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## THE RAILROADS' PROBLEM OF INEQUITABLE PROPERTY TAXES

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While the railroads' proportion of the total business of the transportation industry is constantly decreasing, the relative position of the railroads as heavy property taxpayers is becoming more unfavorable.

In 1942, the railroads' share of the income originating in the transportation industry was 65% while in 1952, their percentage of the total transportation income had decreased to 50%. The following table shows what has happened to the relative position of the railroads in the transportation industry.<sup>1</sup>

Year	RRs	Local Railways and Bus Lines	Highway Passenger Transportation	Highway Freight Transportation	Water Transportation	Air Transport	Pipeline Transportation	Services Allied To Transportation
1942	65.59	5.06	5.32	12.79	5.06	1.32	1.38	3.49
1943	65.57	5.11	5.88	11.38	5.58	1.41	1.22	3.83
1944	62.11	5.10	6.04	11.65	7.66	1.58	1.31	4.55
1945	57.49	5.47	6.56	13.18	9.44	1.83	1.26	4.77
1946	53.74	5.90	7.71	16.43	8.13	2.13	1.26	4.69
1947	54.97	5.22	6.73	16.95	7.63	2.09	1.32	5.09
1948	56.65	4.47	6.28	17.72	6.57	2.39	1.55	4.37
1949	53.71	4.76	6.41	19.58	6.35	2.88	1.71	4.60
1950	53.80	4.21	5.69	21.16	5.59	3.19	1.96	4.41
1951	52.14	3.90	5.43	21.25	6.52	3.64	2.20	4.92
1952	50.41	3.76	5.40	22.45	6.67	4.05	2.31	4.96

The transition of the railroads from being virtual monopolies to being part of a highly competitive transportation industry has had tremendous effect on their earnings. This is revealed by the fact that the net railway operating income of \$450,527,902 for all Western District Railroads in the prosperous year of 1953 was less than their net railway operating income of \$456,049,664 in 1916.<sup>2</sup>

Further indication of what has happened to railroad net earnings is shown by the following table which compares the net income of some of the nation's largest corporations with Class I Railways:

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\*It should be understood that all opinions expressed in this article are those of the author and are not intended to nor do they necessarily represent those of other railroad tax commissioners nor are they to be considered the official view of the company with whom the author is associated.

1. THE ECONOMIC ALMANAC, 1953-1954, pp. 140-144.
2. Bureau of Railway Economics, Association of American Railroads.

## NET INCOME IN MILLIONS

Company	1929	1953	1953 Converted to 1929 Dollars
General Electric .....	67	165	87
Westinghouse .....	27	74	39
Du Pont .....	78	236	125
Union Carbide .....	35	103	55
Bethlehem Steel .....	42	134	71
General Motors .....	248	598	317
Standard Oil N. J. ....	121	553	293
Goodyear .....	14	49	26
All Class I Railways.....	1,251	1,109	588

In the years prior to 1942, railroads generally were considered to be assessed at from 70% to 100% of their full cash value and at that time were assessed at a ratio comparable with most other types of property. At the present time, with few exceptions, property assessed by local officials is assessed at an average of 20% to 30% whereas the railroads are generally assessed at somewhere between 50% and 100% of full cash value. (Where local property is assessed at other average ratios the relative position of railroads is usually about the same as herein stated.)

The assessment ratio studies made by the Kansas Commission of Revenue and Taxation illustrate the effect which the constantly increasing price levels since 1941 have had on the ratio that *local* assessments are to the market value of property. The assessment ratios disclosed by the Kansas study are representative of the general situation throughout the United States. The ratios for the State of Kansas are as follows:<sup>3</sup>

Year	State Ratio	Year	State Ratio
1941	76%	1949	32%
1942	70%	1950	30%
1943	66%	1951	25%
1944	57%	1952	23%
1945	50%	1953	23%
1946	43%	1954	23%
1947	38%	1955	22%
1948	33%		

Why do railroads find themselves in this unfavorable position? There are several reasons but some of the most important are because (1) the value of railroads has not increased to the same extent as the value of residences, commercial and industrial properties, and public utility properties; (2) railroads are generally assessed by central state assessing agencies who annually ascertain the cash value of the railroads and who are reluctant to reduce the assessment ratios of railroads because of possible political repercussions and other reasons which seem plausible to laymen; (3) some

3. STATE COMMISSION OF REVENUE AND TAXATION, *Reports of Assessment Ratio Studies*. For other states see, *Report of Ratio Study Committee*, NATIONAL COMMITTEE OF RAILROAD AND PUBLIC UTILITY TAX REPRESENTATIVES (August, 1956).

state assessing agencies are constantly striving to devise formulae which will develop higher full values for railroads so that railroad assessment ratios will appear to be lower than they actually are; (4) an unusually large amount of railroad property has become obsolete as a result of the railroad's becoming a part of a highly competitive transportation industry; and (5) most other properties are assessed by local township, city or county assessors who have not been inclined to raise the assessed valuations of property in their particular taxing jurisdiction, and who usually do not have adequate records and equipment to keep assessments geared to market values.

The foregoing is a general statement of the problem. To fully realize its significance, it is necessary to understand what constitutes value as well as the procedures involved in valuing and equalizing the assessments of railroads.

The simplest procedures in assessing an interstate railroad must of necessity be complicated. Three distinct steps must be taken by a state assessing agency in the accomplishment of fair and equitable results. They are:

1. Ascertain the cash or market value of the railroad system.
2. Allocate to the state the proportion of the system value which represents its fair and just share of such system value.
3. Place an assessment against the state's share of the system value which is comparable to the ratio that local assessments are to the cash or market value of locally assessed property.

#### VALUE

Value is an elusive thing and it is difficult to keep in step with it. It is necessary for the assessor to resort to the use of different methods in the valuation of varying types of property, but it should never be forgotten that, for ad valorem taxation, his only goal is to find the *cash or market value*.<sup>4</sup>

It readily can be seen that the value which is to be used by the

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4. Most state constitutional or statutory requirements provide in substance that all property should be valued at its actual value in money — true cash value, market value, or words of similar meaning.

The National Association of Tax Administrators in its report on unit valuation of railroads, *Appraisal of Railroad and Other Public Utility Property for Ad Valorem Tax Purposes*, c. 1, p. 2 (June 1954) has this to say about value:

Value is not necessarily the present worth of the future income actually to be derived from the property, nor is it necessarily the present worth of the assessor's own best estimate of the future income; it is the expectations of investors which govern values, even though they may differ from those of the assessor.

Many years ago the United States Supreme Court said in the case of *Cleveland, Cin., Chi., & St. L. Ry. v. Backus*, 154 U.S. 439, 445 (1894):

The value of property results from the use to which it is put and varies with the profitableness of that use, present and prospective, actual and anticipated. There is no pecuniary value outside of that which results from such use.

Dr. Paul E. Alyea in his book, *ASSESSMENT OF PUBLIC UTILITIES IN ALABAMA* 48

property tax assessor is the economic value of the property and not the original cost nor the reproduction cost of the property. In the case of railroads, it would be an add coincidence if either the original cost or the reproduction cost coincided with the economic value.

Mr. A. G. Mott has this to say about value:<sup>5</sup>

Cost, however, has only a small bearing on the value of railroad properties since much of the cost was incurred long ago, and the investments are incapable of earning the returns that were anticipated at the time they were made. The original cost of a property has no necessary relationship to its earning power, and it is earning power that creates value.

Most professional literature issued on the subject of value during recent years emphasizes the unreliability of using cost as a factor in determining the system cash or market value of a profit-producing interstate railroad. The reason for this is, of course, that there is a great deal of economic

(1952), feels that the above quoted dictum (Backus case) and the alleged market maxim that "property is worth what it will earn," are rooted in common sense and are fully supported by economic theory which emphasizes the expectation of net income as a chief motivating agent for the making of private investments. The consideration governs the willingness of an investor to purchase a previously constructed facility, the anticipated income from which may justify a purchase price above, below or equal to the original cost. The value derived from capitalizing anticipated income may bear any conceivable relation to cost of property, the relation obtained depending upon factors such as the degree of competition or monopoly, and the extent of economic obsolescence of the existing facility.

The United States Supreme Court in *Adams Exp. Co. v. Ohio St. Auditor*, 166 U.S. 185, 220 (1897) said:

Now, it is a cardinal rule, which should never be forgotten, that whatever property is worth for the purposes of income and sale, it is also worth for purposes of taxation. . . . Business men do not pay cash for property in moonshine or dreamland. They buy and pay for that which is of value in its power to produce income.

Professor James C. Bonbright in his book *VALUATION OF PROPERTY* (1937) says that the value of property is nothing but the value of an opportunity to derive future profits or other services.

Mr. Babcock in his book *VALUATION OF REAL ESTATE* agrees that the expected future productivity of properties gives them their values.

The New Jersey State Board of Tax Appeals in the case of *In re Central R. R.*, 20 N.J. Misc. 448, 28 A.2d 660, 665 (1942) said:

By economic value we mean the value that should be attributed to the land used as an integral and necessary part of the railroad, determined by the present and prospective revenues to be derived from the operation of the railroad. . . . A variation of the capitalization method is the stock and bond method of valuation. This method reflects the composite judgment of investors with respect to the present outlook and the future prospects for the corporation whose securities they buy and sell.

The U.S. Circuit Court of Appeals in *Bailey v. Megan*, 102 F.2d 651 (8th Cir. 1939), has said on the subject of valuation that the present and potential ability of railroad property to earn in competition is determinative of its value for state property tax purposes.

And it was stated in the *State Railroad Tax Cases*, 92 U.S. 575, 605 (1875), that: It is therefore obvious, that, when you have ascertained the current cash value of the whole funded debt, and the current cash value of the entire number of shares, you have by the action of those who above all others can best estimate it, ascertained the true value of the road, all its property, its capital stock, and its franchises. . . .

5. MOTT, *EXAMINATION OF ASSESSED VALUATIONS IN COLORADO* (1952).

obsolescence in the physical property of railroads which is impossible to measure or discover, and further, because the authorization of increased rates by the Interstate Commerce Commission no longer assures increased revenues to the railroads, as it did back in the days when the railroads enjoyed a virtual monopoly in the transportation industry. Notwithstanding this, it is common belief that if a railroad replaces steam locomotives with diesel locomotive units, the value of the railroad automatically increases because the cost of a diesel locomotive unit is more than the cost of the steam locomotive being retired. This, of course, is a misconception. While dieselization may result in the railroad's being more valuable by reason of increased net earnings, yet in spite of dieselization and every other effort to reduce expenses, the value of the railroad as a unit may decline because of adverse economic factors.<sup>6</sup>

During the past several years, economic factors such as subsidized trucks and buses, subsidized passenger air transportation and freight air transportation, the great increase in the use of private automobiles and trucks, and even pipeline transmission companies, have had a remendous effect on the value of railroads. At the same time, dieselization and all of the other modern techniques put into service by the railroads in recent years have given very effective help to the other factors in rendering many types of its physical property obsolete. The N.A.T.A. Report comments on obsolescence as follows:<sup>7</sup>

Physical depreciation is hard to measure; obsolescence is usually impossible to measure. For this reason, the cost approach to value is a poor one for those kinds of utility property which have suffered much obsolescence.

It is generally agreed among authorities that the two best evidences of the unit value of a *profit-producing railroad*, whose securities are *actively traded on the open market*, are (1) the market value of the stocks and debt, and (2) the value determined by capitalizing the net railway operating income. These two elements of value produce the cash or market value needed for ad valorem taxation and the value so produced is comparable to the cash or market value of other properties which are sold as units

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6. UNITED BUSINESS SERVICE, WHAT'S AHEAD FOR RAILROAD STOCKS, (Special Release March, 1955). Therein it is stated:

Before the advent of the rubber tire, the railroads enjoyed a virtual monopoly in transportation except for river traffic. Since the early 1920's, the competitive position of the rails has deteriorated to the point where they now do less than 50% of the freight business and less than 10% of the passenger business. Moreover, the larger portion of the volume hauled by competitors is that done by unregulated contract and private carriers in the fields of highway, river, and pipeline operation. Because rail rates have always been related to the product moved, rather than to costs, competition has captured the most profitable business. These adverse competitive developments go a long way in explaining the industry's relatively poor showing in a year of near-boom conditions such as 1954.

7. NATIONAL ASSOCIATION OF TAX ADMINISTRATORS, APPRAISAL OF RAILROAD AND OTHER PUBLIC PROPERTY FOR AD VALOREM TAX PURPOSES, c. 1, p. 8 (June, 1954).

on the market at current prices. Notwithstanding the clear mandate of the laws that assessments must be based on cash value, and notwithstanding the irrelevancy of cost to cash value, it is not uncommon for railroad assessors to attempt to introduce the cost of railroad property as an element of value. This usually is the result of a failure to distinguish between railroad property, which carries a large amount of unmeasurable economic obsolescence, and ordinary types of property whose sales prices when new usually will be somewhat comparable to their cost of reproduction, and when old will contain obsolescence which can be measured by the sales prices of comparable properties. It might be said at this point that cost is usually a higher figure for railroads than the current cash value, and the temptation to use cost figures on railroads is sometimes influenced by a desire to justify a higher full value which will in turn appear to produce a lower equalized assessment ratio.

#### STOCK AND DEBT METHOD

The system value ascertained by the stock and debt method includes everything of value — tangible and intangible, operating and non-operating. From time immemorial, courts have approved the stock and debt method of finding value and have defined it to mean the total market value of a railroad's stock and *funded* debt. Courts almost always have approved the averaging of the market value of stocks and debt over a period of several years for the obvious purpose of stabilizing the valuation to be used for property taxation.

During the past fifteen years, numerous studies have been made of the valuing of railroads for property taxation by capable individuals and committees, and almost invariably new refinements have been recommended which enlarge the established concept of stock and debt value.

Although these studies have contributed a great deal to the advancement of a more scientific approach to finding the value of railroads, they have in some instances placed too much emphasis on theory and not enough to the practicality of application nor to the realities of maintaining and operating a railroad system. Two of these questionable suggestions or recommendations which usually result in increasing the stock and debt value are:

- (1) Determining the deductible value of non-operating property, tangible and intangible, on the basis of the actual current net income to the railroad from such non-operating properties instead of using the market value or basing the value on appraisals, or assessments of other tax assessing officials; and
- (2) Adding current liabilities, deferred liabilities and unadjusted credits to the market value of stocks and *funded* debt.

The first assumes that the market prices of all railroad securities are influenced only by current interest or current dividends and that con-

sequently the influence that non-operating property has on the market prices of railroad securities can be measured by current interest or current dividends received by the railroads from such non-operating properties or corporations. This assumption is unrealistic. Railroad securities are divided into the two general classifications of investment and speculative. Securities coming under the heading of investment are those which have been paying regular dividends at favorable yields and in all probability will continue to do so. Speculative securities are, of course, those on which dividends may be paid only in years of high earnings, or they may be those which have little probability of paying currently, but from which the income may be derived in the form of enhanced market prices when sold at a later date, or those paying low yield dividends currently which, because of a policy of using current earnings to modernize the plant, will probably pay high yield dividends in future years. There is no quarrel with the premise that security market prices are based on income, but it is erroneous to assume that market prices are the result only of current dividends. *Potential* income is the incentive to buy many securities and current dividends are often of little consequence among the factors influencing the market price of many railroad securities.

Security analysts tell us that purchasers look at many factors other than current dividend payments. They look at the standard of property maintenance observed by the company; whether management is sound and is retaining a substantial portion of the earnings for modernizing and improving the physical plant for the purpose of reducing future operating expenses; whether there are possibilities of reducing annual fixed charges; whether the company's traffic is diversified and is not vitally affected by shutdowns in other industries; whether the company is plagued by large passenger deficits resulting from "compulsory" commuter services; and many other relevant factors.

Since the market prices of railroad stocks are influenced by many factors other than current dividend payments, it is a fallacy to assume that the value of non-operating property can be fairly determined from the amount of dividends or interest currently received from the non-operating property or corporation. Non-operating properties are held for many reasons other than for the payment of income currently to the railroad. Lands for industrial development are acquired with the hope that the potential freight revenue from industries to be located on the land will increase the future operating earnings of the railroad. Likewise, forest lands and oil properties may be owned and operated with varying degrees of profit from sales to the public, but their ownership may enable the railroad to purchase some necessary manufactured products at a lower cost than could be obtained on the open market. The benefit to the railroad would be not through income from non-operating properties as shown by the income account, but would be through increased net railway *operating* income of the railroad



because of the lower cost of operation and maintenance. Other lands may be valuable by reason of probable natural resources development.<sup>8</sup>

It clearly appears that the deduction value of non-operating properties should be determined from their market value or from appraisals, or from assessments placed upon them by taxing officials.

Some tax administrators contend that non-operating property such as tax-exempt federal securities should not be deducted at their market price from the total stock and debt value, but that a value for such property should be constructed by capitalization of the interest received by the railroad system. The stock and debt method involves finding the market value of the entire system, operating and non-operating, tangible and intangible. If some of the property is actively traded on the open market, no more accurate and fair evaluation can be made than that represented by its market price, or, if not traded on the market, its current asset book value. Since this information is available for federal securities, they should be deducted at their market price and not at a value based on capitalization of the income received by the railroad from such securities.

The second recommendation stated above assumes that the price paid in the market for railroad securities is depressed to the extent of the value of current liabilities, deferred liabilities and unadjusted credits. This is an assumption which has not been proven and which is in contradiction to a long line of court decisions. This theory apparently is based on the familiar accounting equation that total assets equal total liabilities. The equation is the natural result of double entry bookkeeping where equal debits are recorded for equal credits and it is true so long as reference is made to book accounts or balance sheets. Because all of the book accounts on the asset side equal all of the book accounts on the liability side of a balance sheet is not impelling evidence that the accounting equation is meaningful when market values are substituted for some of the book amounts shown on the liabilities side.

It seems more logical to assume that the market considers current liabilities, deferred liabilities and unadjusted credits as part of the necessary accounting for the day to day operation of a railroad and that the value of the corporation is the total of what the market will pay for securities in the hands of the public. This rule was well stated by the United States Supreme Court when it said:<sup>9</sup>

It is therefore obvious, that, when you have ascertained the current cash value of the whole funded debt, and the current

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8. See note 6 *supra*. This same report declares:

In the early days, the Government promoted the building of the Western railroads through land grants. While most of these lands have been disposed of, some roads still hold large acreages of land or have retained mineral rights on land sold. Oil, lumber, iron, uranium, and many other natural resources are factors of great potential value. While we do not recommend purchasing rails just for natural resources, such potentials are a definite plus factor.

9. State Railroad Tax Cases, 92 U.S. 575, 605 (1875).

cash value of the entire number of shares, you have by the action of those who above all others can best estimate it, ascertained the true value of the road, all its property, its capital stock, and its franchises.

Another reason why current liabilities, deferred liabilities and unadjusted credits should not be added to the market value of stock and funded debt under the stock and debt method is that much of these accounts do not represent debt. For instance, one of the large items included under current liabilities on a railroad balance sheet is Audited Accounts and Wages Payable. To a great extent, this liability account represents outstanding paychecks which have been issued and delivered to the employees but which have not been returned to the railroad company from the banks. This so-called accrued liability will remain until the cancelled checks are returned from the banks. This liability is not a debt because the person who had the claim for services furnished has been paid and in many cases, cashed his check. Instead the bank balances included in the cash account under current assets are in reality overstated. This "enhanced" value is merely the result of a bookkeeping method and the "enhanced" value would not exist had the cash account been credited when the vouchers were issued instead of when they are returned from the banks as cancelled checks. There are other liability accounts which do not represent the value of the corporation such as employees' federal and state income tax withholdings, collection of transportation taxes by the railroad for the federal government and collection of railroad retirement taxes from employees for the government.

Unadjusted credits sometimes include substantial amounts for such items as accrued earned vacations which do not become a debt until further performance by employees in the ensuing year. This accrual is adjusted each year by debiting or crediting profit and loss and debiting or crediting unadjusted credits. It is conceded by everyone that the market value of railroad securities includes the profit and loss account and the acceptance of this premise seems to invalidate the theory that if an accrued liability is set up for so-called earned vacations by charging profit and loss, the value of the railroad would be increased over what it would be if the amount of the so-called accrued liability had been left in the profit and loss account. *The assumption that the market analyzes these accounts, determines which liabilities are debts and which are not, and then depresses market prices accordingly, seems to be without validity.*

The traditional concept of the stock and bond (funded debt) method of ascertaining the value of railroads whose securities are actively traded is still the most realistic and objective method available.

#### CAPITALIZATION OF INCOME METHOD

The other method of ascertaining the value of a *profit-producing* rail-

road which has received universal approval is the capitalization of net railway operating income. This amounts to finding the present value of an equal annuity in perpetuity where the annuity is the annual net earnings of the railroad. The difficulty encountered in the use of this methods is the determination of the proper rate of capitalization and the determination of the proper income to capitalize. And therein lies another cause for some of the problem of inequitable property taxes confronting the railroads. Volumes have been written about the subject and numerous research studies have been made during the past fifteen years.<sup>10</sup>

The importance of the proper rate of capitalization is aptly stated by the N.A.T.A. report on unit valuation:<sup>11</sup>

Fundamental to a determination of value by the method of capitalizing income is the use of a rate of capitalization that adequately reflects conditions in the money market. The importance of employing the proper rate cannot be over-emphasized; a ten per cent rate applied to a \$1,000,000 income results in only half the value that would be indicated by the use of a five per cent value. When a given income can produce value figures of \$10,000,000 and \$20,000,000, as in this case, the crucial roll played by the rate of capitalization is apparent.

Space will not permit an exhaustive discussion of the subject but two of the new theories which have been advanced in recent years deserve mention because they have a profound effect on the capitalization rate and consequently the full value ascertained for a railroad. One is considering current liabilities in determining the market rate. This theory requires the imputing of "implicit" income to current liabilities and the illusory assumption that the hypothetical rate of return which would have to be paid would be very low—probably two per cent. This theory is based on the same assumptions as in the stock and debt method and is invalid for the same reasons as given above.

In a study of fifteen railroads by the National Committee of Railroad and Public Utility Tax Representatives, it was found that current liabilities averaged about fifteen per cent of stock and bond market values.<sup>12</sup> It readily can be seen that this theory results in a substantial reduction in the rate

10. For references to outstanding work in this field see Welch, *Refinements in the Capitalization of Earnings Approach to Valuation of Public Utility Properties*, PROCEEDINGS OF THE (48TH) ANNUAL TAX CONFERENCE 99 (1955); Martin, *Marshalling the Evidence of Public Utility Property*, PROCEEDINGS OF THE (48TH) ANNUAL TAX CONFERENCE 110 (1955).

11. NATIONAL ASSOCIATION OF TAX ADMINISTRATORS, APPRAISAL OF RAILROAD AND OTHER PUBLIC UTILITY PROPERTY FOR AD VALOREM TAX PURPOSES, c. 1, p. 30 (June 1954).

12. NATIONAL COMMITTEE OF RAILROAD AND PUBLIC UTILITY TAX REPRESENTATIVES, SPECIAL REPORT 19 (May 1954) Therein is stated:

The extent of this sell-off is not described, although if it be equal to the amount of current liabilities, it would be about 15% of stock and bond market value. For fifteen railroads with 1952 security values of \$8.5 billions, current liabilities were \$1.3 billions.

of capitalization and consequently a substantial increase in the resulting value.

The rate of return *actually required by investors in the market* is the correct method of finding the proper rate of capitalization for railroads and when this rate is used, it produces results which are somewhat similar to those produced by the stock and debt method. Ronald Welch quite properly states the principal involved:<sup>13</sup>

Servicable capitalization rates cannot be manufactured out of thin air — the raw material out of which capitalization rates are commonly fabricated. A capitalization rate is proper only when it successfully converts income into market price. If the rate consistently produces figures that are higher than the amounts for which properties of a given class will sell, it is too low; if it consistently produces figures that are below selling prices, it is too high. No validity can be ascribed to a capitalization rate which is "found" without some such testing. . . . In the absence of sales prices for utility systems, there is but one thing left from which to derive a capitalization rate for utility earnings. I refer, of course, to security prices — stock and debt values.

According to a study of the Subcommittee of the National Committee of Railroad and Public Utility Tax Representatives, a proper rate of capitalization for railroads would be somewhat around eight per cent. The results of this committee's study are shown below:<sup>14</sup>

*Rate of Market Capitalization of Railroad Earnings, 1950-54, Incl.\**

	Market Value of Securities	Earnings Available for Securities	Indicated Rate of Capitalization
A. T. & S. F. ....	802.7	82.0	10.34
B. & O. ....	600.2	45.4	7.56
C. & O. ....	686.2	53.5	7.78
C. & N. W. ....	199.8	9.1	4.52
C. B. & Q. ....	411.9	33.3	8.13
C. M. St. P. & P. ....	284.0	19.7	6.98
C. R. I. & P. ....	260.4	22.7	8.82
G. N. ....	402.2	35.1	8.78
I. C. ....	305.1	32.4	10.64
N. Y. C. ....	993.3	63.2	6.38
N. & W. ....	335.1	30.3	9.04
N. P. ....	386.4	26.4	6.94
Penna. ....	1,045.3	73.4	7.07
S. P. ....	972.6	72.7	7.50
U. P. ....	772.7	75.0	9.75
AVERAGE .....			7.97
TOTAL .....	8,457.9	674.2	

13. Welch, *Refinements in the Capitalization of Earnings Approach to Valuation of Public Utility Properties*. PROCEEDINGS OF THE (48TH) ANNUAL TAX CONFERENCE 16 (1955).

14. NATIONAL COMMITTEE OF RAILROAD AND PUBLIC UTILITY TAX REPRESENTATIVES, COMMITTEE REPORT, (1955).

\* Security values represent average annual high and low market quotations for each issue of stock and capital indebtedness applied to year-end par values shown by annual reports of the companies listed and by *Moody's Railroads*. "Earnings available for securities" is "income available for fixed charges" less rent for leased roads and equipment and interest on unfunded debt.

Although it has been common practice for many years for state administrators to use a six per cent basic capitalization rate for net railway operating income, it is gratifying to know that in recent years there has been a tendency in some quarters to be more realistic and increase the rate.

Another of the theories advanced in recent years with respect to valuing railroads for property taxation, is capitalizing the railway operating income before depreciation charges. This theory makes allowance for depreciation on the basis of the present appraised value of the property instead of on the original cost of the property. My objection to this theory is not directed at the principle involved but at the manner in which it is applied to railroads. Under this theory, it is necessary to add a rate of capitalization for depreciation to the basic capitalization rate. Its proponents advocate the interest methods of depreciation, some advocating the compound interest method with reinvestment in railroad property and others the outside sinking fund method.

The author believes that neither method can be applied realistically to properties, such as railroads, which have many types of physically wasting assets whose useful lives are constantly terminating and which are being replaced every year. Nor can it be applied to railroads which, because of their highly competitive position, continually make capital expenditures which do not result in increased earnings but only assist in preventing further decreases in net earnings.

The compound interest depreciation premise assumes:

- (1) that out of each year's earnings, an amount will be invested in a hypothetical fund within the company, which at compound interest will equal, at the expiration of the useful life of the property, the present value of the railroad; and,
- (2) that the amount of the annual depreciation charges invested in the hypothetical fund will return interest at the same speculative rate as the earnings rate required by the owners of the railroad securities.

The sinking fund depreciation premise assumes:

- (1) that the annual depreciation charge is reinvested at a *safe* rate of interest in a sinking fund and at the end of the useful life of the property, the full amount will be available for withdrawal and will equal the present value of the railroad;
- (2) that the annual depreciation amounts are reinvested in some-

thing outside the railroad which produce interest at a *safe* or *riskless* rate of return; and,

- (3) that all of each annual depreciation charge will be placed in the sinking fund immediately at the end of each year and that the interest on the reinvested money will be placed in the sinking fund immediately so that all principal and interest will be drawing interest for 365 days each year thereafter until the useful life of the property has terminated.

Although these depreciation methods are available and may be useful under certain circumstances, they cannot be used for finding the depreciation supplement to the basic capitalization rate when valuing railroads. In attempting to apply these methods to railroads, it must be remembered that railroads are enterprises whose operations will continue long after the life of their present property has terminated and it must also be remembered that the railroad property being currently evaluated consists of many individual units whose lives will begin terminating immediately, even though the estimated useful life of all units may average out to be 20 or 25 years.

It has been a universal practice for many years to capitalize the net railway operating income of a railroad to find its present value for the purpose of property taxation. Likewise, the estimated future income has been based on past experience and an average of the past five years has been the most frequently used basis. The net income so determined is considered an equal annuity in perpetuity. This premise assumes that the net income and the rate (and consequently the value) will remain the same in the future as at present.

It should be emphasized at this point that the hypothetical sale involved is that of one or more investors buying all of the securities issued by the railroad corporation, which funds will become corporate funds to be invested by the corporation in railroad property. It should be remembered that there are two investments involved, (1) the investment of the security buyers and (2) the investments of the corporation. With this point clear, it is obvious

- (a) that the amount of the investment of the security holders can become different than the amount of corporate funds invested in the property and that the market rate (the rate the earnings are of the market value) can be and usually is decidedly different than the rate the earnings are of the corporate funds shown by the books to be invested in the property.
- (b) that by determining the present value of an equal annuity in perpetuity, it is assumed that the net earnings in every future year will equal 8% (the present market rate) of the present capitalized value. (Not the investment shown by the books.)

Now if the future annual *net* earnings are considered an equal annuity in perpetuity and must be equal to 8% of the present value, then it necessarily follows that when the income *before* depreciation is capitalized

by supplements the basic rate with the depreciation rate, net earnings equal to 8% of the present value must be available each year *after* depreciation charges are made. With this part of the problem clearly in mind, we can take a look at tables A and B and more easily understand why the interest methods of depreciation cannot be used for determining the depreciation supplement to the basic capitalization rate when finding the value of railroads.

Combination of the basic rate of capitalization with the sinking fund depreciation rate represents what is sometimes known as the Hoskold Sinking Fund Valuation Premise, but this premise cannot be applied when depreciation charges must be used by the railroad in order to retain the earning capacity of the railroad at its current level and where the reinvestment of the depreciation will not assure an increase in the annual net earnings. Table A represents the sinking fund method where the estimated future annual earnings before depreciation are \$100,000, the present value is \$1,020,100 and the net earnings after depreciation amount to \$81,608 or 8% on the present value. Since net earnings equal to 8% of the present value must remain each year after depreciation, the difference between \$100,000 and \$81,608 or \$18,392 will be available to reinvest annually in a sinking fund outside of the company. Although it is ridiculous to do so, it is assumed for comparison that these funds can be *safely* invested at 8% interest.<sup>15</sup>

The fallacy of this method is revealed by columns 4 and 6 which show that only about forty per cent of the depreciation can come from the \$100,000 annual earnings before depreciation, and that about sixty per cent has to be derived from income which is in addition to the estimated annual operating income of the railroad. This means that all annual depreciation must be invested by the corporation in a sinking fund which will produce earnings in excess of the estimated earnings of the railway company and that no part of the depreciation, including principal and interest, will be available to the railroad to replace properties whose useful lives terminate each year. Since it is an imperative practice of the railroads to use recovered depreciation funds in an attempt to maintain the earning capacity of the railroad, and since it is impracticable if not impossible for many railroads to issue additional stock or long-term bonds for replacements, the net earning would decline rapidly and the railroads would soon cease to operate if the sinking fund method were applied in determining the value of a railroad by the capitalization method. Even if it were applicable to railroads, this premise would only be workable with a very low sinking fund rate because

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15. SCHMUTZ, APPRAISER'S INTEREST TABLES AND THEIR USES 27 (1935). The use of an eight per cent interest rate in the sinking fund, the safe rate, in the above tabulation, wherein interest is compounded annually, unquestionably trespasses the bounds of reason. Financial history has adequately shown that the maximum rate at which money can be compounded, over reasonably long periods of time, is about three per cent. . . .

the interest income on the corporate funds invested in the outside sinking fund is subject to federal income taxes and would produce for reinvestment only about one-half of the interest received on safe and riskless investments.

Supplementing the basic rate of capitalization with the compound interest depreciation rate of capitalization represents what is sometimes known as the Inwood Compound Interest Valuation Premise. This premise assumes either:

- (1) that the annual net earnings rate will not equal the eight per cent market rate on the present capitalized value; or
- (2) that reinvestment of the depreciation charges in property of the company will automatically cause a proportional increase in the earnings before depreciation so that the earnings rate will remain at eight per cent.

Under (1) above, the entire earnings of \$100,000 is considered as a terminating income stream whereas only that part of the \$100,000 applicable to depreciation should be considered a terminating stream and the remainder should be considered a perpetual stream of income.

This method is even more objectional than the sinking fund method because as can be seen by table B, column 3, the annual *net* earnings decline each year in the same amount the depreciation charges increase so that the average annual earnings rate amounts to only 5.25% instead of the eight per cent at which the net earnings are being capitalized.

The second assumption is unrealistic and illogical because for it to be applicable to a railroad, the net earnings plus depreciation would have to increase each year by the amount of the interest from the hypothetical fund within the company. It would mean for instance that the net earnings plus depreciation in the twenty-first year would be \$167,332 instead of the estimated amount of \$100,000.

Valid objections probably cannot be made to the use of capitalization of income as one method of finding the value of railroads, but realistic assumptions must be made in applying the method. Unless this is done, fantastic values may be created. The following illustrates this point, assuming estimated future annual income of \$100,000,000, the useful life of the railroad plant estimated at an average of twenty-five years, and the basic capitalization rate at six per cent:

		Capitalization	Value
		Rate	
Inwood Premise	6% & 6 %	7.823	\$1,278,282,000
Hoskold Premise	6% & 3 %	8.743	1,143,772,000
Hoskold Premise (a)	6% & 1½ %	9.326	1,072,271,000
Reasonable Premise (b)	8% + 4 %	12.000	833,333,000

(a) allowing for federal income taxes on the interest income from the sinking fund.

(b) allowing one-twenty-fifth or four per cent for depreciation and



the market rate of eight per cent as the basic capitalization rate.

NOTE: Adjustment for non-depreciable land are not made in this illustration.

The unrealistic value of the hypothetical railroad produced by the Inwood premise of \$1,278,282,000 is \$444,949,000 or 53% more than the value of \$883,333,000 produced under realistic assumptions. If the average tax rate is four and one-half per cent and the railroad is assessed at 70% of its full value, this difference in value would result in unfair and inequitable annual taxes of \$1,401,588.

TABLE A

1	2	3	4	5	6
1st	100,000	81,608.00	18,392.00	18,392.00	—
2nd	100,000	81,608.00	18,392.00	38,255.36	1,471.36
3rd	100,000	81,608.00	18,392.00	59,707.79	3,060.43
4th	100,000	81,608.00	18,392.00	82,876.41	4,776.62
5th	100,000	81,608.00	18,392.00	107,898.52	6,630.11
6th	100,000	81,608.00	18,392.00	134,922.40	8,631.88
7th	100,000	81,608.00	18,392.00	164,108.19	10,793.79
8th	100,000	81,608.00	18,392.00	195,628.85	13,128.66
9th	100,000	81,608.00	18,392.00	229,671.16	15,650.31
10th	100,000	81,608.00	18,392.00	266,436.85	18,373.69
11th	100,000	81,608.00	18,392.00	306,143.80	21,314.95
12th	100,000	81,608.00	18,392.00	349,027.30	24,491.50
13th	100,000	81,608.00	18,392.00	395,341.48	27,922.18
14th	100,000	81,608.00	18,392.00	445,360.80	31,627.32
15th	100,000	81,608.00	19,392.00	499,381.66	35,628.86
16th	100,000	81,608.00	18,392.00	557,724.19	39,950.53
17th	100,000	81,608.00	18,392.00	620,734.13	44,617.94
18th	100,000	81,608.00	18,392.00	688,784.86	49,658.73
19th	100,000	81,608.00	18,392.00	762,279.65	55,102.79
20th	100,000	81,608.00	18,392.00	841,654.02	60,982.37
21st	100,000	81,608.00	18,392.00	927,378.34	67,332.32
22nd	100,000	81,608.00	18,392.00	1,020,100.00	74,329.66
		<u>1,795,376.00</u>	<u>404,624.00</u>		<u>615,476.00</u>

Present Capitalized Value (8%)=\$1,020,100.

Col. 1—End of year.

Col. 2—Estimated future net railway operating income plus depreciation charges.

Col. 3—Net railway operating income at the necessary 8% market rate.

Col. 4—Depreciation annuity.

Col. 5—Balance in outside sinking fund drawing 8% interest.

Col. 6—Interest on accumulated sinking fund which when added to Column 4 determines the amount of annual depreciation to be reinvested in the outside sinking fund.

TABLE B

1	2	3	4	5	6
1st	100,000	81,608.00	18,392.00	18,392.00	—
2nd	100,000	80,136.64	19,863.36	38,255.36	1,471.36
3rd	100,000	78,547.57	21,452.43	59,707.79	3,060.43
4th	100,000	76,831.38	23,168.62	82,876.41	4,776.62
5th	100,000	74,977.89	25,022.11	107,898.52	6,630.11
6th	100,000	72,976.12	27,023.88	134,922.40	8,631.88
7th	100,000	70,814.21	29,185.79	164,108.19	10,793.79
8th	100,000	68,479.34	31,520.66	195,628.85	13,128.66
9th	100,000	65,957.69	34,042.31	229,671.16	15,650.31
10th	100,000	63,234.31	36,765.69	266,436.85	18,373.69
11th	100,000	60,293.05	39,706.95	306,143.80	21,314.95
12th	100,000	57,116.50	42,883.50	349,027.30	24,491.50
13th	100,000	53,685.82	46,314.18	395,341.48	27,922.18
14th	100,000	49,980.68	50,019.32	445,360.80	31,627.32
15th	100,000	45,979.14	54,020.86	499,381.66	35,628.86
16th	100,000	41,657.47	58,342.53	557,724.19	39,950.53
17th	100,000	36,990.06	63,009.94	620,734.13	44,617.94
18th	100,000	31,949.27	68,050.73	688,784.86	49,658.73
19th	100,000	26,505.21	73,494.79	762,279.65	55,102.79
20th	100,000	20,625.63	79,374.37	841,654.02	60,982.37
21st	100,000	14,275.68	85,724.32	927,378.34	67,332.32
22nd	100,000	7,417.73	92,721.66	1,020,100.00	74,329.66
		<u>1,180,039.39</u>	<u>1,020,100.00</u>	<u>615,476.00</u>	

Present Capitalized Values (8%)=\$1,020,100.

Col. 1—End of year.

Col. 2—Estimated future net railway operating income plus depreciation charges.

Col. 3—Net railway operating income after depreciation charges (Col. 2 minus 4).

Col. 4—Annual depreciation charges (\$18,392 plus Col. 6).

Col. 5—Balance in hypothetical sinking fund within the company drawing 8% interest.

Col. 6—Interest on hypothetical sinking fund (which must come out of \$100,000 Col. 2).

#### ALLOCATION OF SYSTEM VALUE

When the system value of the operating railroad has been ascertained, it then becomes necessary to allocate to the specific state its proportion of such system wide value. Here again some state assessing agencies are inclined to use the allocation factor or factors which are most favorable to their state. This probable is a natural human characteristic but this fact does not diminish the impact of such action on the railroad as a taxpayer. If a state is a "bridge" state, the assessing agency is inclined to use factors or weight them more heavily in combination with other factors; if it is a "terminal"

state, it is inclined to use terminal factors or to give more weight to them in combination with other factors; and, if it is a state with railroads having considerable "dead" branch lines, the state may favor physical allocation factors such as track miles or cost because these factors do not account for economic or functional obsolescence. In 1949 the committee on railroad allocation of the National Association of Tax Administrators developed what it termed an "Operating Characteristics" Railroad Allocation Formula in an attempt to supply a uniform and equitable allocation basis.<sup>16</sup> Very few states adopted this formula for obvious reasons.

Space limits the discussion of allocation factors but it is essential to furnish a few examples in order to emphasize their importance in the problem of inequitable railroad taxes. A difference of 2% in a state's allocation factor would increase a railroad's annual tax bill in that state by \$630,000 where the railroad system value is \$1,000,000,000, the tax rate 4.5%, and the equalization ratio 70%.

Terminal states are inclined to use tons originated and terminated and tons delivered to and received from connections as an allocation factor. Even though this allocation factor is advocated quite strongly in some quarters, thorough examination reveals that it is one of the most unreliable and inadequate factors used. It is supposed to indicate the existence and use of valuable terminal facilities. This it does not do. In large area states such as California and Texas, much traffic is originated and terminated at relatively small cities within the respective states which traffic does not require large terminal facilities. Also, all traffic originated in a state and transferred to ships is counted as originated as well as terminated in those states. This point is well illustrated by the fact that in the large state of Texas located on the Gulf of Mexico, the freight car miles of one railroad are 18% of the system and passenger car miles 9% of the system, while originated and terminated tons are about 28% of the system.

Tons delivered to and received from connections are even more unreliable and unrepresentative than tons originated and terminated. For example, the Santa Fe has valuable freight train classification yards at Clovis, New Mexico and Belen, New Mexico but freight cars at these points, after being reclassified, are switched to other *Santa Fe* trains and proceed on other Santa Fe railroad lines. None of these tons are classed as tons delivered to and received from connections but if this were a point on the Santa Fe railroad such as at Argentine, Kansas, a large proportion of these tons would be delivered to and received from other railroads and would be counted as tons delivered to and received from connections. Since freight would be moving under Kansas City waybills, they would be counted as

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16. NATIONAL ASSOCIATION OF TAX ADMINISTRATORS, PRELIMINARY REPORT OF THE COMMITTEE ON RAILROAD ALLOCATION (June 1947); and NATIONAL ASSOCIATION OF TAX ADMINISTRATORS, REPORT OF THE COMMITTEE ON RAILROAD ALLOCATION, "REVENUE ADMINISTRATION, 1949" 59.

tons delivered to and received from connections in the state of Missouri instead of Kansas, even though the classification yards are located in Kansas across the state line. This situation clearly reveals the fallacy of using these factors in allocating the system value to the states. To further illustrate, even though Chicago and Kansas City are two important interchange points, the Santa Fe has comparatively little valuable investment in owned freight train classification yards in the state of Illinois and has practically no yard switching tracks in the state of Missouri. The unreliability of using this factor is clearly illustrated by the following figures:

	Illinois	New Mexico	Missouri
Tons delivered to connections	23.81%	0.92%	21.48%
Tons received from connections	17.01%	0.73%	18.79%
Miles of way switching tracks	3.84%	13.35%	1.39%
Miles of yard switching tracks	5.78%	8.52%	1.20%

Many states use locomotive miles, car miles, or car and locomotive miles as an allocation factor. This factor has developed into an unreliable and inequitable allocation factor in recent years. Many railroads have constructed automatic freight classification yards where the use of switch locomotives has been practically eliminated. These are valuable facilities but locomotive miles no longer represent the use of these facilities. The locomotive miles percentage would be disproportionately large in states in which automatic classification yards were not located and would allocate an inequitable proportion of the system value to such a state. The same thing is true of passenger train locomotive miles and passenger train car miles on many railroads which do not have passenger train service on all of their lines because of eliminating such service or otherwise. At the present time, the Santa Fe has passenger train service on only about 50% of its system lines and the use of this factor gives inaccurate shares of the system value to the respective states.

The subject of allocation factors needs a great deal more study by all concerned before the problem of inequitable railroad taxes will be completely solved. It is doubtful whether there is a railroad allocation formula which is completely adequate for uniform use in all states. Most of the factors have some deficiency and the real problem is to find the factors which are fair to the states and to the railroads and then be able to get their acceptance by the state assessing agencies. This is much more difficult than it seems. Some states have a statutory allocation formula which precludes the use of other factors regardless of their merit, while other states have developed an allocation formula through administrative practice which has become almost as rigid as though incorporated in the statute. It is absolutely amazing how difficult it sometimes is to change an administrative development even though unfair and inequitable to the majority of the railroads. At this time, it seems that the only possible solution to this problem is for the railroad tax representatives to exert every effort to gain the sympathetic understanding

of the state assessing agencies. The intelligent approach to the problem is to use the most reliable factors and to discard those which are subject to different methods of counting or which are unreliable because of modern installations and other changes which railroads have made in an effort to retain their place in the competitive transportation industry.

#### EQUALIZATION

After the system value of the operating railroad has been ascertained and a percentage of the system value allocated to the state, the assessing agency is then confronted with the highly important task of equalizing this value with the assessments of other property. The assessing agency may use appropriate methods of finding the system value and may use the most reliable and equitable allocation factors, but the efforts in this respect may be voided if the resulting value is not equalized at a percentage of cash value comparable with the assessments of other property.

Most states have constitutional or statutory provisions that property taxation shall be uniform and equal throughout the taxing jurisdiction and that taxes shall not be levied according to the ownership of the property nor according to the residence of the owner.

Law is one thing and administrative practice is another, and with respect to railroads, administrative practice seems to prevail as evidenced by the widespread failure to equalize the value of railroads to the same extent that the value of all other property is equalized. New officials going into office inherit this situation, and because railroads are large corporations which for some mythical reason are supposed to be evil, it is considered unpopular to reduce their assessments even though this is necessary to accomplish justice.

Some state assessing agencies attempt to justify their failure to equalize railroad assessments with all other property on the basis that they are complying with the provisions of the law and that the local assessors are the officials who are violating the law by assessing local property at a percentage less than 100% of cash value. This question was involved in a case in the Supreme Court of Alabama.<sup>17</sup> The court said this about equalization:

We make it clear that the taxpayer whose property the assessing authorities have assessed on a basis considerably more than the basis on which other property is intentionally and systematically assessed is not required to undertake to have the property of other taxpayers which is intentionally and systematically assessed on a lower basis increased to the basis which the complaining taxpayer is assessed. The Supreme Court of the United States has laid at rest all doubt about any such remedy and has held that it is no remedy at all.

Some conscientious state assessing agencies are sincerely trying to im-

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17. *State v. Alabama Power Co.*, 48 So.2d 445, 457 (Ala. 1950).

prove the relative assessment position of the railroads but they are always confronted with "loud" protests from minority groups who are now paying less than their fair share of the property tax burden and who are fearful of having their burden increased even though such an increase would not be unjust or inequitable. Railroads are often the heaviest taxpayer in a school district and because of this, assessing agencies assume that any substantial equalization of railroad assessments in any one year would result in widespread protests from school district officials as well as other local officials. The situation has become so out-of-line, that sometimes it appears that even the courts are reluctant to correct it because of the impact the suddenly reduced assessments might have on local school district finances.

This places the railroads in the unfortunate position of paying substantial sums of inequitable and unjust taxes without being able to correct the injustice in any reasonably prompt fashion. The railroads are currently trying to emphasize to the state assessing agencies the serious problem with which they are confronted with the hope that as fair-minded men they will begin a gradual trend towards equalizing railroad assessments with the average assessment ratio of other property. If this approach is unsuccessful, concerted court action may be the only remaining alternative.

The railroads are not asking for any favors nor are they asking for any tax advantages; they are asking only for the same fair and just treatment accorded to other property taxpayers.