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Appendix 2

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Section A: Tabular Summary of the Analysis of Federal Income Tax Returns by Individuals, 1919-1948

The analysis for 1919-38 covers each $1,000 net income class up to $10,000, and all net income classes $10,000 and over treated as a single class. For subsequent years it is extended to cover each income class up to $10,000 or to that income class in which the top 1 percent line lies, all classes above the latter being treated as a single class.

I TAX RETURN POPULATION

Number of individual returns and taxable fiduciary returns with net (or adjusted gross) income, by sex and family relationship, converted to population represented (1919-42 from *Statistics of Income,* Basic Tables 5 and 13, unless otherwise noted; 1943 from special tabulations provided by the Bureau of Internal Revenue; 1944-46 from Press Release dated Aug. 21, 1947, Preliminary Reports dated July 30, 1948 and June 3, 1949; and special tabulations provided by the Bureau of Internal Revenue; 1947 from Press Release dated Nov. 25, 1949; 1948 from Preliminary Report dated June 22, 1951, and special tabulations provided by the Bureau of Internal Revenue)

a *Family returns*

1 Joint returns of husbands and wives, or of either husband or wife when no other return is filed
2 Separate returns of husbands[a]
3 Separate returns of wives
4 Returns of single men and married men not living with wives (heads of families)[b]
5 Returns of single women and married women not living with husbands (heads of families)[b]
6 Returns of single persons and married persons not living with spouses, claiming more than one exemption[c]
7 Community property returns, total[d]
8 Community property returns, men[e]
9 Community property returns, women[e]

For notes see pages 272-3.

Returns of family heads

1919-43: a1 + a2 + a4 + a5 + ½ a7 or a8 (when the latter is shown). a3 and a9 are disregarded since the head of family is presumably covered in a1, a2, or a8. Only half of a7 is included since a7 represents returns for both husband and wife, only one of whom is a head.
1944-46: a1 + a2 + a6 + a8 (see note for 1919-43)

b *Single person returns*

1 Returns of single men and married men not living with wives (not heads of families)[b]
2 Returns of single women and married women not living with husbands (not heads of families)[b]
3 Returns of estates and trusts[f]
4 Taxable fiduciary returns with net (or total) income[g] (1938-42 from *Statistics of Income,* Basic Table 11 or 7B; 1943-48 from sources cited above for other series)
5 Returns of single persons and married persons not living with spouses, claiming one exemption[c]

Total

1919-43: b1 + b2 + b3 or b4
1944-46: b4 + b5

c *Population represented, excluding dependents, 1919-43 only:* (a1 × 2) + (a2 + a3)[b] + a4 + a5 + a7 (or a8 + a9) + b (total). All community property and separate returns are included to allow for both husband and wife.

d *Dependents*

1919-32: Estimated by the following steps for taxable and nontaxable income classes separately.

1 The combined total of personal exemption and credit for dependents, 1919-38, is taken from *Statistics of Income,* Basic Table 2.
2 Personal exemption, 1919-38, is estimated as the sum of the product of returns of family heads (see a) and the exemption per family head[i] and the product of returns of single persons (see b) and the exemption per nonhead.[i]
3 Credit for dependents, 1919-38, is estimated as the difference between the total in step 1 and personal exemption as derived in step 2.

For notes see pages 272-3.

4 Credit for dependents as estimated in step 3 is divided by the allowance per dependent[i] to yield a preliminary estimate of the number of dependents, *1919-38*.

5 The number of dependents as estimated in step 4 is divided by the population represented on tax returns (see c) to yield preliminary ratios for 1919-38.

6 The actual number of dependents in 1933-38 as derived in step 11 below is divided by the population represented (see c) to yield final ratios for 1933-38.

7 The ratios of the ratios derived in step 6 to those derived in step 5 are computed for 1933-38.

8 The geometric mean of the ratios for 1933-38 (step 7) is calculated for each income class to yield a correction factor for the ratios for 1919-32 (step 5).

9 The ratios for 1919-32 (step 5) are multiplied by the correction factor (step 8)[j] to yield the final ratios for 1919-32.

10 Population represented (see c) is multiplied by the final ratios (step 9) to yield the final estimate of the number of dependents.

1933-43:

11 Credit for dependents (1933 from *Source Book;* 1934-42 from *Statistics of Income,* Basic Tables 2 and 13; 1943 from special tabulations provided by the Bureau of Internal Revenue) is divided by the allowance per dependent[i] to yield the number of dependents.

e *Total population represented, including dependents*

1919-32: c + d10

1933-43: c + d11

1944-47: The surtax exemption of $500 for the taxpayer, $500 for his spouse, and $500 for each dependent is in reality a per capita exemption. It is assumed, therefore, that the population represented by tax returns equals the total number of surtax exemptions claimed, plus the number of taxable fiduciary returns.

1948: Assumed equivalent to the number of per capita exemptions (other than for old age and blindness), plus the number of taxable fiduciary returns.

For notes see pages 272-3.

II ECONOMIC INCOME ON TAX RETURNS

Income items included (1919-42 from *Statistics of Income,* Basic Tables 7 and 13, unless otherwise noted; 1943-48 from sources indicated for tax return population).

a *Employee compensation:* Salaries, wages, commissions, etc. as reported

b *Entrepreneurial net income:* Sum (algebraic) of

1 Business profits

2 Partnership profits[k]

3 Business loss[l]

4 Partnership loss[l]

c *Service incomes:* Sum of a and b

d *Dividends, 1919-43, 1946-48:* Sum of

1 Dividends from domestic and foreign corporations[m]

2 Dividends included in income from fiduciaries,[k] estimated as the product of income from fiduciaries and the ratio of dl to the sum of dividends and interest excluding income from fiduciaries[n]

e *Interest, 1919-43, 1946-48:* Sum of

1 Taxable interest on partly tax exempt government obligations, net income classes up to $5,000[o]

2 Other taxable interest[p]

3 Interest on wholly and partly tax exempt government obligations, net income classes of $5,000 and over (1919-23 extrapolated from 1924 by the NBER series on interest payments to individuals by government, the movement being assumed the same for each net income class; for 1941-43 and 1946-48 when wholly tax exempt interest is not reported, the 1940 data are used, it being assumed that there is only slight year to year change in the item)

4 Interest included in income from fiduciaries,[k] estimated as the difference between income from fiduciaries and d2 above[n]

5 Dividends on share accounts in federal savings and loan associations[q]

6 Annuities (and pensions)[r]

7 'Other' (or miscellaneous) income[m,p]

For notes see pages 272-3.

f *Dividends and interest*

1919-43, 1946-48: Sum of d and e

1944, 1945: Sum of

1 Dividends and interest

2 Annuities and pensions[s]

3 Income from estates and trusts

4 Miscellaneous income

5 Interest on wholly tax exempt government obligations as reported for 1940 (see note to e3)

g *Rent:* Rents and royalties, as reported [m,t]

h *Property incomes:* Sum of f and g

i *Economic income:* Sum of c and h, or

1919-43: i1 − i2 + i3 − i5 − i6 − i7 − i8

1944-48: i1 + i4 − i5 − i6 + i9 + i10

1 Total income, 1919-43; adjusted gross income, 1944-48

2 Taxable interest on partly tax exempt government obligations, net income classes of $5,000 and over

3 Interest on wholly and partly tax exempt government obligations, net income classes of $5,000 and over (see e3)

4 Interest on wholly tax exempt government obligations, net income classes of $5,000 and over (see e3)

5 Net gain from sales or exchanges of capital assets

6 Net gain from sales or exchanges of other property

7 Business loss (see b3)

8 Partnership loss (see b4)

9 Net loss from sales or exchanges of capital assets

10 Net loss from sales or exchanges of other property

Notes to Section A:

[a] Shown for 1935 and later years; for preceding years tabulated with joint returns.

[b] Not shown for 1944 and later years; for these years see line a6 or b5.

[c] Shown for 1944 and later years; for preceding years see lines a4 and a5 or lines b1 and b2.

[d] Not shown for 1919.

[e] Shown for 1940 and later years; for preceding years see line a7.

[f] Shown for 1935-37 only; for preceding years distributed among the various groups of returns according to the sex and family relationship of the testator, grantor, or beneficiary; for 1938 and later years see line b4.

[g] Shown for 1938 and later years; for preceding years see line b3.

Notes to Section A concluded:

[h] (a2 + a3) is included only in years when separate returns of husbands are not tabulated with joint returns.

[i] Exemptions for 1919-42 are shown in the Synopsis of Federal Tax Laws, Table A (*Statistics of Income, 1942,* Part 1, pp. 312-7); those for 1943 are from the notes to the special tabulations provided by the Bureau of Internal Revenue. Although the personal exemption allowed an estate or trust is that of a person not head of family, for the years preceding 1935 when the returns for estates or trusts are distributed by the sex and family relationship of the testator, grantor, or beneficiary, an estate or trust falling in a head-of-family category would, by our procedure, be allowed a head-of-family exemption. To this extent we overestimate personal exemption and underestimate credit for dependents. The net income classes most affected are those up to $2,000. The error is not large enough to warrant a special adjustment, but comparability with preceding years is impaired.

[j] For the nontaxable net income class under $1,000 and the taxable net income classes under $4,000 the ratios derived in step 9 are not used. Instead, the average of the 1933-38 ratios derived in step 6 is used unless it is smaller than the ratio for the current year derived in step 5, in which case the latter is used.

Since the correction factor derived in step 8 is not available for the nontaxable net income classes $6,000-10,000, it is estimated as the product of the correction factor for the corresponding taxable net income classes and the ratio for the $5,000-6,000 net income class of the correction factor for the nontaxable net income class to that for the taxable.

[k] For 1919, 1920, and 1921, when income from partnerships is combined with fiduciary income, the former is estimated for each net income class (taxable and nontaxable separately) by multiplying the combined total by the arithmetic mean of the ratios for 1922-26 of partnership income to the combined total. This procedure is in error in that income from personal service corporations is also included with partnership income, but its inclusion does not affect the results appreciably.

[l] Shown for 1930 and later years; for preceding years the item is tabulated with 'other deductions'.

[m] Including the part of the item reported on Form 1040A in 1941, 1942, and 1943 as 'dividends, interest, (rent) and annuities' that is estimated as belonging to this category. The distribution of this entry on Form 1040A is based on the corresponding entries on Form 1040.

[n] In this distribution of fiduciary income between dividends and interest, no allowance is made for the inclusion in 1934-37 of net capital gains or losses received from an estate or trust, since it was impossible to exclude them.

[o] Shown for 1919-23 only.

[p] Tabulated as 'interest and investment income' before 1928.

[q] Shown for 1941 and 1942 only; in preceding years tabulated with 'other income'; in later years tabulated with dividends from domestic and foreign corporations. We classified this item under Interest because it was tabulated with 'other income' through 1940.

[r] Shown for 1941 and later years; in preceding years tabulated with 'other income'.

[s] Included with miscellaneous income in 1945.

[t] For 1944 and later years net loss, not previously shown separately, is deducted from net profit.

Section B: Special Notes on the Analysis for 1913-1918

The analysis for 1913-18 covers each $1,000 net income class up to $10,000 (unless otherwise indicated), and all net income classes $10,000 and over treated as a single class. Basic data for 1916-18 are from *Statistics of Income;* those for 1913-15 are from the *Annual Report of the Commissioner of Internal Revenue.*

I TAX RETURN POPULATION

1918: Estimated by the procedure outlined for 1919-32
1917: Estimated separately for the net income class of $1,000-2,000 and for classes of $2,000 and over

a *$2,000 and over*

1 For each income class up to $10,000 (taxable and nontaxable separately), and for all classes $10,000 and over, the number of persons represented, excluding dependents, is calculated by the procedure outlined for 1919-32.
2 The total number of dependents is reported in *Statistics of Income* but is not shown by income class.
3 The ratio of dependents to persons represented for all income classes $2,000 and over is computed for 1917 and 1918.
4 The ratio of the 1917 ratio in step 3 to that for 1918 is computed and applied to the 1918 ratio of dependents to persons represented for each income class.
5 The number of persons represented (step 1) multiplied by the final ratio estimated in step 4 yields a preliminary estimate of the number of dependents in each income class.
6 The ratio of the number of dependents as reported (step 2) to the sum of the estimates for each income class (step 5) yields a correction factor by which the estimates in step 5 are adjusted.
7 The number of dependents (step 6) is then added to the number of persons represented (step 1).

b *$1,000-2,000*

1 The number of returns is reported in *Statistics of Income* but the distribution by family relationship and the number of dependents are not shown. Separate returns of wives appear to be included.
2 The number of persons, including dependents, per return (including separate returns of wives) for the $1,000-2,000 income class in 1918 is calculated.

3 The ratio of the number of persons, including dependents, per return for all returns over $2,000 in 1917 to that in 1918 is computed.

4 The number of persons, including dependents, per return for the $1,000-2,000 class in 1917 is the product of the number in step 2 and the ratio in step 3.

5 The tax return population is the product of the number of returns (step 1) and of persons per return (step 4).

1916:

1 Returns, as reported, show joint combined with all other returns of heads. Joint returns are estimated, class by class, on the basis of the 1917 distribution of the returns of heads in the given income class.

2 No credit for dependents was allowed in 1916. The number of dependents is estimated by multiplying the returns of heads in the given income class (step 1) by the 1917 ratio of dependents to the returns of heads in that income class.

3 The tax return population is the sum of the number of persons represented (estimated from step 1 by the procedure outlined for 1919-32) and dependents (step 2).

1913-1915: For 1913 returns cover only the last 10 months of the year. For every year, returns filed by withholding agents are excluded. For 1913 the number is negligible since the law applied to November and December alone. For the other years it is appreciable: 28,471 in 1914 and 34,132 in 1915, representing taxes of $5,528,366 and $6,591,912 respectively.

1 From the returns of married persons are deducted the separate returns of wives. The balance is multiplied by 2 and returns of single persons added to yield the number of persons represented, excluding dependents.

2 The tax return population is the product of the number of persons represented (step 1) and the 1916 ratio of tax return population to the number of persons represented, excluding dependents.

II ECONOMIC INCOME ON TAX RETURNS

1918:

1 From total income, as reported, profits from sales of real estate, stocks, bonds, etc. are deducted.

2 Tax exempt interest on government obligations for net income classes $5,000 and over, estimated as follows, is added. Wholly and partly

tax exempt interest as estimated for 1919 is extrapolated to 1918 by the interest on government obligations as shown in *Income in the United States* (NBER, 1922), II, 261. It is assumed that the movement is the same for each income class and that the proportion not included on the returns is the same in 1918 as in 1919.

1917: Estimated separately for the net income class of $1,000-2,000 and for classes of $2,000 and over

a *$2,000 and over*

1 The sources of income and deductions are not reported for each class under $10,000, the classes from $2,000 to $4,000 being combined, as are those from $5,000 to $10,000. Economic income (excluding wholly tax exempt interest) for each of these broad classes and for the $4,000-5,000 class is the difference between total income and profits from sales of assets.

2 The ratio of economic income (excluding wholly tax exempt interest) to net income is computed for each broad class indicated in step 1 for 1917.

3 The ratio of economic income (excluding wholly tax exempt interest) to net income is computed for the same broad classes for 1918.

4 The ratio of economic income (excluding wholly tax exempt interest) to net income is computed for 1918 for each $1,000 class included in the broad classes.

5 The ratio in step 2 is multiplied by the ratio of the ratio in step 4 to the ratio in step 3.

6 Net income, as reported, includes contributions, which are shown separately. To make net income comparable with that reported in later years, contributions are deducted.

7 Net income excluding contributions (step 6) is multiplied by the ratio of economic income to net income as estimated in step 5.

8 Economic income as estimated in step 7 is adjusted by the ratio of economic income as reported for the broad classes (step 1) to the sum of the estimates of their $1,000 class components (step 7).

9 Tax exempt interest on government obligations, estimated by the procedure indicated for 1918, is added.

b *$1,000-2,000*

1 Net income before contributions is the only income item reported. Net income after contributions is estimated by applying the ratio of net income after contributions to net income before contributions

for the $2,000-3,000 class adjusted by the proportionate difference between this ratio for the $1,000-2,000 class and for the $2,000-3,000 class in 1922 (the earliest year for which contributions are shown by income class).

2 The ratio of economic income to net income after contributions for the $2,000-3,000 class is computed for 1917.

3 The ratio of economic income to net income is computed for the $1,000-2,000 and $2,000-3,000 classes for 1918. The proportionate difference between them is applied to the ratio in step 2.

4 Net income after contributions (step 1) multiplied by the final ratio in step 3 yields economic income.

1916: Income from the various sources represents gross receipts, the deductions not having been allocated to the various sources, as in later years, but tabulated under 'deductions' in the aggregate. Net income, assumed to include contributions and capital gains and to exclude tax exempt interest, is multiplied by the 1917 ratio of economic income to net income, both excluding tax exempt interest. Tax exempt interest, estimated by the procedure indicated for 1918, is then added.

1913-1915: Net income is not reported by income class. Assumed to be comparable in coverage with net income as reported in 1916, it is multiplied by the 1916 ratio of economic income (including tax exempt interest) to net income. The estimate for 1913 is raised 20 percent to allow for the 2 months not covered.

Section C: *Statistics of Income* Revisions

Statistics of Income, 1938, Part 1, pp. 74-5, indicates revisions in the published data for 1920, 1923, 1929, 1930, and 1932. Details of the revisions for 1929, 1930, and 1932 were obtained either from the Bureau of Internal Revenue or from *Statistics of Income* (*1934,* Part 1, p. 31, note 18; *1937,* Part 1, p. 47, note 25; and *1935,* Part 1, p. 31, note 6). The revised figures for North Dakota for 1929, shown in *ibid., 1934,* do not cover revisions in personal exemption and credit for dependents. Since we were unaware of the error in this item when estimating the total tax return population for that year, the latter is overestimated by about 300,000. Only for Tables 68, 69, and 74 do we attempt a correction.

Since details of the revisions for 1920 and 1923 were unavailable, they were estimated as follows:

1920: Returns for Alabama (see *Statistics of Income, 1935,* Part 1, p. 42, note 4). Some interest, etc. seems to have been transferred to wages and salaries, business profits, and partnership profits. The ratio of the revised total to the unrevised, calculated for wages and salaries, business profits, and partnership profits separately, for all taxable net income classes under $5,000 combined, was used to adjust wages and salaries, business profits, and partnership profits for each net income class under $5,000. Interest for each class was reduced by the absolute amount added to the other three income categories.

1923: Returns for District of Columbia (see *Statistics of Income, 1925,* pp. 28-9). Although the total number of returns remains unchanged, the distribution by net income classes is appreciably altered. It is assumed that the allowance for personal exemption for all net income classes combined also remains unchanged and that the distribution by net income classes parallels the revision of the number of returns. The only nontaxable net income classes affected are the $4,000-5,000 and $5,000-6,000. Since the total number of returns for these two classes combined remains unchanged, it is assumed that the personal exemption too remains unchanged, and that its distribution by net income classes parallels that of the revision in the number of returns.

The distribution of returns between family heads and nonheads for each net income class (taxable and nontaxable separately) is based on the corresponding distribution of returns for all states including the unrevised data for the District of Columbia (community property returns being excluded, since the District of Columbia has none). The net income of nonheads is estimated by multiplying total net income by the ratio of the net income of nonheads to the net income of all persons reporting as computed from the unrevised data.

The amount by which each source of income is adjusted for all net income classes under $5,000, and all those over $5,000 (*Statistics of Income*) is distributed by net income classes on the basis of the reported revision in net income.

For 1927-36, when *Statistics of Income* publishes only totals for returns with net income under $5,000, the distribution by net income classes is from the *Source Book*. The slight undercoverage for 1930 is assumed to be due to omission of data for Idaho and New Mexico for the taxable net income class under $1,000, since there was no similar gap in the data for these states in the other years under consideration.