THE ALLOCATION OF CONSOLIDATED FEDERAL
INCOME TAXES TO REGULATED PUBLIC UTILITIES

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by

Earl C. Keller and James E. Wheeler

The University of Michigan

FOR DISCUSSION PURPOSES ONLY

The Problem

Under the federal income tax laws and regulations corporations are sometimes permitted to file consolidated federal income tax returns. The effect of such filing is to aggregate the consolidated group of companies into one economic unit for purposes of computing the tax to be imposed on the group of corporations. As long as the economic unit in total is the unit of primary economic relevance, the tax can be viewed as being imposed on the group in total and not on any one corporate member of the group in particular.

For regulatory and many other purposes, the separate corporate members, rather than the consolidated unit, become the primary units of economic relevance. It thus becomes necessary to apportion the consolidated tax among the individual corporate members of the consolidated unit. How the tax apportionment problem is solved can have far reaching implications for investors, consumers, and others.

This paper addresses the problem of how to apportion a consolidated economic unit's federal income tax among its component parts. It begins by summarizing the solutions that have been reached by authoritative bodies for (1) tax purposes, (2) public financial statement purposes, and (3) regulatory purposes. Following this summary, the paper analyzes in some detail the cash flow and rate-making issues involved in the consolidated tax allocation problem.

Official Position of Professional and Governmental Bodies

Evolution of the tax law and its impact on the apportionment of tax

Consolidated returns first arose in 1917 because of the excess profits tax of World War I and were mandatory for all controlled groups.

In 1918, such mandatory returns were extended to the income tax. During this period, controlled groups included brother-sister groups (separate corporations but with the same shareholders) as well as parent-subsidiary affiliations. The filing of consolidated returns became voluntary in 1922, and by 1928 consolidations were no longer permitted for the brother-sister groups.

"Substantially all" of the stock had to be owned by the parent corporation (changed to 95 percent in 1924) before the parent and its subsidiaries were considered to be controlled and thereby allowed to file consolidated tax returns. Minority interest (nonparent investors in controlled subsidiaries) were therefore not significant in number; consequently, the tax laws pertaining to the allocation of consolidated tax did not consider the possible impact of tax allocation on minority interests. In fact, the Internal Revenue Code did not contain any provisions for tax allocation procedures, and there was very little judicial activity in this area.

In 1954 the control percentage was reduced from 95 percent to 80 percent. This quadrupled the potential significance of tax allocation procedures to minority interests. When Congress changed this percentage they simultaneously adopted Section 1552 of the Internal Revenue Code which attempts to provide a framework for a tax allocation procedure in the determination of "earnings and profits."[1]

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[1] Earnings and profits in the tax records is similar to the retained earnings account in the financial records. Its basic purpose is to determine whether corporate distributions are taxable as dividends or tax-free returns of invested capital.

That Congress realized the degree of difficulty in this task is obvious because the 4th procedure of Section 1552 allows any other allocation method the taxpayer can think of, and which the Commissioner of the Internal Revenue will approve.

By 1968 the Commissioner had decided that Section 1552 could produce results substantially different from the tax a nonaffiliated company would incur; therefore, Treasury Decision 6962 (filed July 2, 1968, and effective for the year beginning January 1, 1966) introduced the new and current regulations including Section 1.1502-33(d). This section introduced techniques which refined Section 1552 allocation methods for earnings and profits purposes and which helped to eliminate differences between the tax burdens of affiliated and unaffiliated corporations. Eliminating such differences can remove tax implications of consolidation to minority interest, public utility customers, etc.

The importance of these refining techniques can be demonstrated by a simple example: Assume P, S, and T are affiliated companies filing a consolidated yearly return with before tax earnings as indicated. For ease of computation assume a constant 50 percent tax rate.

Before Tax Earnings (Losses)	Year 1	Year 2
P Company	$ 30,000	$ 50,000
S Company	10,000	(10,000)
T Company	(20,000)	(20,000)
Total before tax earnings	$ 20,000	$ 20,000
Tax	-10,000	-10,000
Total after tax earnings	$ 10,000	$ 10,000

Because of the simplicity of this example, all three prescribed Section

1552 methods would produce the following result:

	Allocated Tax Liability	
Year 1 Computations	Year 1	Year 2
P Company (30,000/40,000) 10,000	$ 7,500	$10,000
S Company (10,000/40,000) 10,000	2,500	-0-
T Company	-0-	-0-
Paid to Federal Government	$10,000	$10,000 .

With a 50 percent tax rate, P pays only $17,500 (7,500 + 10,000) in

taxes on $80,000 ($30,000 + $50,000) of income for the two years com-

bined. S has no profit over the two-year period but still pays $2,500

in taxes. T incurred $40,000 in losses which have been used to produce

tax benefits of $20,000 in the consolidated return, but none of the

tax benefit resulting from the utilization of T's losses are shared

with T. The tax burden is obviously distributed differently than if

separate returns had been filed, and if S and T have minority share-

holders, they may institute a lawsuit against P to recover tax benefits

of S and T.[2]

Under Regulation Section 1.1502-33(d) (with a 100 percent allo-

cation factor elected) the Section 1552 results would be modified to

produce the following:

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[2]Even creditors can bring suit. The 1974 annual report of Norfolk
and Western Railway Company mentions a suit being brought by trustees
for the Erie-Lackawanna Railway Company to recover some $75 million of
tax benefits received through a consolidated return which had not been
shared with the subsidiary incurring the losses.

	Allocated Tax Liability	
	Year 1	Year 2
P Company	$15,000	$25,000
S Company	5,000	(5,000)*
T Company	(10,000)*	(10,000)*
Paid to Federal Government	$10,000	$10,000 .

*Refunds

Thus S, which had no income from operations before tax over the two-year period, also breaks even after tax, as opposed to the Section 1552 result which would have produced an after tax loss of $2,500. T receives the tax benefit its losses actually produced, and P paid $40,000 in tax (15,000 + 25,000) or 50 percent of its $80,000 (30,000 + 50,000) before-tax income. Regulation Section 1.1502-33(d) can distribute the tax to all three companies similar to what might be achieved on a separate return basis. Section 1552 will give this result only when all affiliates (including the parent) have positive taxable incomes. But even then, if capital gains are of different proportions, the results under Section 1552 may not be the same as under 1.1502-33(d).

Earlier (1928), because of an increasing amount of litigation,[3] Congress had given the Commissioner of the Internal Revenue authority to write legislative regulations in the complex area of consolidations. Along with the 1928 delegation of authority came this admonition:

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[3]U.S., Congress, The Report of the Ways and Means Committee on the 1928 Act, H.Rep. No. 2, 70th Cong., 1st Sess., p. 20, as cited by Jacob Mertens, Jr., The Law of Federal Income Taxation (Chicago: Callaghan & Co., 1975), Chap. 46, p. 9.

Among the regulations which it is expected that the
Commissioner will prescribe are: ...(3) the extent to which
and the manner in which net losses sustained by a corpora-
tion before it became a member of the group shall be deducted
in the consolidated return; and the extent to which the
manner in which net losses sustained during the period for
which the consolidated return is filed shall be deducted
in any taxable year after the affiliation is terminated in
whole or in part....[4]

This led to Regulation Section 1.1502-79(a) which attributes the

losses to the companies that incur the losses. Thus these tax

attributes are recognized in tax law as valuable property with speci-

fied owners.

Indeed, if a subsidiary is disposed of, unused tax benefits of

that subsidiary are treated as property and are allocated to that

subsidiary under Regulation 1.1502-79(a). Under Regulation 1.1502-33(d),

the benefit of the used tax attributes may be attributed to the entity

which incurred the loss. When a subsidiary is sold, the unused tax

attributes which go with the subsidiary under Regulation 1.1502-79(a)

may affect the sale price; thus the former owner of the shares may be

compensated at least partially for these tax factors.

Even though there is no tax liability on a consolidated basis,

Regulation Sections 1.1502-33(d) and 1.1502-79(a) establish individual

tax laibilities, refunds, or carryovers of tax attributes. Tax bene-

fits such as deductions and credits are factors in the valuation of

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[4]From the Revenue Act of 1928 as cited in James E. Wheeler,
Consolidated Tax Returns (Revised ed.; New York: American Institute
of Certified Public Accountants, 1974), pp. 1-4.

properties or are property rights in and of themselves, and the above

regulations minimize the effect of consolidation on the value of

these property rights.

The Income Tax Regulations also provide specific rules for

calculating the basis of the parent's investment in a subsidiary

(Regulation Section 1.1502-32). The general rules of this rather

complex regulation are reflected in the Table 1 T-account.

Table 1

BASIS FOR A PARENT'S INVESTMENT
IN A SUBSIDIARY

Increases	Decreases
(1) The original cost and any subsequent capital contributions by the parent.	(1) The allocable part (all if 100 percent owned) of the subsidiary's deficit in earnings and profits for the taxable year.
(2) The subsidiary's <u>undistributed</u> earnings and profits for the taxable year (undistributed <u>after tax</u> earnings of the current year).	(2) Dividends in excess of current taxable year earnings and profits (a reversal of the (2) increase and then the (1) increase).
(3) The allocable part (all if owned 100 percent) of any consolidated NOL, or net capital loss, for the taxable year <u>attributable</u> to this subsidiary and not absorbed in a carryback year.	(3) The allocable part of any consolidated NOL or net capital loss carryover <u>attributable</u> to this subsidiary and absorbed in the current taxable year (a reversal of the (3) increase).

The Table 1 asset account can even have a credit balance (then it is called an excess loss account). Often complex adjustments are made to this account when the stock is sold, especially if it is sold at any time other than year end.

Effects of the current regulations

An interesting change in philosophy took place in 1966 when the current regulations became effective. This change and its impact on allocation can best be described by using an example and showing the calculations under both the former and the current regulations. For this example, suppose that S and T are both members of an affiliated group and that S sells land with a tax basis of $40,000 to T for $100,000. From this sale S Company has an intercompany gain of $60,000. Suppose further that several years later, T Company sells this same land to an outsider for $120,000.

Under the former regulations the $60,000 intercompany profit is eliminated, and thus, T's basis is the same as S's basis of $40,000. Therefore T would recognize an $80,000, ($120,000 - $40,000) gain on the sale to the outsider. Under the current regulations, the $60,000 gain to S is not eliminated; it is only deferred until the asset is sold outside the group. Thus T's basis is $100,000 and its gain is $20,000 ($120,000 - $100,000). But in the year T makes the sale, S's previously deferred gain is realized and recognized. This properly splits the gain between the two companies. It appears logical that the resulting income taxes should be split accordingly.

If S's basis had been $150,000 under the current regulations, the $50,000 loss would be deferred. T's basis would still be $100,000 so that on the date of the sale to the outsider, T would recognize a $20,000 gain and S would recognize the previously deferred loss of $50,000. Thus the $30,000 net loss is properly allocated between the two companies. Logically the tax effects should follow.

By making this change in regulations, the Treasury Department recognized the importance of allocating the net result. This change had no effect on consolidated taxable income; thus, the sole objective of the regulations was to allocate gains and losses, with their related tax effects, to the proper companies for purposes of determining the earnings and profits of each and the basis of the parent's investment in each company.

Official positions for financial statement purposes

The question of if and how income taxes should be allocated for published financial statement purposes has been the subject of many articles and several research studies. Income tax allocation has been defined in one of these studies as follows:

> Allocation is any process by which an amount is apportioned into separate units which, when summed, will equal the original amount. As applied to income tax, allocation is used in several ways: intercompany distributions, intraperiod presentation, and interperiod apportionment. In its more complex forms, income tax allocation may combine two or even all three types of allocation. Income tax allocation is thus a complex accounting

process by which the tax effect of a particular trans-
action or group of transactions is designated as adhering
to that transaction or group of transactions.[5]

Of the three types or parts of income tax allocation, inter-

period (i.e., those cause by "timing differences") allocation has

received the most attention. With respect to such interperiod

allocations, the official body of Certified Public Accountants stated

long ago that

Income taxes are an expense that should be allocated,...
as other expenses are allocated.[6]

While requiring allocation for financial statement purposes, this

early position of the American Institute of Accountants (later re-

named American Institute of Certified Public Accountants) left some

question as to the amount to be allocated. This controversy was

settled later with the release of Accounting Research Bulletin No. 44

(Revised)[7] which required for financial statement purposes that the tax

effect of income and expenses be reported in the same year that

the related income or expense item was reported, regardless of the

year the item entered the tax return computations. This still did

not end the controversy, however, because the method of measuring

and reporting the tax effect was not stated. Not until 1967, when

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[5]James E. Wheeler and Willard H. Galliart, An Appraisal of
Interperiod Income Tax Allocation (New York: Financial Executives
Research Foundation, 1974), p. 65.

[6]Committee on Accounting Procedure, Accounting Research Bulletin
No. 23, (New York: American Institute of Accountants, 1944).

[7]Committee on Accounting Procedure, Accounting Research Bulletin
No. 44 (Revised), New York: American Institute of Certified Public
Accountants, 1959).

the Accounting Principles Board issued Opinion No. 11,[8] did the use

of "deferred method" and "comprehensive allocation" for income taxes

become a requirement. Although the questions of measurement and

method of reporting income taxes for financial statement purposes are

still vigorously debated, the need for allocation is an accepted fact.

Although the issues and problems involved with interperiod tax

allocation are interesting and could be discussed at length, the

concern of this paper is the allocation of taxes between companies

when those companies join in the filing of a consolidated tax return.

The issues and problems of intercompany tax allocation have received

relatively little attention in the literature. Some of the few ref-

erences that were found in the literature are quoted as follows:

> If net income (after tax) is a meaningful statistic
> for separate corporations, then intercompany distribution
> of income tax must be considered appropriate when these
> corporations have filed a consolidated return....

> This type of income tax allocation requires that the
> tax liability from a consolidated income tax return be
> distributed to each member of the affiliation contributing
> to consolidated taxable income and a tax benefit (refund
> from other affiliates) should generally be given to any
> affiliated company suffering losses which reduce the con-
> solidated tax liability.[9]

> This study recommends that each subsidiary in a tax
> consolidation credit the parent company for the amount of
> its income tax computed on a separate company basis,
> subject to repayment in a future year to the extent that

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[8]Accounting Principles Board, _Accounting Principles Board
Opinion No. 11_, (New York: American Institute of Certified Public
Accountants, 1967).

[9]Wheeler and Galliart, "An Appraisal...," p. 66.

a loss carry-back may develop. Similarly, any subsidiary
having tax losses should receive credit from the parent
for the tax benefit of such losses.[10]

    Any allocation that is made should be equitable to
all members of the group.... The subsidiaries should bear
neither more nor less of the tax cost than they would if
they had filed separate returns.[11]

Official positions for regulatory purposes

In dealing with the implications of consolidated federal income
tax returns, utility regulatory authorities have divided the problem
into two separate and distinct issues. The first issue involves
actual payment of federal income taxes, whereas the second issue in-
volves determination of tax expense for rate-making purposes. Al-
though the two issues could have different objectives, both involve
the question of how to allocate the tax of the consolidated group
to the group's individual members.

The cash flow issue. It is quite evident from a reading of regula-
tory cases that utility commissions in general have allowed the tax
laws and/or corporate agreements to establish the distribution of
income tax-related cash payments (or cash receipts) among the members
of a consolidated group of corporations. Nowhere in the cases re-
viewed for this summary have the utility commissions or courts

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[10]Arthur Andersen & Co., Accounting for Income Taxes (Chicago:
Arthur Andersen & Co., 1961), p. 68. This quotation was cited by
the Technical Information Service of the American Institute of
Certified Public Accountants in its response to a May 1970 letter
of inquiry.

[11]Maurice Moonitz and Louis Jordan, Accounting: An Analysis of
its Problems, 2 (Rev. ed.; New York: Holt, Rinehart & Winston, Inc.,
1963), p. 341.

directly interfered with the cash flow aspects of consolidated

federal income tax liabilities. In general, the tax liabilities

and payments actually made by members of consolidated corporate

groups were allowed to remain without adjustment. Good examples of

this noninterference policy appear in all of the reviewed cases

involving subsidiaries of the American Telephone and Telegraph

Company. The Bell System files a consolidated federal income tax

return, and for cash flow purposes the consolidated tax return

liability is,

> ...allocated on the basis of the contribution of each
> company to such consolidated taxable income. Under this
> procedure, if a company's contribution to consolidated
> taxable income is less than its taxable income on a sepa-
> rate return basis, e.g., if it has an operating loss
> which serves to decrease consolidated taxable income or
> if it contributes deductions or credits not available on
> a separate return basis, it is given credit for the
> resulting reduction in consolidated tax liability....
>
> The payments made by the companies as their contri-
> butions to the consolidated tax liability represent the
> total of the amounts allocated to them....[12]

Nowhere have the utility commissions or courts disrupted this

payment scheme.

   The rate-making issue. A cursory review of tax allocation solutions

applied by the various state and federal regulatory commissions for

rate-making purposes would suggest that the regulators in general

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[12]Committee on Accounts of the National Association of Regulatory
Utility Commissioners, Allocation of American Telephone and Telegraph
Company Federal Income Taxes, 1972 (Washington, D.C.: National
Association of Regulatory Utility Commissioners, 1972), Appendix D,
pp. 3-4.

have not yet fully studied the regulatory implications of consolidated federal income tax returns. The wide variety of solutions that are found frustrate the search for underlying principles. After a more thorough review, however, a loose, but consistent logic emerges from many of the regulatory solutions.

One of the factors which underlies the allocation of consolidated taxes for rate-making purposes is financial leverage and the effects of leverage on the computation of fair rates of return. To illustrate the issues involved here, suppose that P Company owns all of the outstanding stock of S Company, a regulated public utility. Condensed balance sheets of the two companies follow:

	P COMPANY Dr. (Cr.)	S COMPANY Dr. (Cr.)	CONSOLI-DATING Eliminations Dr. (Cr.)	P & S Consolidated Dr. (Cr.)
Investment in S Co.:				
Original cost	7,000,000		(7,000,000)	-0-
Excess over original cost	3,000,000			3,000,000
Rate base	-	17,500,000		17,500,000
Long-term debt	(5,000,000)	(10,500,000)		(15,500,000)
Stockholders' equity	(5,000,000)	(7,000,000)	7,000,000	(5,000,000)
	-0-	-0-	-0-	-0-

Suppose also that the cost of debt to both companies is 10 percent and the cost of equity to both companies is 15 percent. The companies file a consolidated federal income tax return and allocate the tax

liability in accordance with Internal Revenue Code Section 1552 and

Regulation Section 1.1502-33(d)(2)(ii).

The single leverage concept. In setting rates for S Company, some

regulatory jurisdictions would argue that a fair return would provide

10 percent on S Company's $10,500,000 of debt and 15 percent on S

Company's $7,000,000 of equity. The return requirement would be

determined as follows:

	Capitalization	Percentage of Return	Dollar Return
Debt (60 percent)	$10,500,000	10	$1,050,000
Equity (40 percent)	7,000,000	15	1,050,000
Total Rate Base (100 percent)	$17,500,000	12	
After tax dollar return allowed for rate purposes			$2,100,000
Tax on interest expense (48 percent x $1,050,000)		$ (504,000)	
Tax on income before interest expense (48 percent x $3,069,231)		1,473,231	
Net tax for rate purposes equals S Company's tax liability under Reg. 1.1502-33(d)			969,231
Before tax operating income allowed for rate purposes			$3,069,231.[13]

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[13]This $3,069,231 amount can also be calculated as $1,050,000
return before tax on debt plus $2,019,231 return before
tax on equity (x - .48x = 1,050,000, thus x = $2,019,231).

The point is that some regulatory jurisdictions look only to

the capital structure of the regulated company (in this illustration,

S Company) to determine the required return for rate purposes. The

reason for this treatment rests on the argument that stockholder

leverage and regulated company leverage should remain separate (i.e.,

the separate leverage concept). Indeed, if the stockholders are

individuals--as opposed to a corporate parent--regulatory commissions

universally take the position that stockholder leverage (borrowing

to buy stock) is not relevant to rate-making. The proponents of the

single leverage concept contend that the identity of the stockholder--

corporate or individual--does not alter the irrelevant nature of

stockholder leverage for rate-making purposes. They reason that the

optimal leverage level for the operating utility is a function of

the variability of the utility's income; whereas, the optimal

leverage level for the stockholder is a function of the variability

of income from the portfolio of investments that the stockholder

owns. Since the variability of the stockholder's portfolio returns

can be reduced through diversification,[14] the single leverage

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[14]If the variability of security X is variance (X) and the
variability of security Y is variance (Y), a portfolio with available
funds invested equally in securities X and Y will have variability
equal to variance $(.5X + .5Y) = .25$ Variance $(X) + .25$ Variance
$(Y) + .5$ Covariance (X, Y). For the n security portfolio, the
variance of the portfolio's returns can be denoted as:

$$\text{Variance } (r_p) = \sum_{i=1}^{n} \omega_i^2 \sigma_{ii} + \sum_{j=1}^{n} \sum_{i=1}^{n} \omega_i \omega_j \sigma_{ij}, \text{ for } i \neq j$$

proponents argue that it is the diversification which makes additional

stockholder leverage optimal;[15] and consequently, the benefits of the

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(14 cont.)

where r_p = portfolio returns,

ω_i = fraction of available funds invested in security i,

σ_{ii} = variance of ith security's returns, and

σ_{ij} = covariance of ith and j^{th} securities' returns.

For an extended coverage of risk, see Jack Clark Francis and Stephen H. Archer, Portfolio Analysis (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1971).

[15]The generalized proof of the positive correlation between diversification and optimal leverage levels is quite simple. Suppose, for example, that a firm's optimal leverage level is such that debtholders bear 5 percent of the firm's total risk and stockholders bear 95 percent. This situation can be represented graphically as follows:

Area = 5 percent of total
      area under curve

D = Interest on $\overline{E}$ = Expected income before
    debt   interest on debt
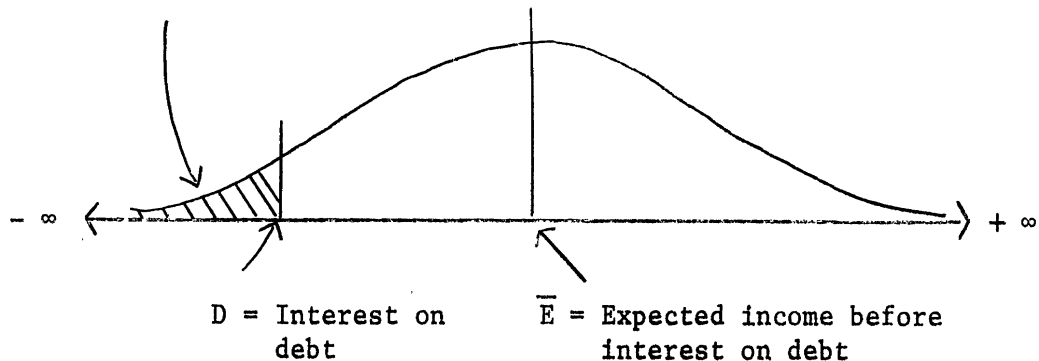
The firm represented by this graph expects its income before interest payments to be $\overline{E}$, but this level of income is not certain. There is a 50 percent chance that actual income before interest (E) will be $\overline{E} < E < + \infty$, and a 50 percent chance that $-\infty < E < \overline{E}$. The areas under the curve in the graph depict this situation; that is, 50 percent of the area under the total curve lies to the right of $\overline{E}$ and 50 percent of the total area lies to the left of $\overline{E}$. Now, since only 5 percent of the total area lies to the left of D (the amount of interest payments on debt), the graph shows that there is only a 5 percent chance that actual

(15 cont.)

income (E) will not be sufficient to pay interest on debt; that is, there is a 5 percent chance of debt default which means that debt-holders share only 5 percent of the total risk (measured by variability of actual income (E)).

Suppose now that this firm undertakes a diversification program which does not change the expected income level $(\bar{E})$, but does reduce the variability of actual income (E). The effect of this diversification can be represented graphically as follows:
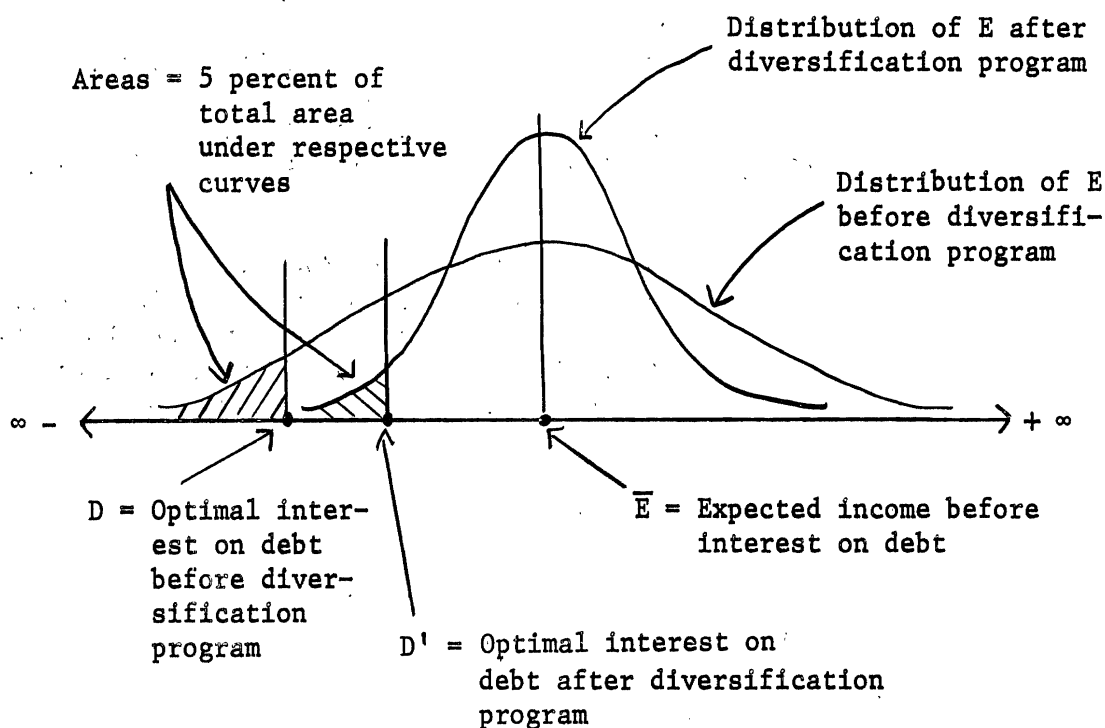
The flatter curve denotes the distribution of actual income (E) before the diversification program, and the peaked curve represents the distribution of E after the diversification program. It can readily be seen from these two distributions that if the debtholders are to bear 5 percent of the firm's total risk both before and after the diversification program, total debt must increase with diversification. Diversification reduces the variability of actual income (E), and thereby reduces the riskiness of a given debt structure. This is illustrated in the graph above where a given percentage of debt to equity required interest payments in the amount of D. Before the diversification program, debtholders bore 5% of the firm's total risk, represented by the area to the left of D under the flatter curve. Since the area to the left of D' under the peaked curve is 5 percent of the total area under the peaked curve, the area to the left of D under the peaked curve

additional leverage cannot be attributed to any particular security within the portfolio.[16]

With the single leverage concept, the parent company's capital structure is not imposed on the regulated utility to determine its allowed return. As a result, the tax benefits derived by deducting the parent company's interest expenses are not passed on to the regulated subsidiary company's customers. That is, consistency is maintained between the capital structure used for rate-of-return computations and allowable tax expense computations.

The single leverage concept has received wide acceptance by regulators in the fifty states. Two examples of recent cases involving rates of AT&T subsidiaries are presented below. The first example cited involves the Michigan Bell Telephone Company in which the concept is clearly spelled out. The second example involves the Wisconsin Telephone Company in which the concept was used but not clearly identified.

(15 cont.)

must be less than 5 percent. This proves that risk borne by debtholders with a given debt structure decreases as diversification increases. Therefore, to maintain a constant division of risk between debtholders and stockholders, debt-to-equity ratios must be positively correlated with a firm's degree of diversification.

[16]For additional arguments in favor of the single leverage concept, see Joseph F. Brennan and Ralph K. Humphreys, "The Double Leverage Concept Revisited," Public Utilities Fortnightly, April 26, 1973, pp. 19-25; and Eugene M. Lerner, "What Are the Real Double Leverage Problems?" Public Utilities Fortnightly, June 7, 1973, pp. 18-23.

Michigan Bell Telephone Company

This adjustment is similar to that adopted in the commission's orders in Case No. U-3204 and Case No. U-3838 where the commission based its rate-of-return findings on applicant's capital structure as it existed at year-end as it also does in this case. As a logical extension thereof, the commission also attributed an additional tax savings based upon the cost of debt as of the end of the test year. Applicant and the staff both proposed an adjustment in the amount of $615,000 to reflect the interest rates used in calculating the rate of return.

The attorney general computed a much larger income tax savings by including the interest related to the portion of applicant's common stock which is represented by AT&T debt. This interest deduction also generates income tax savings. This approach has the effect of creating a revision of applicant's capital structure and is generally referred to as a double-debt leverage concept. If the double-debt leverage approach is used for income taxes, it should also be used to establish a reasonable return for common equity based on a lower overall equity ratio.

Since the commission has elected to adopt a rate of return which is not based upon the double-debt-leverage concept, the commission does not feel that the tax savings methodology proposed by the interveners would be appropriate. The commission, therefore, approves the adjustment as proposed by the staff and applicant.[17]

Wisconsin Telephone Company

No new evidence was presented in this proceeding relative to a proper rate of return although several intervenors presented argument on the subject. Both the applicant and the staff rely upon the evidence presented in Docket 2-U-4710, supra. In that docket the commission called attention to the fact that since the closing of the record, the applicant had issued $30 million of 4.5 percent debentures. It was pointed out that the issuance of those securities would affect the tax savings credit flowing from the parent company in the future.

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[17]Re Michigan Bell Telephone Company (The Michigan Public Service Commission), 3 PUR4th (1974), pp. 11, 12.

Prior to July 1, 1957, the applicant had no funded debt. Because of this fact, the applicant's income taxes were substantially higher than other similar companies which carried a normal burden of funded debt. On the other hand, the parent company, American Telephone and Telegraph Company, in effect carried funded debt which could properly be allocated to the applicant and consequently received the tax benefit of the associated interest expense. Throughout the entire post-war period this commission, in determining a reasonable rate of return for the applicant, allocated to the applicant the tax benefit of the interest deductions which the commission considered was properly applicable to the applicant. Thus, in Docket 2-U-4710, supra, the commission applied a tax credit of .48 percent in arriving at its return requirement of 6 percent.

In this proceeding the applicant is seeking a 6.1 percent return based upon the tax treatment which was adopted in Docket 2-U-4710, supra. However, due to the interest expense associated with the debentures issued July 1, 1957, applicant's book income tax requirements have been reduced $607,000 annually. As a result, the rate of return of 6.1 percent sought by the applicant in Docket 2-U-4710, supra, in effect, now becomes 6.35 percent, and the 6 percent return adopted by the commission in that docket becomes 6.25 percent.

The commission believes that the applicant is entitled to a 6.1 percent return based on the December 31, 1958, going level date, with its present debt structure. The revenue requirement necessary to produce a 6.1 percent return with the present debt structure is less than that required to produce a 6 percent return prior to the issuance of the debentures. By using the December 31, 1958, going level date for fixing the earnings and return, we have made allowance for an estimated decrease in rate of return of about 0.19 percent between July 31 and December 31, 1958. That is to say, an allowance of 6.10 percent rate of return at the December 31, 1958, going level date, is equivalent to about 6.29 percent rate of return as of July 31, 1958 (sic 1957).[18]

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[18]Re Wisconsin Telephone Company (Wisconsin Public Service Commission), 23 PUR3d (1958), pp. 392, 393.

The double leverage concept. In setting rates for S Company, as set forth above for illustration purposes, the commissions that subscribe to the double leverage concept would argue that P Company financed its 40 percent equity in S Company's rate base with P Company debt and equity securities. Accordingly, the regulators would suggest that S Company's cost of equity capital should be inferred from P Company's capital structure. The return requirement for S Company would be determined as shown in Table 2.

The support for this double leverage treatment rests on the realization that when a consolidated group is not diversified, the optimal leverage level of the subsidiary and parent holding company combined can only be a function of the operating subsidiary's variability in earnings. That is, in the absence of diversification at the parent holding company level, the arguments presented above in support of the single leverage concept are nonexistent. Notice that the double leverage concept depends heavily on the absence of diversification. If the parent holding company has diversified holdings, it's optimal leverage level is likely to be higher than it would be otherwise because of the dampening effect that such diversification has on risk.

Thus, application of the double leverage concept to a regulated subsidiary of a diversified parent is not at all straightforward. Care must be exercised in determining the portion of the parent company's debt which can be inferred to the regulated subsidiary on the basis of its variability in earnings.

Table 2

RETURN REQUIREMENTS FOR S COMPANY

	Capitalization	Percentage of Return	Dollar Return
Debt (60 percent)	$10,500,000	10	$1,050,000
Equity (40 percent): Financed by P Company debt (50 percent x 40 percent = 20 percent)	3,500,000	10	350,000
Financed by P Company equity (50 percent x 40 percent = 20 percent)	3,500,000	15	525,000
Total Rate Base (100 percent)	$17,500,000	11	
After tax dollar return allowed for rate purposes			$1,925,000
Tax on interest expense (48 percent x $1,050,000 + $350,000)	$ (672,000)		
Tax on income before interest inferred for rate purposes (48 percent x $2,409,615)	1,156,615		
Net tax for rate purposes (not equal to $652,615 ($484,615 + 48 percent x $350,000) tax liability under Reg. 1.1502-33(d))			484,615
Before tax operating income allowed for rate purposes			$2,409,615

Examples in which the double leverage concept appears to apply involve AT&T subsidiaries. Three specific examples of the application of the double leverage concept are presented below:

The Chesapeake and Potomac Telephone Company

All of these analyses were directed to the cost of capital for AT&T. This was deemed to be essential because C&P's cost of capital is intimately intertwined with that of its parent. Moreover, there are no market data available relating to C&P stock since it is wholly owned by AT&T. In contrast, there are ample data available relating to the securities of AT&T. In our analysis below we have accepted the unanimous judgment of all the witnesses and have based computations on AT&T data....

Another disputed issue in this case involves the company's allowance for taxes. Although the Bell System files a consolidated return, the Bell parent company and each of the subsidiary Bell operating companies pay a share of the total Bell System taxes directly to the federal government. In reporting its federal income taxes, the Bell parent receives the entire benefit of the interest deduction on debt which it issues. The subsidiary operating companies take advantage of a deduction for interest only on debt which the subsidiaries themselves issue.

Consistent with this approach, the company's actual reported taxes during the test year included an interest deduction based on the company's own debt ratio and cost of capital. The company argues that it is entitled to a tax allowance of $7,196,000—its actual reported taxes during the test year attributable to intrastate operations.

The commission's staff, on the other hand, computed the company's tax allowance so that its interest deduction is based upon the debt ratio and cost of debt for the entire Bell System....

The staff position is based upon the premise that it is essential to compute the company's tax allowance on the basis of the debt structure and cost of debt for the Bell System as a whole in order to equitably distribute

the tax burden among the operating companies and to avoid
substantial tax bonuses to the Bell parent. The staff
maintains that the company is not an independent entity
and its capital structure is artificial except as con-
sidered as a part of the Bell System. Consequently, it is
urged that the company's equity--which is held entirely by
its Bell parent--is actually financed, at least in part,
through debt issued by the parent and that tax benefits
flowing from the issuance of that debt should be made
available to reduce the allowable tax liability in fixing
rates for the company.

In considering the relative merits of the company and
staff recommendations on the tax issue, we are faced at
the outset with the company's argument that this commission
cannot legally give the company an allowance for taxes
which is less than its reported taxes during the test year.
Although the company cites cases from several jurisdictions
in support of its argument, it is clear that most of the
jurisdictions which have considered the matter have per-
mitted an adjustment in reported taxes to distribute the
benefits of interest deductions taken by a parent company
to operating companies within a corporate system....

After careful consideration of this matter, the com-
mission finds that the company's tax allowance should be
adjusted to reflect an interest deduction based on the
Bell System cost of debt and debt ratio. The commission
agrees with the staff that it is unrealistic to consider
the company as an independent entity. A substantial por-
tion of the company's equity is actually financed by debt
issued by the Bell parent. This fact is recognized in
establishing the company's rate of return, and conse-
quently, the rate-payers in this jurisdiction pay--as
they should--for the Bell System debt which is used to
support the company's operations. The same ratepayers
are surely entitled to receive the full benefit of the
interest deduction on the debt which they paid for.
Only by using the cost of debt and debt ratio for the
entire Bell System can the benefits of the system's in-
terest deduction be shared by the Bell parent company
with its subsidiaries and their customers....

This commission is also of the opinion that the com-
pany's tax allowance should be consistent with the rate
of return established in this case. Since the commission

used the Bell System cost of debt and debt ratio as of
December 31, 1973, in calculating the company's rate of re-
turn it will, accordingly, use the same figures in calcu-
lating the company's tax allowance....[19]

Bell Telephone of Pennsylvania

A substantial portion of the interest deduction which
AT&T used in calculating its share of the consolidated tax
return was made possible and flowed directly from moneys
borrowed by it (in the form of long-term debt) for respon-
dent's operations. In calculating respondent's allowable
revenues and return, provision is made for the full return
of the cost of money to the investors (ultimately AT&T)
and therefore the allowable rates to respondent are calcu-
lated and designed to return to the investor the full and
complete cost of all the properly invested moneys. Accord-
ingly, the subsidiary gets the benefit and use of such loan
and the parent company is fully paid for its role in pro-
viding the loan through the rates allowed.. Similarly, as
a corollary, when the parent company obtains a "rebate" in
the form of an income tax deduction (which income tax de-
duction is made possible only by the affiliate relation-
ship and transaction, and which flows directly from such
transaction), the subsidiary affiliate is entitled to be
credited with its proportionate part of the "rebate," "re-
turn," or "benefit," on the cost of money it has been and
will be paying to its parent.[20]

New York Telephone Company

It is the practice of the commission, in computing a
utility's federal income tax expense for rate-making pur-
poses, to impute to it the interest deduction the company
would have had if, in the taxable year, it had had the
proportion of debt and the embedded cost of debt reflected
in the capital structure used in fixing its allowed rate

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[19]Re The Chesapeake and Potomac Telephone Company (District of
Columbia Public Service Commission), 4 PUR4th (1974), pp. 19, 36, 37,
38, 39.

[20]Pennsylvania Public Utility Commission v. The Bell Telephone
Company of Pennsylvania (Pennsylvania Public Utility Commission),
2PUR4th (1974), p. 446.

of return. The examiner, as we do here, used Bell System's
capitalization—including its debt and embedded cost of
debt as at July 31, 1973—to determine the proper return
for NYT.[21]

Problems in regulation when diversification exists. When regulated

operating companies are members of a multifaceted consolidated group

of companies, the practical problems of regulation increase tremen-

dously. Most of the complexities in these situations arise because of

the necessity to separate property, expenses, taxes, etc., between (1)

regulated and nonregulated operations, and (2) jurisdictional and non-

jurisdictional operations. The need for such separations is well

accepted by regulators and has been expressed nicely by the Hawaii

Supreme Court:

> In our federal system, the FCC has statutory authority
> to regulate rates for interstate and international telephone
> service, while the Hawaii PUC determines intrastate charges.
> A "separations" procedure, or formula, determines the re-
> spective jurisdictional areas of each of these agencies, by
> apportioning between intrastate operation and all other op-
> erations the total telephone property, revenues, expenses,
> taxes, and reserves. Cf. Smith v. Illinois Bell Teleph. Co.
> (1930) 282 US 133, Pur1931A 1, 75 L Ed 255, 51 S Ct 65.[22]

As previously stated, the inference of parent company tax benefits

to a specific operating company in a diversified situation rightfully

requires abstraction from the effects of diversification. This is an

extremely difficult problem in practice, and the state of knowledge

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[21]Re New York Telephone Company (The New York Public Service
Commission), 2 PUR4th (1974), p. 21.

[22]Re Hawaiian Telephone Company (Hawaii Supreme Court), 2 PUR4th
(1974), p. 389.

has not yet progressed to the point where a solution to the problem

is known. As a result, regulatory commissions and the courts have

been forced to deal with the problem in an ad hoc fashion. Some good

examples of serious attempts to deal with the problem involve the

Federal Power Commission (FPC).

The first time that the FPC dealt with the implications of con-

solidated income tax returns was when it heard arguments and estab-

lished an allocation rule in the Cities Service Gas Company Case.

The three arguments heard by the FPC were summarized by the Commission

as follows:

> The staff argues that in computing an allowance for
> federal income tax to be included in the cost of service,
> the commission should adhere to its interpretation of the
> doctrine of actual taxes payable. When any company par-
> ticipates in the filling of a consolidated tax return, it
> should also participate in any saving generated, whichever
> company is responsible for the saving. The important fact,
> the staff says, is that Gas Company joins in the parent
> company's consolidated tax returns, so that the taxable
> income or loss becomes a "fused mass" in which each dollar
> is indistinguishable from any other dollar. The filling
> of the consolidated tax return, the staff adds, does not
> produce any separate income tax liability on the taxable
> income of the Gas Company, but instead, produces a tax
> liability for the whole group.

> As a result of these views the staff did not apply the
> statutory rate to Gas Company's taxable income, but rather
> employed a consolidated effective tax rate of 10.53 per-
> cent for the purpose of determining the proper allowance
> for federal income taxes in Gas Company's cost of service.
> This tax rate was derived, in essence, by dividing the
> consolidated tax paid by the Cities Service system by the
> total taxable income of all the profit-making affiliates
> computed separately for the years 1957, 1958, and 1959.
> By this method the staff computed an effective tax rate of
> 23.92 percent for 1957, 0 percent for 1958 (where there

was a consolidated tax loss), and 7.67 percent for 1959.
It averaged these three figures to obtain its effective
tax rate of 10.53 percent which it applied to the Gas
Company's income in the test year 1958 to obtain a tax
allowance of $785,565.

Cities Service argues that the tax rate actually pay-
able on the Gas Company's stipulated return is 52 percent.
It says that taking into account the carry-back of losses,
there are no tax savings which can be attributed to the
Gas Company's inclusion in the consolidated return. Fur-
thermore, it contends that it is the Gas Company's rates
which are in issue here, not the rates for the oil, or
gasoline, or petrochemicals, or the other products produced
and sold by the companies in the Cities Service system.
It says that where rates are being set for a utility op-
eration, the costs applicable to that operation are germane,
not the costs of the unrelated nonutility operations. It
adds that if there is any saving from the nonutility opera-
tions, they belong to the stockholder who incurred the
losses and not to the ratepayer, who has paid no obligation
of the nonjurisdictional subsidiaries and has not contri-
buted to their losses. The staff's proposal, the companies
say, would take away from the investors a portion of the
incentive provided by Congress to encourage exploration for
oil, domestically and abroad, would put the company at a
competitive disadvantage with other oil companies, and would
penalize the parent company for its form of corporate organ-
ization. Cities Service claims that the staff's consoli-
dated effective tax rate is a clear deprivation of property
without due process of law, because it takes the benefits
of the large tax deductions from the nonjurisdictional com-
panies and passes them along to the gas customers in the
form of rate reductions.

In his decision issued April 23, 1962, the examiner
agrees with Cities Service. He holds that the staff's
position is basically wrong because it would thwart the
true congressional intent of the tax law permitting the
filing of a consolidated return, which was to encourage
holding companies to expand their overall businesses for
the betterment of the national and international economy.
He cannot see the justice of permitting Gas Company's
customers to receive what he considers a windfall from
losses occurring in businesses unrelated to that of the
regulated natural gas company merely because Gas Company
and the corporations having the losses happen to have a

common corporate owner. The examiner adds that the regulated businesses should not have the right to take away from the nonregulated entity any part of the losses it utilizes for tax purposes. The examiner thinks that, if driven to it, the parent company could rearrange its system of corporations in such manner as to eliminate tax losses, and there would then be no tax saving to allot to the gain companies, including Gas Company. Exceptions were filed by the staff and a large municipal group which had intervened and the issue is before us for decision.[23]

After considering the above arguments, the Commission majority summarized their position as follows:

> The authorities do not give us a clear answer to the question of whether the tax allowance for the regulated company should take into account the losses of affiliates. Some authorities appear to support the "actual taxes" concept as advanced here by the staff. City of Pittsburgh v. Pennsylvania Pub. Utility Commission (1956) 182 Pa Super Ct 551, 17 PUR3d 249, 128 A2d 372, 385-387; Re New Jersey Power & Light Co. (1952) 9 NJ 498, 95 PUR NS 467, 89 A2d 26, 41. Other authorities eliminate the losses of affiliated companies or of separable operations of the same company. Southern Union Gas Co. v. New Mexico Pub. Service Commission (D. Santa Fe County) No. 31074, June 9, 1961; Re Rates and Rate Structures (NY 1938) 29 PUR NS 391, 481, 482.

> The starting point in resolving the consolidated tax issue is the amount of the consolidated tax payment. This is the only real cost which was incurred by Gas Company in conjunction with the other Cities Service affiliates. The task is then to determine the proportion of the consolidated tax which is reasonably attributable to the Gas Company vis-à-vis the other Cities Service affiliates....

> In sum, the proper method to be applied in computing the federal income taxes to be included in the cost of service of a regulated company where that company has joined in a consolidated tax return with affiliates is (1) separate the companies into regulated and unregulated groups, (2)

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[23] Re Cities Service Gas Company (Federal Power Commission), 49 PUR3d (1963), pp. 232, 233.

determine the net aggregate taxable income of each group,
and (3) apportion the net total consolidated tax liability
over a representative period of time between the two groups,
and among the companies in the regulated group, on the
basis of their respective taxable incomes; provided that
the allowance so computed for the regulated company shall
not exceed what its tax liability would be for rate-making
purposes, if computed on a separate return basis.[24]

To emphasize the complexity of the problem faced by the FPC and

the necessity for the resulting ad hoc nature of the majority solution,

it is important also to read some of the comments of Commissioners

Woodward and O'Connor, Jr., who joined in a dissent.

> In this proceeding, the commission is to determine the
> proper federal income tax allowance to be included in the
> cost of service of Gas Company, one of thirty-seven subsid-
> iaries joining the parent company in the filling of a con-
> solidated return.

> Chapter 6 of the Internal Revenue Code, "Consolidated
> Returns," 1501, 26 USCA 1501, "Privilege to File Consoli-
> dated Returns" gives to "an affiliated group of corpora-
> tions...the privilege of making a consolidated return with
> respect to the income tax imposed..." on corporations of
> which the parent company owns 80 percent or more of the
> outstanding stock. When corporations join in such returns,
> the code, 1503, 26 USCA 1503, levies an additional 2 per-
> cent tax upon all includable taxable income except that of
> utilities such as Gas Company whose tax rate remains at the
> statutory rate of 52 percent.

> The precise intent of Congress in granting the priv-
> ilege of the consolidated return to an affiliated group
> of corporations was to encourage companies to expand their
> overall businesses for the betterment of the national and
> international economy and to eliminate any tax disadvan-
> tages of doing such through subsidiaries.

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[24]Ibid., pp. 233, 236.

The parent company here owns, directly or indirectly,
100 percent of the stock of every corporation which par-
ticipates in the filing of its consolidated return. As
such stockholder it owns 100 percent of the assets of
each corporation, and it is entitled to 100 percent of
all net income of each, subject to income tax levies.
Also, as the sole stockholder, it bears 100 percent of
every risk, expense, and loss sustained by its subsidi-
aries. These expenses and losses should not be appro-
priated for the consumers of a regulated natural gas com-
pany who bore no part of them, assumed no risks in relation
to them, and have no right to use them to reduce their gas
costs.

The parent's conducting of its petroleum business
through many subsidiaries is a matter of lawful choice and
the permission given by the Internal Revenue Code for the
filing of one consolidated return by qualified affiliated
subsidiaries recognizes such lawfulness. Gas Company per-
forms no activity or function in relation to the parent
company's primary business of conducting its petroleum
operations. Gas Company is a regulated natural gas company
transporting and selling natural gas for resale in inter-
state commerce and it is operated as such entirely sepa-
rately from the petroleum operations of the parent company.
Whether one of the included corporations has a taxable
gain or loss is determined from its individual tax return
calculated separately. It is in the separate return where
all lawful expenses of operation are deducted to determine
whether there is income of the individual corporation sub-
ject to tax....

Completely ignoring the fact that Congress has pro-
vided that taxpayers may lawfully use their tax losses to
offset their taxable income in the manner provided by
statute, the majority imparts its own peremptory economic
and regulatory philosophy to strike down an act of
Congress....

The majority cites no authority of the commission or
the courts to sustain this onerous theory. This proceed-
ing cannot be resolved on the basis of an imagined rationale
which is, in fact, contradicted by the record or by the re-
citing of an appealing slogan. This is a clear deprivation
of property without due process of law since the majority
proposes to take away from the nonutility subsidiaries and
the parent company valuable property rights which belong to

those companies. The tax deductions given by Congress as
incentives to nonutility investment should not be taken
away in such manner. No company owes anyone a duty either
moral or legal to incur, or to continue to incur, losses
in nonjurisdictional business so that jurisdictional rates
can be reduced. Following the theory of the majority, how
can an integrated oil company, which also has a natural
gas pipeline company within its corporate structure, com-
pete on equal terms with an oil company not having similar
pipeline operations, if the latter can use all of its tax
savings in its oil business but the former cannot? Clearly,
it cannot so compete....

The fact remains that Congress has given the parent
company, not this commission, the right to decide whether
or not it will take advantage of the consolidated return
and the benefits and obligations accruing thereunder. The
commission cannot interfere with this lawful decision of
management so to conduct its business. The tax laws recog-
nize this and they have given companies the opportunity to
so operate without sustaining a tax loss because of their
business activities. Congress did not commit management
judgments to an administrative agency; this is the line
past which a regulatory commission such as ours may not go.

If the economic advantage arising out of the filing
of a consolidated tax return is to be passed on to Gas
Company's ratepayers, which is the effect of the majority
decision, the intent of Congress will be defeated. Here,
the language of the statute is plain and unambiguous and
it must be given effect according to its obvious meaning.
By allowing the taxpayer the full advantage provided by
the consolidated return, no attendant harm results to the
ratepayers. This method does not result in higher rates
to the consumer; it simply does not operate to reduce them.
This view is in harmony with 1501 of the Internal Revenue
Code, 26 USCA 1501, is fair to the ratepayer yet it does
not constitute an expropriation of the constitutional
powers of Congress.

The majority decision results in glaring defects and
inequities; they have not offered any valid and compelling
reasons for their decision. Contrary to the views expres-
sed by the majority, I believe every effort should be made
to afford all legitimate and necessary incentives to pri-
vate enterprise while, at the same time, protecting the
consumer ratepayer.

The examiner who heard the testimony in this proceeding correctly concluded, upon the basis of the record evidence and the pertinent law and regulatory policy, that the federal income tax allowance included in the cost of service supporting the settlement agreement approved by the commission in its order of May 27, 1961, computed at the statutory rate of 52 percent, is not excessive or in any way improper, and should be approved. In my judgment, the examiner's decision should be affirmed.[25]

The allocation rule established by the FPC in the Cities Service case was upheld by the U.S. Supreme Court when the FPC attempted to apply the rule in the United Gas Pipe Line Company case. A summary of the majority opinion of the court follows:

In our view what the commission did here did not exceed the powers granted to it by Congress. One of its statutory duties is to determine just and reasonable rates which will be sufficient to permit the company to recover its costs of service and a reasonable return on its investment. Cost of service is therefore a major focus of inquiry. Normally included as a cost of service is a proper allowance for taxes, including federal income taxes. The determination of this allowance, as a general proposition, is obviously within the jurisdiction of the commission. Rate making is, of course, subject to the rule that the income and expense of unregulated and regulated activities should be segregated. But there is no suggestion in this case that in arriving at the net taxable income of United the commission violated this rule. Nor did it in our view in determining the tax allowance. United had not filed its own separate tax return. Instead it had joined with others in the filing of a consolidated return which resulted in the affiliated group paying a lower total tax than would have been due had the affiliates filed on a separate return basis. The question for the commission was what portion of the single consolidation tax liability belonged to United. Other members of the group should not be required to pay any part of United's tax, but neither should United pay the tax of others. A proper allocation had to be made by the commission....

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[25]Ibid., pp. 243, 244, 246, 247.

It is true that the avoidance of tax and the reduction
of the tax allowance is accomplished only by applying
losses of unregulated companies to the income of the regu-
lated entity. But the commission is not responsible for
the use of consolidated returns. It is the tax law which
permits an election by an appropriate group to file on a
consolidated basis. The members of a group, as in this
case, themselves choose not to file separate returns and
hence, for tax purposes, to mingle profits and losses of
both regulated and unregulated concerns, apparently deem-
ing it more desirable to attempt to turn the losses of
some companies into immediate cash through tax savings
rather than to count on the loss companies themselves hav-
ing future profits against which prior losses could be
applied. Such a private decision made by the affiliates,
including the regulated member, has the practical and in-
tended consequence of reducing the group's federal income
taxes, perhaps to zero, as was true of one of the years in-
volved in the Cities Service case. But when the out-of-
pocket tax cost of the regulated affiliate is reduced, there
is an immediate confrontation with the rate-making principle
that limits cost of service to expenses actually incurred.
Nothing in Colorado Interstate or Panhandle forbids the com-
mission to recognize the actual tax saving impact of a pri-
vate election to file consolidation returns. On the con-
trary, both cases support the power and the duty of the
commission to limit cost of service to real expenses.

We think that in the proper circumstances the commis-
sion has the power to reduce cost of service, and hence
rates, based on the application of nonjurisdictional losses
to jurisdictional income. Hence, the question becomes one
of when and to what extent the tax savings flowing from the
filing of a consolidated return are to be shared by the reg-
ulated company. Or, to put it in the commission's words,
the issue is one of determining "the proportion of the con-
solidated tax which is reasonably attributable to the Gas
Company vis-à-vis (its) other...affiliates." 30 FPC at
p. 162, 49 PUR3d at p. 233.

Viewing the case in this light, we cannot say that the
method the commission chose to allocate the tax liability
among the group members was erroneous or contrary to its
statutory authority. Under its formula, the net losses and
net income of unregulated companies are first set off one
against the other, and the tax savings made possible by
losses of unregulated enterprises are thus first allocated

to the unregulated companies. Only if "unregulated" losses
exceed "unregulated" income is the regulated company deemed
to have enjoyed a reduction in its taxes as a result of the
consolidated return. If there is more than one regulated
company in the group, they will share the tax liability or
tax saving in proportion to their taxable income.... "When
the Congress, as here, fails to provide a formula for the
commission to follow, courts are not warranted in rejecting
the one which the commission employs unless it plainly con-
travenes the statutory scheme of regulation." Colorado
Interstate Gas Co. v. Federal Power Commission (1924) 324
US 581, 589. 58 PUR NS 65, 71, 89 L ed 1206, 1215, 65 S
Ct 829. "If the total effect of the rate order cannot be
said to be unjust and unreasonable, judicial inquiry under
the act is at an end. The fact that the method employed
to reach that result may contain infirmities is not then
important." Federal Power Commission v. Hope Nat. Gas Co.
(1944) 320 US 591, 602, 51 PUR NS 193, 200, 88 L ed 333,
344, 64 S Ct 281.[26]

Again, the complexity of the issues faced by the FPC in its regu-

latory capacity are emphasized by the fact that Justices Harlan,

Douglas, and Stewart joined in a dissent.

> The only serious problem the court sees is the resolu-
> tion of the question "when and to what extent the tax sav-
> ings flowing from the filing of a consolidated return are
> to be shared by the regulated company." And the court
> attempts to sidestep sharp analysis of that problem by re-
> sorting to the principle that, in rate making, the end, in
> effect, justifies the means.

> As will be developed more fully below, I think that
> the court's resolution of the jurisdictional issue, while
> possessing a certain surface plausibility, mistakes the
> operation of the tax laws and permits the commission to
> place regulatory pressure on entities and business deci-
> sions wholly outside its jurisdiction under the Natural
> Gas Act. I think also that the commission's formula can-
> not be upheld even under the court's jurisdictional analy-
> sis. The formula indefensibly undercuts the policy of the
> tax laws, and thus cannot be considered a means of reaching

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[26]
   Federal Power Commission v. United Gas Pipe Line Company et al.
(United States Supreme Court), 68 PUR3d (1967), pp. 326, 327, 328.

"just and reasonable" rates. Cf. El Paso Nat. Gas Co. v.
Federal Power Commission (CA5th 1960) 35 PUR3d 257, 281 F2d
567.

The court's "single consolidated tax liability" approach
ignores the fact that what is consolidated is corporate tax-
able incomes rather than the underlying revenues and deduc-
tions. Thus, what has happened in this case is not the im-
position of a single tax liability on the activities, as a
whole, of the affilated corporate group, but the reduction
of the sum of separate 52 percent corporate tax liabilities
by the setoff of tax losses against taxable income. Cer-
tainly there can be no contention that United would be en-
titled to anything other than a 52 percent of taxable income
tax expense for rate-making purposes absent tax losses in
the consolidated group. The only question that properly
arises on this record is whether the commission could con-
sider any setoff to have been made against United's tax
liability for rate-making purposes when nonjurisdictional
activities could have taken full advantage of the setoffs
belonging to the group and the group desired to allocate
them to those activities.

The "tax losses" belonging to the group arose almost
exclusively from the excess of depletion allowances over
revenues in the returns of the nonjurisdictional activities,
Union and Overseas. Such allowances belonged to Union and
Overseas and those corporations were entitled to their ex-
clusive use. By agreeing to the consolidated return, Union
and Overseas agreed to deliver to the group, in any taxable
year, whatever deductions they themselves could not then
utilize in their own returns. The question of how to allo-
cate the benefit of those deductions among the members of
the group would seem to be one for the group rather than
the commission when, as here, they do not arise from juris-
dictional activities and can be used by group members other
than the jurisdictional activity. The courts have allowed
good faith business decisions to control such allocations
for the vital purpose of determining which corporations
shall pay the tax. See Case v. New York C. R. Co. (1965)
15 NY2d 150, 204 NE2d 643.

And the tax commissioner would permit the group to al-
locate for earnings and profits purposes in precisely the
manner the group has chosen here. Although these decisions
cannot control for rate-making purposes, they do make it
clear that the commission's assertion of jurisdiction to

allocate amounts to an order that certain nonjurisdic-
tional assets be delivered up to jurisdictional use since
there is no other compulsion for such an allocation....
The commission has no authority to control the disposition
of nonjurisdictional assets or the revenues or losses aris-
ing therefrom....

The court's opinion departs from that sound analysis
by sustaining a formula which allocates the entire "tax
saving" to the "regulated" corporations and thus fails to
take account of the congressional desire to benefit the
loss corporations by allowing the profit corporations to
retain earnings which could be passed on to them. The con-
solidated return is the horizontal equivalent of the ver-
tical loss carry-forward and carry-back provisions of the
Internal Revenue Code. It allows the "business unit" to
recoup from the government some of the loss which has been
sustained and, in the words of Mr. Justice Jackson, "it is
probable that the intention...was to provide salvage for
the loser...." Western P. R. Corp. v. Western P. R. Co.
(1953) 345 US 247, 277, 97 I. ed 986, 1004, 73 S Ct 656
(dissenting opinion). Any rate formula which does not pro-
vide a means of allocating benefit to the loss corporation
cannot then be "just and reasonable." And if the group as
a whole does not benefit from consolidation because the
setoff advantages of losses are absorbed by the "regulated"
corporations and passed on to the rate-payers, it is most
unlikely that the loss corporations will achieve the benefit
Congress intended them to have....[27]

It should be noted in this case that the court's majority decision

rested primarily on the reasonableness of the end result and not on

the propriety of the allocation rule per se. Thus, it might be argued

that the FPC allocation rule has never been tested on its own merits.

This, in fact, was the view taken by the FPC itself when, in 1972, it

reviewed the record of its allocation rule and changed it. The follow-

ing is a summary of the FPC's review and its current rule regarding

the allocation of consolidated income taxes for rate-making purposes:

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[27] _Ibid._, pp. 329, 330, 331, 333.

For the locked-in period in Docket No. RP66-4, a further question arises with respect to the federal income tax chargeable in the cost of service in the light of the fact that Florida Gas joins with its parent and three othersubsidiaries in filing their income tax return on a consolidated basis....

Precedent cases are not decisive on the proper treatment to be accorded consolidated taxes and the interest and amortization of a parent company. The commission's Cities Service case, supra, 30 FPC at p. 164, 49 PUR3d 229, provided for separating the companies into regulated and unregulated groups and the apportionment of the consolidated tax liability between the groups and among the companies in the regulated group....

In United, supra, 31 FPC at p. 1190, 54 PUR3d 1, the commission applied the Cities Service formula treating the pipeline as wholly regulated. The Supreme Court affirmed the commission on its method but remanded the case with respect to the jurisdictional and nonjurisdictional income of United....

From whatever circumstances the principles of United and Cities Service evolved at the time those cases were decided, the stringency of gas supply was not considered by the commission in reaching its determination (31 FPC at pp. 1190, 1191, 54 PUR 3d 1)....

Furthermore, there has been an increasing tendency for pipeline affiliates to diversify and to engage in activities completely unrelated to gas pipeline operations or the gas business at all, so that determining a tax allowance for the pipelines' jurisdictional business on the basis of the activities of a far-flung conglomerate bears less and less relationship to the operations in which we are properly interested. Of relevance is our determination that in computing rate of return there should be eliminated from a pipeline's common equity its investment in nonutility businesses, such as a textile company or a wire company. Re El Paso Nat. Gas Co. (1970) 44 FPC 73, 77, 85 PUR3d 309, Opinion No. 582....

...we do not think that the tax losses generated by the parent should be used to reduce the return on Florida Gas. To the extent the losses arose from a low return on its distribution investment Florida Gas should not be

penalized because its parent failed to collect sufficient
revenue from its retail customers in Florida. To the ex-
tent the losses arose from the parent's financing of its
subsidiaries Florida Gas should not be penalized for finan-
cial services which contributed to the development of this
pipeline system. Furthermore, in determining a rate of
return we did not use the system capitalization (see (1969)
42 FPC 74, 80 PUR3d 356, Opinion No. 561); to do so here
would be the converse of South Carolina Generating Co. v.
Federal Power Commission (CA4th 1957) 22 PUR3d 74, 249 F2d
755; (CA4th 1958) 261 F2d 915, cert den (1958) 356 US 912,
2 L Ed 2d 585, 78 S Ct 668, 670, where the court reversed
the commission for computing taxes on the basis of the sub-
sidiary's high interest deduction although it used a system
basis for computing rate of return. In our opinion, as the
pipeline business develops with numerous subsidiaries, we
should avoid regulating one company on the basis of the
actvities of others in the affiliated group. We have al-
ready noted in the El Paso case that in determining rate
of return we have eliminated common equity investment in
wholly nonutility businesses. In Re Southern Nat. Gas
Co. (1970) 44 FPC 567, 571, 572, 85 PUR3d 401, Opinion
No. 585, again in computing rate of return, we eliminated
common equity investment even in a subsidiary that was
subject to our jurisdiction but would be separately regu-
lated by us. In our opinion a utility should be regulated
on the basis of its being an independent entity; that is a
utility should be considered as nearly as possible on its
own merits and not on those of its affiliates.

Similarly, we do not follow the examiner who would
impute the parent's interest expense to Florida Gas, or
Sun, which would impute both the parent's interest and
amortization expense to Florida Gas. No case is cited in
which this was done, and the examiner himself purports to
rely on the "spirit" of the consolidated decisions....

To conclude, the statutory tax rate should be used
for the periods that the rates were in effect in Docket
No. RP66-4. This amounts to 48 percent from November
1965, through 1967, and 52.8 percent for the 1968 period
in order to reflect the surcharge. In computing the in-
come tax allowance for the last two months of 1965, no
justification exists for reducing the income tax allowance
for the two months by two-twelfths of the amount of tax

loss carry-over, which was available in 1965, because the record indicates this carried-over loss related to affiliates of Florida Gas and not to Florida Gas itself.[28]

Of interest in this case is the fact that there are no reported dissents, suggesting perhaps that all members of the FPC now believe they have come to understand the complexities involved in the allocation of consolidated taxes for regulatory purposes. The FPC now argues that each member of a consolidated group must be judged by its own merits, not the merits of its affiliates.

The FPC's current position can be justified in two ways. First, it might be said that stockholder activities are completely separate from regulated company activities and should remain separate regardless of whether the stockholder is an individual or a corporation. This justification is not without merit--regulatory bodies do have control over the revenue, expense, and debt structures of regulated companies, and if these structures are not optimal when judged on a separate company basis, the regulatory bodies should not be permitted to reach into the pockets of the regulated company's stockholders.

The second justification of the FPC's current allocation rule rests on the practical impossibilities involved in allocation. Even if regulators were given authority to reach into nonregulated affiliates in an attempt to achieve optimal revenue, expense, and debt

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[28] Re Florida Gas Transmission Company (Federal Power Commission), 93 PUR3d (1972), pp. 493, 494, 495, 496, 497.

structures for the regulated company, the lack of adequate tools and

procedures would frustrate their ability to identify those items which

might appropriately accrue to the regulated company. A practical so-

lution to this dilemma would be to ignore it and hope that nonidenti-

fied items that might appropriately accrue to the regulated company

are small in number and magnitude. This second justification was

utilized by the Florida Public Service Commission when it applied the

FPC's current rule to the Florida Gas Company.

> We researched the matter of using an effective consoli-
> dated income tax extensively. We found that there is a wide
> variety of opinions on the matter, both among regulatory
> bodies and the decisions of the various courts....We are of
> the opinion that the commission should continue to explore
> the tax effects that the filing of consolidated returns have
> on federal income tax liabilities of the companies regulated
> by this commission. We find that the statutory federal in-
> come tax rate of 48 percent should be applied in determining
> the company's proper allowance for federal income taxes.[29]

To illustrate the diversity of the ad hoc solutions that remain

among regulatory bodies, this section of the paper will close with

summaries of two different solutions to the consolidated tax allocation

problem.

Mountain States Telephone and Telegraph Company

> As to operating costs and taxes, we have little con-
> trol; we can review and compare the applicant's operating
> costs with those of other telephone companies to determine
> if they are comparable and therefore reasonable, but we
> have no direct power to reduce them; further, we can

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[29] Re Florida Gas Co. (Florida Public Service Commission), 2 PUR4th
(1974), p. 163.

examine the relationship between the applicant's equity and
debt capital and thus between that part of its income which
is subject to taxation and that which is not, but again we
have no direct power to minimize the former and maximize
the latter. Neither can we disturb the requirement that
these operating costs and taxes must be paid on a reason-
ably current basis. In short, we are absolutely obliged to
fix rates that will generate revenues sufficient to cover
the applicant's operating costs and taxes.[30]

Iowa Telephone Company

We believe there is merit in the staff recommendation
that an effective federal income tax rate be used in lieu
of the 48 percent statutory rate in computing company's
test-year net operating income. Because the use of a con-
solidated tax return results in tax savings, the Continental
group actually pays taxes to the federal government on taxa-
ble income generated at an effective rate somewhat lower than
the statutory rate.

We held in Davenport that a computation of the tax al-
lowance in the manner the company proposes results in in-
cluding in operating expenses a hypothetical tax liability
which the company would never, in fact, incur; and that the
effective tax rate should be used in computing a utility's
tax allowance. The record here supports that view.

We do not agree, however, with one of the elements
of the staff's computation of the effective tax rate.
Continental has established the practice of providing de-
ferred credits for the benefit of its operating subsidi-
aries which incur tax losses used to reduce consolidated
tax liability. Subsequently the credits are used to reduce
the taxes assigned when a subsidiary which contributed a
tax loss is in a taxable position. Staff included these
losses in its computation of the effective tax rate since
they tend to be a constant factor. We believe Continental's
accounting treatment of the losses of its subsidiaries
meets the test of reasonableness and we will accept it
here for our computation of the effective tax rate. Making

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[30]Re Mountain States Telephone and Telegraph Company (The New
Mexico State Corporation Commission), 2 PUR4th (1974), p. 340.

this adjustment we find that an effective tax rate of 44.6
percent should be used in computing the company's test-
year net operating income.[31]

The Authors' Position

This section of the paper presents the authors' analysis of the

issues involved in determining the amount of federal income taxes to

be imposed on a regulated public utility when the utility joins in the

filing of a consolidated tax return. The analysis is divided into two

parts. In the first part, the liability and cash flow aspects of the

consolidated tax problem are discussed. Here, special attention is

given to the Tax Code and Regulations because they establish how the

consolidated tax burden is to be divided and accounted for on the "tax

books" of each and all members of the consolidated group. In brief,

there are nine allocation methods specified in the Tax Code and

Regulations. With nine potentially different answers to one problem,

confusion and disagreements are likely to abound. This discussion

illustrates the differences that can result.

Since tax accounting rules need not always be binding for rate-

making purposes, the consolidated tax problem must be studied separately

with this purpose in mind. The second part of this analysis does that.

The discussion begins with a brief review of the social objectives of

regulated public utility rates. Then, the public interest implications

of tax allocation are critically examined. Briefly, it is concluded

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[31]Re Iowa Telephone Company (Iowa State Commerce Commission),
95 PUR3d (1972), pp. 239, 240.

that the public interest is best served when the utility's allowed tax

burden is computed on a separate return basis.

The cash flow and liability aspects

Nine possible tax allocation methods may be elected within the

Internal Revenue Code and Regulations.[32] When no election is

made, Method 1 as set forth in Code section 1552 is required (see

Code section 1552(b) and Regulation section 1.1552-1(d)). Regardless

of the method used--elected or enforced--all methods create liabilities

for tax payments. On the tax books these liabilities (to the federal

government and/or intercompany) must be paid. In the event the inter-

company portion is not actually paid, for tax purposes it will be

deemed paid through a complex series of imputed dividend payments and

additional capital contributions (Reg. Sec. 1.1552-1(b)(2)).[33]

The code lists three specific elective tax allocation methods

and provides an overall fourth concept, which is any other taxpayer-

developed and commissioner-approved method. Generally, the specified

code methods provide for allocation (1) prorata based on the total of

the abstracted, separate-return, positive taxable incomes for the

year, (2) prorata based on the total of the abstracted, separate-

return tax liabilities for the year, and (3) based on a combination of

the prior two methods.

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[32]The nine combinations include the 3 specified Code methods used
alone, the 3 Code methods used with modification one of the Regulations
and the 3 Code methods used with modification two of the Regulations.

[33]An example of this is presented in Reg. Sec. 1.1552-1(f).

While any of these methods may be selected and used without modification, the Treasury Department realized that these methods did not contain carryback or carryforward provisions for computing the separate company basis to be used in the proration. Thus it established regulations which allowed taxpayers to elect either of two specific modifications to the code methods, or, again, to develop their own modification, if the commissioner will approve it (Reg. Sec. 1.1502-33(d)). The thrust of these modifications was to provide essentially the same results in carryback and carryforward situations which would have existed on an actual separate-return basis. The first modification provides for carrybacks and carryforwards in computing the abstracted separate-return tax as a maximum limit to tax allocated to an affiliate. Excess tax allocated to this affiliate under a code method must then be reallocated to other affiliates (Reg. Sec. 1.1502-33(d)(2)(i)). The second modification utilizes carrybacks and carryforwards in computing the abstracted separate return tax which establishes the minimum limit of a company's share of the consolidated tax. Assuming 100 percent reallocation, the additional tax (in excess of the code method allocation) assessed this affiliate then provides reduced tax allocations to other affiliates (i.e., to those which have been assessed too much tax under a code method because the code method fails to consider the effects of carrybacks and carryforwards on a separate-return basis).

A short example illustrates the need for the regulations which
modify the allocation methods contained in the Internal Revenue Code.
Assume that P is an unregulated company with two wholly-owned subsid-
iaries S and T which are operating telephone companies in different
states. Assume further that all companies began operations on
January 1 of year one and that the following operating results were
achieved:

	Before Tax Earnings (Losses)	
	Year 1	Year 2
P Company	$ 70,000	$150,000
S Company	40,000	(40,000)
T Company	(10,000)	(10,000)
Consolidated[34]	$100,000	$100,000

For ease of computation, assume a flat 45 percent tax rate or a
$45,000 consolidated tax liability annually.

<div align="center">

Using code method one allocations
(prorata based on the total of the abstracted
separate return positive taxable incomes for each year)

the prorata computations for year one were

</div>

P Company $(\frac{70,000}{70,000 + 40,000})$ 45,000 $28,636

S Company $(\frac{40,000}{70,000 + 40,000})$ 45,000 16,364

T Company -0-

$45,000

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[34]This simplified example assumes that consolidated taxable in-
come equals the members taxable incomes and losses; this implies that
no adjustments are necessary for items such as intercompany transactions.

and the prorata computations for year two were

P Company ($\frac{150,000}{150,000}$) 45,000		$45,000
S Company		-0-
T Company		-0-
		$45,000 .

The effects of code method one (the required method if no election is made) are readily apparent. T has received none of the tax savings attributable to its losses. In year one, if the rate-making and tax allocation rules were identical, T's loss saved $4,500 in taxes, but the customers of P and S received the tax benefit in their rate structures--$2,864 to P and $1,636 to S. In year two, T's loss saved another $4,500 in taxes, but the benefit went to P's customers. Also in year two, S's loss saved $18,000 in taxes, and this, too, would benefit P's customers. In addition, S had been assessed $16,364 tax over the two-year period even though it had broken even over this period. This does not appear to be equitable tax or rate making for S or T. P's customers received lower rates for service because other companies had tax losses. P's effective tax rate is only 40.9 percent in year one and 30.0 percent in year two instead of the 45 percent flat rate assumed in this illustration.

If code method one and regulation modification two (which gives current recognition for losses which would have been carried back or forward on a separate company basis) were elected, the following would result:

		Code Method	Regulation Adjustment	Regulation Modification
Year 1	P Company	$28,636 +	$ 2,864	= $31,500
	S Company	16,364 +	1,636	= 18,000
	T Company	-0- +	(4,500)	= (4,500)
		$45,000 +	$ -0-	= $45,000
Year 2	P Company	$45,000 +	$22,500	= $67,500
	S Company	-0- +	(18,000)	= (18,000)
	T Company	-0- +	(4,500)	= (4,500)
		$45,000 +	$ -0-	= $45,000

In the above illustration, the modification column reflects an adjustment to achieve equity. In year one, if this tax election was adopted for rate making, P's customers would be charged with $31,500 of taxes (45 percent x $70,000) and S's customers with $18,000 (45 percent x $40,000). This would allow T's customers to receive the tax benefit of $4,500 from losses. In year two, P's customers would still be charged with the 45 percent rate or $67,500 on a taxable income of $150,000. This would then allow S's customers to receive the $18,000 tax benefits that their $40,000 loss produced, and T's customers would receive the $4,500 tax benefit that their $10,000 year-two loss produced. Regardless of whether this election were adopted for rate making, it would be effective for tax purposes.

Regardless of the equity or inequity of the elected code method and regulation modification (if elected), Regulation 1.1552-1(b)(2) states

(2) Effect of allocation. The amount of tax liability
allocated to a corporation as its share of the tax liability
of the group, pursuant to this section, shall (i) result in
a decrease in the earnings and profits of such corporation
in such amount, and (ii) be treated as a liability of such
corporation for such amount. If the full amount of such
liability is not paid by such corporation, pursuant to an
agreement among the members of the group or otherwise, the
amount which is not paid will generally be treated as a dis-
tribution with respect to stock, a contribution to capital,
or a combination thereof, as the case may be. (Emphasis
added.)

Thus, in the first illustration for year one under code method

one without modification, if P paid the full $45,000 tax to the federal

government, S would have a $16,364 tax liability to be paid to P. If

not paid, this would then have to be considered an additional capital

contribution by P to S. This, on the tax books, would require S to

remove the liability (initially established to reduce earnings and

profits for S's taxes) and record it as an additional contribution to

paid-in capital. This would also apparently cause P to remove its re-

ceivable and increase the asset account representing its investment in

S. This is identical to any parent company debt forgiveness involving

a subsidiary.

For year two under code method one and modification two, if P

paid the $45,000 tax to the federal government, it would have a liabil-

ity of $18,000 to S and $4,500 to T. If P did not pay S and T, then

on the tax books S and T would be construed as having made dividend

payments to P of $18,000 and $4,500, respectively, in order to remove

their intercompany receivables from P (orginally established to record

the tax benefits of their losses). This would reduce their earnings

and profits accounts as though a dividend had actually been paid, and

it would remove the receivable. To P the imputed $22,500 of dividend

income would remove its liabilities of $18,000 and $4,500 and increase

its earnings and profits account if the entire amount were a dividend,

or decrease its investment in S by $18,000 and its investment in T by

$4,500 if the entire amount were a return of capital and not a dividend.

Even without any of the complications due to rate making, the imputed

dividend and/or capital contribution concept is necessary so that a

company (parent or subsidiary) can tell whether its current dividends

are from earnings and profits and thus potentially taxable as dividend

income to the recipients, or out of paid-in capital and thus a

return of investment to the recipients.

Some interesting allocation problems arise when a consolidated

group realizes net losses. To illustrate, let us extend the previous

example to cover three years of operation where P incurs a major fire

loss in year three. The three year results are summarized as follows:

		Before Tax Earnings (Losses)		
	Year 1	Year 2	Year 3	Total
P Company	$ 70,000	$150,000	$(300,000)	$(80,000)
S Company	40,000	(40,000)	20,000	20,000
T Company	(10,000)	(10,000)	30,000	10,000
	$100,000	$100,000	$(250,000)	$(50,000)

If year three were to be considered in isolation, no tax would be

allocated to P, S, or T under code method one because there is a

negative taxable income in that year. This negative taxable income, however, triggers net operating loss carryback provisions which give rise to tax refunds that must be allocated between P, S, and T. Under the concept of a net operating loss carryback, the refunds should be related to the prior years' allocations of tax liabilities. Thus, in year three under Code method one, P Company would receive a tax refund of $73,636 (i.e., the $28,636 plus $45,000 previously allocated to it) and S Company will receive a refund of $16,364. The net result of this apportionment of the consolidated carryback refund is that S and T end up with no tax being allocated to them over the three-year period even though they have realized positive taxable incomes of $20,000 and $10,000, respectively, over this period. This strange result occurs because code method one always assigns the tax benefits of losses to those companies with positive incomes. In the example presented here, P Company has potential tax benefits of $36,000 (i.e., $80,000 loss times 45 percent), but $13,500 (i.e., $30,000 times 45 percent) of this benefit has been used to offset the income of S and T. Only $22,500 (i.e., $50,000 times 45 percent) of P Company's loss-related tax benefit can be carried forward to future years.

If the group is terminated at the beginning of year four, Regulation 1.1502-79(a) assigns the unused ($50,000) net operating loss 'carryforward' to P alone. Consistent application of this logic suggests that the benefits of the used portion ($30,000) should also be attrbitued to P rather than to S and T. This result is obtained

when modification method two of Regulation 1.1502-33(d)(2) is elected

(with a 100 percent allocation factor).

Continuing the prior illustration, using this regulation modification produces the following result:

		Code Method	Regulation Adjustments		Regulation Modification
Year 1	P Company	$28,636 +	$ 2,864	=	$31,500
	S Company	16,364 +	1,636	=	18,000
	T Company	-0- +	(4,500)	=	(4,500)
		$45,000	$ -0-		$45,000
Year 2	P Company	$45,000 +	$22,500	=	$67,500
	S Company	-0-	(18,000)	=	(18,000)
	T Company	-0-	(4,500)	=	(4,500)
		$45,000 +	$ -0-	=	$45,000
Year 3	P Company	(73,636)+	(38,864)	=	(112,500)
	S Company	(16,364)+	25,364	=	9,000
	T Company	-0- +	13,500		13,500
		$(90,000)+	$ -0-	=	$(90,000)

Thus S would incur a net $9,000 (25,364 - 16,364) tax payment (to P) on

its taxable income for year three and T would pay (to P) $13,500 in year

three. In addition, P would obtain a $90,000 tax refund because it uses

its net operating loss in offsetting $200,000 of consolidated taxable

income for years one and two. It would thus be receiving a total of

$112,500, or 45 percent of its used $250,000 net operating loss. In

addition, regardless of the allocation method chosen, P would be treated

as the owner of the $50,000 net operating loss carryforward upon

termination of the group. Cumulative totals for all three years would be

	Taxable Income	Tax
P Company	$(30,000)*	$(13,500)
S Company	20,000	9,000
T Company	10,000	4,500
	$ -0-	$ -0-

* = Used tax loss.

The logic and consistency of the Regulation 1.1502-33(d)(2), method two election and the 1.1502-79(a) concept is obvious. The importance of this consistency would become even more apparent if P Company were the regulated utility. Without the Regulation 1.1502-33(d)(2) concept, utility customers would be giving tax benefits to unregulated companies involved in the consolidated return.

Allocation for rate-making purposes

Earlier in this paper it was illustrated that, to date, regulatory agencies and the courts have approached the problem of allocating consolidated income taxes for rate-making purposes in an ad-hoc fashion, and that the resulting solutions obtained were varied and conflicting. The conflicting nature of the ad-hoc solutions suggests that not all of the solutions can be in the public interest. It is imperative, therefore, that the tax allocation problem for rate-making purposes be revisited and examined in light of its implications for the public interest that supposedly is achieved when regulators approve rates to be paid by public utility customers.

1. **What is the public interest?** In a world not blessed with unlimited resources, economic systems serve to allocate available resources in a manner consistent with the public interest. A primary

distinction between different economic systems is the identity of the

person or persons who decide what is the public interest. Public

benefit in totalitarian economic systems typically depends on the pref-

erences of political leaders, and the "proper" allocation of scarce

resources is determined through central planning. In contrast, a

democratic, free-enterprise market system depends on the invisible

forces of supply and demand to determine the proper allocation of

scarce resources, and public benefit represents an aggregation of in-

dividual preferences. In both economic systems, the overall objective

can be stated as: <u>Maximize public benefit to the extent possible with</u>

<u>the available resources</u>. This overall objective is achieved in a

democratic economy when no resource can be reallocated and no product

redistributed so that one economic unit (individual or firm) becomes

better off without forcing some other economic unit to worsen. For

our purposes, this statement defines the optimum public interest in a

democratic economy.

The literature of economics has devoted considerable space to the

optimum public interest definition used here and refers to it simply

as "general economic efficiency." An excellent encapsulation of the

necessary and sufficient conditions for the achievement of maximum net-

social-economic-benefit was provided by Abba P. Lerner in 1944.[35]

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[35] Abba P. Lerner, The Economics of Control, (New York: The
Macmillan Company, 1944), pp. 72-77. The Lerner equations are quite
similar to the familiar Pareto optimality criteria as presented in
Vilfredo Pareto, Manual of Political Economy, (New York: Augustus M.
Kelley, 1971). The Pareto book was first published in Italian in 1906.
For an excellent summary of the Lerner equations and the related Pareto
conditions, see Philip W. Bell and Michael P. Todaro, Economic Theory
(London, England: Oxford University Press, 1969), pp. 273-318.

Professor Lerner developed five equations involving six variables that represent a convenient means of expressing the conditions of general economic efficiency.

Equations:

1. Marginal Social Benefit (MSB) = Value of Marginal Product (VMP).

2. Value of Marginal Product (VMP) = Marginal Private Revenue (MPR).

3. Marginal Private Revenue (MPR) = Marginal Private Cost (MPC).

4. Marginal Private Cost (MPC) = Value of Marginal Factor (VMF).

5. Value of Marginal Factor (VMF) = Marginal Social Cost (MSC).

Definitions:

MSB = the value that all members of society in total place on the incremental outputs of productive resources. For example, suppose an industry is producing 1,000 units of some consumer good every hour. Now, if an additional unit of resource (e.g., an additional hour of labor) would increase the consumer good output to 1,002 units, the marginal physical product of the additional unit of resource would be 2/1 = 2 units. And, the marginal social benefit derived from the additional unit of resource would be that value which society in total realized through the consumption of the two incremental units of consumer good produced. In short, MSB is the social value of marginal physical product.

VMP = the value that individual consumers place on the incremental outputs of productive resources. For example, consider the situation presented in the definition of MSB. There we computed the marginal physical product of some productive resource to be 2/1 = 2 units. The VMP in this illustration would be two multiplied by the market price paid for the additional output by consumers. If the consumer good in question sold for $3 each, VMP would be 2 x $3 = $6. In short, VMP is the market value of marginal physical product.

MPR = the change in total revenue obtained by a firm as a result of producing and selling the increase in output achieved through the employment of a one-unit increment in some factor of production. Lerner's MPR is commonly referred to

as Marginal Revenue Product—the change in total revenue
associated with one-unit of incremental output multiplied
by the marginal physical product of the productive factor.
Or more simply, Marginal Revenue times Marginal Physical
Product.

MPC = the change in total costs incurred by a firm as a result of
the employment of one additional unit of some factor of
production. Lerner's MPC is commonly referred to as
Marginal Factor Cost—it is the change in total cost asso-
ciated with a one-unit increment in output multiplied by
the marginal physical product of the productive factor. Or
more simply, marginal cost times marginal physical product.

VMF = the price paid for an additional unit of some productive
factor multiplied by the factor's marginal physical product.

MSC = the incremental economic sacrifice to society (i.e., oppor-
tunity cost) from employing an additional factor in one
particular occupation so that it becomes unavailable for
use elsewhere. It is equal to the highest alternative
marginal social benefit that the marginal factor could have
produced if it had been used elsewhere.

When the five equations hold for all products and services, net-
social-economic-benefit will be maximized. This is more clearly seen
when the five equations are written out in abbreviated form as

$$MSB = VMP = MPR = MPC = VMF = MSC,$$

or evenly more simply as

$$MSB = MSC.$$

The last abbreviated expression states the overall necessary and suf-
ficient condition that must be satisfied for all goods and services
produced if an economy is to maximize the net economic benefit for
the society it serves. The overall condition follows directly from
the definition of net-social-economic-benefit. If net-social-economic-
benefit (NSB) can be defined as

NSB = Total Social Benefit (TSB) - Total Social Cost (TSC),

it follows that NSB is maximized when MSB = MSC.[36] This must neces-

sarily be true because the equality of MSB and MSC states that the

social cost incurred in producing the last unit of output is exactly

equal to the social benefit derived from society's use of that unit of

output. If the economy were underproducing the product or service in

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[36]Mathematically a function such as NSB is at its maximum value
when its first derivative is zero and its second derivative is nega-
tive. Taking the first derivative of NSB for any good or service with
respect to the quantity of some factor input (Q_F) yields

$$dNSB/dQ_F = dTSB/dQ_F - dTSC/dQ_F,$$

and since

$$dTSB/dQ_F = MSB \text{ by definition, and}$$
$$dTSC/dQ_F = MSC \text{ by definition,}$$

we have.

$$dNSB/dQ_F - MSB - MSC.$$

Equating this first derivative with zero yields the following necessary
condition for maximization of NSB:

$$dNSB/dQ_F = MSB - MSC = 0$$

or
$$MSB = MSC.$$

For a true local maximum of NSB, the second derivative must be negative.
That is, the second order condition requires that

$$d^2NSB/dQ_F^2 = dMSB/dQ_F - dMSC/dQ_F < 0.$$

$dMSB/dQ_F$ gives the slope of the MSB curve, while $dMSC/dQ_F$ gives the
slope of the MSC curve. Thus for a stable equilibrium, the slope of
the MSB curve must be less than the slope of the MSC curve.

question, MSB would exceed MSC, and net social benefit could be en-

hanced by an increase in output. To see the logic in this statement,

recall that MSB is defined as the increase in total social benefit

resulting from an incremental output of some good or service; whereas,

MSC is defined as the increase in total social cost resulting from the

incremental output. Hence, when additional output of some good or

service increases total social benefit by more than it increases total

social cost, the industry providing the good or service should in-

crease output and thereby enhance net social benefit. Conversely, if

the economy were overproducing, MSC would be greater than MSB and pro-

duction should be decreased to maximize net-social-economic-benefit.[37]

Production should be increased or decreased until the benefit derived

from the last unit change in production equals the cost of that unit.

Any further change in output would necessarily decrease net-social-

economic-benefit. Only when MSB = MSC is the economy producing the

optimal output from a public interest standpoint.

We now have before us a useful method for determining whether an

economy is operating in the public interest. If any of the five

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[37]Strictly speaking, this use of the terms "underproduction" and
"overproduction" are true only when $dMSB/dQ_F$ (the rate of change in
MSB) < $dMSC/dQ_F$ (the rate of change in MSC). But, this is the only
situation that can hold for an economy that produces more than one
type of good or service in equilibrium. The situation where $dMSB/dQ_F$
> $dMSC/dQ_F$ would result in an optimum solution where only one type
of good or service were being produced. As long as the slope of MSB
exceeds the slope of MSC, additional output increases total benefit
at a faster rate than total cost and net benefit is increasing. There-
fore, all resources should be channeled to produce only the good or
service in question.

Lerner equations is violated, MSB will not equal MSC. In the event of such violations, governmental agencies may have to intervene with the economy's pricing mechanisms to protect the public interest.

2. <u>The public interest and perfect competition</u>. The economic literature frequently contains discussions demonstrating how maximum social economic benefit is automatically obtained from limited resources when the economy's marketplaces are perfectly competitive and there are no market externalities. The paragraphs that follow review how general economic efficiency is achieved in such a simplified, free-enterprise market system. The reason for investigating the operation of a perfectly competitive economy is twofold: First, it causes one to realize that governmental intervention is in the public interest only when and where perfect competition does not prevail, and second, it points out the goal to be achieved by the governmental agencies that are created in the public interest to correct the social detriments that are brought about by departures from perfect competition. Since the Lerner equations can be viewed as a sequence of conditions that must be satisfied in order to realize general economic efficiency, the review will consider each of the five equations in turn.

The first condition that must hold for the achievement of general economic efficiency is that marginal social benefit (MSB) equal the value of marginal product (VMP) for every good and service produced in an economy. In abbreviated form, this condition can be written as

$$MSB = VMP.$$

Both sides of this equation are definitional in nature and have been

previously defined. What remains to be shown is that equality will

hold in the simplified world that has been specified for purposes of

analysis. This task is facilitated by examining the component parts

of MSB and VMP. If the MSB = VMP condition is rewritten as

$$MPP \cdot S = MPP \cdot P$$

where

MPP = the change in total output as a result of a one-unit change
in factor inputs (i.e., marginal physical product),

S = the per unit social value of the additional output, and

P = the per unit market value (price) of the additional output,

the MSB = VMP condition can be simplified to

$$S = P.$$

This condition automatically holds when there are no market ex-

ternalities. A market externality exists when private benefit differs

from social benefit and/or private cost differs from social cost. If

the purchaser of a good or service is the only individual in society

who benefits from the purchaser's use of the output, there are no ex-

ternalities, and the amount paid for the good or service (P) must

measure the value of the output to both the individual consumer and

the society of which the individual is the only affected member. When

this condition exists, per unit social value (S) will, of course,

exactly equal per unit market value (P).

Only when externalities exist does S not equal P, and

hence MBS does not equal VMP. Consider, for example, an individual

who is infected with a contagious disease. When this individual pur-
chases medical care he benefits from the cure of his disease, but
society benefits as well because the cured individual will no longer
infect others with the disease. In this example, the per-unit social
value (S) of the medical treatment will exceed the per-unit market
value of the cure. The market price will reflect only the value to
the individual consumer, whereas the social value will include the value
of the treatment to the infected individual plus the value of the cure
to other members of society.

The above discussion demonstrates that the first Lerner condition
for maximum social benefit is achieved when no market externalities
exist in the economy. Additionally, when market externalities do exist,
governmental intervention may be necessary for the benefit of society.
Medical treatment is an example that illustrates a situation in which
our governments have chosen to intervene by providing aid to our
hospitals. Without such aid, the supply of hospital care would equal
private demand, and this would be inadequate from the standpoint of
social demand.

The second condition for the maximization of net-social-economic-
benefit is denoted in abbreviated form as

$$VMP = MPR.$$

To show that this condition will hold in a perfectly competitive
economy, let us first emphasize the components of the VMP = MPR con-
dition by rewriting the equation as

$$MPP \cdot P = MPP \cdot MR$$

where, marginal physical product (MPP) and price (P) are as previously defined, and where

> MR = the change in total revenue realized by a firm as a result of the sale of one more unit of output.

An examination of this expression reveals that the VMP = MPR condition is met whenever

$$P = MR.$$

This condition is automatically satisfied in a perfectly competitive economy because firms in a competitive economy are unable to influence price via their output decisions. The firms take price as given; therefore, their marginal revenue (the change in total revenue resulting from a one-unit change in output) equals price.[38] For example, suppose a firm was producing and selling 100 units of product at \$2.00 each, so that total revenue was \$200. If the firm were to increase output to 101 units, and if this incremental output had no

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[38]Marginal revenue can be denoted in the continuous case as the first derivative of total revenue (TR) with respect to quantity of output (Q), namely

$$MR = dTR/dQ.$$

TR can be expressed as,

$$TR = P \times Q$$

and when P is constant, MR becomes

$$MR = d(P \times Q)/dQ$$

$$= P + Q(dP/dQ)$$

$$= P.$$

influence on market price, the firm's total revenue would increase to

$202. Marginal revenue in this instance would be $2.00 (i.e., $202

minus $200). This situation would prevail in a perfectly competitive

economy--that is, marginal revenue would always equal price. There-

fore, it follows that the second Lerner condition for the achievement

of general economic efficiency is always achieved in perfect competition.

In the absence of perfectly competitive producer markets, marginal

revenue will not equal price. The existence of such markets means

firms can influence price through their output decisions. Suppose,

for example, that a firm would have to decrease price from $2.00 to

$1.99 in order to sell 101 instead of 100 units. Total revenue would

increase from $200 to $200.99, and marginal revenue would be 99 cents.

This marginal revenue is equal to the market value of the additional

unit ($1.99) minus 100 units times the decrease in price (100 x 1 cent =

$1.00).

The social importance of the condition that price (P) equal mar-

ginal revenue (MR) can be seen through an example. Suppose that a firm

is currently producing 200 units of product selling for 50 cents each.

Suppose also that the firm is contemplating a production increase to

201 units of product. In contemplating this increase in output, the

firm will investigate the effect of the additional output on its total

revenue and its total costs. If total revenue increases by more than

total cost, the firm will undertake the additional output, and vice

versa. That is, the firm's relevant decision variables are its

marginal revenue (i.e., its change in total revenue) and its change in

total costs. From a public interest standpoint it is important that

the firm's output decision correspond with the socially desirable out-

put decision, and such correspondence can occur only when the decision

variables for the firm and society take on equal values. This, of

course, can occur only when market price (P) equals the firm's marginal

revenue (MR). Marginal revenue is the firm's relevant output decision

variable; whereas market price depicts the variable that is relevant

to individuals in society as they distribute their consumption dollars.

In an attempt to maximize their own well-being, individual con-

sumers allocate their consumption dollars in a manner such that the

last dollar spent on every good or service yields equal sat-

isfaction. That is, consumers match the rate at which they are willing

to substitute one good for another with the rate at which they are able

to make such substitution. Individual preferences determine the rate

at which the consumer is willing to substitute one good for another.

The price ratio of the goods shows the rate at which he can substitute

one good for another. The consumer will be maximizing his satisfaction

only when the two rates of substitution are equal.[39]

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[39]This can be shown mathematically for a world in which only two
goods X and Y are consumed by some individual in quantities Q_X and Q_Y.
Let P_X and P_Y denote the prices of the goods and M the individual's
available money income. The individual's preference function is given
by

$$U = U(Q_X, Q_Y),$$

To illustrate, suppose that an individual can buy only two goods, X
and Y. Suppose further that the individual is willing to give up two
units of Y in order to obtain one unit of X. Now if X and Y both sell
for $2.00 each, the price ratio is unity, meaning that one unit of Y
can be substituted for one unit of X. The consumer will clearly bene-
fit by consuming less Y and more X, since he is willing to give two
Y's for one X but only has to give one Y for one X in the market. As
the individual continues to substitute Y for X, the rate at which he
is willing to make additional substitutions is likely to decrease.
That is, as more X is obtained, the individual's desire for X becomes
saturated, and the satisfaction derived from the last purchased units

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and his budget constraint is

$$M = Q_X P_X + Q_Y P_Y.$$

To maximize the preference function subject to the budget constraint
is a Lagrangean problem. Therefore first we construct the function

$$L = U(Q_X, Q_Y) - \lambda(Q_X P_X + Q_Y P_Y - M)$$

where λ is a Lagrangean multiplier. To solve for the constrained maxi-
mum solution, we set both partial derivatives equal to zero, namely

$$\partial L/\partial Q_X = \partial U/\partial Q_X - \lambda P_X = 0,$$

$$\partial L/\partial Q_Y = \partial U/\partial Q_Y - \lambda P_Y = 0.$$

Transferring the second term to the right-hand side in each equation
and dividing the first equation by the second yields,

$$(\partial U/\partial Q_X)/(\partial U/\partial Q_Y) = P_X/P_Y.$$

The expression on the left side is the individual's willingness sub-
stitution ratio, while the expression on the right side denotes the
price ratio.

of X becomes smaller and smaller; whereas, as additional units of Y
are given up, they are likely to become more and more precious. The
individual will stop substituting Y for X when the rate at which he is
willing to make such substitutions exactly equals the price ratio of
the two goods.

The significant point is that the quantity of output decision
from a public interest viewpoint depends on price, while firms look to
marginal revenue when they decide what quantity of output to produce.
When producers sell their output in perfectly competitive markets,
their marginal revenue will equal price. As a result, firms will auto-
matically produce output that is consistent with the public interest.
Conversely, when firms sell in imperfectly competitive markets, they
will produce in quantities inconsistent with the public interest.
In such instances governmental intervention may be necessary to protect
the public interest. Depending on the circumstances, the intervention
can either (1) attempt to return the imperfectly competitive industry
to a competitive state through antitrust actions, or (2) allow the in-
dustry to remain imperfectly competitive and regulate price in an
attempt to induce firms to make output decisions consistent with the
public interest. If circumstances dictate that no cost efficiencies
are achieved by the imperfectly competitive nature of an industry, the
appropriate governmental intervention would be to return the industry
to competition via antitrust action. On the other hand, if economies
of scale and/or other cost efficiencies are made possible by the

existence of imperfect competition, governmental intervention should

attempt to preserve and encourage the imperfectly competitive state of

the industry, but price regulation would be in order so that the im-

perfectly competitive firms would be encouraged to make output deci-

sions consistent with the public interest. It is this latter situation

that exists in the public utility industry.

In abbreviated form, the third Lerner condition for general

economic efficiency is

$$MPR = PMC$$

where the terms are as previously defined. The fulfillment of this

condition does not require perfect competition or the absence of market

externalities. The equation is satisfied whenever producing firms

maximize their profits. Profit maximizing firms expand output as long

as marginal private revenue (the change in total revenue) exceeds mar-

ginal private cost (the change in total cost), and contract output as

long as MPR is less than MPC. A stable output is achieved and profits

are maximized when MPR equals MPC.[40]

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[40]The mathematical proof for this is relatively simple. If we
denote total revenue as TR and total cost as TC, we have

$$Profit = TR - TC.$$

This function will be maximized when its first derivative, with
respect to quantity of factor inputs (Q_F), equals zero. Specifically,
if we let Q represent quantity of output, we have

$$dProfit/dQ_F = (dTR/dQ)(dQ/dQ_F) - (dTC/dQ)(dQ/dQ_F) = 0$$

$$= MPR - MPC$$

or,

$$MPR = MPC.$$

The fourth Lerner condition for the achievement of general economic efficiency is that

$$MPC = VMF.$$

Expressed in terms of component parts, this condition can be denoted as

$$MPP \cdot MC = MPP \cdot FP$$

where

MPP = Marginal physical product as previously defined,

MC = the change in total cost associated with a one-unit increment in output, and

FP = the market price that the firm pays to the factor of production in order to induce the factor to produce one additional unit of output.

This expression can be reduced to illustrate that Lerner's fourth condition simply requires

$$MC = FP.$$

This condition will be satisfied automatically if there is perfect competition in the buying of factors of production. In such perfectly competitive markets, the firms that buy productive factors cannot influence the factor price (FP) by varying the quantity of factors purchased. Thus, in perfectly competitive factor markets FP will equal MC.

The reason for the equality of FP and MC in perfect competition, and its significance from a public interest viewpoint, parallels the discussion concerning the equality of marginal revenue (MR) and product price (P). Hence, no further discussion seems necessary here.

The final Lerner conditon for the maximization of net-social-economic-benefit is that

$$VMF = MSC.$$

This condition is automatically satisfied if the first four conditions hold for all factors of production used in an economy to produce goods and services. This follows because when the first four equations hold, the value of the marginal factor (VMF) for every factor will equal the alternative marginal social benefit from using the factor in these other uses. Since this alternative marginal social benefit defines MSC, condition five must hold.

3. The public interest and imperfect competition. An economy ceases to be perfectly competitive when one individual or firm is capable of influencing market prices via its consumption or output decisions. As discussed in the previous section, the ability to influence price through a consumption or output decision violates one or more of the Lerner conditions for the achievement of general economic efficiency. It is at this stage that governments in a democratic society have a legitimate role to play in the economy. That role is to intervene in the operations of the economy with the intent to correct the social ills that result from the violation of one or more of Lerner's conditions.

It is generally accepted that public utility customers are best served when those firms operating in the industry are required to be

monopolies and thus are able to provide service at a lower per-unit cost than numerous competitive firms. These cost savings arise from elimination of duplicate facilities and from economies made possible by large-scale operations.

The economies of scale monopoly firms can achieve are in the public interest because the realization of such economies requires the utilization of fewer scarce resources for the same output. Therefore, marginal social cost of the monopolist's output is reduced. The socially desirable output is likely to increase as a result, because more can be consumed at the same cost. The unregulated profit-maximizing monopolist, however, will tend to establish a price that is higher than the marginal social cost, thereby inducing consumers to purchase less than what would be socially desirable. Governmental price regulation can fix a price such that the large scale monopolist will produce and sell the socially desirable quantity of output in his effort to maximize profit. Both the unregulated and regulated solutions are depicted in Figure 1.

The unregulated profit-maximizing monopolist will want to produce an output such that his marginal revenue equals his marginal cost. Recall that marginal revenue measures the change in total revenue as the quantity of output changes, while marginal cost is the corresponding change in the firm's total cost. When additions to output increase total revenue by more than total cost, marginal revenue is greater than marginal cost and profit can be increased through such additions
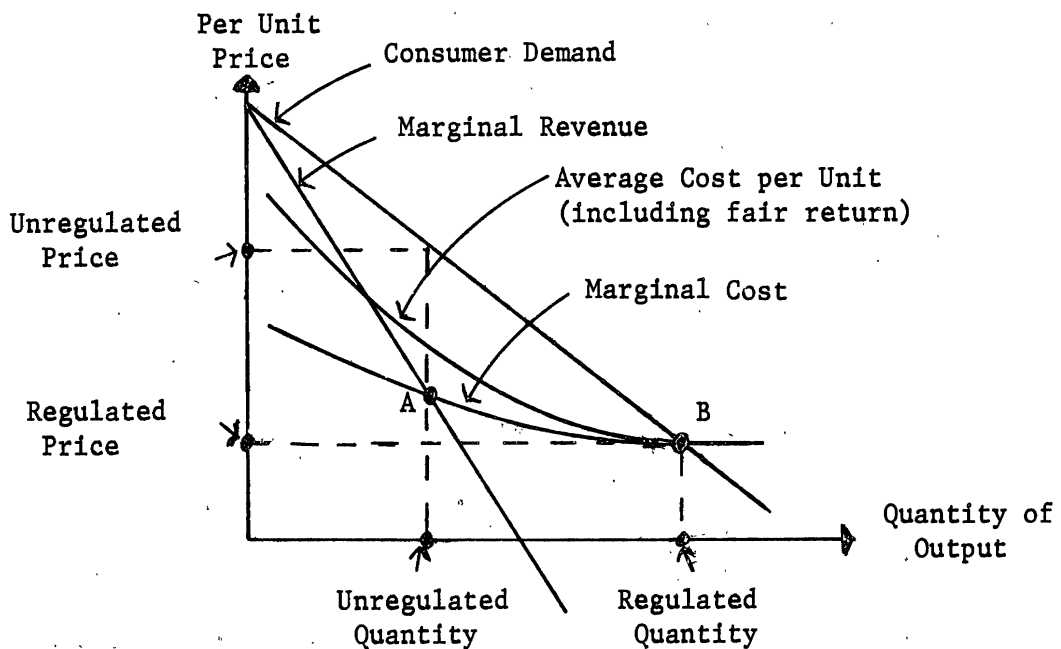
Fig. 1. Comparison of regulated and unregulated prices
for utility service.

to output. The firm's total profit is at its maximum when marginal

revenue equals marginal cost. This equality is located at point A in

Figure 1. To reach this solution, the unregulated monopolist will

establish the unregulated price shown in the graph and thereby produce

the depicted unregulated quantity.

It is important to notice that the unregulated solution is not the

socially desirable solution. The established market price reflects the

value of other commodities that must be forgone by the consumer when

he acquires a unit of this commodity. In the absence of externalities,

the established market price measures the social benefit realized by

the consumer in this situation. This social benefit, however, exceeds

the social cost at this level of output which is measured by the firm's

marginal cost (at point A). Since social benefit exceeds social cost, net social benefit could be enhanced by increases in output and would reach its maximum at point B.

The goal of governmental regulation is to achieve maximum net-social-economic-benefit. In the case illustrated here, the regulatory solution is clear. The public interest would be best served if the indicated regulated price were established, thereby inducing consumers to purchase the regulated quantity. This level of output results in marginal cost (social cost) equalling market price (social benefit).

There is one unique aspect about this illustration that requires further emphasis: the monopoly firm illustrated here has achieved all possible economies of scale at point B. What this means in terms of Figure 1 is that the curve representing the firm's average cost per unit is flat at point B. That is, average cost is constant at outputs around point B. This, in turn, implies that marginal cost equals average cost.[41] For example, suppose that the quantity of output at

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[41]The mathematical proof of this statement follows directly from the relationship that exists between marginal cost and average cost. To determine this relationship, let

TC = total cost,
 Q = quantity of output,
AC = average cost,
   = TC/Q,
MC = marginal cost
   = dTC/dQ.

The slope of AC expresses the steepness or flatness of the average cost curve and is equal to the first derivative of average cost (AC). Taking the first derivative of AC with respect to Q yields

point B is 100 units and that average cost at this output is $1.00;

thus, total cost is $100. If output were increased by one unit to 101

units, total cost would increase by $1.00 to $101. Therefore, marginal

cost is $1.00 which also is the average cost. The importance of the

equality of marginal cost and average cost at point B is that the

socially desirable output can be achieved via cost-based price regula-

tion only if the regulated firms have been encouraged to expand in size

to the point where all possible economies of scale have been realized.

Let us consider what is possible for regulators to achieve when a

firm has not expanded in size sufficiently to achieve all possible

economies of scale. Such a firm is depicted in Figure 2.

Notice that the market this firm serves is not large enough to

permit the firm to expand to point B where marginal cost equals average

cost. As a result, the goal of governmental regulation (maximization

of net-social-economic-benefit) cannot be achieved. To allow a fair

return to the regulated firm, regulators must establish the indicated

"regulated price" which would induce the firm to operate at point C

where market price (social benefit) exceeds marginal cost (social cost).

$$dAC/dQ = d(TC/Q)/dQ$$
$$= (Q(dTC/dQ) - TC(dQ/dQ))/Q^2$$
$$= 1/Q((dTC/dQ) - (TC/Q))$$
$$= 1/Q(MC - AC).$$

Therefore, (a) when $dAC/dQ < 0$, $MC < AC$,
(b) when $dAC/dQ = 0$, $MC = AC$, and
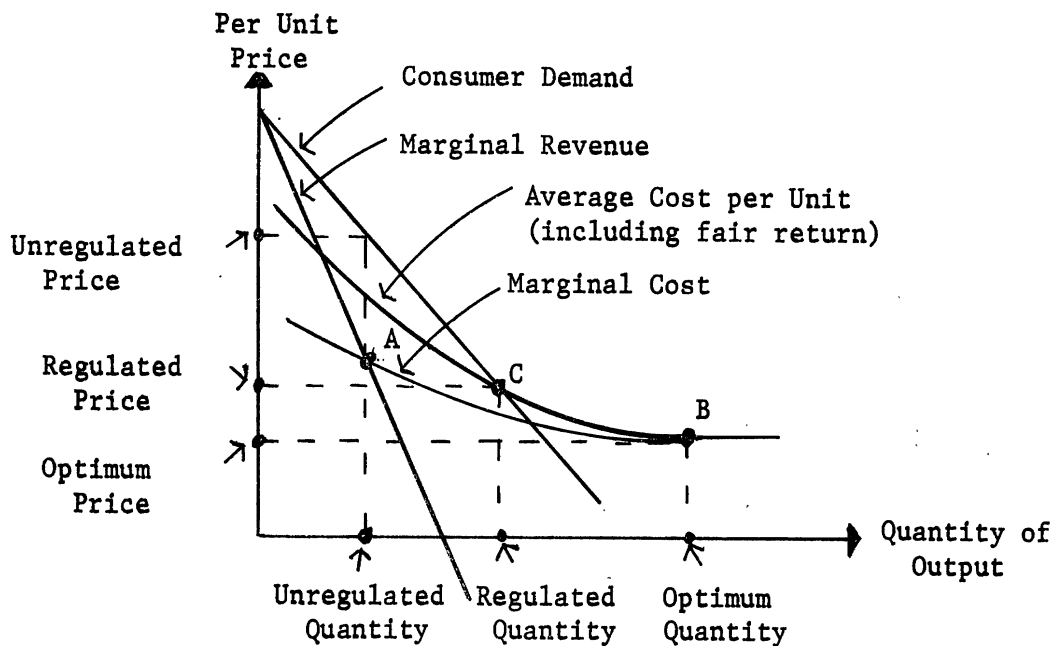(c) when $dAC/dQ > 0$, $MC > AC$.

Fig. 2. Regulation of utility which has not achieved all economies of scale

The public interest would be served if this firm could acquire market areas such that the firm's demand curve would shift rightward to point B.

Tax allocation and the Lerner conditions

What implication does the above analysis have for income tax allocation in rate-making proceedings? Obviously taxes are part of the cost of service. The problem before us is how to allocate a consolidated tax liability in a manner which does not discourage a regulated utility from growing to the point where all economies of scale are achieved (i.e., the point where marginal cost equals average cost).

Let us examine the public interest aspects of two consolidated tax situations, one which assumes that taxes for rate purposes are

allocated only on the basis of positive taxable incomes, and the second in which income taxes for rate purposes are allocated on the basis of all taxable income, positive or negative.

When taxes are allocated only on the basis of positive taxable incomes, tax benefits attributable to loss affiliates are assigned to affiliates with positive taxable incomes. When an affiliate with a positive taxable income is a regulated company, these tax benefits are passed on to utility customers and are therefore lost to the consolidated group. Loss of these tax benefits discourages the firm in its desires to expand public utility operations even when expansion would be highly desirable in order to realize economies of scale that would make possible the maximization of net-social-economic-benefit.

The second situation allocates the income tax aspects (positive or negative) to the company whose operations produced these aspects. With this allocation procedure, regulated companies with positive taxable income do not share tax benefits produced by affiliates. Consequently, these tax benefits are not passed through to the customers of the profitable utilities but instead remain with the consolidated group. This tax allocation procedure for rate-making purposes does not discourage expansion of public utility operations; thus realization of maximum net-social-economic-benefit is not frustrated.

In conclusion, our analysis has shown that the public interest is best served if consolidated tax liabilities are allocated, for rate-making purposes, to each company according to its own operations (positive or negative).