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APPENDIX A

REFERENCES TO *Statistics of Income*

TABULATIONS FROM FISCAL-YEAR RETURNS

Beginning with the issue for 1926, special tabulations from fiscal-year returns of corporations have been published in successive annual issues of *Statistics of Income*.[44] I give below the page references for such tabulations and the relevant textual comment, as I have discovered them in the successive issues. Page references are to issues of *Statistics of Income* bearing the same date as "taxable year."

Taxable Year		Pages
1926	(includes also separate tables for 1925)	21–30
1927		21–22
		384–399
1928		35–37
		408–423
1929		29–30
		351–364
1930		31–32
		294–297
1931		35–36
1932		36
1933		35–36
1934	Part 2	32–33
		196–207
1935	Part 2	19–20
1936	Part 2	34–37
1937	Part 2	29–30
1938	Part 2	43–46
1939	Part 2	34–42
1940	Part 2	15–16
1941	Part 2	15–16
1942	Part 2	19–20
1943	Part 2	18–19
1944	Part 2	18–19
1945	Part 2	38–39
1946	Part 2	36–54
1947	Part 2	16–42
1948	Part 2	30–48
1949	Part 2	15–32
1950	Part 2	21–22

APPENDIX B

EFFECTS ON THE INDICATED HISTORICAL RECORD OF VARIATIONS IN NET INCOME

The possibility that the inclusion of fiscal-year returns with calendar-year returns in the tabulations of *Statistics of Income* might impair the precision of the resulting aggregates for certain types of analysis and interpretation has been indicated at various points in this report. Two important kinds of possible impairment seem worthy of attention: the dislocation of the center of the average year from July 1, and the distortion of the shape of the historical record. The first kind was examined in Section 7 and at various points in Part

[44] Published annually by the U. S. Treasury, after a delay of two or more years following the completion of the indicated taxable year. For example: *Statistics of Income* for 1949, Part 2, Treasury Department, 1953.

II; the second kind, the measurement of which is much more elusive, receives limited attention in this appendix.

The analysis is confined to the net income of the net-income and deficit categories combined, without attention to any classification by size or line of industry; but the same methods are applicable to the various classes and to other income-account items and, with appropriate qualifications, to various balance-sheet items. Since we have no specific knowledge concerning the length and timing of their accounting periods (see Appendix C), the part-year returns are entirely ignored in the discussion, and their net-income figures are excluded from all aggregate net-income figures below. The figures considered are only those pertaining to twelve-month accounting periods.

The nature of the problem can be illustrated for 1949. For that year, *Statistics of Income* shows aggregate net income of the entire corporate system (excluding part-year returns) as $27,911 million. This total is made up of $22,208 million for the calendar-year returns, and various smaller amounts for the eleven fiscal-year periods ending July–November 1949 and January–June 1950. While the bulk of the net income was earned by the calendar-year corporations, and hence pertains properly to 1949, only part of the income reported for any one of the eleven fiscal-year periods actually pertains to 1949. Moreover some income earned in 1949 was presumably reported for eleven other fiscal-year periods not included in the 1949 tabulation: periods ending January–June 1949 were tabulated for 1948, and periods ending July–November 1950 were tabulated for 1950. The questions are: Can any adjustments be applied to the figure tabulated for 1949 to allow for excessive inclusion of net-income for the first set of eleven periods and total exclusion of the second set; and, would the adjusted figure be an improvement?

I see no way to attempt such adjustments except by an estimated allocation of the total net income of the returns of any one fiscal-year period between two sections of that twelve-month period, one section falling within and the other falling outside of the calendar year to which the tabulation under study chiefly relates. In the absence of any factual guide, the allocation must apparently be made in terms of the time fractions involved. I therefore make the following *basic assumption:* The aggregate net income of the returns for any particular fiscal-year period is earned during any section of that period in an amount proportional to the time length of that section. If, for example, the section is five months long, 5/12 of the annual income originates during that section.

This assumption is almost surely unrealistic. We can discover numerous corporations for which evidence clearly shows that the great bulk of the year's income originates in a single quarter, and some probably exist in which most of the income is produced in a single month. Conceivably, some of these seasonal peaks of income occur in different quarters for different corporations, with the result that the seasonal pattern of aggregate earnings for a group of corporations—such as those reporting in a particular fiscal-year period—may be somewhat smoothed and show a negligible tendency to peak. But this prospect may not be very high, for we have noticed that many corporations in a particular line of industry are likely to choose an identical fiscal-year period, and the factors producing a seasonal peak for one such corporation are likely to have the same effect on others. We should remember also that various types of business fluctuation, besides variations which are strictly seasonal, affect the profit capacity of one quarter or month in different degrees than other parts of the year. I think we must regard as very low the probability that income is produced uniformly during the various quarters (or months) of a particular accounting period, for the aggregate of corporations using that period.

For some very large corporations, most of them using the calendar year as a reporting period, we do have published figures on quarterly earnings, and, particularly for certain regulated enterprises such as railroads, even a monthly summary of earnings is published. One cannot escape the conclusion, after examining this type of evidence, that the creation of income does not proceed at a uniform pace throughout the accounting year. Moreover, in many instances, the figure for the final quarter (or month) of the year is heavily influenced by various year-end charges and credits: various elements affecting income cannot be satisfactorily allocated, even by the corporate management, among periods shorter than a year. This is merely a more acute aspect of the practical problem encountered in allocations between one year and another. I think two conclusions are warranted. We cannot use, as a guide for the present purpose, published quarterly (or monthly) figures of large corporations because (1) such figures are very imperfect allocations of the annual earnings even for such a corporation, (2) large corporations are a poor sample of the entire corporate system which is under study here, and (3) large corporations are a particularly poor sample of fiscal-year corporations (see Part III). Even if the Treasury did call for quarterly or other more frequent reporting of profits from all corporations—large and small, fiscal-year and calendar-year—the practical difficulties of providing the accounting estimates within each corporation would probably be so great as to preclude any confident reliance upon the results.

Proceeding nevertheless with the basic assumption, we undertake now the adjustment for 1949. The net income reported on calendar-year returns for 1949 needs no adjustment. An adjustment is, however, needed for each of twenty-two fiscal-year periods with terminal months ranging from January 1949 to November 1950. For three selected periods, among the twenty-two, the allocation ratios are as follows:

Terminal Month	Portion of Period in Tabulation Year: 1948	1949	1950
January 1949	11/12	1/12	0
October 1949	2/12	10/12	0
November 1950	0	1/12	11/12

All we need do is to apply the appropriate ratio of tabulation year 1949 to the aggregate net income of each fiscal-year period which terminates or starts in 1949. Because the periods ending July–November 1950 are tabulated in *Statistics of Income*, 1950, the 1949 adjustments cannot be carried out until the 1950 tabulations are complete, and this delay must be considered an adverse count against the adjustment.

Applying the ratios as indicated we get estimates of the 1949 portion of the net income for each of the twenty-two periods. Summing these twenty-two figures, and adding the figure for 1949 calendar-year returns, yields the desired adjusted figure for 1949 net income of the entire corporate system (excluding part-year returns). That figure is $28,178 million, and is to be compared with the figure as originally tabulated at $27,911 million. The discrepancy—the "improvement" achieved by the adjustment—is only about 1 per cent. The corresponding figures for every year from 1940 to 1949 are (in millions of dollars):

	Original	Adjusted
1940	8,972	9,013
1941	16,038	16,013
1942	22,981	22,839
1943	27,678	27,693
1944	26,183	26,197
1945	21,051	21,093
1946	24,533	24,268
1947	30,862	30,908
1948	34,027	34,022
1949	27,911	28,178

Except for 1946, all the discrepancies are smaller, both in amount and as a percentage, than that of 1949; and even the 1946 discrepancy is only slightly larger.

In other words, in none of the last ten years is the change in net income resulting from the adjustment of any substantial significance. When we remember the very shaky basic assumption on which the adjustment rests and the delay in making the adjustment for any one year until the tabulation of the following year is complete, I think we are forced to conclude that the adjustment is not worthwhile. The tabulated figures probably do not give a dependable picture of income originating within specific calendar years, but the above adjustment does not necessarily yield even a minor improvement of the tabulated figures. Whether, if the necessary facts were available, some other method of adjustment could be developed which would be a substantial improvement is a question which cannot usefully be examined without raising many preliminary questions about such facts.

The above record was not extended back to 1928, on the chance that the very wide cyclical movements of that time might have led to more significant adjustments, because, as shown in Part I, fiscal-year reporting was much less common in those earlier years than in 1940–1949. Hence, even with wide cyclical fluctuations in profits, the adjustments of fiscal-year figures were unlikely to be substantial in comparison with the very large calendar-year figure, which is not subject to any adjustment. Moreover, the present appendix is aimed solely at establishing that the net-income figures as *now* tabulated, however defective they may be, cannot be significantly improved by any currently feasible adjustment.

The schedule of original and adjusted figures shows one remarkable result: The adjusted figures show smaller net changes than the original figures in the advances of 1940–1943 and 1945–1948 and in the declines of 1943–1945 and 1948–1949. This is contrary to expectation. The original figure for a year such as the 1945 low is presumably somewhat too high because it includes various fiscal years reaching back into 1944 and forward into 1946—both years of higher profits than 1945. The adjusted figure cuts down the weight of these fiscal-year constituents of the total, and might therefore be expected to show a sharper dip in 1945 than the original figure shows. The actual showing is contrary to this. A possible explanation is the wide diversity in the practice of fiscal-year reporting among lines of industry and sizes of enterprise. The profit decline to 1945, and the following recovery, could have had differential effects—as to timing and intensity—upon these classes of corporations, with the net result that our adjustment did not happen to produce the expected outcome.

APPENDIX C

PART-YEAR ACCOUNTING PERIODS AND THEIR AVERAGE CENTER

In the tabulation of *Statistics of Income* figures for any taxable year, part-year returns are included in most tables along with calendar-year and fiscal-year returns. The possible part-year accounting periods are extremely varied both as to length and as to terminal date. They may be separated into three broad groups:

1. Those falling entirely within the specified calendar year
2. Those with a length covering an odd number of months, and falling partly in the specified calendar year and partly in the preceding or following calendar year
3. Those with a length covering an even number of months, and falling partly in the specified calendar year and partly in an adjacent calendar year

All returns of group 1 are included in tabulations for the specified year. Those returns in groups 2 or 3 which have the majority of their months within the specified calendar year are included. Those returns of group 3 which have an equal number of months in the specified calendar year and in the following year are included.[45]

Those periods in group 1 covering an odd number of months have their centers at the fifteenth of the central month of the period; those periods covering an even number of months have their centers at the first of a month chosen so that the period is equally divided. Examination of the whole list shows the centers of the various possible periods of group 1 as follows:

[45] The first two statements are in accord with the general rule regularly published in *S. of I.* as to the assignment of part-year returns. The third statement is in accord with a letter from an official of the Bureau of Internal Revenue's Statistical Division.