlation between the two series. Correction of the tax rates for differences in the level of assessed values would probably increase this relationship.

TABLE 13.—AVERAGE* TAX RATE IN THIRTEEN MISSOURI COUNTIES
1926-1930

County	Average Tax Rate (Dollars per \$1000 of valuation)
Atchison.....	\$.81
Callaway.....	.93
Harrison.....	1.04
Johnson.....	.86
Ralls.....	1.03
Sullivan.....	1.12
Barton.....	1.22
Polk.....	1.83
Franklin.....	.98
Miller.....	1.16
Newton.....	1.42
Reynolds.....	1.64
Pemiscot.....	1.57

*A simple average of rates for the five year period.

The foregoing discussion enables us to distinguish three situations in which assessing as it is normally done in Missouri is seriously at fault: (1) Small and low-valued properties are both carelessly appraised and badly overvalued. (2) Accuracy in assessing is least where the variation in sales values is least, and where the task of assessing should be easiest. (3) Low tax rates are a contributing factor, with accuracy in assessing higher where tax rates are higher.

The conclusion that the responsibility for an inaccurate job of assessing rests squarely on the shoulders of the assessor seems amply justified. Some extenuating circumstances there are, as will be brought out later.

FLEXIBILITY OF ASSESSMENT OF FARM REAL ESTATE IN MISSOURI

The flexibility of assessments is only one aspect of accuracy and the division of the discussion into two parts is only one of convenience. Accuracy has been used in reference to the correctness with which individual properties have been assessed in relation to some other criteria of value such as sales value. Flexibility, on the other hand, refers to the readiness with which assessed values respond to changes in value situations. Under the subject of flexibility of assessment will be included such topics as the response of assessments to changes in soil types, historical movements of real estate values and so forth.

Gross Response to Soil Changes.—The question arises as to the use that the assessor makes of certain auxiliary sources of information

TABLE 14.—ASSESSED-SALES RATIOS BY SOIL TYPES FOR VARIOUS MISSOURI COUNTIES 1927-1931

County	Soil Type	No. of Sales	Acreage	Sales Value	Sales Value per Property	Sales Value per Acre	Assessed Value	Assessed Value per Acre	Ratio
Sullivan	Shelby-Putnam	35	3,392.79	\$233,210	\$6,663	\$68.74	\$138,883	\$40.93	59.6%
Sullivan	Shelby-Wabash	70	6,987.90	368,307	5,262	52.71	252,532	36.14	68.6
Sullivan	Shelby	68	3,694.79	181,064	2,663	49.01	125,755	34.04	69.5
Newton	Baxter	81	2,190.00	105,314	1,300	48.09	48,640	22.21	46.2
Newton	Baxter-Huntington and Baxter-Lebanon	132	8,927.43	274,007	2,076	30.69	144,260	16.16	52.65
Callaway and Ralls	Putnam	40	4,392.88	213,688	5,342	48.64	181,135	41.23	84.8
Callaway and Ralls	Putnam-Lindley	30	3,257.82	137,471	4,582	42.20	117,620	36.10	85.6
Harrison	Shelby-Grundy	33	1,858.82	113,730	3,446	61.18	80,230	43.16	70.5
Harrison	Shelby	26	1,378.00	70,957	2,729	51.49	59,235	42.99	83.5
Johnson	Boone-Osage	47	3,152.38	193,544	5,284	61.40	112,116	35.57	57.9
Johnson	Boone	27	1,208.50	72,850	2,698	60.28	43,205	35.75	59.3
Johnson	Summit	25	1,711.10	132,090	5,284	77.20	85,000	49.68	64.4
Johnson	Boone-Summit	38	3,446.00	222,090	5,844	64.45	161,095	47.00	72.5
Atchison	Wabash-Sarpy	28	2,537.83	351,978	12,571	138.69	243,720	96.03	69.2
Atchison	Marshall	59	6,107.97	750,938	12,728	122.94	543,165	88.93	72.3
Atchison	Marshall-Wabash	24	3,291.33	396,263	16,511	120.40	289,936	88.09	73.2

when he is making his rounds of appraisal. One obvious source is the soil survey and the maps published in connection with such surveys. A number of these surveys have been made in Missouri, and, though we have no way of knowing whether assessors use soil maps or not, the accuracy of assessment as it relates to soil types can readily be tested and the response of assessors to changes in values because of soil changes noted.

In Table 14 are compared the average sales and assessed values of various tracts of given soil types. Thus in Callaway and Ralls counties the Putnam soil, which is superior to the Lindley is assessed at a distinctly higher value than the Putnam-Lindley combination. Similarly, the Shelby-Grundy combination, in Sullivan county, superior to the Shelby alone, is assessed at a higher per acre value. In every instance, the better soils are appraised at a somewhat higher figure than the poorer soils in the six counties for which data are tabulated. The assessor does take some account of soils types.

A further test of the assessor's accuracy, however, is available in the comparison of the ratios of assessed and sales values for these same soil types. These ratios are given in the last column of Table 14. Almost without exception the poorer soil types are over-assessed in relation to sales values as compared to the superior soils. Thus in Sullivan county 3,392.79 acres, representing 35 transfers of the Shelby-Grundy combination at an average sale price of \$68.74, were assessed at 59.6 per cent of sales value. The tracts of Shelby-Wabash combination and tracts of pure Shelby, selling at an average price of \$52.71 and \$49.01 per acre respectively, were, on the other hand, assessed at nearly 70 per cent of sales value. The lower valued Shelby soils were, hence, assessed at a ratio of assessed to sales value of 16.6 per cent higher than the higher valued Shelby-Grundy soils.

In Newton county the higher valued Baxter soils selling at an average value of \$48.09 were assessed at only 46 per cent of sales value. The Baxter-Lebanon and Baxter-Huntington sold for much less per acre—\$30.69— but were assessed at a higher ratio, 53 per cent, or essentially 12.3 per cent higher than the Baxter.

The difference in ratios between the Putnam on the one hand and the Putnam-Lindley on the other, in Callaway and Ralls counties is very small.

In Harrison county the highly valued Shelby-Grundy combination is assessed at 70.5 per cent of sales value, while the much lower valued Shelby soils were assessed at 83.5 per cent of sales value.

Only in Johnson county is the situation apparently somewhat different. The more valuable Summit soils are assessed at a somewhat higher ratio than the lower valued Boone and Boone combination tracts.

That the assessor deliberately discriminates against the poorer soils is quite unlikely, and the fact of the over-assessment of the properties on the poorer soils is rather to be explained by the tendency, already recounted, to over-assess the lower valued properties. Thus, the overvaluation of the Shelby tracts in Sullivan county, the average value of which was \$2663, as compared to the Grundy-Shelby tracts, the average value of which was \$6663, was 16.6 per cent. Turning to Table 4 we find that the overvaluation of the properties falling between \$2000 and \$3000 as compared with those falling between \$6000 and \$7000 is 14.2 per cent, or much the same figure as the comparable 16.6 per cent above. Similarly in Callaway and Ralls counties where the average total value of the tracts of pure Putnam, on the one hand and Putnam-Lindley on the other hand, do not differ much (\$5342 and \$4582, respectively), the difference between the average of ratios of assessed to sales value is only slight.

Whatever the cause, however, the overvaluation of the poorer soils remains a fact and illustrates further the regressiveness of the general property tax in its application in Missouri. On the average where soils are poorest and conditions consequently are harshest, where securing the money to pay taxes is the most difficult, the tax levy, because of defects in the assessment system, is the greatest.

The particular type of discrimination involved in this type of over-assessment is by no means uncommon. Undoubtedly, it is involved in the growing real property tax delinquency which preliminary studies indicate, is in Missouri most serious in the poorer counties and, in those counties, on the poorer classes of land.

Frequency of Changes in Assessment of Rural Real Estate in Livingston County, Missouri.—Missouri law contemplates that assessment shall be made at essentially the cash or salable value of the property in question in a normal market, viz., one in which the transaction is made between informed and willing parties. Presumably sales values represent, on the average, the best contemporary judgment as to what future incomes from the particular type of properties are likely to be; therefore, sales values are the most satisfactory basis for making the assessments. The ideally flexible assessment should follow year to year changes in sales value.

For the purpose of studying the responsiveness of assessments to changing farm real estate values, data on 296 tracts of real estate, in 13 townships of Livingston county, for the years 1914 to 1931, were secured and analyzed. The choice of Livingston from among the 114 counties in Missouri centers purely on convenience. It was the one county from which data could be secured without much expense. However, the county is not untypical. It is about average in size,¹ contains only one city

of any size and a moderate number of small villages. Its soils are perhaps somewhat better than average, as is also its topography.

Studies of the movements of market and sales values of farm real estate in Missouri indicate a rise of about 60 per cent, or approximately 8.5 per cent per year, during the seven year period, 1914 to 1920. Similarly, the decline in values since 1920 has been equally rapid or from approximately 150 per cent of 1914 values in 1920 to essentially 90 per cent in 1930 or a decline of approximately 6 per cent on the average. Presumably farm real estate values in Livingston county followed much the same trend as that for the State, since the rise prior to 1920 and the decline subsequent thereto was almost universal.

In Table 15 are tabulated data on assessments for an average of 23 farm properties for the 13 townships of Livingston county during the period 1914 to 1931. During the entire period, land values were rising or falling rapidly and a perfectly accurate assessment would have required changes every year. In the first column are presented the total number of changes that might have been made in each township if the values had been modified each year in keeping with the changes in market value of farm real estate. In the second column are given the number of changes actually made, and in the third column the ratio of changes made to total possible changes. For all 13 townships, 5032 possible changes could and probably should have been made. Actually, changes were made only 2667 times or 53 per cent of the total number possible. In other words assessments were changed, on the average, only every other year.

TABLE 15.—FREQUENCY OF CHANGE IN ASSESSMENTS IN THE THIRTEEN TOWNSHIPS OF LIVINGSTON COUNTY MISSOURI 1914-1931

Township	Possible Changes*	Actual Changes	Percentage Changed
Medicine.....	442	248	56.11
Jackson.....	391	191	48.85
Grand River.....	374	201	53.74
Blue Mound.....	391	268	68.54
Rich Hill.....	306	156	50.98
Wheeling.....	289	194	67.13
Fairview.....	340	162	47.65
Mooreville.....	442	184	41.63
Sampsel.....	459	219	47.71
Green.....	408	272	66.67
Monroe.....	374	144	38.50
Chillicothe.....	425	153	36.00
Cream Ridge.....	391	275	70.33
Total.....	5032	2667	53.00

*If the valuations had been changed yearly during this period of rapidly rising or falling farm real estate values.

In some townships changes were made much oftener than in others. Fewest were made in Chillicothe township where only 36 per cent of the possible changes were made and valuations, on the average, adjusted only about once every three years. The greatest percentage of changes was made in Cream Ridge township where 70.3 per cent of the possible total were actually made. On the average, values in this township were adjusted approximately twice in every three years.

On the whole, the assessment in Livingston county is revealed as relatively inflexible. Not only is the system relatively inflexible, but there is a varying degree of flexibility between townships. A similar study between counties would almost certainly have revealed much the same degree of variation in assessment as here discerned between townships. Replacing township assessors by county assessors (24 counties in Missouri still have the antiquated form of township government) would do away with the variation in flexibility between townships. Only a system of state or district supervised assessments would insure uniformity as between counties.

The fee system of reimbursing the assessor, as provided by Missouri statutes, places a great premium upon such inflexibility as revealed in Table 15. Other states are similarly confounded, however, and a Michigan study¹ reveals that in certain townships in that state, from 18 to 63 per cent of the properties were, at a period from 8 to 14 years later, still assessed at the same figure that had been determined by the State Tax Commission at its last general revision. The study was made in 1927 or immediately subsequent to a period of rapidly changing farm real estate values.

TABLE 16.—CROSS SECTION OF CHANGES IN ASSESSMENTS BY YEARS—
1914-1931—IN THE THIRTEEN TOWNSHIPS IN LIVINGSTON COUNTY MISSOURI

Year	Number of Tracts	Number of Changes	Ratio of Number of Changes to Total Number of Tracts
1914	296		
1915	296	24	8.1
1916	296	85	28.7
1917	296	36	12.2
1918	296	294	99.3
1919	296	177	59.8
1920	296	164	55.4
1921	296	81	27.4
1922	296	246	83.1
1923	296	250	84.5
1924	296	167	56.4
1925	296	99	33.5
1926	296	168	56.8
1927	296	155	52.4
1928	296	147	49.7
1929	296	138	46.6
1930	296	212	71.6
1931	296	224	75.7

¹Newton, Wayne and Hedrick, W. D., "Farm Real Estate Assessment Practices in Michigan", Special Bulletin 172, pages 23, 24.

The premium on copying the books of the previous assessor apparently does not have the same potency from year to year. In Table 16 below are tabulated the number of tracts assessed and the number of changes in valuation by years from 1914 to 1931. In 1915, valuations were changed on only 24, or 8.1 per cent, of the tracts. In 1918, however, values were changed on practically all or 99.3 per cent, of the 296 properties. Other years show varying percentages.

No satisfactory single explanation for this variability on the part of the assessors can be advanced. Apparently a great number of changes were made each time a new assessor was elected, the new office holder being unwilling to accept the valuations of his predecessor in office. An old set of values seems also to fall at a single blow after a period of rapidly changing market values such as in 1918 when practically all valuations were given a substantial upward thrust. Presumably the great number of changes in 1922 and 1923 followed on the recognition that the drastic decline in land values was a reality. One finds a similar situation at the bottom of the table for the years 1930-31.

Clearly the system of assessing farm real estate in this Missouri county does not work with a studied and accurate smoothness, but rather jerkily and uncertainly. The actions of the assessors are not those of trained officials with an undivided interest in their task, but rather those of men who perform their task with a minimum of time and a somewhat questionable knowledge of its difficulty and importance.

A further and curious aspect of the work of the assessors in Livingston county is revealed by the study of the size of the changes made. The response of the assessor, as is quite apparent from the two preceding tables, to changes in value situations is apparently somewhat clumsy. The adjustments in values are, one immediately suspects, rather coarse.

The assessor himself, however, apparently feels that his system of valuation is not only representative, but finely representative and requiring almost microscopic adjustments. Of the 2257 changes in assessments in Livingston county during the period 1914-1917¹ and 1920-1931, 203 or 9.0 per cent, were changes of \$20 or less and 4.7 per cent were changes of \$10 or less (Table 17). The average value of the properties on which the \$10 changes were made was \$887. The adjustments in such cases were, on the average, changes of about 1 per cent. In one township, Green, essentially 28 per cent of the changes in valuation were for \$20 or less. The average value of the properties upon which changes of \$10 or less were made was \$516. The average value of those where changes ran from \$10 to \$20 was \$627. On the average, these changes represent adjustments of approximately 2 or 3 per cent.

Changes in assessments for all properties over the entire period, except for 1918-19 during the state campaign for the upward revision

¹Omitting the years when the upward revision of assessments sponsored by State offices was being made.

TABLE 17.—FREQUENCY OF CHANGES IN ASSESSMENTS OF \$20 OR LESS IN THIRTEEN TOWNSHIPS IN LIVINGSTON COUNTY 1914-17 AND 1920-31

Township	Changes of \$10 or less		Changes of \$10 to \$20		Total No. of Changes of \$20 or less	Per Cent of Total Number of Changes
	No. of Cases	Average Value in Dollars	No. of Cases	Average Value in Dollars		
Mooresville.....	19	\$ 874	9	\$ 389	28	15.22
Medicine.....	2	665	2	2105	4	1.61
Jackson.....	3	677	6	292	9	4.19
Grand River.....	9	382	7	813	16	7.96
Green.....	38	516	38	627	76	27.94
Sampsel.....	17	1714	15	874	32	14.61
Chillicothe.....	3	1043	5	138	8	5.23
Cream Ridge.....	1	600	1	620	2	.73
Blue Mound.....	4	690	4	1243	8	2.99
Rich Hill.....	1	100	2	160	3	1.92
Fairview.....	5	996	6	1092	11	6.79
Monroe.....	1	1760	1	4750	2	1.39
Wheeling.....	3	2607	1	820	4	2.06
Total.....	106	887	97	730	203	7.61

of assessments, are tabulated in Table 18. The changes ranged from as little as \$5 to more than \$2000. However, the major portion of the changes are relatively small, and of the total of 2257 changes, 1767 or over 78 per cent averaged less than 10 per cent of the average value of the property involved, while 455 of the changes or 20.2 per cent of the total number involved less than 5 per cent of the average value of the property.

TABLE 18.—SIZE OF ASSESSMENT CHANGES IN THE THIRTEEN TOWNSHIPS OF LIVINGSTON COUNTY 1914-17 AND 1920-31

Class Interval in Dollars	Number of Cases	Average Value of Properties	Ratio of Change to Total Value of Property*	Per Cent of the Total No. of Changes
0- 10	106	\$ 887	.56%	4.7%
11- 20	97	730	2.05	4.3
21- 30	50	1394	1.79	2.2
31- 40	74	1116	3.14	3.3
41- 50	128	1029	4.37	5.7
51- 100	479	1407	5.33	21.2
101- 200	455	2468	6.08	20.2
201- 300	210	2707	9.24	9.3
301- 400	168	3695	9.47	7.4
401- 500	112	3575	12.59	5.0
501- 600	77	3328	16.53	3.4
601- 700	53	4128	15.75	2.3
701-1000	117	5299	16.04	5.2
1000-1500	77	4847	25.79	3.4
1500-2000	38	4727	37.02	1.7
2001-2500	16	6973	32.27	0.7

*Assuming the average change to be the mid-point of the class interval.

If assessment accuracy in Livingston county varies as greatly as in other parts of the State (Table 4), these small adjustments are somewhat absurd since the range of ratios of assessed to sales values on these low-valued properties ran all the way from 10 to nearly 300 per cent. They are indicative of a misplaced belief on the part of assessors in their own valuations, and the very fineness of the adjustments made appears as a safeguard to the continuation of a grossly inaccurate assessment pattern. The rigidity of the system is further attested by the fact that the average valuation of the properties upon which the changes were \$10 or less were actually greater than those upon which the changes were between \$10 and \$20.

The apparent faith of the assessors in their own handiwork may also be looked upon as significant evidence that the drastic reorganization of assessments that is needed in Missouri will hardly be made with the present set of officials. Even under great pressure local assessors are not likely to revamp the entire assessment list, but are much more likely to content themselves with small and scattered changes leaving relationships between properties much as before.

Particularly unlikely is it that these changes will be made for the purpose of securing accuracy for that much abused group of property owners in whose hands the smaller-valued properties are held. In Table 19 changes in assessments for the seventeen year period, 1914 to 1931, are classified according to the size of properties or tracts in acres. In the upper part of the Table an irregular, but small, class interval is employed. The lower part of the table repeats the upper part, except that the class interval has been essentially doubled.

Changes are least frequently made or, in other words, the system of values is most rigid for the smallest properties which in this case are those of 10 acres or less or, in the second part of the table, those of 20

TABLE 19.—FREQUENCY OF ASSESSMENT CHANGES ON VARIOUS SIZED PROPERTIES IN LIVINGSTON COUNTY, MISSOURI 1914-1931

Acres	Number of Properties	Number of Changes for the 17 Years	Changes per Property for the 17-Year Period
0 to 10	18	113	6.28
10 to 20	37	303	8.19
20 to 30	45	411	9.13
30 to 40	18	171	9.50
40 to 60	82	708	8.63
60 to 80	15	158	10.53
80 to 120	57	554	9.72
120 and up	24	219	9.13
0 to 20	55	416	7.56
20 to 40	63	582	9.24
40 to 80	97	866	8.93
80 and up	81	773	9.54

acres or less. The number of changes increases significantly for the next three classes in the upper part of the table and then becomes somewhat irregular. This irregularity is not eliminated by increasing the class interval and we may assume that the number of changes from year to year is essentially constant for tracts of 30 acres or more.

We are here again confronted with what is apparently not a deliberate discrimination on the part of the assessor, but an unwillingness to be troubled by the small fry. Owners of these smaller properties are not likely to be troublesome even if badly over assessed because the sums involved are relatively insignificant. Under the fee system of remunerating the assessor and its premium on doing as little as possible for the earning of each fee and practically no genuine supervision to check up on the accuracy of the task after it is completed, the small property owner is badly assessed and indifferently regarded.

Movements of Assessed and Sales Values in the State as a Whole.— Certain aspects of the irresponsiveness and inflexibility of the assessment system as discovered in Livingston county have been discussed in some detail. From available data it is possible to analyze the results of such inflexibility as it affects all real property in Missouri.

By certain statistical devices the assessed valuation of farm real estate may be separated from the value of all other rural real estate, leaving a net figure for the value of real estate belonging to farmers alone¹. In Table 20 are given, in the third column, the per acre assessed values of Missouri farm real estate computed by dividing the acres in farms by the total assessed valuation of farm real estate². Census values per acre were calculated for years other than those in which the census enumerations were taken, by straight line interpolation, and are given in the first column of the table. The index numbers for census values and assessed values are included in columns two and four. A similar index based upon estimated values is given in column five.

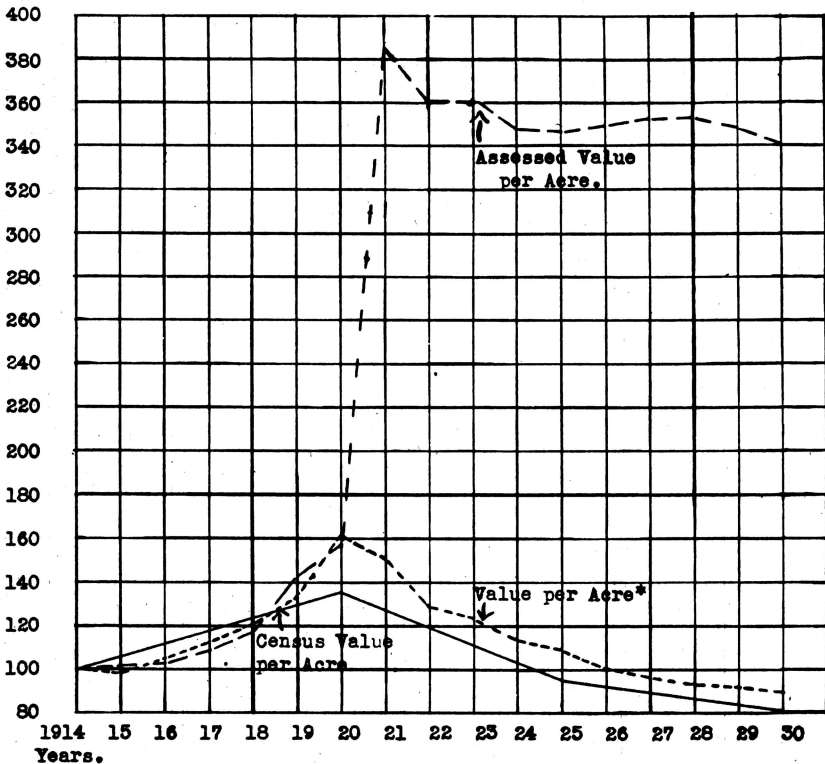
Plotting these indexes as in Figure 4 brings out certain typical features regarding the assessment of farm real estate in Missouri. The most noticeable characteristic is the lag of assessments, both on the upward and downward movements of land values. The lag on the upward movement for the years 1914 to 1918 is not great. Assessments and the index of estimated values move fairly well together. In fact, there is marked uniformity of movement up to, and including, the year 1920. For the valuations of 1921 the Tax Commission and State officials sponsored a move to bring assessed values up to a full 100 per cent of

¹For the statistical methods employed in the separation of the assessed value of farm and other rural real estate, see an unpublished manuscript by the author, "Some Aspects of the Rural Tax Problem in Missouri."

²Except for the years 1920, 25, and 30, for which total acreages in the farms were given, the acreages used in calculating the per acre assessed values were secured by using straight line interpolation.

actual (sales) value. Hence, for the year 1921 the indexes are not comparable.

It is after 1921 that the lag becomes most pronounced. A strong effort to keep assessed valuations from declining has apparently been made. As a result, while assessed values declined only 11.7 per cent during the period, 1921 to 1930, estimated values declined 41.1 per cent and census values approximately 36 per cent. We may, therefore, infer that during the ten year period since 1920 when farm incomes have been low and the farmer's ability to pay reduced, his county and state taxes have been calculated on an assessed value that was a constantly increasing ratio of sales value.



* As estimated March 1st, by correspondents of United States Crop Report Service.

Fig. 4.—Movements of Assessed and Census Values of Missouri Farm Real Estate, 1914-1930. Values at left are percentages of the 1914 reported value (1914 value being 100%).

These lags and, particularly, the slow decline of assessed values since 1921 are accounted for by a number of features of the Missouri assessment system. The first of these relates to such inflexibility as has

been discussed in the preceding sections. Under a fee system the assessor not only makes changes reluctantly, but such changes as are made tend to be relatively small. A system of values once established is changed only slowly.

Certain other features of equal importance, however, are quite beyond the control of the assessor. In the first place, there is an interval

TABLE 20.—MOVEMENTS OF CENSUS AND ASSESSED VALUES OF FARM REAL ESTATE IN MISSOURI 1914-1930

Year	Census Value per Acre	Index of Census Value per Acre	Assessed Value per Acre	Index of Assessed Value per Acre	Index of Estimated* Value per Acre 1914=100
	(1)	(2)	(3)	(4)	(5)
1914	\$64.98	100	\$10.30	100	100
1915	68.83	105.9	10.47	101.7	99
1916	72.68	111.8	10.65	103.4	105
1917	76.53	117.8	11.19	108.6	112
1918	80.38	123.7	12.11	117.6	121
1919	84.23	129.6	14.67	142.4	133
1920	88.08	135.5	16.21	157.4	162
1921	83.53	128.5	39.78	386.2	151
1922	77.99	120.0	37.17	360.9	129
1923	72.45	115.5	37.10	360.2	123
1924	66.91	103.0	35.87	348.3	114
1925	61.37	94.4	35.72	346.8	109
1926	59.75	92.0	36.14	350.9	101
1927	58.12	89.4	36.30	352.4	96
1928	56.59	86.9	36.32	352.6	93
1929	54.86	84.4	35.80	347.6	92
1930	53.23	81.9	35.11	340.9	89

*As estimated, March 1st, by correspondents of the United States Crop Reporting Service, Table 1, page 11, "Farm Real Estate Situation for 1929 and 1930", U. S. D. A., Circular No. 150.

of approximately a year and a half between the assessment and the collection¹ of the taxes based on the assessment. Thus, in all cases in the preceding table the assessed values per acre were calculated from valuations made by the assessor as of the first day of June of the preceding year. This delay alone is sufficient to account for the small lag during the years prior to 1921. The same explanation would probably not be valid for the excessive disparity of the relative declines of assessed and market values for the years subsequent to 1921.

A further factor of considerable importance is the unwillingness often encountered on the part of both state and county officials, but

¹Property, both real and personal, is assessed and listed between June 1st and January 1st. Taxes are payable from August 1st to December 31st of the succeeding year and become delinquent on January 1st, a year after the assessment has been completed. See Sections 9756 and 9936 Revised Statutes for 1929.

probably more commonly the latter, to have the total valuations, of which farm real estate forms a part, reduced. The stand taken by these officials is not one of trying to discriminate deliberately against the farmer. Rather the intent is to protect the revenues of the various counties from declining. In most cases, these revenues are persistently deemed inadequate. Furthermore, maximum tax rates, for county purposes, permitted by the Constitution and Statutes of the State depend in part, upon total assessed valuations. Provisions from these rates are in part:

For county purposes the annual rate on property, in counties having six million dollars or less, shall not, in the aggregate, exceed fifty cents on the hundred dollars valuation; in counties having ten million dollars and under thirty million dollars, said rate shall not exceed fifty cents on the hundred dollars valuation; and in counties having thirty million dollars or more, said rate shall not exceed thirty five cents on the hundred dollars valuation.¹

The changes in maximum rates permitted under the Constitution hinges, as is apparent from the above, on a total assessment of some rounded figure such as six million, ten million, etc. For instance, if the decline in total valuations is from eleven million to nine million dollars, the county court is not only faced with a reduction in tax revenues coincident upon a decline of two million dollars in assessed valuation, but must also face a further fall in revenues because of a reduction in the maximum rate that they may levy for county purposes of from fifty cents on the 100 dollars of valuation to forty cents on the 100 dollars of valuation. When county functions are planned ahead with the continuing expectation of a fifty cent general revenue levy an enforced decline to a forty cent from a fifty cent levy is often acutely embarrassing. If, indeed, we must continue to have statutory limitations of tax rates, the gradations should be fine enough so that situations as described above are alleviated. A mandatory decline of as much as ten cents in the tax rate is likely to prove altogether too drastic. Indeed, restrictions such as these were undoubtedly written into the statutes at a time when the possibility of declining total valuations was too remote a possibility to have received any consideration.

A factor more intimately associated with the assessor himself is that lack of information relating to changes in real estate values. Perhaps no single force is as potent in restraining the assessor from making the needed changes as that of not knowing exactly what changes to make. Only the exceptional assessor, indeed, makes a tabulation and serious study of the movements of real estate values in his township or county. The fee system of remunerating the assessor is not calculated to stimulate such effort. Indeed, even if the assessor were inclined to put forth

¹Missouri State Constitution, Article X, Section 11. See also Revised Statutes Missouri 1926 Volume 2, page 2708.

the onerous effort that is often required to adequately decipher what the changes in real estate values have actually been, he would encounter grave difficulties in securing data that were at once representative and sufficiently voluminous to be accurate.

In this very important aspect of assessment we must almost completely exonerate the assessor and place the blame on the system which at one and the same time demands that assessments be made at market value and makes no provisions for ascertaining what that market value is.

The assumption on the part of the statute makers seems indeed to have been that any elected assessor could be depended upon to have adequate knowledge of real estate values. A more erroneous assumption could hardly have been made and no other part of the system deserves more bitter attack than this, which makes no provision for securing and putting in the assessor's hands needed information that they can hardly be expected to obtain themselves, particularly when paid on a fee basis.

Movements of Assessed and Sales Values in Johnson and Harrison Counties.—For the purpose of investigating further the relationship of assessed to sales values over a period of years, sales data for the years 1914 to 1931 were secured from Johnson and Harrison counties. An attempt was made to secure 50 sales for each year, but for certain years as many as 50 were not available. All sales represent *bona fide* warranty deed transactions. The assessed valuations, in all cases, were for the assessment previous to the sale.

TABLE 21.—MOVEMENTS OF ASSESSED AND SALES VALUES OF FARM REAL ESTATE IN JOHNSON AND HARRISON COUNTIES, 1914-1931

Year	No. of Sales	Acreage Transferred	Total Sales Value	Value per Acre	Index Value per Acre 1914=100	Assessed Value per Acre	Index Assessed Value per Acre 1914=100
1914	100	10,283.66	\$775,381	\$75.40	100	\$13.01	100
1915	99	8,486.43	646,441	76.17	101.0	13.02	100.1
1916	100	9,940.62	717,734	72.20	95.8	12.74	97.9
1917	100	11,504.17	965,840	83.96	110.0	13.56	104.2
1918	100	9,768.61	859,438	87.98	116.7	15.60	119.9
1919	101	10,600.12	1,056,552	99.67	132.2	16.78	129.0
1920	92	8,668.05	1,008,810	116.38	154.4	22.16	170.3
1921	93	7,377.00	707,798	95.95	127.3	54.59	419.6
1922	83	6,897.85	495,727	71.87	95.3	47.94	368.5
1923	88	7,843.85	535,588	68.28	90.6	50.55	388.5
1924	83	6,936.72	472,648	68.14	90.4	48.58	373.4
1925	90	6,962.41	444,270	63.81	84.6	49.08	377.2
1926	90	6,718.00	490,625	73.03	96.9	49.18	378.0
1927	126	9,563.00	748,787	78.30	103.9	50.15	385.5
1928	140	11,301.00	761,864	67.42	89.4	46.44	357.0
1929	93	6,757.00	483,613	71.57	94.9	47.17	362.6
1930	104	7,910.00	450,978	57.01	75.6	48.01	369.0
1931	44	3,541.00	227,646	64.29	85.3	47.35	364.0

The data are tabulated in Table 21 and are shown graphically in Figure 5.

The movements of the two sets of data from 1914 to 1921, as for the State as a whole, are much alike. Even less lag, than that previously noted for the state as a whole, on the part of the assessed values, is noticeable on the upward swing of values. Between 1921 and 1930, however, assessed values declined 12.1 per cent as contrasted to 11.7 per cent for the state as a whole. Sales values, on the other hand, declined 40.6 per cent or essentially three and one third times as rapidly as assessed values.

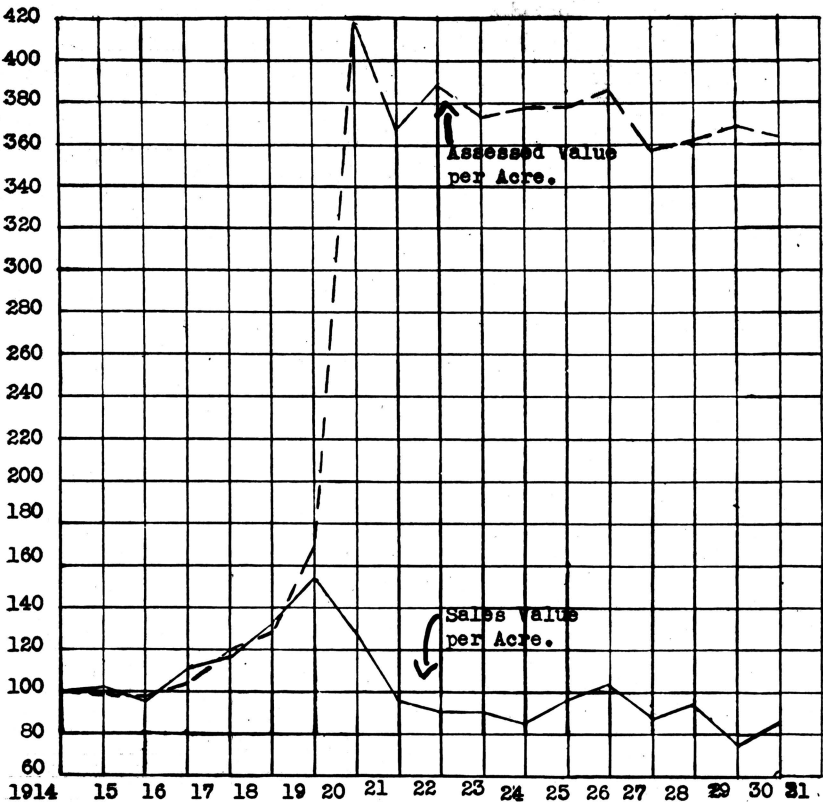


Fig. 5.—Movements of Assessed and Sales Values of Farm Real Estate for Johnson and Harrison County. 1914-1931. Values at left are percentages of the 1914 value (1914 value being 100%).

The very close similarity of results from using the two entirely separate sets of data (See Figures 4 and 5) leaves no doubt whatever regarding the increase in assessed relative to market value for farm real estate in Missouri. No further discussion regarding the factors responsible for these lags is needed.

Flexibility of Assessments and the Assessed-Sales Ratio.—The facts with regard to the rise of assessed in relation to sales or market value of farm real estate, the reasons for which have just been discussed, are brought out in Table 22. The ratios themselves were calculated for the state as a whole, and Johnson and Harrison counties from Tables 19 and 20, and the ratios for the thirteen counties, as in column three, were obtained from the data that formed the basis for the analysis in the section dealing with the accuracy of assessments.

As will be recollected, the figures for the state relate to all Missouri farm real estate, the assessed valuation of which was statistically estimated. For Johnson and Harrison counties a sample of sales, the number in some cases running somewhat below a hundred per year, were used. For the 13 counties, the number of transactions involved were 591 for 1927, 614 for 1928, 555 for 1929, 460 for 1930 and, 231 for 1931.

TABLE 22.—RATIOS OF ASSESSED TO SALES VALUES FOR JOHNSON AND HARRISON COUNTIES FOR THE YEARS 1914 TO 1931, FOR THE THIRTEEN COUNTIES, AS IN FIGURE 3, FOR THE YEARS 1927-1931, AND RATIOS OF ASSESSED TO CENSUS VALUES FOR THE YEARS 1914-30, FOR ALL FARM REAL ESTATE IN MISSOURI

Years	State as Whole	Johnson and Harrison	13 Counties*
1914	15.85%	17.25%	
1915	15.2	17.09	
1916	14.7	17.65	
1917	14.6	16.15	
1918	15.1	17.72	
1919	17.4	16.84	
1920	18.4	19.04	
1921	47.6	56.89	
1922	47.7	66.70	
1923	51.2	70.34	
1924	53.6	71.29	
1925	58.2	76.92	
1926	60.5	67.34	
1927	62.5	64.05	62.1%
1928	64.3	68.88	64.9
1929	65.3	65.91	66.2
1930	66.0	84.21	77.0
1931		73.65	81.8

*Refer to Figure 3 for the names and locations of the thirteen counties.

The ratios of assessed to sales values for the state as a whole and for Johnson and Harrison counties are much alike for the entire period. For the two counties the ratios are consistently somewhat higher than for the state as a whole, and are also somewhat more variable. Assessments, which were made at a very low level during the earlier years, remained remarkably constant from 1914 to 1920. Those for the state even show some tendency to decline up through, and including 1917

From 1921 on, however, during the decline in land values, assessed in relation to market values have risen consistently for the state as a whole, and somewhat more erratically for Johnson and Harrison counties. From 1927 on the rise in all three series, including the thirteen counties, is all but uninterrupted, the solitary exception being a decline in Johnson and Harrison counties in 1931. The agreement between the three series is, however, strikingly good.

We have in this persistent rise of the ratios since 1921 quite clear evidence of the inflexibility of the assessment system in regard to farm real estate in Missouri. The adverse operation of the general property tax is nowhere better illustrated. During periods of rising prices and land values, valuation lags contribute a fictitious appearance of prosperity. When prices either turn the corner or cease further to rise, valuations creep up and, during this latter period, become an undue handicap. In other words, the steady upward trend of taxes is likely to be mitigated as far as costs to the rural tax payer are concerned during a period of rising prices and incomes by a lag in assessments and probably, also, in tax rates. During a period of declining prices the reverse situation, with valuations lagging again, tends to accentuate the upward trend of taxes and makes tax costs an even greater burden than they normally are.

As far as Missouri is concerned, the situation as described above fits quite accurately. Low valuations and a tendency to discourage local taxation during the war period intensified the rise in farm incomes and farm real estate prices, while after the war the legacy of delayed and badly needed improvements and a high and rising level of assessed valuations have quickened the decline in real estate prices and have weighed heavily on farm income.

Assessed-Sales Ratios for Urban and Rural Properties.—A further type of tax inequity arising out of the mal-administration of assessments is apparent in Table 23, in which are contrasted the ratios of assessed and sales value of urban and rural properties in Boone County. For purposes of comparison, ratios of the same type for rural properties in Johnson and Harrison counties are included.¹

The ratios of assessed to sales values for urban property in Columbia were somewhat higher from 1914 to 1917, inclusive, than were the ratios for rural properties in Boone county or Johnson and Harrison counties, or even for farm properties in the State as a whole as depicted in Table 23. As far as state and county taxes were concerned farmers were, during this war and pre-war period, enjoying an essentially favored status. From 1921 to 1931 the situation has been just reversed and farm

¹The urban properties are for Columbia alone.

property has been assessed at a much higher level than city property, as represented by Columbia.¹

Indeed this post-war situation with higher ratios of assessed to sales values in rural areas as compared to urban areas is exactly what would have been anticipated. Urban, in reality city, real estate values suffered only a moderate set back after the fall in prices after 1921. Indeed in Chicago, front foot values rose steadily through the worst of the post 1920 depression period and were in 1929 four times their 1914 level.² No studies of the increase in values in Missouri cities have been made, but it is safe to assume that in the rapidly growing large cities real estate values have been steadily increasing, though presumably not as rapidly as in Chicago.

TABLE 23.—ASSESSED—SALES RATIOS FOR BOTH URBAN AND FARM PROPERTIES IN BOONE COUNTY* AND FARM PROPERTIES ALONE IN JOHNSON AND HARRISON COUNTIES, 1910-1931

Year	Boone County				Johnson and Harrison Counties
	Farm Properties		Urban Properties		Farm Property
	No. Sales	Ratio	No. Sales	Ratio	Ratio
1910	330	20%	276	24 %	
1911	258	19	213	25	
1912	257	19	236	25	
1913	282	19	243	27	
1914	235	19	217	27	17.3%
1915			46	21.7	17.1
1916			50	30.1	17.7
1917			46	23.6	16.2
1918			49	70.3	17.7
1919			47	59.1	16.8
1920			51	56.5	19.0
1921			50	49.4	56.9
1922			49	42.1	66.7
1923	101	65	335	55	70.3
1924	75	77	281	55	71.3
1925	98	77	265	54	76.9
1926	70	63	222	52	67.3
1927	89	62	162	49	64.1
1928	75	59	117	44	68.9
1929			46	32.1	65.9
1930			39	44.1	84.2
1931			28	48.9	73.7

*The data for the years 1910 to 1914 and the years 1923 to 1928 inclusive were taken from pages 18 and 19 of McLean's Thesis, "The Ratio of Assessed Value to Sales Value of Real Property in Boone County, 1910-1914 and 1923-1928."

¹Property in Kansas City is apparently assessed at much the same ratio to sales value as that in Columbia. Data for 201 tracts of Kansas City real estate sold between June 12, 1931 and January 20, 1932 reveal that assessed values averaged only 51.7 per cent of sales values. The total selling price of the property involved was \$1,193,001.59. Assessed values were as of the assessment of June 1, 1931.

²Simpson, Herbert D., "The Influence of Improvements on Land Values", The Annals of the American Academy of Political and Social Science, March, 1930.

The lag in assessments has, quite clearly, acted to destroy any vestige of the favored status in regard to taxes enjoyed by the farmers prior to 1920. City real estate values have risen, we may assume,¹ and assessed values have followed upward relatively slowly with the result that since 1921 the tendency on the whole has been for the ratio of assessed to sales values to decline. During the same period farm real estate values have fallen, while assessed valuations of farm real property have fallen less rapidly and ratios have increased.

A table prepared by the National Industrial Conference Board² for its report on The Fiscal Problem in Missouri shows that in the counties with the larger cities the ratios of assessed to sales values in 1929 were almost uniformly higher for rural or farm properties than for urban properties. In the counties without larger cities, where the decline in land values since 1921 has been characteristic of both farm and village property, the assessed-sales ratio is much the same in both rural and

¹No statistical studies of real estate values for Missouri cities are available and the data secured for Columbia do not permit the derivation of front foot values such as Simpson secured for Chicago (see foot note Page 41). The data of the Table below, however, afford a rough idea of the movement of urban real estate values in Columbia. No attempt has been made to weight the sales of each year for classes of property such as residential, business, manufacturing, etc., though the per property values for the various classes vary greatly. The three-year averages should afford a fairly stable composite of classes, however, and if this is true, the upward trend in values till the beginning of the present depression is unmistakable.

AVERAGE VALUE OR URBAN PROPERTIES, COLUMBIA, MISSOURI CHANGING HANDS
1914-1931

Year	No. of Transfers	Average Sales Value per Property	Three Year Average		
			No.	Value	Pct.
1914	217	\$2017	313	\$2136	100
1915	46	3214			
1916	50	1663			
1917	46	2511	142	2330	109
1918	49	2026			
1919	47	2469			
1920	51	3168	150	2715	127
1921	50	1936			
1922	49	3039			
1923	335	3191	881	3060	143
1924	281	3157			
1925	265	2815			
1926	222	3240	501	3101	145
1927	162	2703			
1928	117	3387			
1929	46	2560	113	2897	136
1930	39	3248			
1931	28	2964			

²We may further infer that values in urban centers of the state generally moved upward during the 1920-1930 decade. A great force for increasing urban values is an increasing population and particularly an increasing urban population. The percentage increase in population for the state as a whole was 6.6 per cent, and for cities of 10,000 or more population, 15.1 per cent.

²See Table 51, page 174.

urban properties. Indeed, they tend to be higher, according to this table, for the urban (in reality village) properties.

The exceptions to the rule that the assessed sales ratios are higher on strictly² urban than rural properties was found in Jackson and Jasper counties. The number of sales in both counties was so small that the ratios are open to some doubt, particularly in Jasper county where there were only 14 sales of farm property and 28 of urban property. The Jackson county quota of 50 sales for each type of property is also questionably representative, and the general conclusion that the turn of events since 1921 have left farm property over-assessed relative to city property seems to be substantiated by these National Industrial Conference Board figures. Village and farm property, on the other hand, have apparently been assessed much alike.

Indeed, it is not too much to expect that the lag in assessed valuations will always favor the owners of property, the value of which is (1) rising most rapidly, (2) is falling least rapidly, (3) is rising when the value of other property is falling. The severest discrimination occurs in case number three, which represents the situation in relation to the value of city and farm property during the decade which preceded the present year (1931).

The rapid upward trend in taxes which has characterized particularly the period beginning in 1918 has further aggravated the situation of farm property owners. The unfortunate circumstance as far as the farm tax payer is concerned is the fact that the total property tax levies were small when farm property was assessed at relatively low ratios and have been much greater since 1921, when farm property has been assessed at relatively high levels. Thus, for the years 1914 to 1920 inclusive, the total property tax for state, county, and local purposes, though not including municipal purposes, aggregated approximately \$39,400,000 a year. From 1921 to 1930, inclusive, however, property taxes have averaged \$74,700,000 dollars or nearly twice as much.

That assessment lags have contributed heavily to the plight of agriculture since 1921 is unquestionable.

Inter-County Variation in the Assessed-Sales Ratio.—The favored status of the city taxpayer since 1921 as described in the preceding section, undoubtedly arises out of the lag of assessed values behind sales values rather than any deliberate discrimination between classes on the part of assessors or boards of equalization. Certain regional aspects of assessment inaccuracies cannot be accounted for on the same basis, however. They represent rather a genuine failure on the part

²Designating (arbitrarily) urban counties as those containing at least one city of 10,000 or more inhabitants.

of the assessment system equitably to allocate taxes on the basis of value of property as contemplated by the general property tax.

The data in the table below are the same as those from which Table 4 was constructed. The tabulation of the data by counties, however, permits a comparison of the assessed-sales ratios of the various counties and for the northern and southern counties as in the lower part of the table.

TABLE 24.—RATIOS OF ASSESSED TO SALES VALUES OF FARM REAL ESTATE BY MISSOURI COUNTIES—1927-1931*

Northern Counties					
Year	No. Sales	Acreage	Assessed Value	Sales Value	Ratio %
CALLAWAY					
1927	29	2,219	\$ 66,950	\$101,830	65.7
1928	42	4,780	122,650	162,299	75.6
1929	42	3,760	106,170	123,915	85.7
1930	64	8,595	220,674	257,662	85.6
1931	48	6,245	163,199	183,726	88.8
RALLS					
1927	21	1,807	44,350	96,250	46.1
1928	12	696	23,010	30,665	75.0
1929	18	1,520	52,160	68,130	76.6
1930	16	1,083	24,470	28,434	86.1
1931	13	1,562	41,850	54,325	77.0
SULLIVAN					
1927	70	5,736	215,773	392,084	55.0
1928	62	5,033	175,190	273,221	64.1
1929	56	4,856	179,665	278,200	64.6
1930	47	3,822	132,585	169,766	78.1
1931	22	2,502	80,620	89,205	90.4
HARRISON					
1927	49	3,941	222,214	347,855	63.9
1928	58	3,884	199,257	266,664	74.7
1929	42	3,317	173,329	255,807	67.8
1930	57	3,860	203,662	235,587	86.4
1931	19	1,795	81,805	109,635	74.6
ATCHISON					
1927	39	5,519	448,215	638,474	70.2
1928	26	2,906	255,775	411,394	62.2
1929	33	3,406	300,236	430,088	69.8
1930	17	2,034	198,500	230,308	86.2
1931	15	2,052	172,575	193,996	89.0
JOHNSON					
1927	77	5,622	257,340	400,932	64.2
1928	82	7,417	325,528	495,200	65.7
1929	51	3,440	145,377	227,806	63.8
1930	47	4,050	176,109	215,391	81.8
1931	26	1,746	85,485	118,011	72.4
FRANKLIN					
1927	54	4,760	125,150	151,308	82.7
1928	30	3,529	85,870	87,397	98.3
1929	28	2,392	73,020	75,324	96.9
1930	52	3,153	93,050	90,694	102.6
1931	15	1,395	50,045	36,995	136.1

TABLE 24.—(continued) Southern Counties.

Year	No. Sales	Acreage	Assessed Value	Sales Value	Ratio %
BARTON					
1927	55	3,766	\$111,479	\$189,439	58.8
1928	43	4,278	130,064	201,173	64.6
1929	26	2,715	86,390	130,395	66.2
1930	24	2,089	57,710	90,700	63.6
1931	14	1,280	35,714	52,505	68.0
POLK					
1927	44	3,211	61,015	130,910	46.6
1928	80	5,086	93,028	205,368	45.4
1929	78	4,938	91,658	193,210	47.4
1930	54	5,420	95,940	177,292	54.1
1931	37	2,966	59,826	93,270	64.1
NEWTON					
1927	95	5,469	139,145	273,025	51.0
1928	99	4,764	119,950	244,399	49.1
1929	82	9,010	135,880	248,385	54.7
1930	45	2,577	71,295	113,420	62.9
1931	28	1,443	32,545	45,148	72.1
MILLER					
1927	20	1,987	30,800	47,330	65.1
1928	27	3,069	46,500	64,900	71.6
1929	34	3,810	50,600	79,039	63.7
1930	42	4,167	85,182	121,671	70.0
1931	19	2,392	39,750	46,775	85.0
REYNOLDS					
1927	33	4,227	27,555	43,424	63.5
1928	17	2,177	19,290	30,067	64.2
1929	30	2,535	14,582	20,272	71.9
1930	42	5,633	36,941	41,780	88.4
1931	22	3,219	18,911	33,062	57.2
PEMISCOT					
1927	39	2,836	124,230	207,259	59.9
1928	23	2,482	107,173	150,050	71.4
1929	39	2,857	139,590	210,515	66.3
1930	25	2,689	92,178	159,011	57.9
1931	12	1,705	68,310	81,200	84.1
Average of Northern Counties					
1927	339	29,604	1,379,992	2,128,733	64.8
1928	312	28,245	1,187,280	1,726,840	68.8
1929	270	22,691	1,029,957	1,459,270	70.6
1930	300	26,597	1,049,050	1,227,842	85.4
1931	158	17,297	675,579	786,308	85.9
Average of Southern Counties					
1927	286	21,496	494,224	891,387	55.4
1928	289	21,856	516,185	895,957	57.6
1929	289	25,865	518,700	881,816	58.8
1930	232	22,575	439,246	703,874	62.4
1931	132	13,005	255,056	351,960	72.5
Summary; All Counties					
1927	625	51,100	1,874,216	3,020,120	62.1
1928	601	50,101	1,703,285	2,622,797	64.9
1929	559	48,556	1,548,657	2,356,456	66.2
1930	532	49,172	1,488,296	1,931,716	77.0
1931	290	30,302	930,635	1,137,853	81.8

*1931 data are for the first 6 months only.

First, however, it is noteworthy that in all of the 13 counties there is a significant tendency for ratios to increase with each succeeding year. For the entire group of counties, as at the bottom of the table, the increase was from 62.1 per cent in 1927 to 81.8 per cent in 1931, or an increase of approximately 4 points each year.

Apparently, this increase is merely lag and not a move to bring assessed values more nearly to 100 per cent of sales values because (1) in one county assessed values for 1930 and 1931 both averaged more than sales values, and (2) there is no evidence of a concerted effort to bring the lower ratios up more rapidly than those already high as would be expected if a general move toward 100 per cent of sales values was in progress. In fact, a comparison of southern and northern counties reveals that ratios have increased faster where already high than where low. Thus, the ratio for the northern counties was 9.4 points higher than that for the southern counties in 1927, and 23.0 points higher in 1930 and 13.4 points higher in 1931.

The level in relation to sales values at which assessments were made varied widely between counties. In Franklin county the ratio remained above 80 per cent for all five years and above 100 per cent for the 67 transfers in 1930 and 1931. In Polk county, on the other hand, ratios were above 60 per cent only in 1931 and for 1927 averaged only a little more than half that of Franklin county for the same year.

Counties in the Ozark highland and in the southern part of the State were assessed at distinctly lower ratios to sales values than were the northern counties, though Reynolds and Miller counties are notable exceptions. Furthermore, as stated above, the tendency, during the period under consideration, has been for ratios for the northern counties to increase faster than those for the southern counties.

In this disparity of assessed-sales ratios between counties we have decided evidence that statewide equalization as ordered each year by the State Board of Equalization, has not been able to correct even wide differences in the levels at which assessing is done in the various counties. We are, hence, led to agree with Simpson and Fellows (cited pages 7 and 8) and others that the equitability of the property tax system is determined by the assessor and his assessments. The history of the operation of state and local boards of equalization is not such as to lead one to believe that they are able to rectify in an effective manner inaccurate original assessments.

Conclusions and Recommendations

Two phases of the problem of what steps to take to secure more accurate assessing of real estate in Missouri are at once apparent. The first of these deals with the technique of assessing itself and the aids to be employed in both field and office work that the valuation of real estate may be accurately done. The second deals with the organization for assessment from the statewide point of view and seeks that form of organization which can most effectively deal with the problems, both of assessing and equalization.

AID TO ASSESSMENT

Soils Maps.—The valuation of farm real estate is so complex a matter that little organization of material to aid in the creation of an accurate assessment pattern is attempted by most assessors. No one criterion of value can be followed consistently and, rather than work up the complicated systems that alone will suffice, assessors adopt mere rule of thumb methods and commonly make the mistake of using no supplementary aids at all.

A very usable aid commonly overlooked by county assessors and almost completely unknown to township assessors are the maps of the soil survey. Yet there are few, if any, better single guides to real estate values than the quality of soils as revealed by these maps. Soils are an enduring and universal feature of all tracts of farm real estate and are in many if not most situations the most valuable single element of the farm. A study of soils would afford to the assessor a guide to grades of farm real estate independent of its selling price. It would facilitate the organizing of the commonly very good knowledge that assessors possess of the physical features of their county into more logical and usable information. It would enable them to check their own judgments in cases of doubt and lend a definiteness and security to their knowledge that could hardly be other than desirable.

The bulletin accompanying each soils map gives accurate and fairly detailed descriptions of all soil types in each county and few assessors, indeed, could not rapidly acquire an ability to recognize and distinguish various types in the field. These maps and the accompanying bulletins can be secured by writing to the College of Agriculture or Agricultural Experiment Station of the University of Missouri at Columbia. Un-

fortunately, detailed survey maps are not available for all counties of the state.¹

The assessor may find it advisable to make certain additional maps to supplement the soils map. A map of topography, a road map, a map showing villages and towns with probable zones of influence of each, a timber map and so on are all valuable aids and are seldom difficult to construct. In parts of the United States, counties go to great lengths in securing such maps. Thus, certain Oregon counties have spent more than \$50,000 to secure an adequate idea of the volume of taxable standing timber. At least one county² was also mapping out its bottom lands as an aid in assessing.

Airplane Maps or Photographs.—A modern aid that may go far in dispelling the present haphazard methods of appraisal is airplane topography. Just what the possibilities of this method are can only be conjectured at present. Extravagant claims are made by its proponents and as an aid for direct field appraising and particularly for checking such work in the office a mosaic map made from the air would find constant use. Perhaps its most salutary effect would be in giving the assessor or his deputy perspective as between areas in the county that vary widely in certain physical attributes. Certainly such maps could not be made to eliminate actual field work in appraising of land and their usefulness would be even more limited in respect to buildings and other improvements.

A Card File of Property Descriptions.—Some assessors, particularly those in the larger cities, have developed card filing systems with a card for each property. The cards are printed and upon each of them space is provided for the major characteristics of the properties in question. Thus for buildings, for which the cards have chiefly been used, space is provided for the date of construction, materials from which constructed dimensions, floor space, window space, location and so forth. A fairly complete description of each building is afforded by each filled-in card.

A similar system might be adopted for rural real estate properties and could be made to serve well in establishing an accurate assessment

¹Bulletins and maps are available for the following counties: Andrew, Atchison, Audrain, Barry, Barton, Bates, Boone (Report preparing), Buchanan, Caldwell, Callaway, Cape Girardeau, Carroll, Cass, Cedar, Chariton, Cole, Cooper, Crawford (Exhausted), DeKalb, Dunklin, Franklin (Exhausted), Greene, Grundy, Harrison, Howell (Exhausted), Jackson (Exhausted), Johnson, Knox, Laclede, Lafayette, Lawrence, Lincoln, Linn (Report preparing), Macon, Marion, Miller, Mississippi, Newton, Nodaway, O'Fallon, Area (Parts of Lincoln, St. Charles and St. Louis counties, Missouri, and Calhoun County, Ill.) (Exhausted), Pemiscot (Exhausted), Perry, Pettis, Phelps (Report preparing), Pike, Platte, Polk, Putnam (Exhausted), Ralls, Ray, Reynolds, Ripley, St. Charles (See O'Fallon Area), (Exhausted), St. Francois, St. Louis, Saline (Exhausted), Scotland, Shelby, Stoddard, Sullivan, Texas, Webster (Exhausted).

²Coos county; county seat Coquille, Oregon.

pattern. Such a file is cumbersome, however, and difficult to keep up-to-date. It will never be brought largely into use where assessors are paid on a fee basis. Furthermore, if careful use is made of other aids to assessments such as soils maps and the like, the cards will add little to what is already known as far as land is concerned. For buildings the case is different and a careful appraisal of farm buildings can hardly be expected unless some such card system is maintained.

The Tabulation of Sales Values.—Regardless of how well the assessor uses these supplementary aids, however, he must still place a major dependence upon his knowledge of sales values in his community. Inasmuch as people will hardly inform the assessor themselves, he is definitely on his own in securing the values and should go to some lengths in securing them. A fair start can be made by searching through the file of the Recorder of Deeds. While most transfers will be recorded as made for considerations of “\$1 and other considerations” a scattering few can always be found for which the actual payments are recorded. To these can be added others the considerations for which, though unrecorded, the assessor has picked up in the course of his daily rounds. With these and the general level of values discoverable in the census and the Missouri Farm Real Estate Situation¹ he is forced to be content though he will, in most instances, find his information so fragmentary as to be of only somewhat dubious value.

Indeed, it is because these sales data are so fragmentary and, so difficult of interpretation that assessors generally make so little use of them. In Missouri the fee system is an additional reason for avoiding the effort involved in making the necessary tabulations of such sales as can be ferreted out.

Curiously enough, a sufficient number of real estate transfers usually occur each year in most counties so that a fair summarization of value movements could be made if all transactions could be secured for analysis. The law in Missouri, and in most, if not all, other states, is inconsistent in ordering assessments made at full cash value and at the same time conniving at complete secrecy on the part of buyers and sellers regarding the only transactions in which values emerge. Either the assessor must be content with mere guessing or he must harden himself to snooping to discover what values have been set on properties changing hands. In a period when people are becoming increasingly sensitive regarding taxes and assessments a particular effort is made to keep all considerations out of public records or to enter deliberately misleading considerations in the hope of misguiding public officials.

While business interests may at times be promoted by keeping

¹Issued for the first time in September, 1931, for the years 1927-1930 but planned to be published annually hereafter. For the first issue see Mo. Ag. Experiment Station Tech. Bul. No. 154.

secret considerations in real estate transactions, the public, also, must be regarded as having rights and interests to be protected. Regarding this point the following discussion was advanced at a meeting of the National Tax Association:

The assessment of property is a public function. The law provides machinery for ascertaining values. It permits the examination of property owners, to disclose their property, and it allows boards and assessors various powers in arriving at the valuation of property. In some states they are authorized to summon witnesses, not merely the property owner himself, but other parties, to testify as to the sales and leases and to opinions of values. It does seem proper, therefore, that the state should provide the best information upon which the assessor can base his action. If the State is sincere in wanting assessments to be based on actual values and to be uniform, it should put the most effective tools for this purpose at the disposal of assessors.¹

Certain legitimate objections to an enforced recording of considerations have been raised.² All of these objections can, however, be met by a properly written and enforced statute and few greater forward steps could be taken in the interest of accurate real estate assessments than this which would make sales values available to the assessors. Various methods, all taking account of legitimate objections to forced recording, have been advanced. The one most likely to find favor with Missouri legislators and the Missouri public is that which provides either a small tax, say of 5 cents per \$1000 of the sum involved, in addition to the regular fee, where considerations are withheld. An alternative method increases the regular fee of from 5 to 10 times that ordinarily charged. To further safeguard the principals in the transaction, provision can be made such that the consideration need not be placed in public records but rather be made available to public officials only. Every effort should be made to insure secrecy where secrecy is desired. Not every contingency can be provided for in advance. However, the small injustices arising under these unforeseen circumstances will be a trifle in comparison to the widespread inequities that constantly keep occurring because of crude valuations under the present system.

Under the stimulus of a small tax a great number of considerations will be brought into the records. Even now people balance the advantages of having the value involved in the contract recorded in the deed, against the disadvantage of making the consideration public and many decide in favor of recording. Many others must be counted indifferent in the matter and as withholding for no well considered reasons. A moderate tax will lead them to reveal considerations and will work little hardship on those who wish for pressing reasons to withhold.

Publication of Assessment Lists and Valuation Maps.³—A somewhat drastic proposal that would, nevertheless, be justified if it secured

¹Judge Oscar Leser (Maryland) Proceedings National Tax Association 1910, pp. 383-84.

²For a discussion of the feasibility of enforced rendering of considerations see *ibid.*, pp. 384-390.

³For a more extended discussion of the topic of this section and one arriving at quite different conclusions, see Proceedings of the National Tax Association, Volume 2, pages 249 to 255.

the desired results is that of publishing assessment lists or valuation maps. Lists such as these are published in many New England towns and give the total valuations, upon which taxes are being levied, for each and every taxpayer. Valuation maps are seldom employed but differ from the lists in that valuations for each separate tract of real estate are entered upon maps which are then posted in some public place so that taxpayers may judge how their property has been appraised in relation to that of their neighbors.

Both methods are likely to be expensive and productive of no great results. The difficulty with them from the viewpoint of the average taxpayer lies in his inability to interpret them. He has no time to make elaborate comparisons of assessed and sales values of the properties even if he could get the sales values in the first place. Those suffering most from over-assessment are the owners of small low valued tracts. They are least able to interpret the significance of lists and maps and least able to effectively present their case even if they do unearth good evidence of malfeasance. The under assessed owners of larger properties even if stimulated to investigate find themselves treated well and are not likely to be insistent on the matter of assessment reform.

Only the most obvious errors are likely to be corrected by having lists and maps published and the method is for this reason likely to be found more expensive than the results will justify.

ORGANIZATION FOR ASSESSMENT AND EQUALIZATION

Need for Equalization.—The need for equalization has appeared in the preceding pages under three headings. First, there is the need for equalization as between individual property owners as shown in Tables 4, 6 and 8. Second, classes of taxpayers, such as the rural on the one hand and the urban on the other, may be assessed at very different levels. The inflexibility of assessments in response to changing values is directly responsible here and that group whose property is depreciating most rapidly or appreciating least rapidly suffers most. Third, equalization has a distinctly regional aspect since assessing is done at quite different levels in the various parts of the State. Thus, the six southern counties, as in Table 24, were assessed during the period 1927 to 1931 at distinctly lower levels in relation to sales values than the seven northern counties.

A bit of statistical information somewhat similar to that already presented¹ but more directly relevant to equalization in Missouri is worthy of inclusion here. As stated on page 33 a statewide move to bring assessed valuations more nearly to 100 per cent of actual values

¹See Figures 4 and 5 and pertinent textual material.

was inaugurated in 1920. Apparently the various classes of property, as indicated in the graph of movements of assessed valuations below, had in years prior to 1920 been assessed at widely different ratios in relation to sales or actual value. Thus, while the three curves of movements of assessed valuations start together at 100 per cent in 1914 and do not deviate widely in years prior to 1920, they separate radically in the year 1921.

The assessed valuations¹ of unplatted lands, including not only farm lands but mines, forest lands and so forth, were subjected to the greatest change and were stepped-up from \$733,711,593 in 1920 to \$1,767,568,718 in 1921. In terms of percentages, valuations of these lands for the taxes of 1921 were 241 per cent of those for the taxes of 1920. For other types of property the changes were less severe. For platted property in villages and cities other than St. Louis, 1921 valuations were 164 per cent of those of 1920 and for St. Louis the increase was scarcely greater than the normal rise in years preceding or only 119 per cent.

Leaving aside the problem of the justice² of such widely divergent increases, the failure of the equalization process is apparent and all but appalling. In a single year the farmer and rural land owner found his status as a payer of county and state taxes entirely changed. The embarrassment of the farmer, who was on the eve of the greatest agricultural depression the United States has ever experienced, was acute when he paid his taxes in 1921 and the acuteness has continued to the present. In the matter of state taxes the City of St. Louis went into a highly preferred position. In 1920 this city paid 33.4 per cent of state property taxes, but in 1921 only 22.5 or a decrease of approximately 33 per cent. Other classes of property owners paid commensurately more. Regardless of any question of propriety or justice involved, such violent fluctuations show a surprising failure of equalization to function and are most deplorable.

The experience of other American localities and states with equalization can hardly be called salutary and evidence may be drawn from many sources all avowing a complete lack of confidence in the ability to iron out inaccuracies in assessments by supernumerary boards.

¹All figures for assessed valuations are taken directly from the reports of the State Board of Equalization or the State Auditor's Report.

²The National Industrial Conference Board in its report on the Fiscal Problem in Missouri makes these statements on page 135. "The questions might be raised whether the increase in the valuation of lands that was made in the assessments for the taxes of 1921 was not excessive. In that year, valuation of lands was increased. . . . more than 140 %, while the valuation of town lots was raised approximately. . . . 40%. Real estate assessments for taxes of 1921 were made as of June 1, 1920 when farm land values were at their peak. Even after making allowance for this fact, it still appears questionable whether the much larger increase in the valuation of lands, as compared with other real estate and with property in general, was entirely justified."

"It is difficult", reports the committee on the administration of tax laws of the National Tax Association, "to see how it was ever possible to assume that the important work of equalizing tax burdens could be satisfactorily performed by men unfamiliar with the work of assessment, and whose only reason for approaching the work was simply compliance with the mandatory provisions of a statute which required them at stated periods to perform a stated act."¹

Simpson² in a study of the tax situation in Illinois finds the process of equalization in that state wholly incapable of coping with grossly inaccurate original assessment patterns.

The work of the Board of Review of the City of Chicago, he found, increased the inequalities as often as it decreased them. With regard to the resulting confusion and costs he makes the following significant statement:

The mere financial cost of all this confusion, of the delays and uncertainties, the duplication and waste motion described above, if it could be computed, must be enormous. . . . But we are confronting some losses more vital even than these economic costs; and the chief of these is a general loss of respect for all the agencies of government connected with taxation and with the expenditure of public funds. The writer has never encountered such fixed and universal cynicism with regard to public responsibilities as he has in the course of this study during the past three years in Illinois.

The average taxpayer in Illinois assumes—he does not infer or suspect or accuse—he takes it for granted that the government is crooked and that the tax system is "rotten", that the tax machinery is exploited for political and ulterior purposes; and he has nothing but contempt for the whole tax system and everyone connected with it.³

Reassessment.—So far has the lack of confidence in the efficacy of equalization proceeded that a discernible movement to depend upon reassessment rather than equalization is under way. A number of states have gone to considerable lengths in granting reassessment powers to central authorities, usually the tax commission. In discussing the Michigan reassessment law, Orlando F. Barnes (Chairman of the State Board of Assessors at the time, 1917) made the following statement⁴:

From the viewpoint of one administering a general property tax, Michigan's tax system has been admirably framed for securing equality of burden in taxation; yet in the hands of 1,500 assessing officers, assessments everywhere departed from the constitutional basis of cash value, until in 1909 they varied from 30 per cent of cash value in one county to 80 per cent in another, with the remaining 81 counties fluctuating between these two extremes.

¹See page 368, Proc. Nat'l. Tax Association, Fifth Conference 1911.

²The Tax Situation in Illinois. Published by the Institute for Land Economics and Public Utilities, 1929.

³Ibid., see pages 59-60.

⁴See Proc. Nat'l. Tax Association, 1917, pages 296ff.

The legislatures of 1911 and 1913 made statutory provision for reassessment and Mr. Barnes proceeds:

The theory upon which the legislature proceeded was that conditions required the complete restoration of "actual cash value" in the assessment of all property; that equalization between assessing districts, however perfect, did not affect individual assessments and therefore would not bring about cash value assessments; that cash value could be brought about only through complete supervisory and corrective control over all assessments made by local assessors; that perfect equalization also be secured through cash value assessments.

Regarding the success of reassessments he continues:

The first reviews were tumultuous affairs devoted to denunciation of the commission more than to an investigation of the accuracy of its work. As the reassessment progressed and the plan of educating taxpayers and assessors developed; as tax payers discovered that in three cases out of four they actually profited financially out of reassessment; as reassessed counties discovered that they had been protected by the tax commission in state equalization; as knowledge that the work was to be state-wide and not limited to individual counties became general, sentiment changed.

He concludes:

Reassessment statutes have been successfully administered in the state of Michigan and the tax commission is still in existence, concerned only with completing its reassessment work, keeping it up-to-date and making it more perfect.¹

Despite its apparent success in Michigan, however, granting tax commissions powers of reassessment cannot be counted a solution of the problem of equalization for several reasons. First, it leaves the problem of intra-county and intra-city equalization largely untouched. Second, the reassessments are restricted to correcting original assessment patterns only in areas where abuses are most flagrant. Third, if applied widely and often as it must be to be effective it is very expensive. Fourth, while the ill will engendered can be kept at a minimum, reassessment is bound to be a source of irritation and is likely to reduce respect for local governing officials. Fifth, its application will be most frequent in areas where costs are not excessive and almost never will it be applied in large urban areas. Sixth, under usual conditions reassessment corrects faults only jerkily and under no circumstances can it be thought of as adequate to the task of maintaining essential equality for different classes of property whose market values are changing at very different rates. In other words, inequalities because of the lag of assessments² in relation to sales values will be largely untouched by reassessment.

In fact, any attempt at equalization after the original assessments have been made is likely to correct only the grossest errors and is indeed

¹For discussions of reassessments in Wisconsin and Minnesota, see Proc. Nat'l. Tax Association, 1913. pp. 172-181 and 1917, pp. 324-334.

²For a discussion of inequalities arising out of lagging assessments, see pages 39-43 above. See also quotation from Newton, page 29 above.

likely to leave even these untouched. Genuine equalization can be attained only by striking directly at the source and setting up such a system as will, paradoxically, do away with the need for equalization.

The task of organizing the assessing of property 'so as to obviate the necessity for equalization is not particularly difficult. That so little effort has been directed toward such ends is because of two factors, (1) our insistence in United States on leaving much of the administration of government in local hands and (2) the persistence of the belief that equalization could be made reasonably successful.

With the growth and improvement of transportation and communication, however, the state is no larger a locality than many large counties were fifty years heretofore. In Missouri, the state government is being called on to undertake an increasing number of functions performed previously almost solely by the locality. The cost for education and highways, which a quarter of a century ago were provided almost solely by the locality, constitute from 50 to 75 per cent of governmental costs in most Missouri communities. To an increasing extent the state is taking over these primary functions of local government and as the role of the state becomes larger its interest in accurate assessments of property increases.¹

Regardless of increased state participation in what were formerly purely local governmental affairs, all tax payers are interested in statewide accuracy of assessments. Other methods of equalization cannot be counted successful and direct supervision of assessments by the state is apparently needed. The plan providing for such supervision in Missouri is presented, herein, under the conviction that in no other way is an effective reform of assessments to be made.

The Plan for Central Supervision of Assessment.—The genius of American government lies in its insistence upon a continuous active part in government of a large part of the population. In order to insure this participation, a great number of local governmental units have been created and maintained. In many respects it is highly desirable to perpetuate this intimate association of people and their government which strong local units permit, and centralization of control should not aim at the destruction of local government but rather at correcting its more obvious faults.

State Supervision of Assessment.—State supervision of assessment need not be thought of as destroying the function of the local assessor nor as transferring control of assessments completely out of the hands of the county or community. Instead, supervision by the state may

¹The tendency has been to provide revenue for increasing state participation, however, by tapping sources other than those provided in the general property tax.

better be regarded as a system of constant education and leadership toward a goal of accuracy in assessment now quite unattainable. Its success will be judged by its effectiveness in strengthening the local assessor in his performance of the vital task of getting taxable property onto the records at fair and reasonable values. The objective of state supervision, it seems quite clear, should be to strengthen rather than to weaken local governmental officials in the eyes of the people. Nevertheless, no amount of sugar coating will ever make accurate assessing popular to those who have values to hide and interests to promote, and state supervision that is effective will necessarily be given a certain number of soundly articulating teeth.

To begin with, a central body definitely charged with the responsibility for accurate assessments is needed. No such focusing of responsibility is possible at present. The assessor¹ and county board of equalization are responsible in the county and the Tax Commission and State Board of Equalization and State Auditor for the state.

Below is presented in schematic form the present organization for assessment of property and income in Missouri. The State Board of Equalization which must be regarded as having the best right to the place at the head of the system is composed of the governor, state auditor, state treasurer, the attorney general and the secretary of state. The chairman of the Tax Commission has no place upon the board. The State Tax Commission is composed of a chairman and two commissioners.

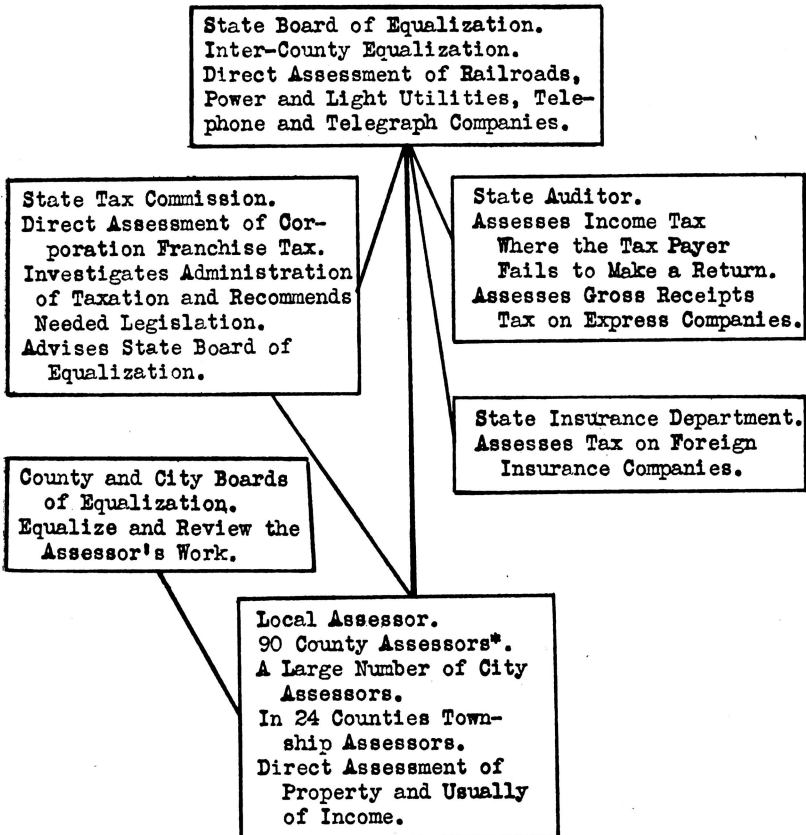
The county board of equalization, which has jurisdiction in intra-county affairs only, is composed of the assessor, the three county judges and the county surveyor. The county clerk sits with the board but has no vote in its proceedings. City boards of equalization are variously composed, depending upon the status of the city; that is, whether it is a city of first, second, third or fourth class.

No great penetration is required to see that the organization is somewhat clumsy and responsibility unnecessarily diffused. The State Tax Commission, dealing continuously with tax matters and in a position most conducive to securing a comprehensive grasp of the difficulties arising and proper methods of settling them, is placed in a secondary position. The troublesome problems of inter-county equalization and the reviewing of complaints constantly being presented by disaffected groups, either from the counties or cities or from the various public utilities assessed directly by state authorities, are not settled directly by the State Tax Commission but are rather referred to the State Board of

¹Or assessors in counties with township government.

Equalization. The men composing this board are already serving in exacting positions to which they must and do give the major share of their attention. Their duties as equalizers of assessments are a mere sideline and it is not likely that they are able to spend much time in keeping highly informed regarding assessment inequalities.

THE PRESENT ORGANIZATION FOR ASSESSMENT IN MISSOURI



*County clerks perform certain assessment functions in counties with township organization.

On the whole, the duties of the State Board of Equalization, the existence of which rests on constitutional authority,¹ could be performed

¹Constitution, Article X, Section 18.

equally well if not better by the Tax Commission and the expense¹ of maintaining the board as such eliminated. However, the tax commission was created to provide the board of equalization with the information that it could hardly be called upon to secure in its unaided capacity. Apparently, full use is made of the services and information of the tax commissioners. In 1928 the total valuation as finally determined by the Board of Equalization was only 0.01 per cent less than that recommended by the Tax Commission.² Whether the recommendations of the Tax Commission would have been the same had there been no State Board of Equalization can be no more than a conjecture. An appointed body, as the commissioners are, normally reacts somewhat differently than does an elective *ex-officio* group where matters of political expediency play inevitable roles. There seems, from this standpoint little to gain and perhaps something to be lost in the existence of the State Board of Equalization at the head of the Tax System.

The technique of state or inter-county equalization and the particular auspices under which it is to be done are, however, matters of relatively small import. State taxes alone are affected and these have during the preceding decade not only been small but they have declined.³ Thus while from 1915 to 1920 the state rate was 18 cents on the \$100 of valuation, the rate in 1930 was only 12 cents. Because of the increase in valuations the total tax collected has, however, increased steadily.

Of far greater importance is the matter of equalization within the county and reorganization in the interests of assessment accuracy must be designed chiefly to correct such glaring inaccuracies as are depicted in Tables 4, 6 and 8 of the preceding text. Accepting the dictum that the most effective equalization is that which does away with the need

¹The cost to the taxpayers of Missouri of the State Board of Equalization, according to a special bulletin issued June 13, 1932 by the Associated Industries of Missouri, was during 1929 and 1930, \$39,295 or approximately \$20,000 per annum. However, in explanation of this figure the following note is offered: "The Board of Equalization figures were taken from the totals shown as expenditures for assessing and collecting (that account being correspondingly reduced). These are not a true showing of cost of the Board of Equalization as since 1925 both the State Auditor and the Tax Commission have paid items properly chargeable to those departments from "Assessing and Collecting". These amounts are so intermingled with those of the Board of Equalization as to be inseparable. The account of the State Auditor and the Tax Commission would be increased, and that of the Board of Equalization decreased, by these amounts if they could be properly determined."

²See page 137, National Ind. Conference Board, The Fiscal Problem in Missouri.

³Rates of taxation levied on property for state purposes since 1915 have been in cents per \$100 of valuation.

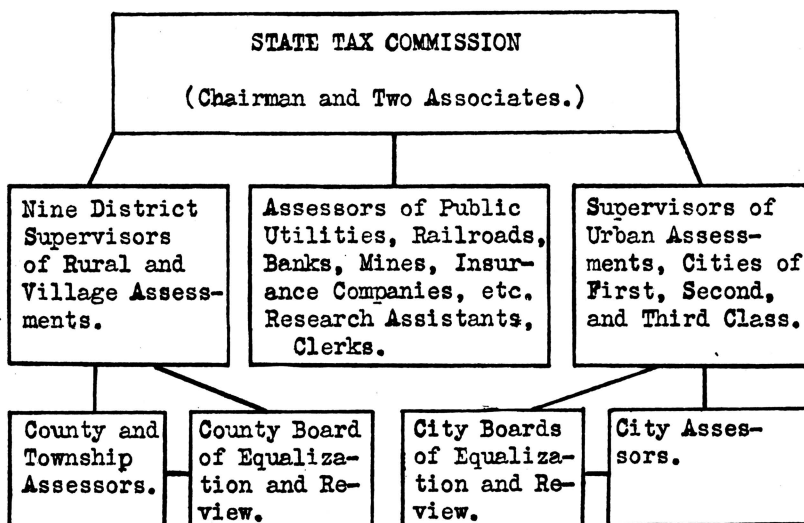
Year	Rate	Year	Rate
1915	18c	1923	10c
1916	18	1924	10
1917	18	1925	11
1918	18	1926	12
1919	18	1927	13
1920	18	1928	14
1921	18	1929	13
1922	13	1930	12

for equalization, the obvious direction that reorganization must take is one of close supervision of original assessments.

The State Tax Commission is at present charged directly with such supervision and is granted authority to institute proceedings and enforce penalties against assessors deemed delinquent in the duties of their office.¹ All that is needed is some means of making this supervision and authority effective. The power of ordering reassessments, not now granted to the Commission, has been suggested but, as stated above, is not likely to prove a satisfactory weapon from a state-wide point of view. Reassessment intermittently corrects about 1 per cent of the assessments where the errors are most glaring and lets the other 99 per cent ride.

A method, demonstrably better, is that which provides means of continuous contact with local assessors and assessments.² Such contact can be provided by placing deputy tax commissioners in direct charge of certain districts (as for instance in the map below) and making these supervisors directly responsible for the accuracy of assessments in their district. To accomplish this purpose local assessors would of necessity be made subordinate to and amenable to control by these supervisors. Inasmuch as the Tax Commission is already directly charged with the enforcement of assessment law the authority of its deputies in relation to local assessors is, under present statutes, sufficiently provided.

The organization for assessment under such a district arrangement is presented in the chart below.



¹See sections 12828 and 12847 Revised Statutes of Missouri for 1929.

²The estimate of the actual contact between Tax Commissioner and local assessor made by the legislature is found in the statute (Sec. 12847, Revised Statutes 1929) which requires that the county be visited by a commissioner at least once every two years.

The State Board of Equalization remains the head of the tax system, though not included in the chart, but its existence need in no way interfere with direct control of the tax system by the Tax Commission. Rather it should be thought of as constituting a final board of review for passing upon the work of the Tax Commission.

The diversity and complexity of property under modern economic organization makes the statutory provision for city assessors a sound one. Few men can expect to become versed in the appraising of both city and rural property. Presumably city assessing is done, under existing conditions, about as badly as that in rural areas. McLean working with properties from the City of Columbia alone, found, as in the table below, that the lower valued properties were assessed at distinctly higher ratios in relation to sales values than were the higher valued.

TABLE 25.—RATIOS OF ASSESSED TO SALES VALUE FOR CITY* PROPERTIES CLASSIFIED ON BASIS OF SALES PRICE

Sale Price	No. of Sales	Total Considerations	Assessed Value	Ratio
0- 999	402	\$ 186,520	\$ 94,955	51%
1,000- 3,999	594	1,162,355	603,805	52%
4,000- 6,999	202	1,039,630	550,074	53
7,000- 9,999	120	975,630	557,508	55
10,000-12,999	45	481,800	260,754	54
13,000-15,999	8	113,500	44,850	57
16,000-18,999	3	50,000	25,200	50
19,000 and over *\$38,000	8	246,000	106,410	44

*Data are for the City of Columbia alone and relate to the five year period, 1923 to 1928.

Simpson in "The Tax Situation in Illinois" finds that city assessing in Illinois cities results in even greater regressiveness¹ in taxation than rural assessments. There is little reason to suppose that conditions are at all different in Missouri. Assessment supervision is, hence, equally needed in both city and county.

According to the 1930 census only nine Missouri cities have populations of more than 20,000. Perhaps cities with still smaller populations could be assessed under the guidance of district supervisors, and the suggestions is made that three supervisors of urban assessments, one each for Kansas City and St. Louis and one for the remaining seven smaller cities would be sufficient.

¹Op. cit. see Charts 22 and 23, page 37.

Certain types of property are best assessed separately and it is suggested that public utilities, railroads, railroad car, street railway, bank, insurance company, express company, and mining property be assessed by men who are specialists in their tasks and directly subordinate to the Tax Commission. Only men with special technical qualifications can satisfactorily assess such property and recognition of the fact has already been accorded by the legislature. Bank taxation constitutes a special and troublesome problem that can be counted as satisfactorily handled in few states.¹ "The unmistakable tendency toward the abandonment of the general property tax on bank shares may be ascribed", says the Committee on Bank Taxation of the American Banker's Association,² "to a growing realization of the impropriety of at least this particular use of the general property tax." If the method of taxing shares of bank stock is changed, perhaps to an income basis, the Tax Commission with the data of the State Finance Commission at its very elbow will be in a peculiarly strategic position to assess bank stock quickly and uniformly.

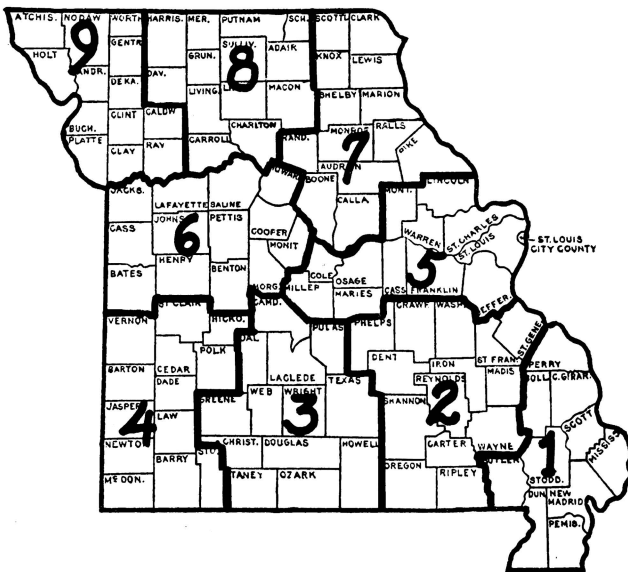


Fig. 6.—Districts Suggested for Supervision of Assessments.

The nine districts into which the State has been divided for purposes of supervising rural assessment are largely arbitrary. An attempt was made to confine each district to areas with reasonably uniform physical conditions. They were also kept fairly equal in size and as regular in

¹See American Banker's Association Committee on Taxation Report, A Survey of Bank Taxation in the United States, Sept. 1931.

²Ibid. p. 7.

shape as the vicissitudes of county lines would permit. In these days of excellent roads accessibility of all areas within a district can be taken for granted. The size of the districts and their limitation in number to nine is purely a matter of the judgment of the investigator.

The Function and Work of the Supervisors.—The success or failure of the system as reorganized would quite clearly depend upon the effectiveness and intelligence with which the district supervisors performed their job. Indeed, no such reorganization could possibly be justified if the functions and tasks of these supervisors could not be outlined with fair definiteness in advance.

General Aspects.—Generally these men, who should be appointed under careful civil service regulations, should be responsible for assessment accuracy in their respective districts. Their first task is to acquire that acquaintance with the characteristics of the assessment pattern as it now exists such that, with a minimum of wasted effort, they may initiate steps to secure greater uniformity. Initially the most serious difficulties they will have to overcome will be the opposition of the assessors with whom they must perforce work. A successful supervisor will be one who leads rather than drives and who while schooling his assessors is not too proud also to be schooled by them. In major part, the task of the supervisor will resolve itself into the education of men in the art of exact appraisal on the assumption that the men with whom he is working are not only willing to learn, but able. If, indeed, the office of supervisor is one of more permanent tenure than that of assessor the better assessor should be encouraged to look forward to the possibility of himself becoming a supervisor.

Particularly exacting will be the task of the supervisor in relation to men newly elected or appointed as local assessors. At present these men have no particular qualifications for their job and are under powerful incentives, both because of the fee system of remuneration and their own uncertainty to copy the books of their predecessor. More or less constantly the assessment pattern must be changed. The supervisor steps into the breach between outgoing and incoming assessors and assures a continuity of accurate assessment that cannot now be expected. Furthermore, his fund of assessment lore is immediately available to the new assessor during his novitiate. The period when assessing is done by clerks and deputies of the preceding regime should be greatly curtailed.

Improving the Methods and Technique of Appraisal.—Precise and accurate methods of appraisal will be adopted only slowly, if at all, under the present system. With his job contingent upon re-election and his pay in no way dependent upon the quality or accuracy with which his job is done, the assessor cares little to develop an adequate

technique of appraisal or to build up a system of aids in the form of card files, maps, lists and so forth. No one now sets out deliberately to build a career as an assessor. Political contingencies loom too large. With the possibility of graduating from assessor to supervisor, however, a somewhat greater incentive is afforded.

Furthermore, the supervisor, whose work is constantly under the scrutiny of his superiors in the Tax Commission, has great incentive to equip himself for his task and to gather from every source materials to aid him and his men. The supervisor has every reason to make continuous and intelligent use of maps of the soil survey, the topographic quadrangles of the geological survey, road maps, plat maps and other maps of his own construction. Card files of improvements, too cumbersome and expensive for the assessor whose job is periodically auctioned off on the political block, ever carefully to prepare, are a logical accessory to one whose tenure of office may depend upon their intelligent use. If aerial photography justifies the claims of its proponents as an aid to assessment, the supervisor is in an excellent position to study its efficacy and promote its application in his block of counties. From men whose tasks center upon improvement of methods and technique, there should be a constant stream of suggestions forthcoming. These would be entirely without taint of political ambition and should receive a better as well as a wider, reception than similar suggestions coming from assessors.

Adoption of Uniform Record Keeping.—While of small importance to people within any particular county, uniform records greatly facilitate the work of investigators and research workers and state officials at the state capitol. Often for no very serious reasons local officials are reluctant to change old systems to those drawn up by central authority for use throughout the state. Supervisors may well serve as liaison officers in this respect and, where the objection to the new system is its lack of comprehensibility to those acquainted with the old, their good offices may be enlisted in explanation of the newer methods.

In this connection the aid of the supervisors could be very effectively used in facilitating the change from the long period between assessment and tax collection to a much shorter one. As stated, page 35 above, more than a year and a half now elapses between assessment and the collection of by far the larger percentage of the taxes based upon the assessment. With permission and instructions from the legislature, supervisors could very easily smooth the way to the use of a much shorter interval.

Investigation and Research.—While the supervisors would serve on the one hand to preserve the continuity and to raise the standards of assessment locally they would have also an important function to

perform in relation to the Tax Commission and the revision of the assessment system generally. The functions of government, despite vigorous opposition from many quarters, are rapidly increasing and tax costs are necessarily mounting in step. Changes in the tax system generally and with the application of the property tax in particular are constantly needed.

A number of problems relative to assessment press for solution. One of these of primary importance is that of collecting and tabulating sales data so as to have accurate information regarding changes in the levels of real estate values from year to year. The assessors at present, lacking such information, are forced to base their appraisals upon guesses. Supervisors could and should make almost meticulous studies of movements of real estate values in their particular localities. The technique for such an analysis is fairly well established. Many sources of supplementary data exist. The great need is for some designated group to gather the data and, after a searching analysis of them and their applicability, present them to the assessors in understandable form.

A further matter is that of the proper assessment unit. Counties were not arranged for the convenience of assessors. Some are large and some are small, and if the large ones are a proper unit the smaller ones cannot be. If Worth county, with an area of 169,600 acres and 1209 farms, is the proper unit of assessment, then Johnson county with an area of 531,840 acres and 3,329 farms cannot be. While the hiring of deputies in the larger counties affords some flexibility one can hardly believe that under a fee system only competent and trained deputies will be used. A supervisor directly in contact with the actual job of appraising could quickly discern what area and number of properties an assessor could effectively appraise. Such information will prove very acceptable from the viewpoint of those who are seeking county consolidation and a larger unit of administration for county government.

Similarly, much pertinent information could be made available regarding the qualifications needed by assessing officer, the personnel and operation of the assessor's office, proper methods of inter-county equalization and the advisability of continuing the fee system of remunerating assessors.

Regional Equalization.—No function of the supervisors would transcend in importance that in connection with statewide equalization. Under present circumstances, equalization by the State Board of Equalization and the Tax Commission must be done largely without the presence and aid of the men who did the original assessing. Often indeed, equalization is effected in the face of bitter opposition on the part of local assessors.

Requiring the attendance and participation at equalization hearings of all assessing officials¹ could result only in confusion to say nothing of the excessive expense. A handful of supervisors on the other hand could convene at Jefferson City at small expense. They would come with the facts regarding valuations in their districts or cities literally at their finger tips and together with the tax commissioners could make such small adjustments as were needed in a minimum of time.

While the work of the supervisors in their own districts and cities should be such as to leave a minimum to be accomplished by equalization, some differences between districts, and between counties and cities will almost surely arise. Attendance at the equalization conferences will, however, give to individual supervisors the exact information needed for corrective work in their districts in the next assessment year. The assessors at present get no such information and, resentful at the indignity of having their assessments raised or lowered, may show their dislike of such action by heightening the discrepancies for the following year.

Schooling for Supervisors and Assessors.—Finally, the supervisors would be a small enough group so that with a very little expense to themselves or to the state they could gather for conferences and schooling. A short course dealing with various phases of assessment could be arranged. A very considerable literature dealing with assessment problems and a much larger amount dealing with taxation is available. Such schooling should tend to dignify the task of assessing and to give it an almost professional standing to which, in many respects, it is entitled.

The Assessor and Local Equalization Boards Under the Supervisory System.—The supervisory system should be thought of as contemplating no immediate dismantling of the assessor's office. It looks rather to continuing the present election of assessors until such time as a proper unit for assessment has been determined and until public sentiment is such that assessors can be made appointive rather than elective. It is not without pertinence, however, to point out that in the end a supervisory system might result in having all assessing within a district done by deputies directly under the supervision of the supervisor.

As for county and other local boards of equalization; people will feel safer if these are left as they are so as to provide some direct and local means of appeal from real or fancied wrongs arising out of assessments. Carrying such an appeal either to Jefferson City or the supervisor would find the taxpayer facing an officialdom too remote to be sympathetic. Moreover, the expense for the smaller taxpayer would be prohibitive. Ordinarily, however, the supervisor should be in very close

¹Counting county, city and township assessors the number must run to between 500 and 600.

contact with such boards and they, in turn, should have access to the supervisor's expert knowledge and the organized information that he should be able to bring quickly to bear on such cases as will arise.

The Cost of Supervision.—The installing of such a system of assessment supervision as is outlined above would entail a certain initial cost. Perhaps as much as \$50,000 to \$75,000 per annum, or even more would be needed to provide for salaries and expenses of the supervisors. Furthermore, until the supervisors fully established themselves in their positions and make their influence felt, improvement to offset the cost would be moderate only. Perhaps a period of as much as two years would be needed for the supervisors to carry the program that they should bring with them into office a considerable distance toward completion.

In fact, the supervisory system must be thought of as justifying itself not from the viewpoint of cost reduction but from that of the improvements it would bring. There are, however, certain methods of cost reduction that the supervisors could be used effectively to promote. The purchasing of supplies for all assessors office's in the district through the Supervisor's office could, in some districts, be made a matter of some import. Such centralization might be further extended to include having the books made up not in the offices of the individual assessors but in the supervisor's office and keeping a force of competent clerks busy continuously rather than breaking in new and inexperienced people intermittently with the inevitable loss of time and efficiency that such process involves.

The great savings, however, must come through a reduction in the cost of the original appraising or assessing. Thorough studies of how large an area or how many properties an assessor can efficiently handle need to be made and the results applied in the articulating of the assessor to his task. As stated above, the present counties, varying as they do in size, number of farms and in population, cannot by any stretch of imagination be called studiously accurate assessment areas,¹ devised to keep an assessor and his force reasonably busy throughout the year. Just what the proper size of assessment unit is will depend not upon area alone but rather upon a nice balance of area, kinds of property and number of properties.

Furthermore, the idea of the proper assessment unit as a fixed area as it is conceived under the present county system is surely an error. Once an accurate assessment pattern has been established and entered upon the records during a period of relatively stable values, copying

¹Among the rural counties Texas county is more than four times as large in area as Worth, and Pemiscot county boasts nearly six times as many farms as Madison. Even wider discrepancies in total population might be cited.

of the books in large part from year to year may be entirely justifiable. Changes made blunderingly are as likely to be wrong as right and a great service that the supervisor could perform in the interests of cost reduction would be that of designating the years, and in particular years the areas, during and in which general revision of the assessment pattern should be made. Flexibility of assessments is thereby insured and made to accord with a decreased cost of assessment.

While the possibilities of cost reduction incident upon the introduction of the supervisory system are somewhat contingent, the matter of the ability of supervisors to uncover sources of additional revenue more than sufficient to justify their cost is by no means so uncertain. The basis upon which to calculate the additions to valuations incident upon a scientific reassessment under the direction of the supervisors is afforded by Table 4 above. In the table below such calculations under three different assumptions have been made.

INCREASES IN TOTAL ASSESSED VALUATIONS OF REAL ESTATE THAT WOULD BE MADE POSSIBLE BY PROVIDING ADEQUATE SUPERVISION OF ASSESSMENTS

Value of Property	Present (1927-1931) Valuation	Valuations When All Classes Are Revised to 100, 90, or 80 Per Cent of Sales Values		
		100%	90%	80%
(A)	(B)	(C)	(D)	(E)
\$ 1-\$ 999	\$ 209,000	\$ 208,167	\$ 187,351	\$ 166,534
1,000- 1,999	733,500	927,307	834,576	741,846
2,000- 2,999	985,000	1,360,497	1,224,447	1,088,398
3,000- 3,999	931,000	1,264,946	1,138,451	1,011,957
4,000- 4,999	1,062,000	1,448,840	1,303,956	1,159,072
5,000- 5,999	753,000	1,086,580	977,922	869,264
6,000- 6,999	897,000	1,414,826	1,273,343	1,131,861
7,000- 7,999	502,500	775,462	697,646	620,130
8,000- 8,999	476,000	743,750	669,375	595,000
9,000- 9,999	351,500	557,052	501,347	445,642
10,000-10,999	567,000	917,476	825,728	733,981
11,000-11,999	195,500	330,795	297,716	264,636
12,000-37,000	3,479,000	5,311,450	4,780,305	4,249,160
Total	\$11,142,000	\$16,347,148	\$14,712,163	\$13,076,627
Increase over present practice				
Per cent		46.72	32.04	17.36
Total		\$1,669,810,737	\$1,145,135,616	\$620,460,496

A few comments on the construction of the table are pertinent. Table 4 provides the basic data and the property classes as in column (A) are the same as those in the insert table in the upper right-hand corner of Table 4. Column (B) is calculated merely by multiplying the mid-point of each class by the number of properties in the class. Some error in such a process is obvious but is not large. In Column (C) the assessed valuations of column (B) are raised to 100 per cent or essentially to the point or percentage at which the lowest valued properties were

assessed on an average (See Table 4). In columns (D) and (E) the valuations of (C) are raised to 90 and 80 per cent respectively. When, as in Table 4, page 14, the first four classes are grouped together the mean ratio of assessed to sales value is essentially 80 per cent (80.68 per cent). Of the total of 2451 properties, 1803 or 73.56 per cent are included among those valued at \$5000 or less. Hence, the standard projected in column (E) is not extreme but asks merely that all properties be appraised at an average at which 73.56 per cent are already appraised.

Yet appraising at 80 per cent of sales value would increase valuations by 17.36 per cent or, applying this figure to the total assessed valuation of real estate for the state in 1930, an addition of more than \$600,000,000. Under the same assumptions, bringing the assessed valuations to 90 and 100 per cent of sales values would add \$1,145,135,616 and \$1,669,810,737, respectively, to the assessment rolls.

Actual assessment at 100 per cent of sales values would scarcely be attainable and 90 per cent would be difficult. Perhaps a safer mark would be 80 or 85 per cent. Indeed, the 290 tracts of farm real estate changing hands in 13 Missouri counties during the first six months of 1931 were already (see Table 24) assessed at 81.8 per cent. If such a general level could be attained and from \$500,000,000 to \$600,000,000 added to assessed valuations, a tax of approximately 1 cent on the \$100 of valuation would cover most, if not all, the expenses of the supervision as herein described.

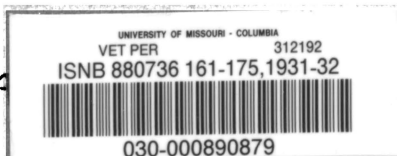
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