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The taxation of farm values

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The Taxation of Farm Values

BY

HUBERT W. YOUNT

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The Taxation of Farm Values.

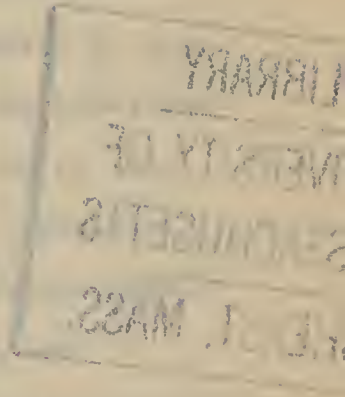
by

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The Taxation of Farm Values.

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The Taxation of Farm Values.

Part I

I. Introduction.

Taxation in general and farm taxation in particular is demanding a great deal of attention at the present time. The general public is probably more interested in matters of public finance than at any other time in the history of the nation. There are several reasons for this. In the first place, taxes have increased rapidly during the past few years so that the burden upon all people and property has become distinctly noticeable. Public wealth has not kept pace with the increase in public expenditures, and as a result taxes are being felt. Then, too, the activities of the government, both federal, state and local have increased in number and extent. Old functions have been enlarged and new functions acquired as the result of the demand on the part of the public for additional services. These factors, interacting with each other, have brought about a demand from the taxpayers to know in what manner and for what purposes their funds are being spent. (64)

Complaints due to taxes have been most numerous from farmers. This has been due, in large part, to the fact that the farmer has suffered more than other classes during the recent depression. Prices of farm products have fallen more than prices for other commodities which the farmer must purchase. The extent to which taxes have added to the distress of the farmer is indicated by the following clipping from the daily news despatches from Washington for November 27, 1922:

"'Tax Strike' New Plan of Farmers.

"A general revolt is brewing among the farmers of the Middle West against the starving conditions of agriculture, according to reports reaching congressional circles today. ----One faction has advocated a general "tax strike" among farmers of one state and their leaders are seeking converts to their cause in other states.

"----A second movement has been started to use the technical machinery of the law to evade taxes and wipe out their debts. ----In the state, North Dakota, it was learned that 143 farmers had become bankrupt in one week last month." -- Springfield Republican, November 27, 1922.

Such a state of affairs is of course unusual but the entire tax situation is unusual. In the state of North Dakota, aside from the large number of bankruptcies mentioned above, there have been more farms sold for taxes during the past year than in any other three years since the state was formed. (103)

In certain respects, the position of the farmer in the general scheme of taxation is peculiar. The increase in taxes on farm property has been greater than the increase on other property in many cases, and this fact, coupled with the lower prices received for farm products, has brought a double hardship to the farmer. He has a larger tax obligation to meet and proportionately less to meet it with than other industries. In addition, agriculture is subject to many inequalities in taxation which are the cause of loss to

individuals and to the industry as a whole. A tax inequality may be defined as any difference in the amount of taxes paid on properties of the same fair cash valuation. These inequalities arise out of the fact that most farm taxes are paid on the basis of the general property tax, a form of taxation now recognized by most economists as inequitable. Farm property is particularly susceptible to inequalities because it is widely distributed in space, tangible in form and subject to no common standard of value.

Purpose.

The purpose of this investigation is first, to analyze the present tax situation in order to show the particular tax problems of the agricultural industry, and second, to show the different tax inequalities existing within the industry and to discover the underlying causes of their existence. Particular attention will be given to inequalities between individuals in the same taxing district, and an analysis of the extent of such inequalities together with their causes and probable effects constitutes the major portion of the data presented. It will be shown that property of the farms with a small investment is assessed at a higher percentage of its true value than property on the farms with a larger investment. Real estate is assessed at a lower percentage of true value than working capital in the form of livestock or machinery. Other forms of farm property are subject to discriminatory assessment, the net effect of which is to handicap the farm with the small investment.

It will also be shown that for the farms considered, taxes are not levied in proportion to ability to pay as measured by farm or labor income. Farms with the lowest labor incomes are those on which property is assessed at the highest percentage of true value. Certain tax reforms now being introduced have the effect of reducing or eliminating in part the inequalities under discussion, and the operation of these reform movements will be described.

Limitations of the Investigation.

The conclusions arrived at in this investigation are subject to certain limitations. The source material used consists of farm management records in Ohio and Massachusetts. The statistics on farm valuation and taxes paid obtained by the investigators have been considered as correct in every case for purposes of the investigation, while actually they represent estimates of either the farmer or the investigator, or both. Accordingly, there is a limitation to the accuracy of the data used. However, the records for both states have been taken for at least two years, so that the estimates have been subjected to several checks, and corrected in so far as possible. The second limitation arises out of the size of sample used. In Massachusetts, 143 farms were used in 1920, and 147 farms in 1921. These farms were located in three towns in different parts of the state. In Ohio, 186 farms were used, which were widely scattered over the state, so that as a sample the Ohio data are probably more representative than those of Massachusetts.

The number of farms in each case is not large enough to warrant any but general conclusions. The third limitation arises from the fact that the conclusions drawn apply particularly to the sections in which the farms are located. Conditions vary from one section to another and the inequalities shown may not exist everywhere to the same extent. The results given are not subject to universal application.

II. Historical Sketch.

The study of farm taxation from the standpoint of the farmer is of recent development. Heretofore the subject has been considered mainly from the standpoint of the public official whose duty it has been to raise sufficient funds to carry on the functions of government. This viewpoint has developed a bias which has colored all attempts at investigation up until the past few years.

Previous writers have devoted almost their entire attention to considering taxation from the administrative side. Adam Smith, in his "Wealth of Nations" (1776)⁽¹⁾, laid down certain canons or maxims of taxation adapted particularly to a country in which wealth was principally in the form of agricultural property. Since that time, elaborate theories have been built up in which principles of justice and definite characteristics of desirable taxes have been established.⁽²⁾

It was not until about thirty years ago that complaints from farmers over burdensome taxes became of sufficient volume to attract attention.⁽⁷⁾⁽⁶⁾ The panic of 1893 caused distress throughout all industries and in the case of agriculture the tax situation

was in part the basis of the strong cooperative and political movement which arose among the farmers of the West. Several investigations into farm taxation were made at about this time.

In 1895, the Governor of Massachusetts appointed a special tax commission to investigate the tax situation within the state. In the report of this commission the situation of agriculture was analyzed and the principal inequalities mentioned were supported by statistical data.(12) This was one of the earliest attempts made actually to determine the effects of the existing tax system upon the farmer. A few years later New York also made similar investigations, but the results were not published. The United States Department of Agriculture, in 1897, published the results of a brief survey to determine the extent to which farm property was over-assessed, but the data were insufficient to serve as the basis for any but the most general conclusions.(11)

It is significant to note that all of these earlier attempts at investigation were to show wherein agricultural property was paying an undue proportion of taxes as compared with other classes of property. In 1901, however, the United States Industrial Commission laid emphasis upon inequalities within the industry. This Commission collected information relative to the taxation of farm property in different sections of the country, the different forms and amounts of such taxes, as well as the principal defects in the tax systems. In summing up the conclusions of the Commission relative to taxation and agriculture, the problem was defined as one of equitable distribution:

"The problem of the just distribution of the burden of taxation is (1) a question between different localities or taxing districts within a state or country and (2) a question between the individuals within each district."(15)

The emphasis upon the two classes of inequalities, regional and individual, is of special importance because it was the first expression of this aspect of farm taxation, a recognition of the fundamental basis for tax reform which is not admitted by many state tax authorities even today, twenty years later.

From this time forward there was an interest in farm taxation. The pioneers in the study were the state tax commissions. Wisconsin especially early recognized the importance of local tax differences and after twenty years has a very equitable system of taxing farm property. In 1908, the special tax commission of Ohio reported to the Governor the findings of the commission in regard to the evils of the tax system in existence at that time. With respect to farm property, particular stress was laid upon the problem of inequalities both as between owners of real and personal property, and as between owners of real estate. In New England in 1908, special tax commissions in Maine, New Hampshire and Vermont gave some attention to farm taxation, but the Massachusetts commission in the same year neglected the subject altogether.(19)(20)(21)

The situation of agriculture with respect to taxation was ably summed up by M. B. Hammond in 1908.(18) The problem of tax differences was emphasized and the inequalities existing at that

time were classified as to their importance. Three general classes were proposed as follows: (1) between farm property and other property; (2) between individuals in the same taxing district; (3) between different taxing districts in the same state. This article by Professor Hammond is the only valuable contribution to the literature field of farm taxation.

During the past ten years the National Tax Association has given some attention to farm taxation, but for the most part it has been in connection with the general property tax rather than particular farm problems. The tax commissions of the different states have also been active and legislation has been secured whereby machinery for the elimination of many inequalities has been set up. In general, these commissions have been most active in the northern and western states. The states on the east and south have done little to remedy the evils of farm taxation as they exist under the general property tax.

During the past two years the American Farm Bureau Federation has made some attempts to investigate the tax situation, but they have neglected the more important field of inequalities within the industry for a discussion of the tariff and other Federal taxes.⁽⁶⁰⁾ The United States Department of Agriculture has recently placed a tax specialist in the field to investigate actual conditions among farmers, thus recognizing the necessity for actual data.

Viewed historically, it may be said that the field of farm taxation has never received the attention which it deserves, and that even now the subject is in a very rudimentary stage of develop-

ment. Economists have failed to consider the peculiar problems of the farmer, and it has remained for the tax authorities themselves to undertake the task of bringing about an equitable distribution of taxes through investigation of existent inequalities. These investigations have failed in almost every case to determine the reasons for tax differences, the results being generalizations which, while valuable, are not sufficient basis for a long time program of tax reform. There is immediate necessity for extensive, scientific investigation in every state, for the problems of each are distinct. Tax differences vary from one section to another, and the consideration of inequalities as set forth in the present discussion is advanced as only one form which investigation should take. The problem of regional differences in particular deserves special consideration, due to the present tendency in production to find more and more distant markets for agricultural products.

III. The Present Tax Situation.

Before analyzing the present position of agriculture with respect to taxation, it is desirable to point out certain characteristics of our general tax system. In the United States, the larger portion of our taxes is levied under the general property tax.⁽¹⁰⁾⁽²⁷⁾ Under this system, a property owner pays taxes according to the fair cash value of his property. Theoretically, this tax is levied upon all kinds of property, real and personal, tangible and intangible. The justification of this form of tax is to be found in the theory that the fairest and most equitable basis of taxation is to collect

from each individual according to his ability to pay, and that ability is measured by the value of property owned. It is at this point that one of the inherent difficulties of the general property tax is found. Under present conditions, property does not measure ability to pay, and the fairest basis seems to be upon income.

The general property tax originated in England at a time when the wealth of the country was principally agricultural, and this system was brought over to this country by the early colonists. Under agricultural conditions the tax succeeded fairly well, because property values reflected ability to pay to a considerable extent. It is principally as a result of the attempt to use this form of tax under modern conditions that we have the particular tax problems of the farmer.

Taxes may be divided into three main classes, federal, state and local. The only direct federal tax paid by the farmer is the income tax, and during the past three years this has been a negligible factor with most farmers.⁽⁵⁷⁾ Other federal taxes affecting the farmer are indirect, such as the tariff, excise and consumption taxes, as on luxuries and amusements.

The state taxes borne by the farmer vary with the revenue systems of the states. The principal classes are the general property and the income tax. Most states still depend upon the general property levy for a large amount of their revenues, although the present movement is toward finding other sources of state revenues and leaving the property tax for local purposes. (29)(41) State income taxes form a very small part of the tax burden of the farmer

because the rate is low and only eleven states have this form of tax. (100)

Local taxes constitute the major portion of all the taxes which the farmer pays. These taxes may be divided into two groups, special assessments and the general property tax. Most taxes for local purposes are levied upon property, and special assessments are used only where property has received some special benefit from public expenditure, as in the case of roads or ditches. In this connection it might be mentioned that practice in regard to the special assessment varies widely from state to state, some roads and other public works being constructed entirely at public expense, in other cases half the cost is assessed to abutting property, while in a few states the entire cost is borne by the property owners. (64)

The Growth of Taxes.

The most noticeable feature of public expenditure during the past few years has been the enormous increase in amount for all units of government, from the local township to the national government. (64) Taking the federal expenditures as an illustration: In 1910 the total net expense of the government was \$639,000,000 of which \$615,000,000 was raised by taxation. (54) In 1920 the net expense was \$4,600,000,000 with over \$5,500,000,000 raised by taxation. The present national budget calls for around \$3,000,000,000 and it seems improbable that the amount to be raised by taxation can be reduced to any considerable extent. This increase is of course a result of the war, but regardless of the cause, it must be

paid, and an annual governmental cost of \$3,000,000,000 means that for every man, woman and child of the country approximately \$27 is spent. This is over 475% of the per capita tax revenue in 1910.⁽⁵³⁾ The farmer must contribute his share to this increase through higher prices on the things which he consumes.

State taxes also show an increase, although not in proportion to the federal increase. From 1915 to 1919 the total tax receipts of the states increased 45% and the tax revenue per capita increased from \$3.74 to \$5.06 or 35%.⁽⁵³⁾ From 1913 the total revenue of states increased from \$367,000,000 to \$675,000,000 or more than 180% of the earlier year. The per capita receipts for this period increased from \$3.80 to \$6.43.⁽⁵³⁾ In this connection it is important to note that the general property levies of the states increased 70% and the percentage of general property taxes to the total tax revenues first increased from 46.5% to 50% and dropped again to 45%.⁽⁵³⁾ The significant feature of this latter increase is that the burden on property is increasing in spite of the discovery of new sources of state revenues. In the agricultural states, most of the property is farm property and the figures given show that the proportional burden of taxes borne by real estate is increasing rather than decreasing, thereby discriminating against the farmer.

In twenty-one states, the increase in assessed valuation from 1912 to 1920 has been 66%, the increase in taxes levied has been 31%, and the increase in tax rate has been 39%.⁽⁵⁰⁾ If assess-

TABLE I

Total Wealth of the United States Compared with Value of Farm Property and Land, since 1860.

Year	Total ³		Farm Property ²		All Land ¹	
	Value (billions)	Wealth ² per Capita	Value (billions)	% of total	Value (billions)	% of total
1860	16,160	513	7,980	49.4	8,030	49.7
1870	30,069	779	8,945	29.7	11,580	38.5
1880	43,642	870	12,180	27.9	16,060	36.8
1890	65,037	1,035	16,082	24.6	22,845	35.1
1900	88,517	1,164	20,440	23.1	34,900	39.4
1910	165,000*	1,700*	40,991	24.8	66,848	40.5
1920	302,000*	2,689	77,924	25.8	113,642	37.6

* Estimate--Professor R. T. Ely.

1 V. I. King, Wealth and Income of the People of the United States.

2 United States Census, 1920.

3 United States Census of Wealth, Debt, and Taxation, 1913.

TABLE II

Assessed Valuation of Property Subject to Ad Valorem Taxation, Total and per Capita, 1850-1912.¹

Year	United States		New England		Massachusetts	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
1850	\$ 6,025	259	\$1,013	371	\$ 551	554
1860	12,084	384	1,606	512	777	631
1870*	11,406	295	2,174	623	1,274	873
1880	17,140	341	2,693	671	1,585	888
1890	25,473	407	3,569	759	2,154	962
1902	35,338	448	4,924	857	3,115	1,079
1912	69,453	715	7,541	1,098	4,803	1,353

* Value in gold.¹ United States Census. Wealth, Debt, and Taxation. 1912

TABLE III

Assessed Valuation of Real Property and Improvements Subject to Ad Valorem Taxation, Total and per Capita, 1850-1912.¹

Year	United States		New England		Massachusetts	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
1850	\$ 3,899	168	\$ 689	252	\$ 349	351
1860	6,973	221	963	307	475	386
1870*	7,972	206	1,231	352	720	494
1880	13,032	259	1,896	472	1,111	623
1890	18,957	303	2,593	551	1,600	714
1902	26,415	336	3,889	677	2,435	844
1912	51,854	534	5,310	733	3,216	906

* Value in gold.

¹ United States Census. Wealth, Debt, and Taxation. 1912.

TABLE IV

Total and per Capita Levies of Ad Valorem Taxes with
Average Tax Rate per \$100 of Assessed Valuation for the
United States, New England and Massachusetts, 1860 to 1912.¹

Year	United States			New England			Massachusetts		
	Total (millions)	Per Capita	Rate per \$100	Total (millions)	Per Capita	Rate per \$100	Total (millions)	Per Capita	Rate per \$100
1860	\$ 94,186	3.00	.78	\$ 13,564	4.33	.84	\$ 7,436	6.04	.96
1870*	226,185	5.87	1.98	34,647	9.94	1.59	19,938	13.68	1.57
1880	313,921	6.26	1.83	42,491	10.60	1.58	24,326	13.64	1.54
1890	471,365	7.53	1.85	52,505	11.17	1.47	31,503	14.07	1.46
1902	724,736	9.22	2.05	76,306	13.29	1.55	49,219	17.06	1.58
1912	1,349,641	13.91	1.94	127,232	18.53	1.69	82,565	23.27	1.72

¹ United States Census. Wealth, Debt, and Taxation. 1912.

1900

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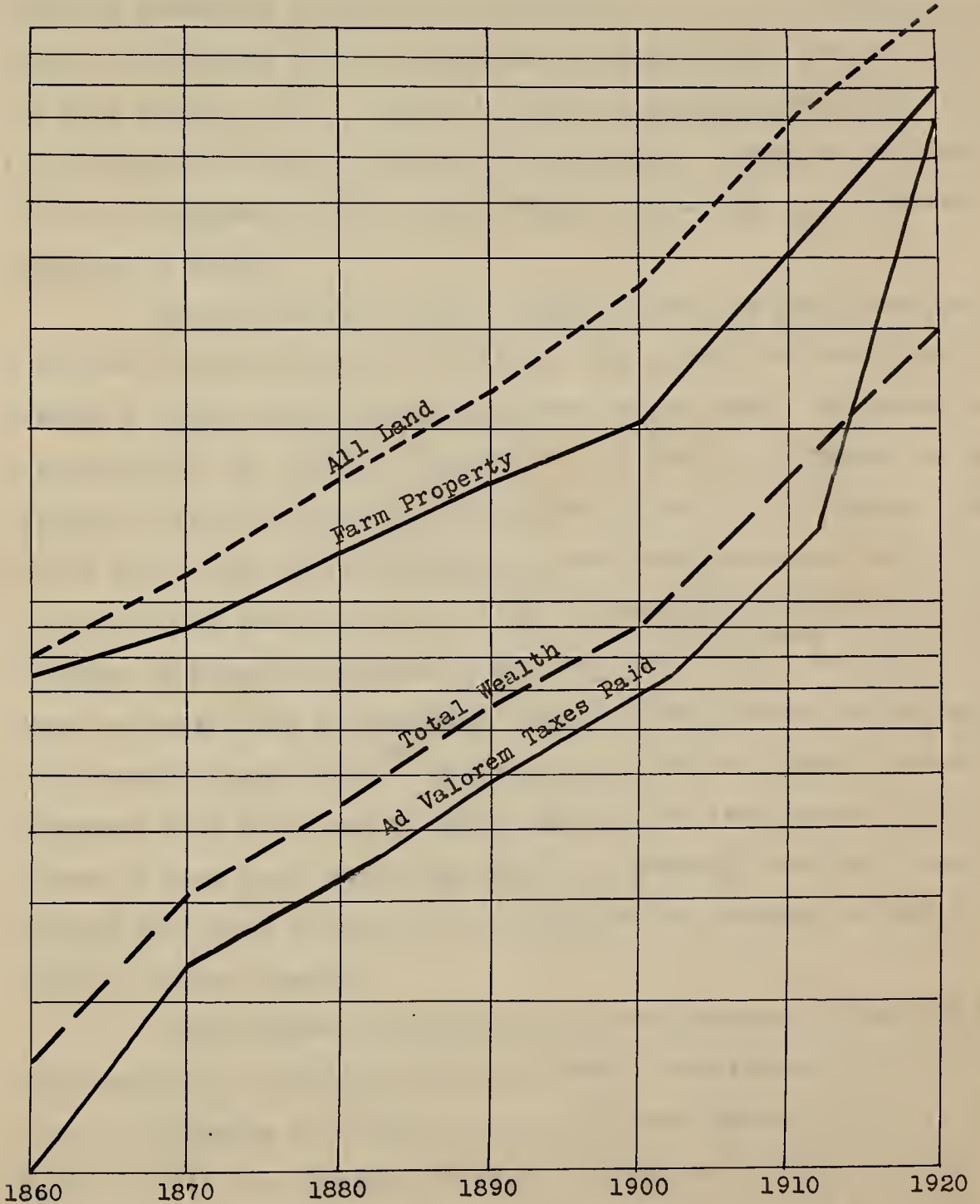
Chart I.

Explanation.

This chart is intended to show the trend or ratio of increase of each of the various items since 1860. It is not a measure of such increase since it is constructed on a logarithmic instead of an arithmetic scale. A uniform percentage of increase is indicated by a straight line. Until 1912, the ratio of increase in wealth, land, and taxes paid was about equal. Farm property values increased relatively less than other forms of wealth. Since 1912, taxes have increased relatively more than wealth, land, or farm property. Farm property values during this period have increased proportionately more than land values, and about the same as wealth.

CHART I

Graph Showing the Trend in Total Wealth, Ad Valorem Taxes, Farm Property and All Land Values in the United States, since 1860.



ments are a fair criterion of value, taxes are increasing much faster than property values. This fact is shown very definitely by comparing the increase in wealth with the increase in taxation. From 1912 to 1920 the estimated increase in the wealth of the United States is 80% while the increase in state taxes as mentioned above was 131 % for the same period. (50) Federal taxes increased approximately 800 % in this interval, and if the state and federal taxes are combined, the total increase is 500 % over 1912, or more than six times the increase in wealth.

County and other local expenditures have been mentioned as the chief tax burden which the farmer bears, and they have also increased a great deal more than property valuations. No statistics are available for all counties later than 1913 but figures for individual states may be taken as representative of the general increase. In New York local taxes including cities have increased from \$153,000,000 in 1910 to \$417,000,000 in 1921, an increase of 172 %, while the increase in property assessment has been only 57 %. In Ohio all local taxes increased 182 % from 1913 to 1921, county taxes increasing 190 % and township taxes 160 %. In the same period the taxable valuation increased only 60 % most of which was in city real estate. The increase in farm land values was only 17 % showing that taxes paid by farmers bear less relation to the increase in property values than taxes on urban property.

The tendency for taxes to out-run property valuations has developed most during the past ten years. Previous to 1912 the rates of increase for wealth, taxes, and real property were all about equal. (27) The general trend for taxes, land, farm property, and wealth since 1860 is shown on Chart I. The statistics from which the

curves were plotted are given in tables I and III. Using values in 1860 as a base, in 1912 wealth was 1160 %, ad valorem taxes 1430 %, and the assessed value of real property 1157 % of the base. A comparison of the percentage increases in wealth and assessed value of real property shows them to be almost identical up until 1912. Chart I shows that the increase in land values has also been proportional to increase in wealth. Since 1912 total wealth has increased faster than either land or real estate values, while the increase in taxes has been greatest of all. In 1920, land value was 1420 % of the value in 1860, while total wealth was 1870 %. In contrast to these increases, all farm property in 1920 was only 970 % of the 1860 value. (27)

Several general conclusions may be drawn in regard to the effect of the increase in taxes on the farmer. First, farm property has increased in value less than taxes which must be paid, with the result that taxes are becoming more of a burden. Furthermore, the increase in other property values has been more nearly equal to the increase in taxes than farm property, which may act as a handicap to agriculture. In the next place, the particular taxes which constitute the greater share of the farm burden, namely county and township levies, have increased more than other taxes with the exception of those of the federal government. The farmer also bears his proportional share of the latter increase through the goods which he consumes.

The actual extent of the rise in taxes is indicated by press data prepared recently by the United States Department of Agriculture. Farm taxes per acre of land in 1922 were 226 % of the

tax per acre levied in 1914 for the United States as a whole, The variations by states were from no increase in Arizona to 360 % of the 1914 figures in Arkansas. Actual taxes per acre varied from 7 to 96 cents in 1914, while in 1922 the lowest amount was still 7 cents, the highest \$2.22. For geographic regions, the North Central states have the highest average taxes per acre and the Southern states the lowest. New England ranks next to the Southern states in point of low taxes per acre due to the low value of farm property.

The general average per acre for a state is an unsatisfactory method of measuring the increase in taxes however. When the wide differences from one part of the state to another are taken into account such an average means little. Using Wisconsin as an illustration, in 1920 the average taxes per acre were \$1.15, an average annual increase of 19.5 % over the year 1914. (58) If the different sections of the state are considered, taxes per acre in 1921 averaged \$.714 for the 23 northern counties, \$1.14 for the 27 central and southwestern counties, and \$2.06 for the 21 central and southeastern counties. (50) The highest county average tax per acre was \$2.58, the lowest, \$.45. The increase in taxes since 1914 varies from 63 % to 145 % for the counties with the lowest and highest increases respectively, or expressed in slightly different fashion, the taxes per acre in 1921 are from 163 % to 245 % of the taxes in 1914. Land shows considerably less increase in value during the same period. (58)

In the same manner it may be shown that in other states the increase in taxes varies a great deal from county to county, and even from township to township. Any average for the state is usually too low rather than too high due to the fact that there are few counties

having exceptionally high rates, the extreme variations usually being lower than the general level rather than above it. If the average for the state is computed as an average of county averages it is apparent that several very low counties will affect the final result materially.

It may be said then, that the state averages as reported by the United States Department of Agriculture are indicative of general conditions only, and are not an accurate method of expressing the increased tax burdens of agriculture as an industry.

The Fall in Prices.

In addition to the general rise in taxes, the distress of a large part of the farm population has been accentuated by the fact that they have nothing with which to pay. Farm prices of products dropped more than prices for other commodities which the farmer buys thereby leaving the farmer less and at the same time rendering the industrial classes better able to pay their share of the taxes. Using the average prices from 1910-1914 as 100, the general price level reached the peak at 231 in 1920 and dropped to 150 in 1921 and 152 in 1922. Using the same base for farm prices, the peak in 1920 was 215 with a drop in 1921 to 120. In 1922 the index of farm prices rose four points to 124 but is still 28 points under the general price level. (71-a)

The bulk of farm production is food crops. The index number of retail food prices in 1922 was 146, or slightly under the general price level. (71-a) The farmer therefore receives proportionally less for his produce while the price to the ultimate consumer remains but little below the general price level. The fall in prices has therefore had a double effect on the farmer, the net result of which has been to leave him very little income out of which to pay his taxes assessed at the former level of prosperity.

In the matter of recovery from the depression of 1920, agriculture has failed to respond in proportion to general business conditions. Again using price indices with 1910-14 as a base, the general price level has been rising all thru 1922 and 1923. Beginning at 141 in January, 1922 the general price average reached 160 in February of 1923. (71-a) For the same period farm prices advanced from 116 to 136 and the retail prices of food remained stationary. It is evident that farm prices are lagging behind general prices to about the same extent as at the peak of the depression, which benefits the farmer's position not at all.

A study of farm incomes during the past twelve years proves conclusively that during the past two years the farmer has received less than for any other year during the period. In 1909 the average return per farm for management and labor was \$311. (57) This is of course exclusive of interest on his capital investment. During the next ten years the maximum point was reached in 1919 with an average of \$1456 per farmer. In 1920 the average dropped to \$465, or only about 34 % of the previous year. Part of this increase was due to inflation of course. If 1913 is used as a base the purchasing power of the farm labor income in 1909 was \$326, in 1919 \$833, and in 1920 only \$219. (57) It has been estimated that in 1921-22 the farmer paid in direct and indirect taxes about \$209 per farm or 45 % of his labor income for that year. (69) In 1913-14, the total tax paid per farm is estimated at \$88 or less than 20 % of the labor income for that year. (69)

We have been dealing, of course, with a temporary situation. Under normal conditions it has been shown that 18 % of the income from

farm land is taken in taxes, while incomes from other forms of property are taxed from 2 % - 3 % more than this figure. (50) But it should be noted that a level of taxation has been reached and reductions are difficult. In view of this fact it seems unlikely to expect that the taxes on the income from land will be reduced, and since the income has declined the only possible result is that a larger percentage must be taken.

In summing up the present position of the farmer it is well to emphasize again the points which entitle him to particular attention in discussing the tax situation. The enormous increase in taxes have brought increased burdens upon property which has not increased proportionately in value. The taxes bearing heaviest on farm property have increased more than those falling upon other classes thereby acting as a handicap to agriculture. Lastly, the economic situation is such that the farmer, of all classes, is least able to pay present taxes.

Part II.

Inequalities in Taxation.

The second question of importance in dealing with the taxation of farm property is that of existing inequalities. Such inequalities may exist between individuals, local taxing districts, states, or geographic divisions of the country. In any case they operate in such a way as to discriminate in favor of individuals, localities, or geographic sections. It is the purpose of the following discussion to point out the principal classes of such inequalities and by analysis to discover some of the underlying causes of their existence.

It has been pointed out that the majority of taxes paid by the agricultural industry levied are on the basis of the general property tax. As this tax is assessed at a uniform local rate upon the value of the property, the only way by which individual inequalities can arise lies in the determination of a fair value. There are two general methods of fixing the value of farm property at the present time. One is through the use of a local assessor who by looking over property attempts to fix a fair value, according to the best of his judgment. The other method consists in having each tax payer make a sworn statement of the value of his property, or self assessment. In some sections both methods are used, and some of the drawbacks and disadvantages inherent in our methods of assessment will be discussed later. By the use of either method inequalities creep in, and for the present purpose such differences between individuals in the same taxing district, under substantially similar conditions will be called individual inequalities.

A second class of inequalities arises out of variations in the cost of government or sources of revenue between different governmental units. Thus in New England with town governments, each town has a local tax rate and these vary widely from place to place. In the West the local taxing district may be the county, the school district, the township, or special district. Variations in rates exist between these local districts, between groups of these local districts, and between different states. Such differences may be called regional inequalities.

In addition to inequalities within the industry such as have been described there are also differences between farm property and other classes of property, or inequalities between the property of industries. In many states corporations organized within the state are not taxed, and frequently local taxing districts will grant corporations exemption from taxes for a certain length of time in order to attract capital. Other kinds of property may also be assessed in such a manner that inequalities exist with respect to farm property.

Professor M. B. Hammond was the first writer to use the present classification of inequalities affecting farm property.⁽¹⁸⁾ The writer arrived at the same classification before consulting Professor Hammonds conclusions, and entirely independently of them, but it is well to give him credit as the first student of farm taxation who distinctly recognized the three classes used.

Individual Inequalities in Taxation.

From the standpoint of the farmer, the fact that he pays more taxes than his neighbor is of much more importance to him than

the fact that his taxes may be double those of farmers in the next town, county, or other taxing district. Inequalities nearest him are those which he feels most.

It has just been shown above that inequalities in the same taxing district can arise only thru faults in assessment. The local tax rate is fixed, and two farmers with the same size of investment may have different taxes either because one is over-assessed, or under assessed. In assessing farm property, four general groups or classes of property may be distinguished upon which discriminatory assessments may be made. These are as follows:

1. Land together with improvements.
2. Buildings.
3. Livestock.
4. Machinery.

These four classes of property constitute over 95 % of the average farm investment and are almost the sole basis upon which taxes are levied. Many states exempt a certain amount of personal property including household furnishings. Feed is an indeterminate quantity for tax purposes since assessments are usually made in the spring, so that the real and personal property as classified above is practically all that goes into the assessment books.

Source of data used.

The general sources of materials used in this investigation were stated in the introduction, but for purposes of reference in the discussion as well as to show the distribution of the farms used, a detailed description of the records used is given here. The Massachusetts records were collected by the department of farm management in the Massachusetts Agricultural College. Most of the records

were obtained by members of the department, although a few students were also used in making the survey. In all cases the data were carefully edited and corrected before being placed upon the working sheets from which it was taken by the writer. The summary of the Massachusetts records is as follows:

<u>County</u>	<u>Town</u>	<u>Number of Records.</u>	
		<u>1920</u>	<u>1921</u>
Middlesex	Littleton	62	59
Middlesex	Boxborough	41	39
Berkshire	Sheffield	<u>40</u>	<u>49</u>
Totals		143	147

Throughout the discussion each group of farms will be designated by the town in which it is located and the year of the survey.

The Ohio records were collected by members of the department of rural economics at Ohio State University. Those used^{are} for the business year of 1921, although in many cases the records have been taken for the same farms for several years. Most of the farms from which records were obtained keep accurate accounts so that the data are reliable. Due to the fact that the surveys were made on the basis of certain types of farming rather than definite geographical areas, the farms cannot be classified in the same manner as those in Massachusetts. The principal groups are as follows:

<u>Name</u>	<u>No. of farms</u>	<u>General location</u>
Northwestern tractor survey	34	Putnam and Allen counties
Northeastern tractor survey	43	Northeastern dairy section
Medina county cost survey	18	Medina County, dairy section
Greene county cost survey	19	Greene county grain &
Scattered counties summary	<u>72</u>	stock section.
		Entire state.
Total	186	

Local tax rates in Ohio vary comparatively little from one part of the state to another, at least much less than the Massachusetts towns, so that the 186 farms for which records were obtained may be considered as a unit. This has the advantage of giving a larger sample with which to work, and the results may be taken as representative for the state in so far as general trends and conditions are indicated.

Method of using data.

In beginning the study of individual inequalities, nothing definite was known except that inequalities between farmers in the same section were rather prevalent. Investigations by the Massachusetts tax commission (12) and the Maine tax commission (19) some years ago showed that very frequently the percentage of assessed values to sale values on property in the same town varied a great deal from farm to farm. Data collected by the Ohio tax commission (22) showed the same results. Using these results as a starting point, the first step was to determine the actual extent of such differences. Data on the amount of taxes paid per farm as well as the amount of capital invested were taken from the farm management records. The capital investment of course is an estimate, but for all practical purposes it was considered to be the actual cash valuation of all farm property. In order to get a comparison between farms, the percentage of the entire investment paid in taxes was calculated and expressed as a tax rate of a certain number of cents per \$100 of actual value of investment. This derived rate is to be distinguished from the legal rate which is uniform for all farms within the taxing district. Throughout the discussion farms are compared on the basis of this derived rate. Differences in this rate are one method of

expressing the fact that certain farms are over or under-assessed. That is, the property of a farm having a high derived tax rate is assessed closer to its actual valuation than a farm with a low derived rate. For purposes of our discussion this derived rate will be referred to as a rate, and where the legal rate is used it will be so designated.

Massachusetts Inequalities.

Each group of farms was first classified according to rate groupings, the number of farms and amount of capital assessed in each rate class being calculated. The result for Massachusetts is shown in table V. It is apparent that wide differences in tax rates exist. The greatest variation occurs in the Town of Littleton where the lowest rate is \$.70 and the highest \$3.30 per \$100 of capital invested, or a difference of \$2.60. This means that the farmer with the highest rate pays proportionally four times the taxes of the farmer with the low rate. Furthermore, there seems to be no definite representative or modal class containing a large percentage of all farms and capital taxed. The percentage of distribution is comparatively regular for all classes from the \$1.20 - 1.29 group to the \$2.10 - \$2.19 group. If the assessment through the town were made in a consistent manner it would be expected that a large part of the capital would be assessed around some one rate class, or group of classes, and that the variations from this modal class would be comparatively small. Since nothing like this appears, the conclusion to be drawn is that assessments in this particular town are made in rather an unsystematic manner.

The farms of the Boxborough area show the least rate difference, the variations here being from \$.60 to \$1.50 per \$100 of

TABLE V

Distribution of Capital According to Rate of Assessment, 142 Massachusetts Farms, 1920.

Tax Rate cents per \$100	Town of Boxborough				Town of Littleton			
	No. Farms	Capital	% total	Cum. %	No. Farms	Capital	% total	Cum. %
60- 69	3	\$34,453	8.0	8.0				
70- 79	1	5,427	1.26	9.26	1	\$13,90	1.43	1.43
80- 89	3	46,868	10.85	20.11	1	31,426	3.26	4.69
90- 99	4	30,600	7.1	27.21	2	21,635	2.14	6.83
100-109	10	99,536	23.1	50.31	2	26,752	2.77	9.60
110-119	5	63,035	14.7	65.01	1	31,928	3.30	12.90
120-129	7	100,396	23.1	88.11	3	86,702	8.95	21.85
130-139	4	32,818	7.6	95.71	6	149,232	15.45	37.30
140-149	2	13,603	3.16	98.87	7	74,379	7.69	44.99
150-159					3	49,020	5.51	50.06
160-169					5	83,255	8.62	58.68
170-179					4	53,127	5.48	64.16
180-189					3	39,179	4.05	68.21
190-199					7	121,215	12.5	80.71
200-209					4	47,117	4.88	85.59
210-219					6	50,879	5.26	90.85
220-229					1	6,795	.70	91.55
230-239					1	17,839	1.84	93.39
250-259					2	23,125	2.39	95.78
260-269					1	16,200	1.68	97.46
320-329	2	5,259	1.2	100.0	2	22,197	2.30	99.76
Total	41	431,995			62	965,792		

TABLE V
(continued)

Tax Rate cents per \$100	Town of Sheffield				All Farms			
	No. Farms	Capital	% total	Cum. %	No. Farms	Capital	% total	Cum. %
40- 49	2	42,125	6.9	6.9	2	42,125	2.1	2.1
50- 59	2	21,834	3.6	10.5	2	21,834	1.1	3.2
60- 69	4	71,833	11.7	22.2	7	106,286	5.3	8.5
70- 79	9	154,456	25.2	47.4	11	173,673	8.6	17.1
80- 89	5	108,711	17.7	65.1	9	187,005	9.3	26.4
90- 99	6	89,039	14.5	79.6	12	141,274	7.0	33.4
100-109	3	45,721	7.4	87.0	15	172,009	8.5	41.9
110-119	2	20,234	3.3	90.3	8	115,197	5.7	47.6
120-129	3	25,686	4.2	94.5	13	212,784	10.6	58.2
130-139	2	14,313	2.3	96.8	12	196,363	9.8	68.0
140-149	2	19,582	3.2	100.0	11	107,564	5.3	73.3
150-159					3	49,020	2.4	75.7
160-169					5	83,255	4.1	79.8
170-179					4	53,127	2.6	82.4
180-189					3	39,179	2.0	84.4
190-199					7	121,215	6.0	90.4
200-209					4	47,117	2.4	92.8
210-219					6	50,879	2.5	95.3
220-229					1	6,795	.4	95.7
230-239					1	17,839	.9	96.6
250-259					2	23,125	1.2	97.8
260-269					1	16,200	.8	98.6
320-329					4	27,456	1.3	99.9
Total	40	613,534			143	2,011,321		

value. This may be explained in part by the fact that the sample is smaller and the chances for extreme variation are consequently less. There is a definite modal class here which may be determined upon inspection. It is found to be the \$1.10-1.19 class, which, although not the largest, nevertheless is most truly representative of the group. Over 50 % of the farms containing 60 % of the capital are assessed at a rate of from \$1.00-1.30 per \$100 valuation, and most of the variation occurs below these rates. The data show that assessments are made on a more systematic basis in Boxborough than in Littleton.

The Sheffield area shows less variation between individuals than the Littleton area, and slightly more than the Boxborough survey. Taken as a group, the rates are generally lower than for either of the other towns. The extreme variations are from \$.40-1.50 per \$100 valuation, the higher rate being more than 350 % of the lower one. There is a definite modal class from \$.70-.79, which contains 25 % of the capital assessed. As with the Boxborough area, over half of the farms and capital are assessed within the limits of three rate classes, from \$.70-.99, again showing greater uniformity of assessment than for the town of Littleton.

The column at the extreme right of the table gives the summary for the 143 farms here considered. If the farms are taken collectively we see that for these three towns variations of from \$.40-3.30 per \$100 valuation are found as the extremes, and that 25 % of the total valuation is assessed at least \$1.00 higher than property at lower rates. On an average valuation of \$14,000 per farm, 25 % of the farmers pay as much as \$140 more in taxes than some farmers within the group, or in other words, they lose one percent on their investment through inequalities which could, in large part, be

avoided. To consider the other extreme, one third of the farmers pay less than \$140 total tax while one fourth of them pay more than \$224, a difference of \$80, or .56 % on the average investment. Such inequalities cause heavy losses to farmers who can least afford them.

There are two limitations to the above conclusions which should be mentioned. In Massachusetts certain farm machinery is exempt from taxation, as well as livestock under one year of age. As the inventories of the farms considered were not available it was impossible to determine the actual exemptions for these two classes of property, and the tax rate was therefore computed on the entire capitalization. An examination of the records shows that farm machinery constitutes only about 5 % of the average farm investment, and as the more expensive types of implements are not exempt it is safe to assume that not more than one half the value of the machinery or $2\frac{1}{2}$ % of the total capital is exempt on this basis. Young livestock have little value and the exemptions are probably less than 10 % of the value of all live stock or 1.5% of the total capital investment. The estimated value of all exemptions, livestock and machinery, is about 4 % of the investment of the average farm. There is great variation in farm capitalization, some farms having as much as 20 % of their investment in machinery, so that any generalization as to actual percentage of error is impossible. In any case, it is so small that for the present purpose it may be counted as negligible. The only purpose in raising the point is to show that the data presented are indicative of general conditions rather than a measure of absolute accuracy, which is a natural limitation of all statistical data.

Ohio Inequalities.

Individual inequalities among Ohio farms were obtained by the same methods used in connection with the Massachusetts surveys. The rate groupings used in classification were doubled for the sake of convenience and also to obtain larger and more representative classes. The results are shown in tables XIII and XIV. The extreme rate variations are from \$.20-3.19 per \$100 capital invested altho, only three farms out of the entire number are assessed at rates over \$2.00 per \$100, and only four farms at a rate lower than \$.40 per \$100. If the extremes are omitted from consideration, the rate variations are from \$.40-1.99 per \$100, or less than the difference among the Massachusetts farmers. The rate class most truly representative of the group, or the modal class, is the \$.80-.99 class at which over one fifth of the farms containing nearly one fourth of the property are assessed. Over 55 % of the value of the entire property is assessed either in or below the modal class, although the variations in rates are greater above this class. Differences between individuals in the actual amount of taxes paid are larger in Ohio than in Massachusetts due to the larger size of farm. The average capital investment of the 186 farms used for this study is \$25,700, so that the farmer paying at a rate of \$.60 per \$100 has an actual cash payment of \$154 for taxes, while the farmer paying at a rate of \$1.50 per \$100 pays out \$385. This shows a difference of \$231, slightly less than 1% of the investment.

Since the fact of inequalities between individuals has been established and the extent of such inequalities is known, the next question is to determine whether such differences are peculiar to any particular class of farms or farm property. If assessment

within any taxing district is merely careless and inefficient, it seems that all classes of farm property ought to suffer equally and that this inequality would disappear as the number of farms used for a sample becomes larger. That is, a summary of a thousand farms would show no discriminatory assessments against any particular kind of property or farm because errors due to carelessness would compensate for each other in such a large sample. On the other hand, if assessments are habitually too low or too high for any one class of property, such an inequality at once appears in a fair sample.

Farm property is variable in its assessability; some kinds of property are comparatively easy to assess, while valuations of other property upon which there is no common opinion as to value must depend entirely upon the judgment of the assessor. Various other factors of a psychological nature enter into forming the assessors opinion of values and in the last analysis it may be said that without supervision assessment becomes purely a matter of personal judgment on the part of a single individual. The causes of local tax differences between individuals are to be found through the determination of what may be called habitual errors of judgment on the part of the assessor.

I. Inequalities Between Farms According to Capital Investment.

Variation in size of farm investment is the most obvious respect in which farms differ. Accordingly, the farms of the different survey areas were grouped by size of business as represented by the total investment. The size groups were arranged in ascending order and the amount of capital, the taxes paid, and the number of farms in each class determined.

Table VI indicates that tax rates vary in inverse proportion to the size of farm. The farmer with a small investment must pay a higher rate than the farmer with a larger business. In the Littleton area, the farms with an investment under \$10,000 pay an average tax of \$123 on an average investment of \$6,695, or a rate of \$1.83 per \$100 valuation. The rates drop with increase in investment until the farms having between \$30,000 - 40,000 pay only \$1.09 per \$100. If the five farms over \$30,000 are considered as a class, the average rate is \$1.35. Thus the farmer on the smallest farm pays as much as \$8.00 per thousand more in taxes than his neighbor with an investment four times as large.

The data from the Boxborough area bring out the same fact. Here the farms are 40 % smaller, but the differences between large and small farms are almost as great as in Littleton. The small farmer in this case pays \$4.00 more per thousand than his more wealthy neighbor.

In Ohio the small farm is also handicapped to about the same extent as in Massachusetts. Table VIII shows the total amount of capital as well as the different forms assessed on 186 farms by amount of investment. The tax rate for each class is given in the right hand column, and it will be noticed that as the amount of investment increases there is a definite decline in the rate. This fact is brought out in graphic fashion in chart IV. The line O X represents the line of equal distribution of taxes at a uniform rate. The line O Y shows the actual percentual distribution of taxes, the cumulative percentages of capital investment on the lower axis being in proportion to size of farm. The greatest variability from the line of equal distribution occurs in the lower percentages of capital investment where the farms are small, the widest point of difference being found where 45 % of the ^{total} capital on the small farms

TABLE VI

Frequency Table Showing Capital and Taxes Paid by Size of Farm Investment, 61 Farms, Littleton Area, 1920.

Size of Farm (\$000)	No. Farms	Capital	Tax	Average Capital per farm	Average Tax per farm	Rate (per \$100)
0- 9.9	21	\$140,606	\$ 2,597	\$ 6,695	\$ 123	1.83
10-19.9	24	343,517	6,127	14,313	255	1.78
20-29.9	11	277,798	4,360	25,254	396	1.56
30-39.9	3	93,834	1,021	31,278	307	1.09
40-49.9	1	47,270	935	47,270	935	1.97
50-59.9	1	50,674	675	50,674	675	1.33
Total	61	\$953,699	\$15,715	\$ 15,634	\$ 257	1.64

TABLE VII

Frequency Table Showing Capital and Taxes Paid by Size of Farm Investment, 40 Farms, Boxborough Area, 1920.

Size of Farm (\$000)	No. Farms	Capital	Tax	Average Capital per farm	Average Tax per farm	Rate (per \$100)
0- 4.9	7	\$ 25,530	\$ 439	\$ 3,647	\$ 62	1.66
5- 9.9	14	93,632	1,512	6,688	108	1.65
10-14.9	15	181,753	2,642	12,116	176	1.45
15-19.9	--	--	--	--	--	--
20-24.9	4	89,737	1,085	22,434	271	1.25
Total	40	\$390,652	\$ 5,678	\$ 9,766	\$ 142	1.45

TABLE VIII

Distribution of Farm Capital and
Taxes by Size of Farm Investment,
186 Ohio Farms, 1921.

Capital- ization (\$000)	No. Farms	Total Capital	Land	Real Estate
0- 4.9	1	\$ 4,487	\$ 1,700	\$ 3,200
5- 9.9	17	125,690	57,750	92,240
10- 14.9	29	348,016	173,254	266,339
15- 19.9	43	742,641	402,215	573,522
20- 24.9	24	535,539	324,693	426,423
25- 29.9	14	374,123	199,907	287,497
30- 34.9	11	344,799	213,065	278,465
35- 39.9	15	566,256	376,307	474,212
40- 44.9	10	421,358	295,315	347,090
45- 49.9	8	373,503	359,650	312,402
50- 54.9	6	317,435	217,250	258,550
55- 59.9	1	56,572	44,100	52,000
60- 64.9	1	61,251	45,150	55,650
65- 69.9	2	131,716	75,800	106,000
70- 74.9	1	70,071	50,000	60,750
75- 79.9	1	74,333	60,800	68,500
80- 84.9	1	81,344	60,500	63,650
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100-104.9	1	102,000	65,909	80,600
Total	186	\$4,731,134	\$2,923,365	\$3,807,090

TABLE VIII
(continued)

Capital- ization (\$000)	Working Capital	Live Stock	Machin- ery	Tax	Rate Per \$100
0- 4.9	\$ 1,287	\$ 480	\$ 425	\$ 78	\$ 1.74
5- 9.9	33,450	15,336	13,672	1,624	1.29
10- 14.9	81,677	41,903	21,502	4,503	1.29+
15- 19.9	169,119	86,090	43,805	8,260	1.11
20- 24.9	109,116	54,360	34,024	5,821	1.09
25- 29.9	86,626	52,270	27,078	4,542	1.21
30- 34.9	66,334	34,396	20,410	2,572	.745
35- 39.9	92,044	42,255	27,069	4,693	.830
40- 44.9	74,268	44,410	18,470	3,269	.788
45- 49.9	61,101	29,932	17,753	3,034	.813
50- 54.9	58,885	38,218	12,537	2,952	.93
55- 59.9	4,572	438	2,694	595	1.05
60- 64.9	5,601	4,300	874	650	1.06
65- 69.9	25,716	15,045	6,630	1,140	.865
70- 74.9	9,321	6,250	1,570	542	.774
75- 79.9	5,833	1,787	3,128	540	.458
80- 84.9	17,694	6,730	2,996	449	.512
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100-104.9	21,400	13,290	3,825	1,084	1.06
Total	\$924,044	\$487,490	\$258,462	\$46,128	\$.97498

TABLE IX

Distribution of Capital and Taxes by Percentages
According to Size of Farm Investment, 186 Ohio Farms, 1921.

Capital- ization (\$000)	No. of Farms				Total Capital		Land	
	No.	%	Cum. %	%	Cum. %	%	Cum. %	
0- 9.9	18	9.7	9.7	2.75	2.75	2.15	2.15	
10- 19.9	72	38.7	48.4	23.0	25.75	19.7	21.85	
20- 29.9	38	20.4	68.8	19.4	45.15	17.9	39.75	
30- 39.9	26	14.0	82.8	19.5	64.65	20.1	59.85	
40- 49.9	18	9.7	92.5	16.8	81.45	18.95	78.80	
50- 59.9	7	3.8	96.3	7.9	89.35	8.9	87.70	
60- 69.9	3	1.6	97.9	4.75	94.10	4.1	91.80	
70- 79.9	2	1.08	98.98	3.05	97.15	3.8	95.6	
80- 89.9	1	.5	99.48	1.72	98.87	2.07	97.67	
90- 99.9	0	--	99.48	--	98.87	--	97.67	
100-109.9	1	.5	99.98	2.16	100.03	2.25	99.92	

Capital- ization (\$000)	Real Estate		Working Capital		Tax Paid	
	%	Cum. %	%	Cum. %	%	Cum. %
0- 9.9	2.5	2.5	3.76	3.76	3.7	3.7
10- 19.9	22.0	24.5	27.2	30.96	27.7	31.4
20- 29.9	18.75	43.25	21.2	52.16	22.5	53.9
30- 39.9	19.75	63.0	17.16	69.32	15.75	69.65
40- 49.9	17.3	80.3	14.65	83.97	13.65	83.30
50- 59.9	8.15	88.45	6.88	90.85	7.8	91.10
60- 69.9	4.25	92.70	3.40	94.25	3.88	94.98
70- 79.9	3.40	96.10	1.64	95.89	1.91	96.89
80- 89.9	1.67	97.77	1.92	97.81	.97	97.86
90- 99.9	--	97.77	--	97.81	--	97.86
100-109.9	2.12	99.89	2.32	100.13	2.35	100.21

TABLE X

Average Distribution of Farm Investment and Taxes Paid, by Size of Farm, 186 Ohio Farms, 1921.

Size of Farm (\$000)	No. Farms	Average		Land		Real Estate	
		Total Capital (1)	% of (1)	% of (1)	% of (1)		
\$ 0- 4.9	1	4,487	37.9	1,700	37.9	3,200	71.4
5- 9.9	17	7,393	46.0	3,397	46.0	5,425	73.5
10- 14.9	29	12,000	49.8	5,974	49.8	9,154	76.5
15- 19.9	43	17,270	56.5	9,353	56.5	13,337	77.3
20- 24.9	24	22,314	60.5	13,528	60.5	17,767	79.8
25- 29.9	14	26,723	53.5	14,279	53.5	20,535	77.0
30- 34.9	11	31,345	62.0	19,369	62.0	25,315	80.7
35- 39.9	15	37,750	66.5	25,087	66.5	31,614	83.6
40- 44.9	10	42,135	70.0	29,531	70.0	34,709	82.5
45- 49.9	8	46,688	69.5	32,406	69.5	39,050	83.5
50- 54.9	6	52,905	68.5	36,208	68.5	43,091	81.4
55- 59.9	1	56,572	78.0	44,100	78.0	52,000	92.0
60- 64.9	1	61,251	73.4	45,150	73.4	55,650	90.6
65- 69.9	2	65,858	57.8	37,900	57.8	53,000	81.0
70- 74.9	1	70,071	71.5	50,000	71.5	60,750	86.7
75- 79.9	1	74,333	80.7	60,800	80.7	68,500	92.0
80- 84.9	1	81,344	74.5	60,500	74.5	63,650	78.3
100-104.9	1	102,000	64.5	65,909	64.5	80,600	79.0
Average	186	25,436	62.0	15,717	62.0	20,468	80.5

TABLE X
(continued)

Size of Farm (\$000)	Working Capital	% of (1)	Livestock	% of (1)	Machinery	% of (1)	Taxes	Tax Rate cents per \$100
\$ 0- 4.9	1,287	28.6	480	10.7	425	9.5	78	1.74
5- 9.9	1,967	26.5	902	12.2	804	10.9	95	1.29
10- 14.9	2,816	23.5	1,444	12.1	741	6.2	155	1.29
15- 19.9	3,933	22.7	2,002	11.6	1,018	5.9	192	1.11
20- 24.9	4,546	20.2	2,265	10.2	1,417	6.3	242	1.09
25- 29.9	6,187	23.0	3,733	13.9	2,003	7.2	324	1.21
30- 34.9	6,030	19.3	3,127	9.9	1,855	5.8	234	.745
35- 39.9	6,136	16.4	2,817	7.4	1,804	4.7	313	.83
40- 44.9	7,427	17.5	4,441	10.5	1,847	4.4	327	.788
45- 49.9	7,637	16.3	3,741	8.0	2,219	4.7	379	.813
50- 54.9	9,814	18.6	6,369	12.0	2,089	3.9	492	.93
55- 59.9	4,572	8.0	438	.8	2,694	4.8	595	1.05
60- 64.9	5,601	9.4	4,300	7.0	874	1.4	650	1.06
65- 69.9	12,858	19.0	7,522	11.4	3,315	5.0	570	.865
70- 74.9	9,321	13.3	6,250	8.9	1,570	2.2	542	.774
75- 79.9	5,833	7.8	1,787	2.4	3,128	4.2	540	.458
80- 84.9	17,694	21.7	6,730	8.3	2,996	3.7	449	.512
100-104.9	21,400	21.0	13,290	13.0	3,825	3.7	1,084	1.06
Average	4,967	19.5	2,620	10.3	1,389	5.5	248	.974

TABLE XI

Computation of Karl Pearson's Coefficient of Correlation for Size of Farm and Taxes Paid, 178 Ohio Farms, 1921.

Size of Farm (\$000)	Subject Deviation: from Average (x)	x ²	Tax Paid	Relative Deviation: from Average (y)	y ²	xy
\$ 4.4	- 21.0	441.	\$ 78	- 170	28,900	+ 3,570.0
7.4	- 18.0	324.	96	- 152	23,104	+ 2,736.0
12.0	- 13.4	179.5	155	- 93	8,649	+ 1,246.0
17.3	- 8.1	65.7	192	- 56	3,136	+ 454.0
22.3	- 3.1	9.6	242	- 6	36	+ 18.6
26.7	+ 1.3	1.7	324	+ 76	5,776	+ 98.8
31.3	+ 5.9	34.7	234	- 14	156	- 82.6
37.0	+ 11.6	134.5	313	+ 65	4,225	+ 754.0
42.1	+ 16.7	278.9	327	+ 79	6,241	+ 116.9
46.7	+ 21.3	453.7	379	+ 131	17,161	+ 2,790.0
52.9	+ 27.5	756.2	492	+ 244	59,536	+ 6,710.0
Av. = 25.4	$\sum x^2 = 26,795$		Av. = 248	$\sum y^2 = 156,920$		$\sum (xy) = 19,546$

Let r = coefficient of correlation. n = number of items.

$$r = \frac{\sum xy}{n \sqrt{\frac{\sum x^2}{n}} \sqrt{\frac{\sum y^2}{n}}} = \frac{19,546}{11 \sqrt{\frac{26,795}{11}} \sqrt{\frac{156,920}{11}}} = \frac{19,546}{11 \times 243 \times 119.4} = \frac{19,546}{20,489} = .954$$

$$\text{Probable error} = \frac{.67(1 - r^2)}{n} = \frac{.67(1 - .954^2)}{11} = \frac{.67 \times .0898}{3.32} =$$

$$\pm .0181 \quad .954 \pm .0181 = .972 \text{ or } .9359 \text{ as maximum and minimum correlation}$$

pays 54 % of the taxes. The data from which this diagram was made are to be found in table IX.

Inequalities between large and small farms are still further shown by the frequency curves in chart III. These curves are plotted from the percentages given in table IX and show the percent of total capital investment, taxes paid, and value of land by size of farm group. If all farms were assessed at a uniform tax rate, any given percentage of farm capital should pay an equal percentage of the total farm taxes. But a study of the curves (chart III) for taxes paid and capital investment shows that the tax curve rises faster among the lower classes and begins to fall sooner than the capital curve, indicating that the small farms with a low percentage of the total capital pay a higher percentage of the total taxes.

The regularity of the frequency curve indicates that the decline in rate with increasing investment is fairly uniform. In order to prove this conclusively the coefficient of correlation for variables as worked out by Karl Pearson may be used. If the reduction in rate is uniform or approximately so, the coefficient of correlation will approach 1.00. In determining this coefficient the averages from table X were used with results as shown in table XI. Only the first eleven classes were used because they represent averages. The last few classes of the table are composed of individual items which may or may not be fairly representative of their class. To avoid error, they were omitted. The coefficient as determined is .954 with a probable error of .0181 giving a possible coefficient of .9359-.972. Such a high degree of correlation proves conclusively that rate of taxation on farm property declines uniformly

in proportion to the increase in size of farm investment. This works to the obvious disadvantage of the small farmer, who by virtue of his limited means can at best hope for a relatively small farm income, out of which he must pay proportionally higher taxes than his neighbor.

There are two possible explanations of the phenomenon of inverse correlation between tax rate and size of farm investment. The first of these is psychological. The local assessor seems to hesitate in assessing property at a value which will cause the tax payment to be too large and general under-assessment of large farms is the result. This is particularly true if the assessor happens to be a farmer of moderate means himself. On the average farm, the assessment is probably fair, but assessments of large farms are based more upon what the assessor thinks the tax should be than the fair cash value of the property. It also seems likely that the very poor farmer is assessed at less than the fair cash value of his property, but as no such farms were included in the surveys considered here, the statement cannot be supported by statistical evidence. This represents the opinion of several tax experts who are in a position to know something of the matter. The tax commissioner of New York in 1900 testified before the United States Industrial Commission to the effect that the only farms in New York which were assessed at fair values were the average farms. Both the large and the small farms were under-assessed. This same tendency has been discovered by other tax commissions, especially in the South.⁽⁷⁸⁾

Occasionally the discrimination in favor of the large farmer is intentional. This has been true in certain Massachusetts towns which have a reputation for favoritism towards taxpayers bringing in large amounts of new capital. ⁽³⁷⁾ Wealthy men especially,

who buy farms and invest heavily in equipment in order to create 'show places', have been under assessed. The public of the particular towns agree to the practice because it results in lower taxes for themselves. Such cases are exceptional of course but they serve to illustrate the general tendency to grant partial tax exemption through lower assessments to farms with large investments.

Another possible explanation of the practice lies in the fact that large investments furnish greater possibility of error in assessment. Large farms have greater variety of equipment, so that there is more opportunity to miss property than on the small farm. The land on a large farm is more difficult to assess due to greater variability in productiveness, hence in value. In a community of small farmers the assessor is fairly familiar with the farms and property of his neighbors. Any accession of equipment, livestock, or general improvements is known and may be taken into account at the time of assessment. But where the farms are large, or where the volume of business is comparatively large, per farm, there is a much greater possibility of error creeping in.

The probabilities of the matter are that both error and psychological bias play an important part in under-assessment. Both are purely individual matters with an assessor; they cannot be measured except by their results in under-assessment. Assessors should apply the knowledge of these limitations on their accuracy if judgment in order that improvement in justice of assessment might result.

Aside from these two factors there is a third which is of varying importance depending upon conditions. Farms show considerable variation in the makeup of the total investment, some having several special forms of capital, and the development of

this specialization is greatest in the larger farms. The importance of special forms of capital as a factor in influencing rate differences between large and small farms will be discussed under the next topic of property inequalities.

II. Tax Inequalities between Forms of Farm Property.

Under the discussion of individual differences mention was made of the fact that certain classes of farm property are more difficult to assess than others. In a taxing district the land may be of a uniform quality, with a fairly standard value per acre throughout the area covered by an assessor. In such cases it is comparatively easy to arrive at a fair value, but more often the uses to which land is put vary greatly within a small area. This is particularly true under New England conditions where within a given square mile there is almost certain to be waste land, timber land, ordinary farm land suitable for arable purposes, pasture land, and highly specialized land such as orchard or garden sites. Under these conditions it is easily possible for the assessor to habitually under-value land of a certain class. It is entirely unintentional on the part of the official, but as long as he has no definite standard of value such discrepancies will occur. It is of course not limited to the illustration of land. Buildings are subject to the same process as well as livestock, machinery, and other forms of farm property. The purpose here is to point out the classes of property actually subject to discriminatory assessment and show the extent of such inequality.

1. Real Estate.

The larger portion of the farmer's investment is in the

form of land and buildings considered together as real estate. Out of the total investment of \$4,700,000 for the 186 Ohio farms of our study, \$2,900,000 represents the value of land and \$3,800,000 the value of real estate, or expressed in percentages, 62 % in land and 80 % in real estate. The distribution of the different classes of capital on these farms according to size of investment is shown by table VIII and the percentage distribution in table IX. In addition, table X shows the percentage of the different forms of capital in each size group such as land, real estate etc. The latter table shows that as size of farm increases, the percentage of investment in real estate also increases. This is in line with what might be expected because on the small farm a certain minimum amount of equipment is required for operation, and the percentage of operating or working capital to the total grows proportionally less as the size of farm increases. This necessitates^a higher percentage of real estate. While this increase is not striking it is sufficient to show the general trend. The same trend is shown in table IX by comparing the cumulative percentage columns for real estate and working capital. On the smaller farms the percentage of total real estate contained is slightly below the percentage of all capital in the same size of farm and considerably below the percentage of all working capital in the class. Using the class of farm with an investment of 20-29.9 as an illustration, the percentage of total capital up to and including this class is 45 %, the percentage of total real estate is 43 % and the percentage of total working capital is 52 %. This indicates that the smaller farms have a lower percentage of their capital in real estate than the larger ones.

From this fact we may draw our first general conclusion in

regard to the taxation of real estate. It has previously been shown that as the size of farm increases, the rate of taxation decreases proportionately. Now since this increase in size is accompanied by a corresponding increase in the proportion of the total capital in real estate, it follows that real estate is assessed at a lower rate than other farm property. In other words, farms with a high percentage of investment in real estate are under-assessed more than other farms. As a further proof of the general contention, table XII shows the amounts of capital assessed at different tax rates on farms having a high and low percentage of total investment in real estate for 62 farms in the Littleton area, 1920. A comparison of the cumulative percentage columns shows that in the case of the farms having over 75 % of real estate, a much larger percentage of the total capital is assessed at low rates than in the case of the farms under 75 %. For instance at the rate class of 1.50-1.59 only 39.6 % of the capital of the farms under 75 % of real estate has been reached, while in the other case the percentage is 59.3 %, a difference of nearly 20 %. This fact is presented graphically in chart II. The curves are cumulative percentage curves based upon the data in table XII. The dotted or broken curve representing the farms with more than 75 % real estate rises much more rapidly than the solid curve for the farms under that percentage. The difference between the two curves at any vertical line is the measure of the cumulative inequality up to that point.

In order to obtain a more accurate measure of the inequalities in real estate taxation in Ohio, the farms were separated into two groups similar to the Littleton area just described. In this case 80 % of real estate was used as the dividing line and all

TABLE XII

A Comparison of Rate of Assessment with Percentage of Investment in Real Estate, 62 Farms, Littleton, Massachusetts, 1920.

1. Farms Having under 75% of Investment in Real Estate.

Tax Rate cents per \$100	Capital Taxed	No. Farms	% total	cum. %
90-109	\$ 28,586	3	6.4	6.4
110-129	26,310	1	5.86	12.26
130-149	110,308	5	24.6	36.86
150-169	59,151	4	13.17	50.03
170-189	41,947	4	9.35	59.38
190-209	120,041	8	26.76	86.14
210-229	26,807	4	6.02	92.16
230-249	---	--	---	92.16
250-269	18,450	1	4.10	96.26
310-329	15,919	1	3.57	99.83
Total	\$ 447,519	31		

2. Farms Having over 75% of Investment in Real Estate.

Tax Rate cents per \$100	Capital Taxed	No. Farms	% total	cum. %
70- 89	\$ 45,216	2	8.72	8.72
90-109	19,801	1	3.82	12.5
110-129	92,320	3	17.82	30.32
130-149	113,303	8	21.86	52.18
150-169	73,124	4	14.11	66.29
170-189	50,358	3	9.70	75.99
190-209	48,291	3	9.32	85.31
210-229	30,867	3	5.96	91.27
230-249	17,839	1	3.43	94.70
250-269	20,875	2	4.04	98.74
310-329	6,278	1	1.21	99.95
Total	\$ 518,273	31		

TABLE XIII

Distribution of Capital Investment by Rate of Taxation on Farms Having More Than 80% Investment in Real Estate, 94 Ohio Farms, 1921.

Tax Rate : cents per: \$100	No.:	Total Capital	Real Estate	Working: Capital	Live- Stock	Machin- ery	Taxes
20- 39	3:	\$ 93,102:	77,330:	15,772:	8,863:	2,636:	275
40- 59	12:	414,585:	367,925:	46,660:	20,963:	18,257:	2,085
60- 79	14:	498,135:	426,552:	71,583:	41,943:	20,482:	3,461
80- 99	23:	666,608:	563,162:	103,446:	57,115:	32,190:	5,898
100-119	22:	628,275:	546,269:	82,006:	34,191:	26,792:	6,639
120-139	7:	140,097:	116,555:	23,542:	10,753:	8,389:	1,836
140-159	8:	154,991:	131,230:	23,761:	8,616:	8,302:	2,251
160-179	3:	50,493:	42,650:	7,843:	3,875:	2,245:	858
180-199	1:	12,453:	10,000:	2,453:	1,150:	501:	232
200-219	1:	9,045:	7,500:	1,545:	535:	800:	186
Total	94:	2,667,784:	2,289,173:	378,611:	188,004:	120,594:	23,721

TABLE XIV

Distribution of Capital Investment by Rate of Taxation
on Farms Having Less Than 80% of Investment
in Real Estate, 92 Ohio Farms, 1921.

Tax Rate cents per \$100	No.:	Total Capital	Real Estate	Working Capital	Live- Stock	Machin- ery	Taxes
20- 39	1:	\$ 17,413:	11,375:	6,038:	4,250:	1,100:	40
40- 59	4:	178,522:	137,990:	40,532:	20,973:	8,726:	1,000
60- 79	13:	388,625:	283,107:	105,518:	55,613:	26,209:	2,823
80- 99	16:	394,954:	297,545:	97,409:	57,524:	19,178:	3,521
100-119	17:	392,051:	294,890:	97,161:	47,489:	28,647:	4,208
120-139	13:	241,417:	176,870:	64,547:	34,688:	17,873:	3,166
140-159	13:	232,694:	165,165:	67,529:	38,919:	15,628:	3,494
160-179	8:	137,030:	99,400:	37,630:	20,787:	8,878:	2,317
180-199	5:	67,744:	47,719:	20,025:	11,564:	5,277:	1,274
200-219	--:	--:	--:	--:	--:	--:	--
220-239	1:	15,278:	10,685:	4,633:	1,964:	1,115:	353
300-319	1:	12,122:	7,700:	4,422:	2,173:	1,822:	366
Total	92:	2,077,850:	1,532,446:	545,404:	295,944:	134,453:	22,562

TABLE XV

Percentage Distribution of Capital Investment by Rate of Taxation on Farms Having more than 80% of Investment in Real Estate, 94 Ohio Farms, 1921.

Tax Rate: cents per \$100	Total		Real Estate		Working Capital		Livestock		Machinery		Taxes	
	Cumu- lative %	%	Cumu- lative %	%	Cumu- lative %	%	Cumu- lative %	%	Cumu- lative %	%	Cumu- lative %	%
20- 39	3.48	3.48	3.38	4.2	4.2	4.72	4.72	2.18	2.18	1.16	1.16	1.16
40- 59	15.50	18.98	16.05	12.4	16.6	11.12	15.84	15.14	17.32	8.8	9.96	9.96
60- 79	18.70	37.68	18.60	18.9	35.5	22.30	38.14	17.00	34.32	14.6	24.56	24.56
80- 99	24.95	62.63	24.60	27.3	62.8	30.40	68.54	26.70	61.02	24.88	49.44	49.44
100-119	23.50	86.13	23.82	21.7	84.5	18.20	86.74	22.20	83.22	28.00	77.44	77.44
120-139	5.25	91.38	5.09	6.2	90.7	5.73	92.47	6.95	90.17	7.6	85.04	85.04
140-159	5.81	97.19	5.72	6.3	97.0	4.57	97.04	6.88	97.05	9.5	94.54	94.54
160-179	1.88	99.07	1.86	2.1	99.1	2.04	99.08	1.86	98.91	3.52	98.06	98.06
180-199	.47	99.54	.44	.6	99.7	.61	99.69	.41	99.32	.98	99.04	99.04
200-219	.34	99.88	.33	.4	100.1	.28	99.97	.66	99.98	.78	99.82	99.82

TABLE XVI

Percentage Distribution of Capital Investment by Rate of Taxation on Farms having less than 80% of Investment in Real Estate, 92 Ohio Farms, 1921.

Tax Rate cents per \$100	Total		Real Estate		Working Capital		Livestock		Machinery		Taxes	
	%	Cumu- lative %	%	Cumu- lative %	%	Cumu- lative %	%	Cumu- lative %	%	Cumu- lative %	%	Cumu- lative %
20-39	.84	.84	.74	.74	1.1	1.1	1.44	1.44	.82	.82	.18	.18
40-59	8.60	9.44	9.0	9.74	7.4	8.5	7.1	8.54	6.48	7.30	4.44	4.62
60-79	18.75	28.19	18.45	28.19	19.4	27.9	18.8	27.34	19.47	26.77	12.53	17.15
80-99	19.05	47.24	19.4	47.59	17.8	45.7	19.5	46.84	14.25	41.02	15.64	32.79
100-119	18.9	66.14	19.25	66.84	17.8	63.5	16.1	62.94	21.44	62.46	18.70	51.49
120-139	11.63	77.77	11.52	78.36	11.8	75.3	11.74	74.68	13.28	75.74	14.05	65.54
140-159	11.22	88.99	10.78	89.14	12.4	87.7	13.16	87.84	11.63	87.37	15.50	81.04
160-179	6.60	95.59	6.49	95.63	6.9	94.6	7.2	95.04	6.60	93.97	10.30	91.34
180-199	3.27	98.86	3.12	98.75	3.7	98.3	3.9	98.94	3.92	97.89	5.65	96.99
220-239	.73	99.59	.70	99.45	.8	99.1	.66	99.60	.83	98.72	1.57	98.56
300-319	.58	100.17	.50	99.95	.8	99.9	.74	100.34	1.35	100.07	1.63	100.19

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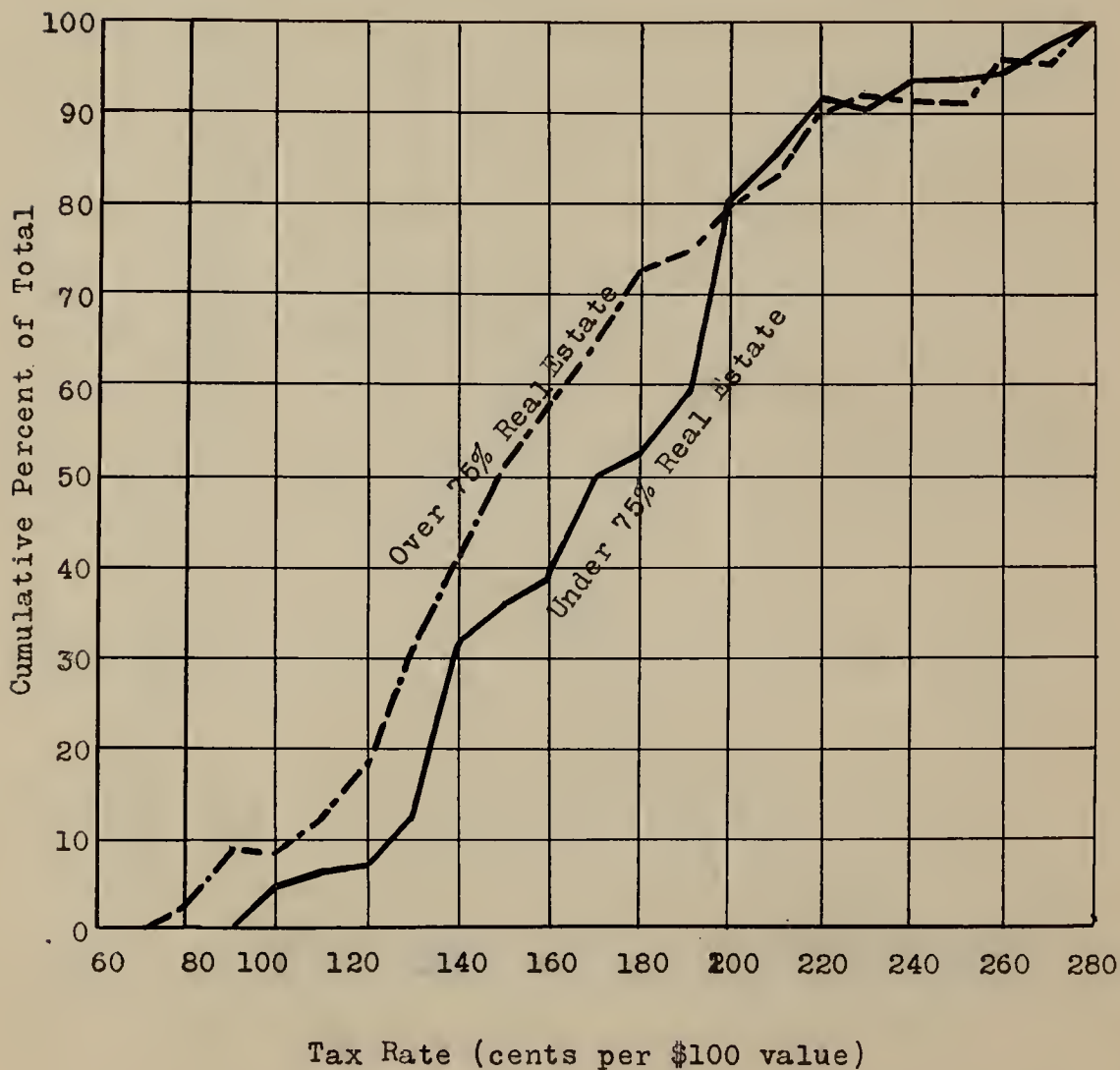
Chart II.

Explanation.

This chart shows that farms having a large percentage of their capital investment in real estate are assessed at a lower percentage of their true value than farms with a low percentage of real estate. The extent to which one farm is assessed higher than another is indicated by the derived rates on the horizontal scale which represent the taxes paid in cents per \$100 of actual value of the property. The vertical scale represents the cumulative percentages of total capital in each group of farms. More of the property of the farms having a high percentage of real estate is assessed at low rates than of the farms with a low percentage. This indicates that real estate is assessed at a lower percentage of true value than other farm property. The vertical distance between the two curves at any point measures the extent of such difference.

CHART II

Frequency Curve Showing the Cumulative Percentages of Capital Assessed at Different Tax Rates on Farms Having Over and Under 75% of Capital Investment in Real Estate, 62 Farms, Littleton, Massachusetts, 1920.



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Chart III.

Explanation.

The principal fact brought out by this chart is that the farms with small investments pay more than their proportionate share of taxes. The size of farm investment is measured on the horizontal scale, while the vertical scale is used to measure the percentage of the total amounts of taxes, land, or capital in each size group. The small farms pay a greater percentage of total taxes than their proportional share of capital warrants. The tax curve is above the curves for capital and land for all sizes of farms up to \$30,000. Above this point, the farms have a greater percentage of total capital than they pay of total taxes. The small farms also have less than their proportionate share of land, showing that other forms of farm property are assessed at a higher percentage of true value than land, since taxes are higher.

The curves of capital and land are more regular than the curves for taxes, showing that the distribution of land and capital between different size groups is more uniform than the distribution of taxes.

CHART III

Frequency Curve Showing the Percentage Distribution of Total Capital, Land Values and Taxes Paid According to Size of Farm Investment, 186 Ohio Farms, 1921.

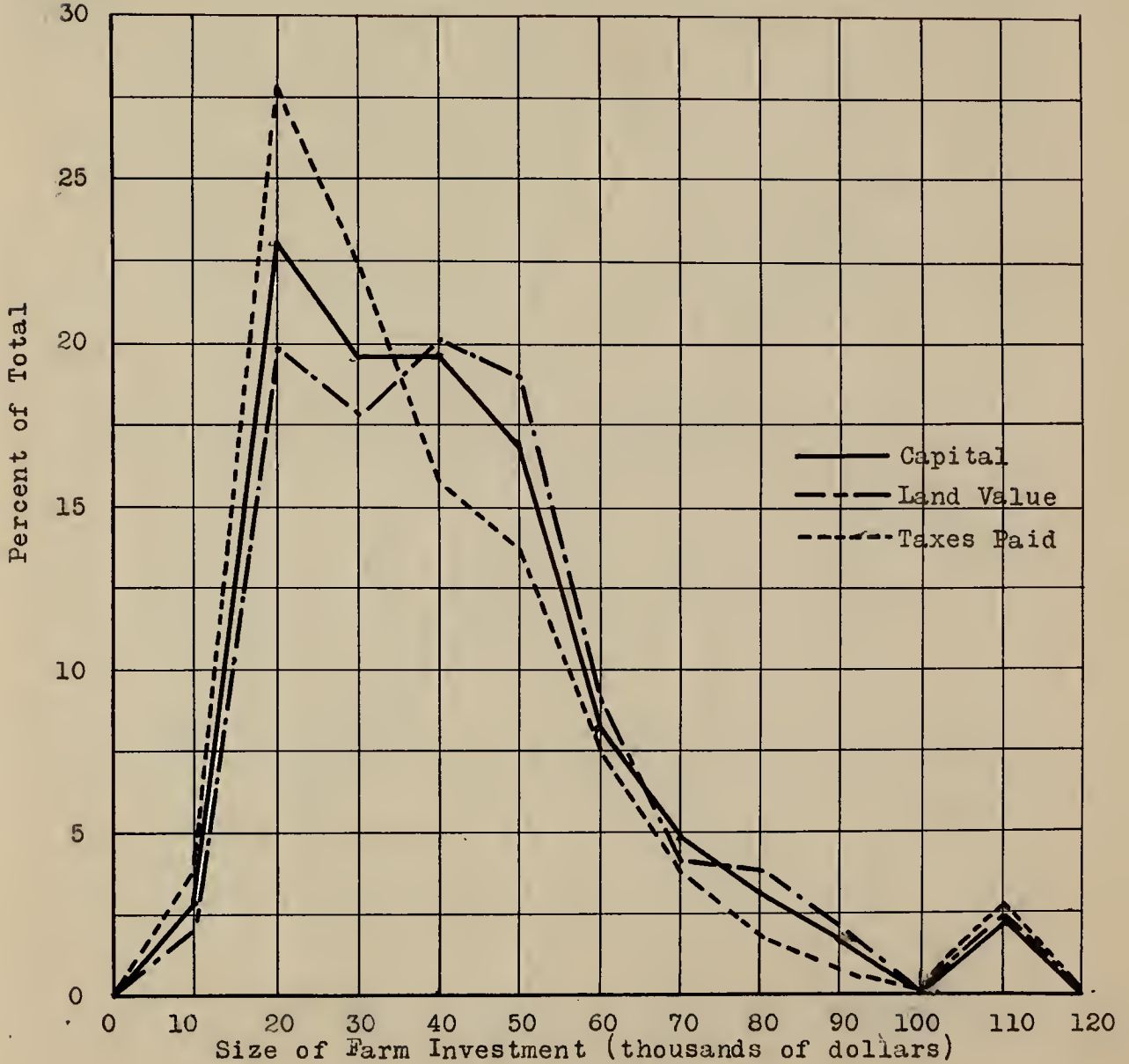


Chart IV.

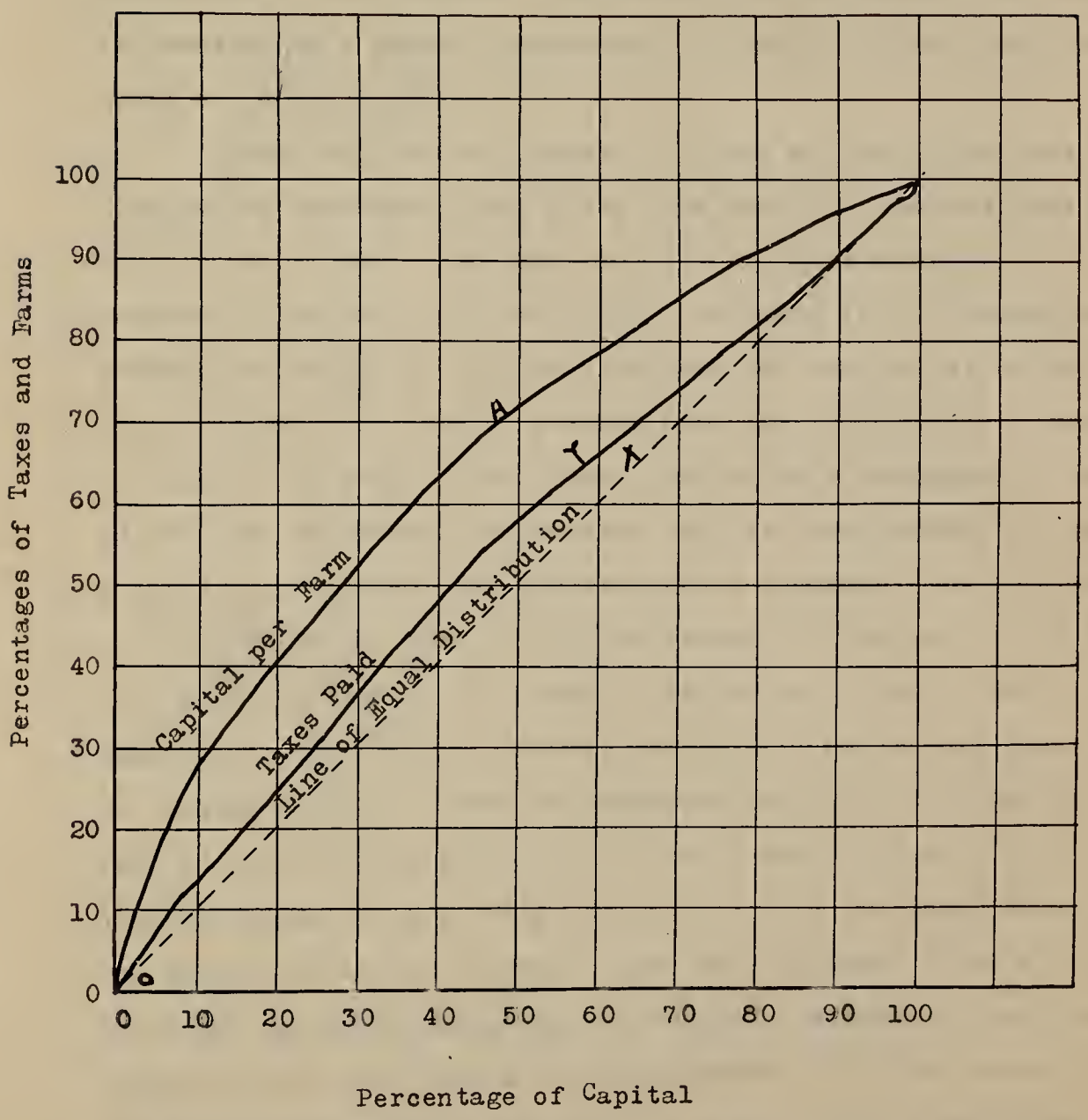
Explanation.

This chart is a modified form of the Lorenz curve^{used} in showing the distribution of wealth. In this case the distribution of total taxes paid according to the percentage of capital paying them is shown by the line OY. The line OX is the line of equal distribution where all property pays a proportionate share of taxes. If all property were assessed at the same percentage of true value, any given percentage of the total property value should pay a proportional percentage of the total taxes. The difference between such equal distribution and actual distribution of the tax burden is shown by the variations of the line OY from OX. The cumulative percentages of total capital increase from left to right according to size of farm investment, beginning with the small farms. The line OY rises faster than OX in the lower percentages where the farms are small, showing that the capital of the small farms pays proportionately more taxes than the capital of the larger farms.

The line OA represents the distribution of capital according to the number of farms. If all farms had an equal investment, the line OX would represent the line of distribution. The rapid rise of OA above OX indicates that a large percentage of the total number of farms have a much lower percentage of total capital.

CHART IV

Graph Showing the Variation in Taxes Paid and Capital per Farm, from the Line of Equal Distribution.
186 Ohio Farms, 1921



Cumulative Percentages According to Size of Farm Investment

farms having more than 80 % of total investment in real estate were placed in one group and those farms having under 80 % were placed in another group as shown in tables XIII and XIV. The percentages for these tables are shown separately in tables XV and XVI. Again it is apparent that the farms with a high percentage of real estate are generally taxed at a lower rate than those farms with a low percentage of real estate. This means that in general real estate is assessed at a lesser percentage of it's true value than other forms of farm property.

Farm real estate consists of lands and buildings; discriminatory assessments may arise from over-or under-assessment of either one or both. The data show that land is assessed at a somewhat lower rate than buildings. In table IX the cumulative percentage column for land is less than for real estate on any size of farm, but it will be noted that the discrepancy is greatest in case of the small farms, where the tax rate is highest. The differences in percentages between land and real estate for any size of farm measures the percentages of investment in buildings for that class of farm. A high percentage of capital in buildings is a characteristic of the small farm (tables IX and X) and it is a question to what extent the high tax rate is due to buildings and to working capital. From the assessors point of view, the farm real estate is often assessed as a unit, that is the value of a farm is spoken of as so many dollars per acre including buildings. The separation of the values of land and buildings is more or less arbitrary and as buildings are more easily assessible than land it seems probable that they are over-assessed, but this is made up in the under-assessment of the land. A study of the farms which have a large percentage of their investment in buildings show that the

average rate for such farms is higher than the general average. We may therefore conclude that of all farm property, real estate is assessed at the lowest rate and that in general land is assessed lower than buildings.

2. Working Capital.

If we consider working capital as all farm property other than real estate, any discriminatory assessments in favor of real estate must be reflected in proportionally higher assessments of working capital. Table X shows that as the size of farm increases the percentage of working capital to total investment drops proportionately. On the farms with an investment of less than \$10,000 the average percent of total investment in working capital is about 27%, while the farms with an investment between \$40,000 and \$50,000 average only 17 % working capital. The tax rates on these same classes of farms run \$1.29 for the lower group and about \$.80 for the larger investment. If the percentage column under working capital is compared with the column showing tax rates on the right, it will be noticed that the correlation is direct. The decrease in tax rate is with some variation proportional to the decrease of percentage of investment in working capital up to farms of over \$50,000 investment. The farms with a larger investment are single items and naturally show considerable variation, but where the classes are large enough to give an average the correlation is close.

This relation between working capital and high tax rates is brought out in another way in table IX. The classes of the size of farm investment are double those of the preceding table so that there is less variation between classes. By comparing the cumulative percentage columns of working capital and taxes paid, the close

connection between the two is evident. Practically the same percentage of working capital and taxes are found for all sizes of farm, the maximum variation between the two columns for any one class being 1 %; the largest percentages of both taxes and working capital occur with the smaller farms. Using the class of farms having from \$10,000-19,900 investment, 39 % of the farms containing 23 % of the total capital, 22 % of the real estate, and 27 % of the working capital pay 28 % of the taxes. If we read the cumulative column 48 % of the farms containing 26 % of the total capital, 24.5 % of the real estate, and 31 % of the working capital pay 31 % of the taxes. In either case the working capital and tax percentages are the only ones which coincide.

The larger part of the working capital of the average farm consists of either livestock or machinery. For the 186 Ohio farms, the average percentage of investment in machinery is 5.5 % and for livestock 10.3 %.(Table X) These percentages of course vary with the size of farm investment in proportion to the variation of percentage of working capital. The correlation between the percentage of livestock and machinery and the size of farm is not so definite as that for all working capital. The percentages for livestock show considerable variation and the decline from small to large farms is approximate only. For the farms of less than \$30,000 investment, the percentage of livestock averages about 12 % while for larger farms it averages 8% - 9%. Thus it appears that for both livestock and machinery there is some degree of correlation between the percentage of each of total farm investment and the tax rate, altho this correlation is closest for machinery.

In order to show more clearly the relationship between livestock values and taxation, the farms were divided into two

TABLE XVII

A Comparison of Capital Assessed at Different Tax Rates on Farms Having over and under 10% of Total Investment in Livestock, 186 Ohio Farms, 1921.

Rate	Farms under 10% Livestock				Farms over 10% Livestock			
	No. Farms	Amount	%	Cumulative %	No. Farms	Amount	%	Cumulative %
20-39	2	\$ 56,579	2.0	2.0	1	\$ 36,523	1.9	1.9
40-59	13	488,573	17.6	19.6	3	103,534	5.3	7.2
60-79	15	549,407	19.8	39.4	12	337,353	17.3	24.5
80-99	23	647,627	23.3	62.7	16	414,139	21.3	45.8
100-119	25	704,689	25.4	88.1	14	315,637	16.2	62.0
120-139	5	107,955	3.9	92.0	15	273,559	14.0	76.0
140-159	10	186,277	6.7	98.7	11	201,418	10.3	86.3
160-179	2	25,781	.93	99.6	9	161,742	8.3	94.6
180-199	2	22,582	.8	100.4	4	57,615	2.9	97.5
200-219	1	9,045	.3	100.7				
220-239					2	32,691	1.7	99.2
300-319					1	12,122	.6	99.8
Total		2,798,505				1,946,333		

groups according to the percentage of livestock to total investment. Table XVII shows the results of this tabulation, where the amounts of capital assessed at different tax rates for the two groups are compared. The cumulative percentage columns again show the differences. In case of the farms with more than 10 % of their total investment in livestock, 62.7% of the total capital of the group pay taxes at less than \$1.00 per \$100 valuation, while with the farms having less than 10 % livestock the percentage at the same rate is only 45.8. In a similar fashion the cumulative figures for the heavily stocked farms are higher than for the lightly stocked farms for all rate classes. The true significance of this difference may be better appreciated by comparing this table with tables XIII and XIV. The latter two tables show the percentage variations of capital assessed at different tax rates for farms with a high and low percentage of real estate. On the farms with more than 80 % real estate, 86 % of the capital is assessed at less than \$1.20 per \$100 while the farms with less than 80 % real estate have only 66 % of their capital below this rate. On farms with a high percentage of livestock 62 % of the capital is assessed below \$1.20, while for the highly stocked farms 88% is assessed below this figure. The difference in case of the real estate is 20 % while in case of the livestock the difference is 26 %. The margin of 6 % may be counted as the extent to which livestock are assessed higher than other forms of property. If the differences were due entirely to real estate, the amounts of capital assessed at different rates should be approximately equal in both cases. Since classification on the basis of livestock percentage brings out the differential of 6 % it is evident that livestock is assessed at a higher percentage of its value than either real estate or working capital in general.

Under the present system of assessment, discrimination against livestock and other forms of operating or working capital are to be expected. Livestock in particular cannot be concealed and as there is usually a common standard of values for farm animals, they are assessed at more nearly their cash value. Machinery is more difficult to assess, but purchase prices of farm machinery are common knowledge and with such figures as a basis the assessor is in a position to approach actual values very closely. No forms of working capital present the difficulties in assessment that are common to realty, but because the relative amounts of livestock and machinery are smaller than the real estate investment, any errors made in assessing the former will not appear so conspicuous as in case of real property. However, the main point to the discussion is that the assessment of the working capital of the farmer is habitually higher than for other forms of property.

The effects of such property inequalities are such that the small farmer is handicapped. In so far as he has a larger percentage of operating capital, he is paying a higher rate of taxation thru over assessment of his property. This means that the tenant farmer with nothing but his tools, machinery, and livestock must pay proportionally higher taxes than his landlord. High taxes on operating capital place a premium on under-capitalizing the farm, perhaps reducing the efficiency of operation.

III. Regional Inequalities.

Local inequalities between individual farmers, are by no means the principal inequalities. Differences in taxes from one section to another are a limiting factor in the determination of

farm profits. The agricultural industry is highly competitive and where a region with high rates of taxation is producing in competition with a region of low taxes, it works to the disadvantage of the former.

In New England, the principal differences within the various states occur between towns. In Massachusetts there are 317 towns each with its individual rate of taxation. In 1921 the variations in rates for these towns were as follows: (65)

\$1.00 - 1.450	per \$100 valuation	11 towns
1.50 - 1.95	" " "	46 "
2.00 - 2.48	" " "	93 "
2.50 - 2.99	" " "	103 "
3.00 - 3.49	" " "	52 "
3.50 - 4.36	" " "	12 "

There is a difference of \$3.36 per \$100 valuation between the towns with the lowest and the highest rate, or a possible difference of \$336 in taxes on a farm investment of \$10,000. If the property in the towns with the high rates is assessed at full value it means that practically the entire return on the investment is taken as taxes. The average farm in Massachusetts will probably not yield over 4 % on the investment provided the farmer receives anything for his labor. It is evident that farmers would soon leave the towns in which they were over-taxed and move elsewhere, if property were assessed at full value. The probabilities are that the high rates are the result of raising the rate instead of the valuation of the property, altho in many cases the rates are a fair indication of the per capita cost of government.

Discrepancies similar to those of Massachusetts exist throughout the New England States; in some cases the differences between towns are even greater than those cited. Vermont in particular shows extremely wide variations between the different towns.

Among the states of the Middle West and Far West the principal differences are between counties, as it is the smallest unit of local government for many of the states. Ohio may be taken as an illustration of the central group of states. In this state, taxes are levied by the county board who determine the amount of money to be spent in each township and fix the rate accordingly. There are as many rates, as there are taxing districts, the limits of the district being fixed according to the administration of local schools. Farm property may be assessed in the township, school district, village school district, or special school district. Aside from school taxes, practically all other taxes are levied by the county. Occasionally there is a special township levy for roads or ditches and each year there is a small township levy to pay necessary running expenses of a few township officials.

Rate differences are usually small within a county. The rate of the greater part of the property assessed does not vary more than a few mills per dollar, although occasionally instances occur where some districts have a rate 50% - 60% higher than the lower districts. In no case is there such wide variation as that which exists between New England towns.

Differences between counties are also less than in case of the New England towns. In 1921 the average rate for the state of Ohio was \$20.48 per \$1000 of valuation; exclusive of urban property the rate for farm property averaged \$17-18 per \$1000. The lowest county average was around \$14 per \$1000, the highest \$22 per \$1000

of valuation. Most of the counties are not more than 20 % above or below the average. From the standpoint of differences in the actual amount of taxes paid, a difference of \$5.00 per \$1000 is of as much importance in Ohio as a difference of \$8.00 in Massachusetts due to the fact that property values are higher and the average farm investment is larger.

As a further illustration of the extent to which differences exist between counties the actual situation in Wisconsin will serve. In 1921 an analysis of the actual taxes assessed per acre of farm land shows that there is little relation between property values and taxes. (58) In three counties in northern Wisconsin with an average valuation of less than \$20 per acre, the taxes per acre varied from \$.50 to \$.82 per acre, the higher figure being the average for the county with the land of lowest value. In the same group of counties, 11 counties with a land value of from \$20-30 per acre showed a variation in taxes per acre of from \$.46-\$.79, the high figure again being for the county with the lowest land value.

In the southern part of the state where land values are higher but there is also great variation from county to county. Thus in the 21 southern and southeastern counties the tax per acre varies from \$1.68 to \$2.56, or a difference of \$.88. The valuations of land per acre in the counties with the low and high taxes respectively are \$148 and \$181, and other counties with greater land values have lower taxes and vice versa. (58)

Differences in assessments between counties of the same state sometimes result in over-assessment. This is illustrated in table XVIII. In 1920, farm lands in 57 Ohio counties were assessed higher than the true value for the same year. The true

TABLE XVIII

A Comparison of Assessed Value and True Value of Land According to Census Values per Acre in 88 Ohio Counties.

Census Value per Acre	Number of Counties	Average Assessed Value per Acre (1)	Average True Value per Acre (2)	Per cent (1) is of (2)
\$ 0- 19.9	2	17.64	17.40	101.4
20- 39.9	20	42.40	29.83	142.2
40- 59.9	11	70.00	51.32	136.4
60- 79.9	12	77.80	68.84	113.0
80- 99.9	12	92.70	90.97	101.8
100-119.9	17	99.67	110.28	90.3
120-139.9	5	103.00	128.84	80.0
140-159.9	8	124.21	148.69	83.5
160-179.9	0	--	--	--
180-199.9	0	--	--	--
200-219.9	1	185.50	211.60	87.7

value used in this case was determined by using the Census data on average land values per acre in each county as a base. The average ratio of assessed values to Census values was determined for the state, and the true values were determined by applying this ratio to the assessed average value per county. This process is widely used by tax commissions in equalization between counties and is usually designated as the 'assessment ratio' process. The true values as given in column 2 of table XVIII are therefore slightly below the Census values for the counties having a high value per acre, and slightly above them for the counties with a low average value per acre. The counties which are assessed at more than the true value per acre are the hill counties in the southeastern part of the state where land is poor. The table shows that the percentage of over-assessment decreases as the value per acre becomes larger. In the 13 counties with the highest average value per acre the assessment is slightly more than 80 % of the true value. The counties with an average value less than \$60 per acre are assessed at over one third more than their true value. In individual cases over-assessment amount to nearly 60% of the true value.

In Oregon⁽¹⁰⁶⁾ farm property has also been reported assessed at more than the sale value by the tax commission. This practice is not general however, and applies only to the poorer classes of land, particularly grazing land.

The practice in New England is to assess at about 75 % of the estimated sale of property. In some cases property is assessed at more than a fair value⁽⁹⁷⁾ but the situation is not so common as it was twenty years ago.⁽¹²⁾

In addition to inequalities between different taxing districts

in the same state, wide variations in rates also exist between states. According to the report by the United States Bureau of the Census in 1912, on Wealth, Debt, and Taxation, the average rate of assessment for the United States on property subject to ad valorem taxation was \$1.94 per \$100 valuation. The highest rate of \$4.73 was in New Mexico and the lowest \$.86 in West Virginia. These rates were computed from all ad valorem taxes collected including state, county, township and special levies. New England had the lowest rate of any group of states except the South Atlantic and W. South Central group while the highest rates were in the Mountain and Pacific groups. The rates by groups of states were as follows:

New England	\$ 1.69
Middle Atlantic	\$ 1.95
East North Central	\$ 1.88
West North Central	\$ 2.23
South Atlantic	\$ 1.57
East South Central	\$ 1.96
West South Central	\$ 1.65
Mountain	\$ 3.33
Pacific	\$ 2.30

Since these sections are all competing with each other for markets any particular differences in costs as influenced by taxes must be the producer in the less favored section in order to meet prices of competitors. As an illustration, the fruit from the Pacific coast competes with locally produced fruit on eastern markets. The western grower must overcome the handicap of the heavier tax in order to sell at a profit. From the above figures this differential amounted to something like .6% on the investment in 1912.

Part of the heavier tax burden may go to improve facilities for production, but reports from the states show that most of the increase has gone into forms of expenditure from which the farmer derives no direct benefit.

The variations in rate between states in each geographic division are also of considerable importance. In New England, Main had the highest rate of \$2.16, while the lowest was found in Rhode Island at \$1.32 per \$100 valuation. The rate in Massachusetts was \$1.72. Such differences also exercise considerable influence upon the farmers of each state. All of New England produces for the Boston market and tax differences between states must be reckoned with as a factor of cost.

IV. Inequalities between farm and other classes of property.

Twenty years ago the general property tax in rural districts was almost completely a special property tax on tangible property.

(18) Tax-payers in villages and towns failed to return their intangible property such as stocks, bonds, money, mortgages etc., with the result that tangible property paid most of the taxes. In cities the custom arose of raising the tax rate rather than the valuation of the property so that urban property did not carry a fair portion of county and state taxes. Investigations by the New York tax commission in 1900 showed that many farms were assessed for more than their actual sale value⁽¹⁵⁾. The Massachusetts commission in 1897 found that farm property was frequently assessed for more than the sale price while urban property was not over-assessed in any such fashion⁽¹²⁾. The California tax commission in 1906 found that according to tax returns, farmers paid 1.14 % of their investment in taxes while the manufacturing interests paid only .5%⁽¹⁴⁾. The

farmers, therefore, paid proportionally over twice the taxes of the manufacturing interests. The commission also recognized inequalities in real estate assessment and the failure reach personality.

Such conditions gave rise to many attempts at remedial legislation. Ohio had a law for a number of years which provided for 'tax inquisitors' or 'tax ferrets' who attempted to discover intangible property and place it on the tax duplicate. Other states enacted legislation providing for punishments of various sorts for persons who failed to return all of their property. Many of these laws are still on the statute books but are not enforced.

Gradually it came to be recognized that where tax rates were so high, people would not return their intangible property for taxation, no matter what the alternative. With tax rates at from \$15 to \$20 per thousand, a bond paying only 3% - 3½% would only return the owner something like 1-2% on his investment. In a similar fashion, money on interest, long term notes, and similar investments would have from 20-40% of the income taken as taxes if they were returned to the assessor. These facts served to emphasize the inherent weakness of the general property tax that the value of property is not a fair criterion of ability to pay.

In order to bring these intangible forms of property on to the tax duplicate, classification of property was necessary. Different tax rates were proposed for different classes of property, intangibles taking a special rate. With the enactment of such a law in many states, the properties in question were returned, with a corresponding reduction in the tax burden on tangible property. A few states still cling to the original general property tax and

in these states the burden upon farm property is very heavy. New Hampshire is an instance of this sort. Several attempts have been made to introduce classification but every proposed bill to this end has been defeated. Local tax rates in New Hampshire are so high that according to the tax commission, in some instances, the income from intangible property would not be sufficient to pay the tax.⁽⁹⁷⁾ Under these circumstance, very little intangible property is taxed with the result that agricultural property is over-taxed.

Recently it has been claimed that railroad property in particular is subject to under-assessment. In the South this is doubtless true. According to reports of the Georgia tax commission, railroads in that state were subject to a valuation of from 15 %-20 % of their capitalized value per mile a few years ago.⁽¹⁹⁾ Some states have gone to the other extreme however, particularly those of the far West. In some instances there have been attempts made by local taxing districts to make the railroads pay most of the taxes in the counties thru which they pass. Lands owned by the railroads have been taxed proportionately higher than other farm lands in the same district.

The Illinois Agricultural Association representing the farm bureau in that state has investigated the taxation of railroads in comparison with farm property for each county of the state.⁽⁵⁹⁾ According to statistical data presented by the association, in twenty years the valuation of land with improvements for purposes of taxation has increased 55%, while railway track has increased only 17 % in valuation per mile of main track.

Town and city lots during the same period increased 25 % in valuation. Railway second main track and sidings actually decreased in value from 1902 to 1921, according to assessed valuations. It was estimated by the association, that a general reduction of 25 % in assessed values of farm lands would be required to equalize the taxation of railroad property and farm land.

Corporate property is also assessed at a lower percentage of it's fair cash value than farm property. Many states exempt stock of domestic corporations from taxation, while local taxing districts frequently exempt corporate property from local taxes for a certain length of time in order to attract new capital. In cases where corporations are taxed, it is often only a nominal sum entirely out of proportion to the value of franchises and special privileges granted by the public. (10) The present tendency in state taxation is to increase taxes on corporations so that this inequality is being reduced.

Part III.

Taxation According to Ability to Pay as Measured by Income.

Several times in the discussion it has been stated that property valuations are not a fair criterion of ability to pay. The usual alternative suggested by economists is income. The difficulty in using income as a basis is that farm income is difficult to determine. In addition to return on the farm investment in the form of interest, the farmer also gets an income from his labor besides certain necessities furnished by the farm such as house, fuel, and part of his living. Some of these factors are difficult to measure and in the usual treatment of farm incomes, the returns for labor and interest are the only things considered. Farm income represents gross receipts less expenses, while labor income represents the farm income less interest on the investment.

It has long been recognized that farm taxes are not levied according to ability to pay if income is a measure of such ability. The California tax commission in 1900 found that 6.86 % of the gross product of agriculture was taken in taxes while only .346 % of the gross product of manufactures was taken. If the net product is taken, which is after all the true measure of ability to pay, the percentage taken in taxes was 9.88 % for agriculture, 201% for manufactures. "Persons engaged in agriculture pay, on the average, \$ 50 per capita in taxes, out of an average income of about \$500. The persons engaged in manufacturing pay, on an average, \$17.50 in taxes, out of an average income of \$370." (18)

Recent data collected by the United States Department of Agriculture indicates that the average tax paid by 6094 farmers in

the United States was \$174 per farm in 1922. The average farm income for the same period was \$917. Approximately 19 % of the total farm income was taken in taxes, and if interest on the investment is deducted, the farmers labor income is not sufficient to pay his taxes. If the indirect taxes paid to the federal government are also included, Professor David Friday estimates the total average farm taxes at \$214 per farm, or 23 % of the farm income.(69)

The Wisconsin tax commission has shown that 18 % of the income from rented farms in that state was paid in taxes in 1919 (116) (50). This was from 2%-3% under the percentage of income of banks and corporations paid in taxes.(50)

Taxes between farms are not levied in proportion to income received. In recent years there has been great specialization in farm production thru intensive cultural methods applied to particular crops. In such cases the value of the property is no indication of the income of the farmer, and taxes levied on a property basis are inequitable from the standpoint of income received.

In order to determine the relation between taxes paid and income, the farms of the Littleton area were divided into two groups showing either a positive or negative labor income. The farms of each group were then classified by derived rate of taxation on the actual valuation of property with results as given in table XIX. The farms with a positive labor income, or gain, have a greater percentage of property assessed at the lower rates than farms reporting a loss. In the former case, 67% of the property is assessed under \$1.60 per \$100 valuation, while on the farms showing loss, only 43% of the property is assessed lower than this rate. The difference between the two groups of farms is shown in

TABLE XIX

A Comparison of Capital Assessed at Different Rates on Farms Showing Gain or Loss, 62 Farms, Littleton, Massachusetts, 1920.

Tax Rate cents per \$100	Farms Reporting Labor Income or Gain			Farms Reporting No Labor Income or Loss		
	Capital	% of total	Cumu- lative %	Capital	% of total	Cumu- lative %
70- 89	\$ 45,216	7.4	7.4	---	---	---
90-109	28,586	4.7	12.1	\$ 19,801	5.6	5.6
110-129	118,630	19.3	31.4	---	---	5.6
130-149	135,741	22.1	53.5	87,870	24.8	30.4
150-169	85,371	13.9	67.4	46,904	13.3	43.7
170-189	67,800	11.0	78.4	24,506	6.9	50.6
190-209	64,752	10.6	89.0	103,580	29.3	79.9
210-229	36,819	6.0	95.0	20,855	5.9	85.8
230-249	---	---	95.0	17,839	5.1	90.9
250-269	23,125	3.8	98.8	16,200	4.6	95.5
270-289	6,278	1.0	99.8	15,919	4.5	100.0
Total	\$ 612,318			\$ 353,474		

TABLE XX

Capital Assessed at Different Tax Rates on Farms with Varying Labor Incomes, 62 Farms, Littleton, Massachusetts, 1920.

Tax Rate cents per \$100	Labor Income over \$1000		Labor Income 0 - \$1000		Labor Income Loss	
	Capital: %	Cumu- lative %	Capital: %	Cumu- lative %	Capital: %	Cumu- lative %
70-89	\$ 45,216	12.0	---	---	---	---
90-109	21,635	5.7	\$ 6,951	2.9	\$ 19,801	5.6
110-129	60,392	16.1	58,238	24.6	---	5.6
130-149	86,954	23.1	48,787	20.6	87,870	24.8
150-169	65,861	17.5	19,510	8.3	46,904	13.3
170-189	2,771	.7	65,029	27.4	24,506	6.9
190-209	42,623	11.3	22,129	9.4	103,580	29.3
210-229	25,689	6.8	11,130	4.7	20,855	5.9
230-249	---	---	---	---	17,839	5.1
250-269	18,450	4.9	4,675	2.0	16,200	4.6
270-289	6,278	1.7	---	---	15,919	4.5
Total	\$375,869		\$236,449		\$353,474	

The following table shows the results of the tests conducted on the various samples of the material under consideration. The results are given in terms of the percentage of the material which is soluble in the various solvents used. The results are given in the following table:

Sample	Solvent	Percentage Soluble
A	Water	100
	Alcohol	100
	Ether	100
B	Water	100
	Alcohol	100
	Ether	100
C	Water	100
	Alcohol	100
	Ether	100
D	Water	100
	Alcohol	100
	Ether	100
E	Water	100
	Alcohol	100
	Ether	100
F	Water	100
	Alcohol	100
	Ether	100
G	Water	100
	Alcohol	100
	Ether	100
H	Water	100
	Alcohol	100
	Ether	100
I	Water	100
	Alcohol	100
	Ether	100
J	Water	100
	Alcohol	100
	Ether	100
K	Water	100
	Alcohol	100
	Ether	100
L	Water	100
	Alcohol	100
	Ether	100
M	Water	100
	Alcohol	100
	Ether	100
N	Water	100
	Alcohol	100
	Ether	100
O	Water	100
	Alcohol	100
	Ether	100
P	Water	100
	Alcohol	100
	Ether	100
Q	Water	100
	Alcohol	100
	Ether	100
R	Water	100
	Alcohol	100
	Ether	100
S	Water	100
	Alcohol	100
	Ether	100
T	Water	100
	Alcohol	100
	Ether	100
U	Water	100
	Alcohol	100
	Ether	100
V	Water	100
	Alcohol	100
	Ether	100
W	Water	100
	Alcohol	100
	Ether	100
X	Water	100
	Alcohol	100
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Y	Water	100
	Alcohol	100
	Ether	100
Z	Water	100
	Alcohol	100
	Ether	100

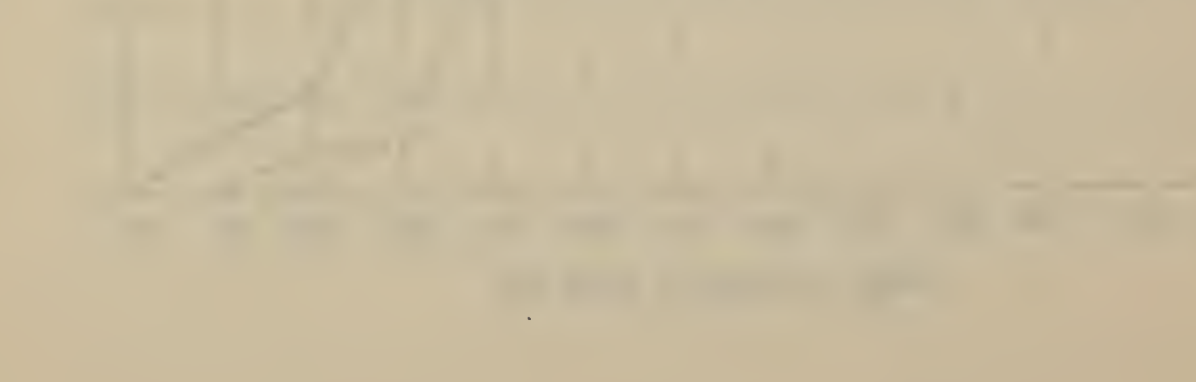


Chart V.

Explanation.

This chart shows that for the farms under consideration, those reporting a labor income above 0 were assessed at a lower percentage of true value than farms reporting a negative labor income or loss. The percentage of the total value of the property paid in taxes is shown by the horizontal scale giving the derived tax rate in cents per \$100 of actual valuation. The cumulative percentage of total value of property of each group of farms is measured on the vertical scale. The cumulative percentages are obtained by adding the percentages of total capital assessed at each rate group from left to right. The curve of the farms reporting a gain rises more rapidly than the curve for the farms showing a loss, indicating that more of the property of the former group is assessed in such a manner that a lower percentage of the total value is paid in taxes. Farms reporting a loss are assessed at a higher percentage of their true value since most of the property is taxed more per \$100 valuation.

CHART V

Cumulative Percentages of Capital Assessed at Different Tax Rates for Farms Showing a Labor Income of Either Gain or Loss, 62 Farms, Littleton, Massachusetts, 1920.

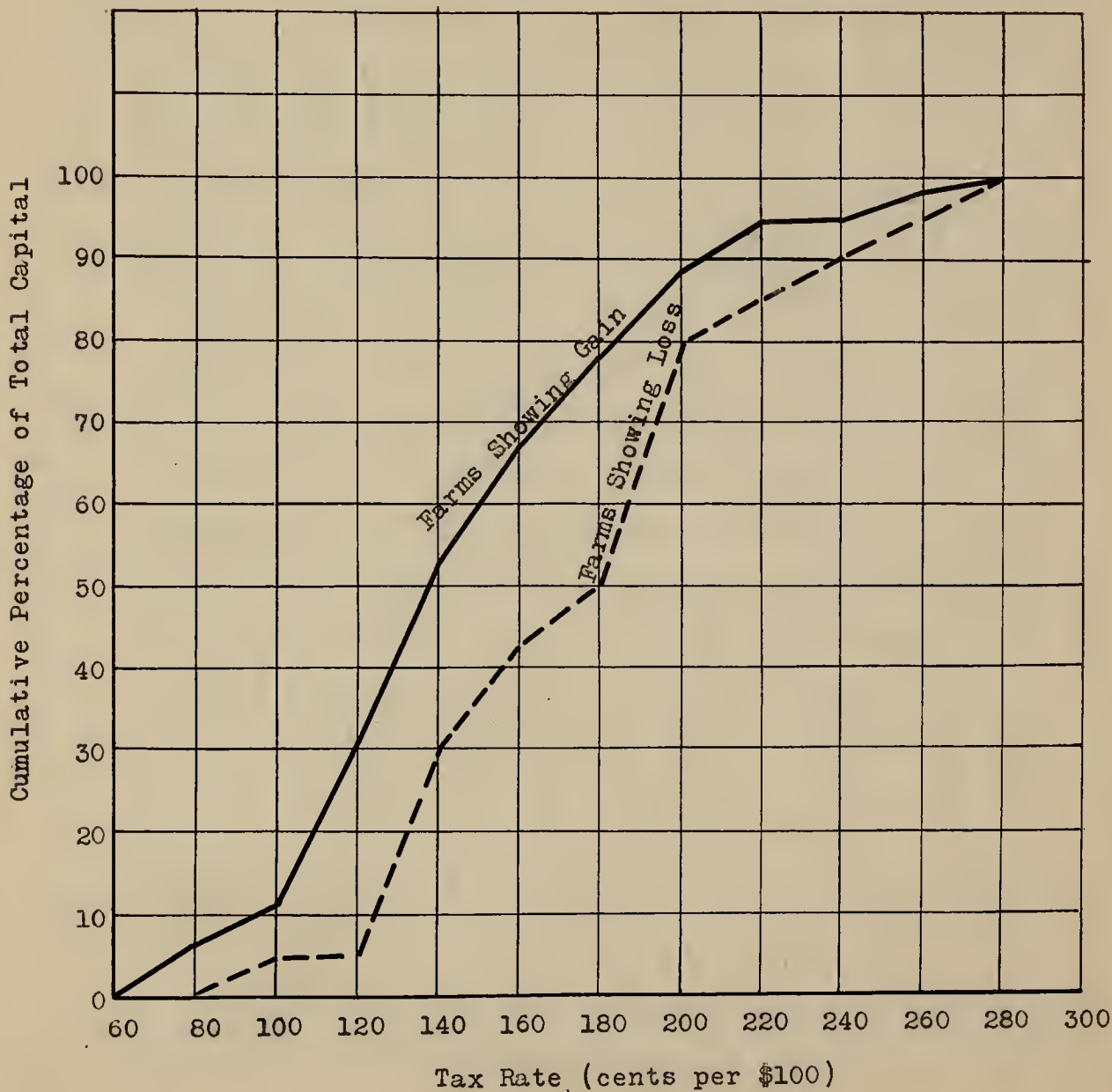


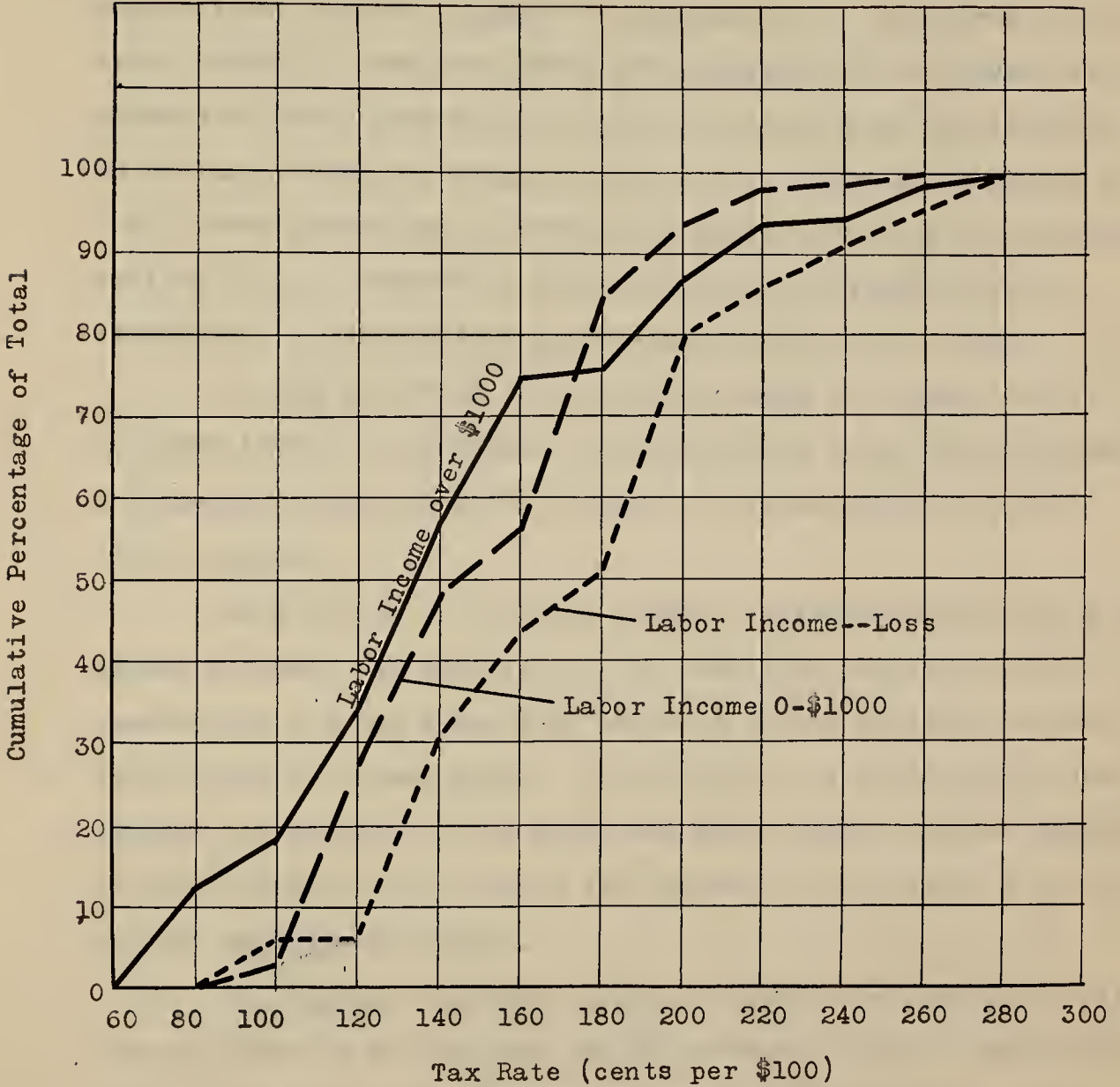
Chart VI.

Explanation.

A comparison of the cumulative percentage curves of this chart shows that labor income varies according to the percentage of true value at which farm property is assessed. Farms paying the highest tax per \$100 of actual valuation have the lowest labor incomes, in this case a loss. Farms paying the lowest tax have the highest labor incomes. In other words, those farms having a labor income of more than \$1000 are assessed at a lower percentage of their true value than farms with no labor income. Farms having a labor income between 0-\$1000 pay less tax per \$100 of actual value than farms reporting a loss, and more than farms with a labor income of over \$1000.

CHART VI

Cumulative Percentages of Capital Assessed at Different Tax Rates According to Amount of Labor Income, 62 Farms, Littleton, Massachusetts, 1920.



graphic fashion in chart V. The cumulative percentage curve representing farms reporting a loss, or minus labor income, rises more slowly than the curve representing farms showing a gain.

A further classification of labor incomes shows that there is direct correlation between size of income and ration of assessed value to true value expressed by the derived tax rate. Table XX and chart VI support this contention. The farms with a labor income of more than \$1000 are assessed at the lowest percentage of their true value since the derived rate is lowest on this class; farms reporting a minus labor income are assessed at the highest percentage of true value since they have the highest derived rate. Farms with a labor income of from 0-\$1000 are assessed at an intermediate percentage of their true value.

If the 143 farms of all three groups are taken together the same trend is indicated. Farms with the lower labor incomes are assessed proportionally higher than the farms with high labor incomes.

Farm income is a better basis of ability to pay than labor income however. An analysis of the data from the farms of the Massachusetts areas shows that there is little relation between farm income and taxes paid. In 1921 there was little difference between the incomes of the large and small farms, and the percent of farm income taken in taxes was largest for the farms with the largest capital investment.

Statistics from other states indicate the same fact. An investigation by the Chicago and Northwestern Railroad has shown that in the states of Illinois, Wisconsin, South Dakota, Iowa,

and Minnesota, taxes per acre of farm land bears very little relation to the value of the land.⁽⁵⁸⁾ Land values in these states are of course influenced by speculation, but on the average they may be said to represent the earning power of the land. In some cases, taxes per acre are as much as 39 %-40% of the normal interest on the investment. In Iowa, taxes per acre are as much as 25%-30% of the rental value of the land.⁽⁵⁸⁾

In general then, it may be said that taxes are not levied in proportion to the income received by the farmer. This has been particularly true during the past few years of depression. The percentage of income taken for taxes is larger for agriculture than for other industries, and there are also individual inequalities between farmers in the same taxing district.

Part IV.

Farm Taxation and Tax Reform.

It is a significant fact that nearly every tax reform movement of importance in recent years has been of some benefit to the farmer. Perhaps the most general movement has been the separation of state and local revenues, that is the raising of revenues for state and local purposes from different sources. The farmer has benefitted from this thru the elimination of the motive of local taxing districts to keep their property valuations down as much as possible in order to throw the burden of state taxation on some other district. Where there is no state property tax assessments are made upon a more equitable basis and the farmer derives the benefit. Practically all states derive part of their income from sources other than the property tax, and a few derive their entire income from such other sources. The movement is spreading and eventually in all states only local revenues will be derived from the great property tax.

The second reform movement from which the farmer derives benefit is the centralization of control of local tax matters. Thru State tax associations and boards of equalization more property is placed upon the tax duplicate and many of the inequalities between districts in the same state have been eliminated. This is particularly true in case of livestock. Formerly, in many of the states the livestock assessment varied as much as 200% between different counties, while the present tendency is to make all local assessments conform very closely to the average valuation for the state. Thru interchange of ideas between these central tax bodies from one state to another, there is also greater equality

in assessment between different states. This removes part of the handicap of the farmers of some sections but the movement has not spread sufficiently as yet to give all the possible benefits.

The central tax authorities have also benefitted the farmer thru the elimination in part, of the inequalities between individuals, by demanding frequent reassessment and allowing hearings on all complaints. In a few cases, the tax commissions are vested with power to remove the local assessors for failure to render fair assessments and this tends to give a fair degree of uniformity thruout a district. In Wisconsin and Minnesota the tax commission determines the average valuation of property for each county thru records of sale values and thus establishes a basis for assessments. This method has met with great success and will doubtless spread to other states in time as it is the best method of assessing real estate fairly.

The third reform movement is the classification of property for purposes of taxation. It is recognized that the value for sale purposes is not a fair criterion for purposes of taxation with all kinds of property. Farm property has been classified as to the uses to which it is put, and each class of property takes a definite rate. Classification also makes it easier for the assessor to arrive at a fair value for farm real estate because he can assess each class separately and arrive at a total which will be somewhere near correct while with the former system he attempted to assess all land in a lump sum and errors were bound to creep in. Classification has also had the effect of bringing more property on to the tax duplicate, particularly intangibles, and this reduces the burden of taxes upon real estate, the farmer thus deriving double benefit.

There is also a present tendency to exercise greater care in the selection of local assessors.⁽⁹¹⁾ In the past, the assessor was a man in many cases entirely unfit for his duties, but this is being overcome thru better selection by the voters and instructions by the various state tax commissions. A few states maintain annual or semi-annual meetings for assessors in which the various problems of assessment are discussed and instructions given to cover many contingencies. In addition the tax commissions from time to time furnish pamphlets and bulletins containing information relative to the proper assessment of property.

The agitation of a few years ago on the Ralston-Nolan bill represents a movement which is of questionable benefit to agriculture. This bill which was introduced into Congress in 1920, provided for a progressive tax on parcels of land worth over \$10,000 exclusive of improvements. This form of tax is called a tax on land values and is a modification of the single tax proposed by Henry George over thirty years ago. The original proposals called for an exclusive tax on land which would appropriate the entire site value of land for public purposes. All rents were to be eliminated thru progressive rates on land values. The recent proposal as indicated above differs from the single tax in that it is not exclusive. The sponsors of the bill claimed that it would benefit agriculture since over 90% of the farms of the United States would not be affected by it. It was intended to fall primarily upon urban lands and upon large land holdings in the West held by individuals for speculative purposes. The bill received much publicity and support from the manufacturing and business interests but was generally opposed by the farmers, so

that it was defeated.

The difficulty with a tax of this sort is that it is almost impossible to separate the value of improvements from the value of the land. This is particularly true in the case of farm lands where the improvements often give the land its entire value. The tax operates more successfully with urban lands. Several cities in the United States have a system of assessment which throws practically the entire tax burden upon lands and the scheme is reported to be successful.⁽³⁸⁾ It has also been tried successfully in several European cities and in a few cities of Western Canada. In New Zealand, taxes on all land values are levied with a fair degree of success, but there is little likelihood of such a tax being tried here due to the strong prejudice against it on the part of the average tax-payer.⁽³⁸⁾

Aside from the reform movements just mentioned, certain other recommendations may be made which will operate to the advantage of the farmer. It has been said that the great weakness of the general property tax lies in the local assessment, and it is here that all of the inequalities arise.⁽⁸⁾ A full time assessor, at a salary commensurate with the importance of his duties is essential for uniform assessment between property and individuals. He should be trained for his position and subject at all times to adequate supervision. The position should be appointive instead of elective, and tenure of office should be dependent upon proper discharge of duties. Assessments should be revised once each year in order that the state may obtain the benefits of an increase or the individual the benefits of a decrease. In making assessments, the use of an assessment map showing assessments of all properties in a district should be universal as it gives the assessor a

definite working basis. Where necessary special assessors should be employed to assess particular types of property in order that there may be uniformity among all property owners.

Part V.

Summary and Conclusions.

The following conclusions may be drawn from the preceding data:

1. In recent years, the general rise in taxes has affected farm property more than other forms of property due to greater proportional increase in local public expenditures in rural sections.
2. As a result of the recent depression, the farmer is less able to pay a heavier tax burden than other industrial classes because he receives less for his products. In the matter of recovery from the depression thru the present rise in prices, farm prices tend to lag appreciably behind the general price level.
3. Agriculture is subject to many inequalities in taxation the most common of which is a discrimination in assessment in favor of the large farmer.
4. As between farms in the same taxing district, those having a large percentage of capital investment in real estate are assessed at a lower percentage of their true value than other farms.
5. Buildings are taxed at a higher percentage of their true value than land.
6. Working capital including machinery and livestock is taxed higher than real estate thereby handicapping the small farmer and the tenant farmer.

7. The indications are that livestock is assessed higher than any other form of farm property. Farms with a high percentage of capital in livestock pay taxes at the highest rate.
8. Inequalities in assessment between different taxing districts, between states, and between geographic divisions act as a handicap to many farmers.
9. Inequalities in assessment between tangible property and intangible property have been the cause of an unduly heavy burden on the farmer in the past, but this condition is disappearing. Farm property is still taxed at a higher percentage of tax value than other farms of property.
10. Farm taxes bear no relation to the ability of the individual to pay. In the areas under consideration, farms reporting the lowest labor incomes were assessed at the highest percentages of their true value.
11. Present reform movements in tax administration offer some direct benefit to the farmer, but due to the time necessary to effect the changes proposed, the farmer is deriving but little benefit, with the exception of a few states.
12. Extensive investigation on the nature and extent of various inequalities in farm taxation is needed in all states. Without such preliminary investigation all remedial measures must be merely experimental.

The Taxation of Farm Values.

Part VI. Bibliography.

Prefatory Note.

There is little literature dealing with the subject of farm taxation as such. Most of the material is derived from discussions of the general field of taxation in so far as they apply to agriculture. Viewed chronologically, the literature here cited falls into four broad divisions. First, there are the early writers who developed the fundamental principles of taxation adapted to the State of their period which was largely agricultural. The second principal group consists of the writers of the nineties who began the agitation for the program of tax reform now taking place. The panic of 1893, with the ensuing distress to farmers, seems to have served as the basis for the writings of this period. The third group arose as a result of the panic of 1907, when the demand for revision of taxation methods became general. Writings of this period reflect the results of the investigations beginning to be made about this time. The last group is the result of the general rise in taxes during the past seven years and the present financial difficulties of the farmer, as well as the growing general interest in matters of public finance.

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