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Appendix B. Notes on Methods

DERIVATION OF THE DIFFERENTIALS

THE investigation is limited to the differential taxation of stockholders under the federal government's income tax structure without consideration of state corporation and personal income taxes. The source of the data, unless otherwise specified, was tabulations published annually in *Statistics of Income* by the Internal Revenue Service (Bureau of Internal Revenue prior to 1948), Part 1 covering the personal income tax, Part 2 corporate taxes.[1]

Net Corporate Earnings Component of Stockholder Income

To derive stockholders' pro rata share of all of net corporate earnings (i.e. dividends, retained earnings, plus corporate normal and surtax, and excess profits tax payments), the aggregate of net corporate earnings was computed by deducting intercorporate dividends (i.e., dividends received by corporations from domestic corporations) from the tabulated total of net income for all corporations (both income and deficit).[2] This is the total net income generated by corporate activity. Then it was determined by how much net corporate earnings exceeded net corporate dividends (the latter obtained by subtracting domestic intercorporate dividends from the reported total of dividends paid out in cash and assets other than own stock), and the ratio of dividends to the excess of corporate earnings over dividends was computed.[3] Application of this ratio gave the amount to be added to stockholders' dividend receipts to obtain their pro rata share of net corporate earnings. Behind the use of this ratio, derived from the data for all corporations, lies the assumption that the stockholders used here to represent the average experience at selected income levels have portfolios which show the same ratio of dividends to earnings as is derived from the

[1] Example of abbreviated form to be used hereafter: *SI*, 1950, Part 1, p. 38; Part 2, p. 42.

[2] In effect, then, because the data for income and deficit corporations are combined, the pro rata share of corporate earnings imputed to stockholders included deficits as well as earnings.

[3] No distinction was made in the study between common and preferred dividends. The available data would permit only the crudest of breakdowns, and the wide variety of priority and cumulative provisions attaching to preferred stock would constitute a further conceptual difficulty. Moreover, dividends on both types of stock are paid out of income that is taxed when earned at the corporate level and when distributed at the personal level. Some may prefer to view it this way: the method used in this study implicitly assumes that the proportion of preferred dividends to all dividends and of preferred stockholdings to all stockholdings that applied for all stockholders, taken as a whole, applied also to each average stockholder's portfolio.

aggregate corporate experience. (See Chapter 2 for an explanation of why this assumption appears reasonable.) A tabular summary of the steps just outlined appears in Table B-1.

TABLE B-1

Derivation of the Imputation Ratio, 1950
(dollar amounts in thousands)

(1) Net income of all corporations	$42,613,304
(2) Dividends received from domestic corporations	2,459,921
(3) Net corporate earnings = (1) — (2)	40,153,383
(4) Dividends paid (other than in own stock)	11,552,963
(5) Net corporate dividends = (4) — (2)	9,093,042
(6) Excess of net corporate earnings over dividends = (3) — (5)	31,060,341
(7) Ratio of excess of net corporate earnings over dividends to dividends = (6) ÷ (5)	*3.416*

Source: For (1), (2), and (4), *S.I.*, 1950, Part 2, p. 90.

To impute their full pro rata share of net corporate earnings to stockholders, their dividend receipts were multiplied by 3.416, and the product was added to their income. Before this ratio could be applied, however, a number of computational steps were necessary. Our study is limited to those stockholders who were "double-taxed," and stockholders are simply taken to be dividend recipients. Starting with the number of dividend recipients and the amounts of dividends they reported arrayed by adjusted gross income classes, estimates were obtained to be used as a check and correction factor for the more refined breakdown to be described. These tabulations provided the number of personal income taxpayers who reported dividends as one of the components of their income. This number constituted the main body of stockholders, but in addition there were those taxpayers who received income from estates and trusts, derived in part, at least, from dividends. The number of such stockholders was estimated using, first, a ratio based on a special tabulation for 1936 to determine how many of the recipients of income from estates and trusts did not report dividends as well.[4] From these data, for each income class, the percentage of those who received income from estates and trusts but did

[4] *Statistics of Income Supplement Compiled from Income Tax Returns for 1936*, Individual Incomes, Section III, Patterns of Income, Treasury Dept., Division of Tax Research with the W.P.A., June 1940. This special study provides elaborate detail on the income patterns of taxpayers, arrayed by total income classes—a definition close enough to adjusted gross (the basis of tabulation of the annual data used in this study) to be usable. (For 1940 and 1941 for which the basis of classification was net income rather than adjusted gross, a cross-classification in the special supplement was used to get the data on a net income basis.)

not receive dividends per se was calculated; then this percentage was applied to the number of returns in each income class reporting income from estates and trusts in the years covered by the study. But not all estates and trusts had dividends. A further correction, therefore, was made by a percentage representing the portion of taxable estates and trusts reporting dividends. This procedure assumes that each taxpayer with estate and trust income received it from one such entity, and that the data for taxable estates and trusts are representative of all estates and trusts. (This latter assumption appears substantially correct. See the Fiduciary section of *Statistics of Income for 1937, Part 1*).[5] The number of stockholders in each income class, then, equalled the sum of those who reported dividends directly, plus those who received dividends as one of the components of their income from fiduciaries.

The amount of dividends in each income class was obtained as the sum of dividends reported by the class plus an estimated amount of dividends received from fiduciaries (estates and trusts).[6] The estimate was made by multiplying the total of income reported by individuals as received from fiduciaries by the percentage that dividends comprised of total income reported by taxable fiduciaries. These procedures are illustrated by an example, Table B-2.

The next set of computations utilized a distribution of the number of dividend recipients cross-classified by size of dividend receipts and size of adjusted gross income.[7] For each adjusted gross income class, in other words, there was available a dividend size distribution (see, for example, Table 4 in *Statistics of Income for 1950, Part 1*). In all, this distribution consisted of about 225 income-dividend size cells, e.g., dividend recipients with between $100 and under $200 of dividends and $3,000 and under $4,000 of adjusted gross income, etc.

Several adjustments were made in this cross-classification. Since the study covers only double-taxed stockholders, while the cross-classification covered nontaxable as well as taxable dividend recipients, the number of taxable stockholders in each cell was estimated by applying

[5] A long line of assumptions indicates numerous possible sources of error. Since, however, the total of such returns was very small (less than 4 per cent of all dividend returns in 1950) a large error in this item would have a small effect on the figures.

[6] In 1944 and 1945 dividends and interest were reported as a combined total. By assuming that, in each class, the relative weights of dividends and interest were the same as in 1946, an estimate of dividends received by personal income taxpayers was made for these two years.

[7] For 1944 and 1945, the 1946 distribution was used; for 1940 and 1941, the data for the income classes under $5,000 was estimated; for 1950 and 1951, the self-employment-tax-only dividend returns were ignored in obtaining the distribution, since they represented a negligible amount of the total.

APPENDIX B

TABLE B-2

Derivation of Dividend Returns and Amount of Dividends
ADJUSTED GROSS INCOME CLASS $8,000 AND UNDER $10,000, 1950

(1) Taxable reported individual dividend returns	244,875
(2) Returns with income from estates and trusts:	
Class $8,000 and under $9,000	12,648
Class $9,000 and under $10,000	10,026
(3) With 49.86 per cent (class $8,000 and under $9,000) and 28.35 per cent (class $9,000 and under $10,000) of all returns reporting income from estates and trusts but not reporting dividends,[a] the number of recipients of income from estates and trusts who did not report dividends was estimated at	11,154
(4) Percentage of taxable fiduciary returns (estates and trusts) reporting dividend receipts	73.44%
(5) Assuming this percentage to characterize all income from estates and trusts, and assuming further that every individual who reported income from estates and trusts received this income from only one such entity, there would be a net addition to the number of individual dividend returns (11,154 × 73.44%) of	8,191
(6) Total taxable dividend returns, therefore, would equal (1) + (5)	253,066
(7) Dividends reported on taxable individual returns	$273,814,000
(8) Income from estates and trusts reported on taxable individual returns	65,662,000
(9) Dividends comprised 56.18 per cent of the total income reported by taxable estates and trusts. Assuming this percentage to apply to all income from estates and trusts, the dividend component of income received by individuals from estates and trusts was estimated as an additional	36,889,000
(10) Total estimated dividends of taxable individuals equal (7) + (9)	310,703,000

Source: *S.I.*, 1950, Part 1: for (1), p. 48; for (2), p. 50; for (4), p. 157; for (7), p. 38; for (8), p. 40; for (9), pp. 152 and 154.

[a] *Statistics of Income Supplement for 1936*, Sect. III, Table 3, Bureau of Internal Revenue.

the fraction that taxable returns comprised of total returns in each income class.[8] It was necessary, also, to estimate the number of dividend returns for some cells—those at the extreme bottom of the array —because an entry for these was not published on the grounds that it was considered statistically unreliable.[9] In most cases such items were obtained as residuals from row or column totals. In the cells where this could not be done, i.e. two or more cells for which no entries were published, the aggregate residuals were broken down by proportions based on the totals of the classes concerned.

[8] Obtained from *Statistics of Income*, Part 1 Table 2, for all years.

[9] These figures were used, despite the wide margin of error attached to them, because the insignificant number of returns involved was swamped in the income class averages.

The average dividend receipts for each dividend-income cell were tentatively set at the mid-point of the dividend size class. This average was multiplied by the number of dividend returns, and the total for that adjusted gross income class was compared with the corresponding figure (see above) obtained from tabulations and, therefore, presumably correct. The comparison provided the basis for a proportionate correction of the initially assumed average size of dividend receipt. As corrected, the dividend total derived from the array of dividend-income cells and that tabulated in *Statistics of Income* (and the estimated dividend component of income from estates and trusts) were equal.

Imputed Gross Income

The average dividend amounts in each cell, as corrected, were used to derive what is called in this study imputed gross income. The average dividend figure was multiplied by the imputation ratio—the excess of net corporate earnings over dividends as a proportion of dividends. It was assumed that, in each income class, stockholders' adjusted gross income was the same as the average for all taxpayers. To this average for each class was added the result of multiplying average dividends by the imputation ratio, the resulting figure being the imputed gross income, defined as stockholder income including pro rata shares of net corporate earnings, rather than only dividends, as the measure of personal income from the corporate sector.[10] Then stockholders, their imputed gross income, and their share of net corporate earnings were rearrayed in income classes based on the size of imputed gross income. For every such income class—some fifteen in all—the average amount of imputed gross income and the proportion comprised by corporate earnings were computed. Plotting these two values furnished a chart from which could be read off the corporate earnings percentage of average imputed incomes of selected amounts. This was done for nineteen average imputed income levels—those that appear in the annual tables in Appendix A, and Table 4 in Chapter 2. A specific numerical illustration of the procedures used in imputation and rearraying is given in Table B-3.

Certain Aspects of the Derivation of the Differentials

Derivation of the differentials, explained in detail in Chapter 2, will not be repeated here. Elaboration of some points below will refer to the relevant columns of Table 4 in Chapter 2.

[10] Adjusted gross income already included dividends; this explains the addition of the excess of net corporate earnings over dividends to arrive at imputed gross income.

TABLE B-3

Steps in Imputation and Rearraying

ADJUSTED GROSS INCOME CLASS $8,000 AND UNDER $10,000, AND DIVIDEND SIZE CLASS $1,500 AND UNDER $2,000, 1950

(1) The average adjusted gross income of all taxable returns in this income class was (It was assumed that dividend returns in this class, on average, also had this income.)	$8,849
(2) The number of returns reporting dividends in income class $8,000 and under $10,000, and dividend class $1,500 and under $2,000	*10,751*
(3) But, because of adjustments summarized in Table B-2, (3) to (5), this number must be increased by 3.345 per cent, making the estimate for the number of returns	*11,111*
(4) In the absence of any other information the average size of dividends was tentatively set at the mid-point of the class, at	$ 1,750
(5) But for the whole class $8,000 and under $10,000, use of this mid-point assumption yielded a dividend total of $294,914,000, while our figure from Table B-2 (10) is $310,703,000. Therefore the average size of dividends was raised [$1,750 × ($310,703/$294,914)] to	1,844
(6) With the imputation ratio, Table B-1 (7), at 3.416, this meant an addition to the average stockholder's income of ($1,844 × 3.416), equal to	6,299
(7) Therefore, the average imputed gross income equalled $6,299 + $8,849 [from (1) above],	15,148
(8) Total imputed income = (7) × (3)	168,309,000
(9) Of this total the net corporate earnings component was [This equals average dividends plus the average imputation multiplied by the number of returns ($1,844 + $6,299) × 11,111]	90,478,000
(10) Items (3), (8), and (9) were rearrayed into the imputed gross income class $10,000 and under $25,000, because average imputed gross income was	15,148

Note: For every adjusted gross income—dividend class cell (225 in all) a similar calculation was made. The data were rearrayed by size of imputed gross income, the average imputed gross income was computed, and the total item (9) for each class as a per cent of item (8) for each class was plotted against it. From this plot was read off the percentage that corporate earnings comprised of imputed gross income for a number of selected income levels ranging from $1,000 to $500,000, to be used in the computation of the differentials.

Source: *S.I.*, 1950, Part 1: for (1), pp. 38, 42; for (2), pp. 56-57.

In column 7, taxable income equivalent, the initial taxable income at each imputed income level was obtained by interpolation from values shown by plotting size of adjusted gross income against taxable income as obtained from the data for all taxpayers. This procedure which saved more complicated computation appears rough and ready, but its results are very close to those obtainable by the much more

laborious process of striking weighted averages of the taxable income in each of the 225 dividend-income size cells.[11]

Several items in the derivation of column 8, corporation income tax on earnings for distribution, deserve mention. First, the effective rate of corporation income tax on earnings for distribution is slightly less than the effective rate on net income corporations. This is because the corporate tax was allocated between dividends and retentions on the basis of the ratios for net income corporations; but, in obtaining earnings for distribution, dividends of deficit corporations as well as those of income corporations are added to the corporation income tax on distributed earnings. Since the dividends of deficit corporations are small, however, little change occurs. In 1950, for example, whereas the effective rate on income corporations was 41.5 per cent, we found 41.3 as the effective rate on earnings for distribution. The derivation of this rate for 1950, as well as the effective rate on earnings for retention (column 14), is shown in Table B-4, below, lines 20 and 23. Secondly, an additional conceptual difficulty arises from dividends in excess of earnings paid out by income corporations. Such dividends are paid out of earnings made in prior years, yet the rate applied to them in these derivations was the rate ruling in a given year—in Table 4, the 1950 rate. There is no way of estimating dividends in excess of earnings paid by income corporations from the annual tabulations in *Statistics of Income*. But it would be surprising if they were of any substantial magnitude. Some estimate of the relative importance of dividends paid in excess of current earnings can be obtained from a study undertaken by O. J. Curry.[12] From his sample of industrial corporations, it appears that over the three years 1931-1933, for net income corporations, dividends in excess of current earnings (after taxes) accounted for less than 12 per cent of the total of dividends paid out.[13] On the basis of

[11] The accuracy of this method was tested with the 1947 data for two selected imputed income levels, by computing the actual taxable income for all the cells used in the derivation of the $5,000 and $250,000 average imputed gross income levels. In both cases, these test figures differed relatively slightly from those of the more summary procedure. While there was some disparity in taxable income under the two methods, it had little effect on the differentials. And this is the important consideration here: at the $250,000 level, for example, where the disparity between taxable income ran at 12 per cent, the differentials would have varied by only 0.5 per cent.

[12] O. J. Curry, "Utilization of Corporate Profits in Prosperity and Depression," *Michigan Business Studies*, Vol. X, No. 4, 1941.

[13] Curry's sample consisted of 72 large corporations which in 1936 accounted for more than 50 per cent of the assets in 10 of the 12 industrial groups into which the sample was divided. While, in general, his figures for dividends in excess of current earnings covered the period 1931-1933, in a few cases data for 1930 and 1934 were used. From Tables 10, 11, and 12 in Curry's study each entry for

this finding for an extremely depressed period, we may safely take it that such dividend payments did not exceed 5 per cent of the total in the years covered by our study. To take some extreme figures, suppose such dividends comprising 5 per cent of the total came out of earnings that were taxed at 30 per cent but that they were paid out in a year when the effective rate of corporate tax was 40 per cent. Our standard method would use 40 per cent; the more correct figure to be applied against earnings for distribution should be 39.5 per cent. The difference is not great. Thirdly, in column 8 and column 14, under the heading of corporation income tax were included the corporation income tax (normal and surtax—all years), the excess profits tax (1940-1941, 1944-1945, and 1950-1952), and the declared value excess profits tax (1940-1941, 1944-1945). Thus we dealt with "double" not "triple" taxation. In other words there was no special allowance for the tax on intercorporate dividends,[14] which entered, however, into the total tax liability used in our computations.

A More Refined Distribution of Dividend Receipts and Imputed Gross Income

A final note on the differentials. In 1951, a more refined dividend size class distribution was published in *Statistics of Income.* The Lorenz curve for the distribution of dividend receipts was found to be very similar in all the years 1946-1952, making reasonable use of the 1951 percentages within certain ranges to break down the 1950 distribution into a larger number of cells. For 1950, the income class $5,000 and under $8,000 was made up of 14 cells from the 1950 data, and 27 cells using the more refined breakdown obtained from the 1951 percentages. Were our standard method results affected by the "lumpiness" of the data? Will this more refined data yield significantly different findings? The answer to both these questions is no. The differentials obtained from the test data varied only slightly from those provided by our standard method. At only two of the nineteen income levels was the difference more than one percentage point. The "lumpiness" of the imputed gross income classes was next tested. Using the 1950 data, 27 income classes rather than 15 were used. The resultant effect on the differentials using these more refined imputed gross income classes turned out to be negligible. Only 9 per cent of all differentials varied by more than one percentage point from the standard method.

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individual net income corporations where dividends were paid in excess of adjusted earnings was picked out, these entries were totalled, and then this total was computed as a per cent of all dividends paid out by net income corporations.

[14] 15 per cent of such dividends are included in taxable income.

APPENDIX B

ALTERNATIVE MEASURES OF THE DIFFERENTIALS

The rationale of each alternative of the standard method has been presented in Chapter 4. The derivation of the differentials by these alternatives is that described in Chapters 1 and 2, with variations for each alternative in the imputation ratio and the effective rate of corporation income tax. The relevant data for the standard method and for each of the alternatives (except D and G) are summarized in Tables B-4 through B-9. Under alternative D, saving through corpora-

TABLE B-4

Derivation of Imputation Ratio and Effective Rates of Corporate Income Tax, Standard Method, 1950

(dollar amounts in thousands)

(1) Net income all corporations	$42,613,304
(2) Dividends received from domestic corporations	2,459,921
(3) Net corporate earnings all corporations = (1) — (2)	40,153,383
(4) Dividends (other than own stock) paid out by all corporations	11,552,963
(5) Net dividends all corporations = (4) — (2)	9,093,042
(6) Excess of net corporate earnings over dividends = (3) — (5)	31,060,341
(7) Imputation ratio Standard Method = (6) ÷ (5)	*3.4158*
(8) Net income of income corporations	$44,140,741
(9) Dividends received from domestic corporations	2,440,022
(10) Net corporate earnings income corporations = (8) — (9)	41,700,719
(11) Dividends (other than own stock) paid out by income corporations	11,454,755
(12) Net dividends income corporations = (11) — (9)	9,014,733
(13) Corporation income tax	17,316,932
(14) Dividends plus retained earnings of income corporations ≐ (10) — (13)	24,383,787
(15) Retained earnings of income corporations = (14) — (12)	15,369,054
(16) Retained earnings proportion of after-tax earnings of income corporations	*0.63030*
(17) Corporation income tax allocable to retained earnings = (13) × (16)	$10,914,828
(18) Retained earnings all corporations = (3) — [(5) + (13)]	13,743,409
(19) Earnings for retention = (17) + (18)	24,658,257
(20) Corporation income tax allocable to distributed earnings = (13) — (17)	6,402,104
(21) Earnings for distribution = (5) + (20)	15,495,146
(22) Effective rate of corporation income tax on earnings for retention = (17) ÷ (19)	44.264%
(23) Effective rate of corporation income tax on earnings for distribution = (20) ÷ (21)	41.317%
(24) Effective rate of corporation income tax on net corporate earnings = (13) ÷ (3)	43.127%

Source: *S.I.*, 1950, Part 2, Table 3.

Note: The steps as presented here follow a somewhat different order than in Chapter 2.

TABLE B-5

Alternative A—Fifty Per Cent Shifting, 1947
(dollar amounts in thousands)

(1) Net income all corporations	$31,422,728
(2) Dividends received from domestic corporations	1,882,400
(3) Net corporate earnings all corporations (1) — (3)	29,540,328
(4) Corporation income tax	10,981,482
(5) One-half of (4)	5,490,741
(6) Net corporate earnings, Alternative A = (3) — (5)	24,049,587
(7) Effective rate of corporation income tax, Alternative A = (5) ÷ (6)	22.831%
(8) Dividends (other than own stock) paid out by all corporations	$8,365,046
(9) Net corporate dividends = (8) — (2)	6,482,646
(10) Excess of net corporate earnings over dividends = (6) — (9)	17,566,941
(11) Imputation ratio, Alternative A = (10) ÷ (9)	*2.7098*

Source: *S.I.*, 1947, Part 2, Table 3.

TABLE B-6

Alternative B—Replacement Cost Definition, 1947
(dollar amounts in thousands)

(1) Net income all corporations	$31,422,728
(2) Dividends received from domestic corporations	1,882,400
(3) Net corporate earnings all corporations = (1) — (2)	29,540,328
From (3) deduct:	
(4) Inventory valuation adjustment[a]	5,757,000
(5) One-half of depreciation all corporations[b]	2,610,045
To get:	
(6) Net corporate earnings, Alternative B	21,173,283
(7) Corporation income tax	10,981,482
(8) Effective rate of corporation income tax, Alternative B = (7) ÷ (6)	51.865%
(9) Dividends (other than own stock) paid out by all corporations	$8,365,046
(10) Net corporate dividends = (9) — (2)	6,482,646
(11) Excess of net corporate earnings over dividends = (6) — (10)	14,690,637
(12) Imputation ratio, Alternative B = (11) ÷ (10)	*2.2662*

Source: *S.I.*, 1947, Part 2, Table 3, except (4), (5).

[a] *Survey of Current Business*, July 1953, p. 16.

[b] One-half suggested by E. Cary Brown, *Effects of Taxation: Depreciation Adjustments for Price Changes*, Harvard University Press, 1952, pp. 28, 151-154.

tions, and alternative G, correction for underreporting of dividends, the corporation tax is the same as by the standard method, but the imputation ratios vary with levels of stockholder income (see Chapter 4).

TABLE B-7

Alternative C—Fifty Per Cent Shifting and Replacement Cost Combined, 1947

(dollar amounts in thousands)

(1) Net income all corporations	$31,422,728
(2) Dividends received from domestic corporations	1,882,400
(3) Net corporate earnings all corporations = (1) — (2)	29,540,328
From (3) deduct:	
(4) One-half of corporation income tax	5,490,741
(5) Inventory valuation adjustment	5,757,000
(6) One-half of depreciation all corporations	2,610,045
To get:	
(7) Net corporate earnings, Alternative C	15,682,542
(8) Effective rate of corporation income tax, Alternative C = (4) ÷ (7)	35.012%
(9) Dividends (other than own stock) paid out by all corporations	$8,365,046
(10) Net corporate dividends = (9) — (2)	6,482,646
(11) Excess of net corporate earnings over dividends = (7) — (10)	9,199,896
(12) Imputation ratio, Alternative C = (11) ÷ (10)	*1.4192*

Source: *S.I.*, 1947, Part 2, Table 3, except (5) and (6) (see Table B-6).

TABLE B-8

Alternative E—Earnings for Distribution Only, 1947

(dollar amounts in thousands)

(1) Dividends (other than own stock) paid out by all corporations	$8,365,046
(2) Dividends received from domestic corporations	1,882,400
(3) Net dividends all corporations = (1) — (2)	6,482,646
(4) Dividends (other than own stock) paid out by net income corporations	8,222,121
(5) Dividends received from domestic corporations	1,837,581
(6) Net dividends net income corporations	6,384,540
(7) Net income of income corporations	33,381,291
(8) Net corporate earnings of income corporations = (7) — (5)	31,543,710
(9) Corporation income tax	10,981,482
(10) Effective rate of corporation income tax = (9) ÷ (7)	34.184%
(11) Earnings for distribution income corporations = (6) ÷ (1 — 0.34184)	9,794,342
(12) Excess of earnings for distribution over dividends = (11) — (3)	3,311,696
(13) Imputation ratio, Alternative E = (12) ÷ (3)	*0.51086*

Source: *S.I.*, 1947, Part 2, Table 3.

TABLE B-9

Alternative F—Imputing only a Fraction of Retained Earnings, 1947
(dollar amounts in thousands)

(1) Net income all corporations	$31,422,728
(2) Dividends received from domestic corporations	1,882,400
(3) Net corporate earnings all corporations = (1) — (2)	29,540,328
(4) Corporation income tax	10,981,482
(5) Dividends (other than own stock) paid out by all corporations	8,365,046
(6) Net corporate dividends = (5) — (2)	6,482,646
(7) Retained earnings = (3) — [(4) + (6)]	12,076,200
(8) 72% of retained earnings	8,694,864
(9) Net corporate earnings for stockholders, Alternative F = (4) + (6) + (8)	26,158,992
(10) Effective rate of corporation income tax, Alternative F = (9) ÷ (4)	41.980%
(11) Excess of net corporate earnings over dividends = (4) + (8)	$19,676,346
(12) Imputation ratio, Alternative F = (11) ÷ (6)	3.0352

Source: *S.I.*, 1947, Part 2, Table 3.

The imputation ratios and effective rates of corporation income tax by the standard method and by the alternative from each of the foregoing tables are summarized for comparison in Table B-10.

TABLE B-10

Comparison of Imputation Ratio and Effective Rate of Corporation Income Tax, Standard Method and Alternative Tests, 1947

	Imputation ratio	*Effective rate of corporation income tax on net corporate earnings (per cent)*
Standard	3.5568	37.175
Alternative A	2.7098	22.831
Alternative B	2.2662	51.865
Alternative C	1.4192	35.012
Alternative E	0.5109	34.184
Alternative F	3.0352	41.980

MEASURING PROGRESSIVITY

The formulas for the average rate progression and the liability progression definitions of progressivity have been given in the text (Chapter 5). The change in the degree of progressivity, measured by average rate progression, is determined by observing whether the differential

against stockholders rose (increased progressivity), fell (decreased progressivity), or remained the same as we read up the nineteen income levels for which this differential was measured. Liability progression was determined in essentially the same way, except that the differential was taken as a proportion of the rate applicable under the personal income tax at each income level. If the tax rate was raised by the differential in increasing proportion with income level, progressivity increased; if the tax rate was raised by a decreasing proportion, progressivity declined. A defect was injected into this calculation by use, as the personal income tax rate applicable at each level, of the rate against adjusted gross income based on data for all taxpayers. But adjusted gross income, at about the $25,000 level and above, includes long-term capital gains subject to a flat rate under the alternative tax. However, the indications for liability progression were sufficiently pronounced to stand in the face of this qualification.

PARTNERSHIP METHOD REVENUE ESTIMATES AND RELATED COMPUTATIONS

Careful estimates of the partnership method aggregate revenue loss, which may be construed also as the net revenue contribution of the existing method of taxing corporate earnings, were undertaken for 1947, 1949, 1950 and 1952. The corporation income tax liability of a given year represents the gross revenue loss upon a shift to the partnership method; the increased personal income tax liability constitutes the gross revenue increase that would currently (i.e. in that year) accompany the shift.The difference between the two is a measure of the net revenue loss on a current basis.[15]

The data arranged in the dividend-income size array, derivation of which is described in the first section of this Appendix, were the starting point. For 1949, 1950, and 1952, the array was broken down into joint and separate returns, because different marginal rate schedules have applied to each category since the introduction of income-splitting in 1948. The breakdown was based on the ratios for joint and separate returns derived from data for all taxpayers. For each of these years (and 1947 also) the stockholder return total was also subdivided into: 1. returns subject only to the normal and surtax rates of the personal income tax; and 2. returns subject to the alterna-

[15] To measure the current revenue loss connected with the repeal of the corporate tax, corporation income tax liability as tabulated in *Statistics of Income* was used, net of the credit for foreign income taxes paid by corporations. Cf. the similar procedure followed by the Department of Commerce in its National Income Accounts. (*National Income*, 1954 Edition, a supplement to *Survey of Current Business*, p. 93.)

tive tax, an additional flat rate of 50 or 52 per cent on one-half of realized long-term capital gains includible in taxable income.[16] This separation enabled isolation of normal and surtax income, the appropriate base to which was added the excess of net corporate earnings over dividends (adjusted for foreign tax credit). In summary, for 1952, 1950, and 1949, the dividend-income size array for each year was broken down into four categories of returns—separate normal and surtax, joint normal and surtax, separate alternative tax, and joint alternative tax—amounting to over 560 cells for each year. For 1947, there were only two categories of returns—normal and surtax, and alternative tax—giving a total of 280 cells.

Taxable income for each cell was determined by working back from the normal and surtax liability to the taxable income equivalent. To the taxable income was added the previously computed excess of corporate earnings over dividends (adjusted for foreign tax credit) on which the additional personal income tax was computed, with allowance for that portion of the standard deduction that would be available to some stockholders. The total sum of increased personal income tax liability in each cell provided for individual stockholders the increase in personal income tax liability that would accompany the institution of the partnership method.[17]

Calculations for taxable estates and trusts were less detailed, for no dividend size class data were tabulated for fiduciaries. Therefore, only the average amount of dividends in each income class was used as the base for imputation. The error introduced by this procedure was probably not serious. But even a major error in the taxable estates and trusts estimate would affect the results only slightly, since the aggregate partnership method tax liability for fiduciaries was only about 15 per cent of the aggregate liability for individuals. A summary tabulation outlining the steps just discussed appears in Table B-11.

But, an additional revenue loss would accompany the partnership method, realized only over a number of years, not currently. Under the partnership method, which would follow the procedure for taxing partnership shares, the basis of valuation of stock for capital gains tax

[16] All alternative tax returns were assumed to be divided returns. In the higher income classes subject to the alternative tax, dividend returns predominated, and since capital gains arise primarily from stock sales the assumption appeared reasonable.

[17] For 1947 an estimate, necessarily rough, was made of the increase in personal income tax liability that would occur because imputation of their pro rata share of net corporate earnings would move some previously nontaxable stockholders into the taxable category. This turned out to be so small, about $20 million, that it did not seem necessary to undertake an adjustment on this score in the other years.

APPENDIX B

TABLE B-11

Partnership Method Revenue Estimate

ADJUSTED GROSS INCOME CLASS $8,000 AND UNDER $10,000; DIVIDEND SIZE CLASS $1,500 AND UNDER $2,000, 1950

(1) Joint returns equalled 89.60% of all returns in the adjusted gross income class $8,000 and under $10,000		
(2) Assuming this same percentage to characterize each dividend size class, in this income class, gave estimated joint returns (i.e. 11,111 × 89.60%)		9,555
and separate returns (i.e. 11,111 — 9,955)		1,156
(3) The average tax liability per joint return in this income class equalled	$	1,036
Given the rate schedule applicable to joint returns, the taxable income equivalent of this tax liability is		5,698
(4) Similarly, the average tax liability per separate return came to		1,423
the taxable income equivalent of which is		6,738
(5) Under the partnership method, stockholders' pro rata share of net corporate earnings would be reached in full by the personal income tax. So the imputed sum [Table B-3 (6), after adjustment for foreign tax credit]		6,203
would, in the case of joint returns, be subject to the marginal rates applicable to a taxable income of $5,698. The increment to tax liability would be		1,384
With 9,955 such returns, the total increment to personal income tax liability would be		13,777,720
(6) Similarly for separate returns, with the imputed sum of		6,203
reckoned an increment to a taxable income of $6,738, the increase in personal income tax liability would be		2,023
Since there are 1,156 such returns, the total increase in personal income tax liability on separate returns would be		2,338,588
(7) But both (5) and (6) are tentative estimates, for they have failed to take into account the fact that some taxpayers used the standard deduction, and in their case, therefore, a portion of the imputed amount would be excluded from taxable income.		
(8) Returns using the standard deduction were 69.12% of all returns. Therefore, it was estimated that 6,879 joint returns and 799 separate returns used the standard deduction. For joint returns the tax on 10% (the standard deduction) of the average amount imputed came to $27, aggregating for all such returns		186,000
For separate returns the average per return was $45, the aggregate		36,000
In all, the estimate of the increment in personal income tax due to the institution of the partnership method was lowered by		222,000

(continued on next page)

Table B-11, *concluded*

(9) By adding (5) and (6), and subtracting (8), we obtain the net increase in personal income tax under the partnership method—in this case	$15,894,308

Similar calculations were made for all the income-dividend size class cells, 563 in all, using a further breakdown in the upper income classes for alternative and for normal and surtax returns. To get the net current revenue loss these increases in personal income tax liability were totaled and subtracted from the actual corporate income tax liability.

purposes would be raised by the amount of retained earnings which would be taxed to stockholders. Because the basis of valuation would be raised, future realized capital gains and capital gains tax liability would be lower than they would otherwise have been. Procedures for measuring this future revenue loss consisted of a number of steps. First, the amount by which the basis of valuation would be raised was estimated by assuming that rescinding the corporation tax would not change the *proportion* of earnings retained.[18] Using the Cowles Commission finding of an increase, on average, over the period 1871-1937 of 72 cents in share prices for every dollar of reinvested earnings, it was assumed that 72 cents of every increased dollar of retained earnings would show up as capital gains.[19] The difference between the amount of retained earnings (the amount by which the basis would be raised making gains in the future lower) and the estimated future increase in capital gains (because of the higher level of retained earnings that would follow the repeal of the corporate tax) constituted the estimated net future decline in capital gains.

Further steps were necessary to arrive at the revenue loss associated with this decline. Not all capital gains are realized by taxable persons; some who realize them fail to report them wholly or in part; still others pass potential capital gains tax-free at death. So it is assumed that only two-thirds of capital gains were realized in taxable form.[20] Since they are long-term gains (i.e. gains from assets held over six months), only half their amount is included in taxable income. This

[18] To put it another way, it was assumed that what formerly went into corporation income tax payments would be divided proportionately between dividends and retained earnings.

[19] Alfred Cowles, 3rd, *et al.*, *Common Stock Indexes, 1871-1937*, Principia, 1938, p. 42.

[20] There was no particular warrant for two-thirds rather than, say, 75 or 50 per cent. The two-thirds was suggested as reasonable by the following considerations: on average, about 80 per cent of dividends are reported; as shown in 1950 data, distribution of capital gains is rather close to that of dividends in general; the option of transferring capital gains income-tax free at death reduces the 80 per cent to something on the order of two-thirds.

half, it was assumed, would have been subject in the future to an effective rate of about 30 per cent. (This is not unduly low, because the alternative tax sets a ceiling rate of 50 or 52 per cent on long-term gains.) All together, this suggests a revenue loss of 10 per cent of the amount by which potential future capital gains would have been reduced by the change in basis because retained earnings would be included in the taxable income of stockholders under the partnership method.[21] But this is a revenue loss that would materialize in the future. Its present value is something else again. It was assumed that the realization would occur at an even rate over the five year period following the year under investigation. With 5 per cent taken as the applicable rate of discount, the present value would equal 86 per cent of the future value, and the present value of the future loss in capital gains tax revenue due to the change in basis would come to 8.6 per cent of the estimated net decline in taxable capital gains. The derivation of the future revenue loss is outlined in Table B-12.

TABLE B-12

Derivation of Future Revenue Loss, 1950

(dollar amounts in billions)

(1) Net corporation income tax liability	$16.8
(2) Retained earnings as a per cent of dividends plus retained earnings of net income corporations	63.0%
(3) Assumed increase in retained earnings due to partnership method = (1) × (2)	$10.6
(4) 72 per cent of (3)	7.6
(5) Retained earnings after corporation income tax	13.8
(6) Assumed retained earnings under partnership method = (3) + (5)	24.4
(7) Net decrease in future capital gains = (6) − (4)	16.7
(8) Present value of estimated decrease in future capital gains tax liability = 8.6% of (7)	1.4

Revenue estimates for all other years covered by the study, and for 1953, 1954, and 1955, were carried out by the same procedure but in more summary fashion with less reliable results. This is especially true of 1955, although the broad order of magnitude is probably correct. The data on foregone corporate tax revenue up through 1952 were unquestionable, having been tabulated annually.[22] The offset in terms

[21] 10 per cent is the product of 67 percent × 50 per cent × 30 per cent.

[22] For 1953, 1954, and 1955 all the relevant IRS values used in the estimates were, in turn, estimated from available national income figures of the Department of Commerce. The relations used were those existing between the two sets of data in 1952. A rather stable set of ratios characterizing these relations in this and the several preceding years made their use for the later years a reasonably accurate procedure.

of personal income tax revenue by the partnership method was calculated, with the marginal tax rate for imputations derived from data of years for which detailed estimates were made in Chapter 6—1947, 1949, 1950, and 1952. The 1947 relationship between marginal rate and imputations was used for 1946 (in which the tax structure was the same), and for 1945 and 1944 (in which, while personal income tax rates were higher than in 1947 and exemptions lower, taxable income was lower, thus making reasonable use of the 1947 relationship). Because of unchanged tax rate schedules the 1949 marginal rate on partnership imputations was used for 1948; the 1952 rate for 1953. For 1951, 1954, and 1955, the marginal rate for 1950, 42.2 per cent, was raised to 47.5 per cent in view of the higher personal income tax rates in the three later years.

Table B-13 outlines the derivation of the revenue loss estimates and the percentage point increase in personal income tax rates required to recoup the current partnership method revenue loss for 1944-1955.

The computation of the aggregate differential was straightforward. It involved only one new step—the corporate-personal income tax liability. Here it was assumed for each cell that the personal tax liability was the same as for all taxpayers in the adjusted gross income class in which this cell fell, and it was added to the corporate tax on the stockholders in this cell. Then this personal-corporate tax liability was compared with the partnership method tax liability.

As to the Gini coefficients, the percentile shares of each imputed income class in imputed income before taxes and after deduction of the liabilities associated with each tax system—the corporate-personal and the partnership method—were calculated, and then a formula for the calculation of the Gini coefficient developed by Dwight Yntema was applied.[23]

[23] Dwight B. Yntema, "Measures of the Inequality in the Personal Distribution of Wealth and Income," *Journal of the American Statistical Association*, December 1933, pp. 427-428.

APPENDIX B

TABLE B-13

Estimate of Partnership Method Revenue Loss, 1944-1955

(dollars in billions)

CURRENT REVENUE LOSS

YEAR	*Corporate tax liability* (1)	*Total increase for individuals and fiduciaries in personal income tax liability, partnership method* (2)	*Excess of net corporate earnings over dividends*[a] *(imputations partnership method)* (3)	*Marginal tax rates on imputations* (2) ÷ (3) (4)	*Current revenue loss* (1) — (2) (5)
1944	$14.8	$ 9.6[b]	$20.1	48.0%[c]	$ 5.2
1945	10.7	7.2[b]	14.9	48.0	3.5
1946	8.7	8.4[b]	17.4	48.0[c]	0.3
1947	10.8	11.0	22.8	48.0	—0.2[d]
1948	11.6	9.7[b]	24.7	39.4[c]	1.9
1949	9.5	7.2	18.4	39.4	2.3
1950	16.8	13.5	30.6	44.2	3.3
1951	21.5	15.0[b]	31.6	47.5[c]	6.5
1952	18.4	12.7	26.5	47.9	5.7
1953[e]	19.8	13.7[b]	28.6	47.9[c]	6.1
1954[e]	15.9	11.4[b]	23.9	47.5[c]	4.5[f]
1955[e]	20.1	15.2[b]	32.0	47.5[c]	4.9[f]

[a] Excludes credit for foreign corporation income taxes paid.

[b] Product of columns 3 and 4 for 1944-1945, 1948, 1951, 1953-1955. Derived as described for 1947, 1949, 1950, and 1952.

[c] Assumed.

[d] Revenue gain.

[e] Data for this year estimated from Department of Commerce national income figures on basis of 1952 relation of Internal Revenue Service and Department of Commerce data.

[f] These estimates take no account of the dividend credit and exclusion, in effect since 1954. Roughly, these two relief provisions lowered the personal income tax burden on stockholders, in the aggregate, by about $200 million in 1954 and $300 million in 1955. These two items might more accurately be, therefore, $4.3 and $4.6 respectively because, with the partnership method in effect, there would be no reason, on equity grounds at least, to keep the exclusion and credit.

Table B-13, *continued*

FUTURE REVENUE LOSS

YEAR	*Assumed retained earnings, partnership methods*[g] (6)	*Estimated increase in retained earnings*[h] (7)	72% *of* (7) (8)	*Net increase in basis* (6) — (8) (9)	*Present value of future revenue loss* 8.6% *of* (9) (10)
1944	$13.8	$ 8.5	$ 6.1	$ 7.7	$ 0.7
1945	10.1	5.9	4.2	5.9	0.5
1946	14.5	5.8	4.2	10.3	0.9
1947	19.5	7.4	5.3	14.2	1.2
1948	21.0	7.9	5.7	15.3	1.3
1949	14.6	5.8	4.2	10.4	0.9
1950	24.4	10.6	7.6	16.7	1.4
1951	22.4	12.3	8.9	13.5	1.2
1952	17.9	9.9	7.1	10.8	0.9
1953[e]	18.5	9.7	7.0	11.5	1.0
1954[e]	15.1	7.1	5.1	10.0	0.9
1955[e]	22.3	10.4	7.5	14.8	1.3

[e] Data for this year estimated from Department of Commerce national income figures on basis of 1952 relation of Internal Revenue Service and Department of Commerce data.

[g] Obtained by dividing the corporate income tax liability between retained and distributed earnings on the basis of their after-tax weights for net income corporations.

[h] Difference between column 6 and retained earnings under existing tax structure.

Table B-13, *concluded*

PERSONAL INCOME TAX RATE INCREASE REQUIRED TO RECOUP CURRENT REVENUE LOSS

YEAR	*Total surtax net income*[i] (11)	*Addition to surtax net income due to partnership method* [80% *of* (3)] (12)	*New surtax net income, partnership method* (11) + (12) (13)	*Percentage point rise in personal rates required to recoup current revenue loss*[j] (14)
1944	$ 55.3	$ 16.1	$ 71.4	7.3%
1945	56.7	11.9	68.6	5.1
1946	64.8	13.9	78.7	0.4
1947	75.2	18.3	93.5	—0.2
1948	75.2	19.8	95.0	2.0
1949	72.1	14.7	86.8	2.6
1950	84.9	24.5	109.4	3.0
1951	100.0	25.3	125.3	5.2
1952	108.1	21.2	129.3	4.4
1953[e]	117.9	22.9	140.8	4.3
1954[e]	115.7	19.1	134.8	3.3
1955[e]	125.0	25.6	150.6	3.3

[e] Data for this year estimated from Department of Commerce national income figures on basis of 1952 relation of Internal Revenue Service and Department of Commerce data.

[i] Includes taxable fiduciaries. For 1944-1947 see Joseph A. Pechman, "Yield of the Individual Income Tax During a Recession," *National Tax Journal*, March 1954, Vol. VIII, p. 7; worksheets for 1948 on.

[j] More accurately, this is the increase that would be necessary in the over-all effective rate (i.e. column 15 as a per cent of column 14). Only if the tax bracket distribution of the amount in column 12 is precisely similar to that in column 11 would this be the same as the required percentage point rise in the whole rate schedule. But the imputed amount (column 12) is more concentrated than the rest of surtax net income (column 11). The entries in column 14, therefore, can be construed as very conservative estimates; a lower rate increase than they indicate would probably recoup the current revenue loss.

APPENDIX B

MEASURING THE EFFECT OF THE RELIEF PROVISIONS

There is no need to elaborate on the procedures used in measuring the effect of the relief provisions—both those incorporated in the Internal Revenue Code of 1954 and those initially proposed by President Eisenhower—because they are simple extensions of some of the methods already discussed.

To determine by how much the relief would moderate the differentials for Tables 37, 38 and 39, data similar to that of Table 4 were used, and the column numbers in what follows refer to this table. To measure the relief afforded by the exclusion at selected stockholder income levels (column 1), the excluded amounts—$50 for separate and $100 for joint returns in the 1954 Code, and twice these amounts under the original proposal—were multiplied by the marginal rates applicable to the taxable incomes in column 7. To get the tax saving due to the credit, all dividends (column 5) above the excluded amount were multiplied by 4 per cent for the actual law and 15 per cent for the original proposal. Then the two types of tax saving were combined, and weighted averages of the joint and separate return totals were computed following the method of Table 5.

In estimating the aggregate relief (Table 40) procedures similar to those just noted were used. But in this case the relief provisions were applied to the data—the dividend-adjusted gross income cells—developed for the partnership method revenue estimates.