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Volume Title: Personal Deductions in the Federal Income Tax

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Volume Publisher: Princeton University Press

Volume ISBN: 0-870-14122-8

Volume URL: <http://www.nber.org/books/kahn60-1>

Publication Date: 1960

Chapter Title: Appendix A: Estimates of Total Adjusted Gross Income, Total Deductions and Exemptions

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Chapter URL: <http://www.nber.org/chapters/c2428>

Chapter pages in book: (p. 187 - 195)

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Estimates of Total Adjusted Gross Income, Total Deductions and Exemptions

NOTES TO TABLE I

Line 1. The estimates of total adjusted gross income (AGI) from 1929 on were obtained by making appropriate adjustments in the Commerce Department's annual estimates of personal income. These adjustments follow for the most part the work of Selma F. Goldsmith ("Appraisal of Basic Data Available for Constructing Income Size Distributions," *Studies in Income and Wealth*, Vol. 13, National Bureau of Economic Research, 1951) and Joseph A. Pechman ("Yield of the Individual Income Tax During a Recession," *National Tax Journal*, March 1954, Appendix Table A). Pechman most graciously made all of his worksheets available to us, and our figures are, with some exceptions, the same as his. Although Pechman made no estimates for years before 1929, we followed his general outline in extending the figures back to 1918, using as a starting point Simon Kuznets' estimates of income payments as presented in two publications of the National Bureau of Economic Research: *National Product in Wartime*, 1945; and *National Income and Its Composition, 1919-1938*, 1941. The derivation of total AGI from personal income is shown for a recent year in Table A-1 (see end of Appendix A). While fairly representative, the adjustments shown for 1953 differ in some cases from those made for earlier years partly because of changes in the statutes defining taxable income, partly because figures were not available for all years from the same source.

Line 2. Taken as the difference between line 1 and line 8.

Line 3. For recent years, a rough clue as to size of AGI of nontaxable individuals is available in the form of AGI reported on nontaxable returns. The latter figure falls short of AGI of all nontaxable individuals for two main reasons. 1) It excludes the better part of the AGI of persons whose incomes fell below the filing requirement. The latter amounted to a gross income of \$500 per taxpayer in the period 1944-1947, and a gross income of \$600 from 1948 on. Because of withholding-at-the-source, a considerable number (possibly one-third) of those with incomes below the filing requirement level nevertheless filed returns in order to obtain refunds. Therefore not all the income at the

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bottom of the distribution is absent from tax returns. 2) AGI on non-taxable returns also misses the income of those who, though legally required to file, failed to do so because their deductions and exemptions exceeded their AGI and thus made them nontaxable. But this group is probably quite small since it consists entirely of persons who a) do not come under withholding and b) ignore the filing requirement.

We corrected roughly for the omission of those who did not file returns because their income was below the filing requirement. This necessitated first, an estimate of the income of persons who were not required by law to file tax returns. For the years 1945 to 1947 we used the estimates of income below \$500 prepared by Ulric H. Weil ("A Note on the Derivation of Income Estimates by Source of Income of Persons Making Less Than \$500 Per Annum, 1944-1948," *Journal American Statistical Association*, 1950, p. 440). For the years after 1947 we prepared rough estimates of AGI below the filing requirement. Weil's estimates of income below \$500 (1) and ours of AGI below the filing level (2) are given below (in billions of dollars).

	Money Income Less Than \$500 ^a	AGI Less Than	
	(1)	\$500	\$600
		(2)	
1945	3.31	3.60	
1946	3.50	3.04	
1947	3.45	2.64	
1948	2.64	2.60	3.69
1949			3.49
1950			3.00
1951			3.69
1952			3.81
1953			3.90
1954			3.64
1955			3.41

^a Excludes military pay and social security payments.

Since the per capita exemption, and hence the filing requirement, changed from \$500 to \$600 after 1947, Weil's estimates could be used only up to that year.

From 1948 on we estimated total AGI below the \$600 level by blowing up the AGI reported in that income group by persons seeking refunds of tax withheld. The results shown in column 2 also include,

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for comparative purposes, estimates of total AGI below \$500 for 1945-1948. The general order of magnitude—and that is all we are concerned with in the context of this study—is very close to Weil's. Thus for the period 1945-1955, AGI below the filing requirement level appears to have been between \$3 billion and \$4 billion in every year.

The blow-up factor to obtain our estimates is the ratio of the total number of persons with income of \$1,000 and less to the number employed in occupations in which withholding of tax prevailed. The data used to obtain this ratio were the Census survey distributions of persons fourteen years and over by total money income and major occupation group. (For detail see Note c to Table A-2.) Since the Census money income concept includes certain transfer receipts (veterans' payments, social security benefits, and various relief payments), a considerable number of persons appear at higher income levels according to the census concept than they would according to the AGI concept. That is why we computed the ratio for money incomes up to \$1,000. Census distributions exist for two types of reporting units: families and unrelated individuals; and persons fourteen years of age and over. The reporting unit on tax returns can of course be either of these. However, for the lowest income group a distribution of persons seems more appropriate. Our method makes various other rough assumptions. It is implicitly assumed that the average AGI of the group not subject to withholding tax is the same as the average AGI of those who were. It is also implicit in our method that all income recipients in this group who had tax withheld filed for a refund. Yet some persons might have considered their overpayments too small for the trouble of filing for a refund. The latter group, and the nontaxable income we miss as explained in 2) above, tend to make our estimates of the AGI of nontaxable individuals slightly low.

From the estimates of total AGI below the filing requirement we subtracted the amounts reported on tax returns (line 1c — line 1a of Table A-2) and thus obtained the estimated amount unreported by persons with income below the filing requirement. To this we added the amount reported on nontaxable returns, which gave us the figure in line 3 of Table A-2 (see end of Appendix A) for the years beginning after 1944. When we add the amount reported on taxable returns to that in line 3, Table A-2, and subtract the sum from the estimates of total AGI we obtain the figure for the amount unexplained. When expressed as a per cent of reported AGI (line 2 plus line 4), our esti-

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mate declined from 14.8 to 8.9 between 1945 and 1955 (line 7). The figures thus suggest a downward trend in this ratio. However, our estimates are too crude to furnish a basis for such a conclusion. As stated below (notes for line 7), the unexplained amount for the interwar period was obtained by extrapolating back the 1945 ratio of 0.15. The resulting figure was subtracted from line 2 in Table 1, and the figure for line 3 thus obtained for the selected years before 1945.

Lines 4, 5, and 6. The amount in line 3 of Table 1 was divided into personal deductions and exemptions in the same proportion that each of these constituted the combined total of deductions and exemptions reported on nontaxable returns in each of the eight selected years. Their combined total on nontaxable returns of course exceeded the income reported on these returns. We may nevertheless make the crude assumption that the relation of each to this combined total indicates their respective part in the total of AGI not reported on taxable returns. An earned-income credit against normal tax net income was in effect in 1939, and for that year we included the amount of the credit on nontaxable returns in the combined total in the same manner as deductions and exemptions in the other years.

Line 7. For the years later than 1944, shown in Table 1, the unexplained amount was estimated as the difference between line 2 and line 3 of that Table. For 1945 and 1946 it amounted to almost 15 per cent of reported AGI, as is shown in Table A-2. We carried this ratio back for years before 1945 to obtain a figure for the unexplained amount. Little positive basis exists for extrapolating this ratio back as far as 1918. Our main justification is that we had no evidence to the contrary to guide us, and furthermore that the magnitude we are interested in—estimates of the relative importance of deductions and exemptions—will be affected only slightly by errors in the ratio used for the interwar period. It might be argued that the ratio of amount unexplained to reported AGI was higher in the interwar period than in 1945 and 1946, because enforcement practices were less developed then and withholding of tax at the source nonexistent. On the other hand, tax rates were much lower, so that the urge to evade tax through underreporting of income may have been less strong than in the 1940's. Compared to the assumed understatement of income on tax returns for 1935-1936 (National Resources Committee, *Consumer Incomes in the United States*, Washington, 1938, p. 84), our assumptions

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for the interwar period are on the low side. In the NRC study, in addition to increasing the frequencies by from 25 to 5 per cent in the \$5,000 to \$20,000 income range to adjust for nonreporting, all incomes were raised by an average of 11 per cent to adjust for underreporting. Daniel M. Holland, on the other hand, found that the discrepancy between total estimated dividend payments and reported dividends has widened between 1939 and 1952, relatively as well as absolutely ("Dividend Underreporting on Tax Returns," *The Journal of Finance*, May 1958). Needless to say, the citation of these conflicting influences and views is no proof that the ratio in question has remained constant during the period 1918-1945. Contemplating them merely contributes to our doubts on the direction in which the ratio may have moved.

Lines 8 and 9. The figures for AGI on taxable returns for 1946, 1951, 1953, and 1955 are taken from *Statistics of Income*, Part I. For the years before 1944, when the AGI concept was not yet in use, the estimates are our own based on *Statistics of Income* data. The procedure consisted mainly of adding the deductions to the statutory net income figures given in *Statistics of Income* for those years, after subtracting our estimates of some negative income items that were included in the deductions total before 1944. For more detail, see Appendix D.

Lines 10 and 11. *Statistics of Income*. The figure for the earned income credit for 1939 excludes the credit on returns with net incomes above \$8,000. We assumed that all those with incomes above that level were subject to surtax, and the credit therefore did not diminish their tax base as defined below.

Line 12. The tax base figures are in a sense synthetic. We have ignored the fact that some income, either because of its source or because of the tax bracket in which it fell, was not taxable under one or the other of the components of the individual income tax. For instance, before 1941 a large part of income was subject to normal tax, but not to surtax which became due at a higher point on the income scale. On the other hand, some types of income, such as dividends, interest on federal government securities, and "earned" income have at various times been exempt from the normal tax but not from surtax; and some nonexempt net capital gains were taxed at an alternative rate. Thus the tax base as here defined includes all income to which an income tax rate was actually applied. The fact that the income tax has practically never had one unique base is disregarded.

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TABLE A-1

Adjustments of Personal Income Estimate (Department of Commerce)
to Obtain Estimate of Total Adjusted Gross Income (AGI), 1953

(billions of dollars)

1. Personal income	286,006
2. Personal income not included in AGI—deduct	40,252
3. Transfer payments	14,256
4. Other labor income	5,532
5. Income in kind	9,825
6. Nonfarm inventory valuation adjustment (noncorporate)	—190
7. Farm inventory change	—617
8. Imputed interest	5,945
9. Accrued interest (government bonds)	624
10. Tax exempt interest	293
11. Undistributed fiduciary income other than capital gains	1,123
12. Property income of nonprofit organizations	520
13. Nontaxable military pay	2,500
14. Imputed rental value of tenant occupied houses	441
15. AGI not included in personal income—add	8,696
16. Personal contributions for social insurance	3,940
17. Net gains from exchanges of property reported on tax returns	2,110
18. Other income	1,049
19. AGI of residents of Alaska and Hawaii	1,317
20. Annuities and pensions	734
21. Deductions for depletion	—252
22. Net operating loss deduction reported on tax returns	—202
23. Total AGI	254,450

Notes, by line

From Department of Commerce, *Survey of Current Business*, July 1957:

1. Table 3.

3. Table 36.

4. Table 34, line 12 minus lines (15 + 16).

5. Table 39, line 1 minus line 6 plus line 8.

6. Table 1.

7. Table 2.

8. Table 37, line 4 minus line 6.

9. *Treasury Bulletin*, June 1955, pp. 21-23. From the amount of "accrued discount" on outstanding debt during the calendar year, the total amount of accrued discount on redemptions during the year was subtracted. Accrued interest on series A-D bonds was obtained by subtracting the figures for series E-K from the figures for "all series combined." The amount of accrued interest received by individuals was obtained by assuming that 80 per cent of series A-D, 66% per cent of series F, G, J, and K, and all of series E bonds were owned by individuals.

10. From Lawrence H. Seltzer, *Interest as a Source of Personal Income and Tax Revenue*, Occasional Paper 51, National Bureau of Economic Research, 1955, Table 15. For years after 1952 figures are from Seltzer's extended worksheets.

11. The 1953 figure is an interpolation between the 1952 and 1954 estimates, no 1953 figures for fiduciaries being published in alternate years. Following Pechman, we subtracted from the noncapital gains income reported by all fiduciaries an adjusted amount of fiduciary income reported on individual returns to obtain undistributed fiduciary income (other than capital gains) for 1952. The adjustment of fiduciary income reported by individuals was as follows: the reported amount was increased by 10 per cent to account for underreporting and income distributed to non-

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taxable beneficiaries. This figure was then multiplied by the ratio of noncapital gain income to total income of fiduciaries.

12. Estimated by Pechman by extrapolating the average amount of interest, dividends, and rental income received by nonprofit institutions in 1944-1947. This amount was Selma F. Goldsmith's estimate by an index of personal interest, dividends, and rents as estimated by the Commerce Department, *op.cit.*, Tables 1 and 37.

13. Pechman subtracted from unpublished Commerce estimates of total military cash pay the estimated taxable military wages as obtained for 1953 from Selma Goldsmith. Taxable wages for earlier years were estimated by extrapolating the 1953 figure back on the basis of its relation to taxes withheld by the military, for which figures are available for earlier years.

14. Commerce Department, *op.cit.*, Table 30, line 4, 3 times 0.26 (ratio supplied by Selma Goldsmith).

16. Commerce Department, *op.cit.*, Table 35.

17. *Statistics of Income*, Part 1.

18, 19, 20. All three estimates are based on *Statistics of Income* reports. In these instances we considered appropriate an adjustment for unreported amounts, obtained by multiplying the reported amounts by the ratio of total estimated AGI to the reported AGI for all other items.

AGI of Alaska has not been tabulated separately since 1942, but is included in *Statistics of Income* in the AGI for the state of Washington. We estimated this item by extrapolating the 1939-1942 ratio of reported income for Alaska to that for Washington and Alaska combined by means of an index of the ratio of personal income tax collections in Alaska to collections in Alaska and Washington combined.

21. Estimated by extrapolating the 1945 depletion figure for proprietors and partners by an index of corporate depletion deductions in later years.

22. Net operating loss deductions are tabulated in *Statistics of Income* for 1945 and for 1951-1954. For other years our figures are estimates obtained with the aid of an index of corporate net operating loss deductions as reported in *Statistics of Income*, Part 2.

TABLE A-2
 Gap between Total AGI and AGI Reported on Tax Returns, 1945-1955
 (dollars in millions)

	1945	1946	1947	1948	1949	1950
1. Estimate of unreported AGI below filing requirement ^b						
a. Amount reported on tax returns	1,498	1,295	1,170	1,340	1,327	1,265
b. Amount reported by persons subject to withholding	1,312	1,111	965	1,097	1,016	1,006
c. Total estimated AGI below filing requirement ^c	3,310	3,500	3,450	3,690	3,490	3,000
d. Amount not reported (line c — line a)	1,812	2,205	2,280	2,350	2,163	1,735
2. Amount of AGI reported on nontaxable returns	2,447	16,033	14,435	21,459	22,008	20,603
3. AGI on nontaxable returns adjusted to include income of those below filing requirement (line d + line 2)	4,259	18,238	16,715	23,809	24,171	22,338
4. AGI on taxable returns	118,104	118,721	135,891	142,667	139,030	159,256
5. Estimated total AGI	140,185	156,065	171,563	184,795	184,292	201,446
6. Amount unexplained [line 5 — (3 + 4)]	17,822	19,106	18,957	18,319	21,091	19,852
7. Amount unexplained as a per cent of reported AGI [line 6 ÷ (2 + 4)]	14.78	14.18	12.61	11.16	13.10	11.04

(concluded on next page)

TABLE A-2, concluded

	1951	1952	1953a	1954a	1955a
I. Estimate of unreported AGI below filing requirements ^b					
a. Amount reported on tax returns	1,302	1,342	1,362	1,295	1,262
b. Amount reported by persons subject to withholding	1,006	1,116	1,125	1,060	1,013
c. Total estimated AGI below filing requirement ^c	3,690	3,810	3,900	3,640	3,410
d. Amount not reported (line c — line a)	2,388	2,468	2,538	2,345	2,148
2. Amount of AGI reported on nontaxable returns	19,093	18,699	18,225	19,553	18,935
3. AGI on nontaxable returns adjusted to include income of those below filing requirement (line d + line 2)	21,481	21,167	20,763	21,898	21,083
4. AGI on taxable returns	183,935	197,331	210,484	209,669	229,595
5. Estimated total AGI	226,603	240,645	254,450	252,987	272,723
6. Amount unexplained [line 5 — (3 + 4)]	21,187	22,147	23,203	21,420	22,045
7. Amount unexplained as a per cent of reported AGI [line 6 ÷ (2 + 4)]	10.44	10.25	10.15	9.34	8.87

AGI reported on tax returns includes deficit on returns with no AGI.

^a Excludes fiduciary returns.

^b The filing requirement was a gross income of \$500 or more until 1947 and \$600 or more thereafter.

^c 1945-1947: Ulric H. Weil, *op.cit.* 1948-1955: line 16 times a blow-up factor obtained from annual Census survey figures.

The blow-up factor is the ratio of the number of income recipients to the estimated number of employees subject to withholding in the money income group 0 to \$1,000. The figures used are from *Current Population Reports*, Series P-60, no. 5, Table 17; no. 6, Table 14; no. 7, Table 19; no. 9, Table 20; no. 11, Table 5; no. 14, Tables 4 and 5; no. 16, Tables 4 and 5; no. 19, Tables 4 and 5; no. 23, Tables 4 and 5.