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A Comparison of Tax Distribution Tables: How Missing or Incomplete Information Distorts Perspectives

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I. INTRODUCTION

Tax distribution tables have become the predominant tool for analyzing the distributive effects of tax burdens and benefits from proposed changes in tax law. However, the use of tax tables for tax policy analysis is a time-intensive and complicated process that can be more art than science.

The different economic assumptions and presentations of data used by the various groups that release distribution tables have the inherent consequence of providing the public with numerous tables that are often used as political ammunition to influence debate. Scholars have argued that many tax distribution tables are "tailor-made" to produce a particular result in distribution tables.[1] At best, the current practice or use of distribution tables typically provides a misleading sense of accuracy and an incomplete picture of the actual nature of a change in tax distribution as a result of a change in tax policy.

The debate surrounding President George W. Bush's tax plan of 2001 is one example of how the use of tax distribution tables can provide an incomplete and distorted picture. For this proposal, numerous distribution tables were prepared by the Joint Committee on Taxation of the U.S. Congress, the Office of Tax Analysis of the U.S. Department of the Treasury, advocacy groups, and think tanks. These tables were routinely published in major newspapers around the country.[2] However, without a proper understanding of what these distribution tables show, many important issues were misinterpreted or ignored altogether. These same issues are sure to rise again as tax policy proposals are debated in the future.

By comparing distribution tables that provide alternative perspectives on President Bush's tax plan of 2001, this analysis examines how tax distribution tables often can provide misleading results about the impact of pending tax legislation. These tables rely excessively on comparisons of various income groups and are typically used to oppose broad income tax relief and foster class-warfare notions in tax policy. However, tax distribution tables typically are defective in several ways that, once recognized, raise serious questions about their value to policymakers and the public.

This review is organized as follows. Section II provides detailed examples of actual distribution

1. See, for example, Diana Furchtgott–Roth, "Abuses of Income Distribution Tables in Tax Policy," *Tax Notes*, December 11, 1995.

2. See, for example, Jacob Schlesinger and John McKinnon, "Bush Plan Gives Rich Biggest Cut in Dollars But Not in Percentage," *The Wall Street Journal*, November 5, 2000; Steven Pearlstein and Paul Blustein, "On the Class Warpath," *The Washington Post*, February 7, 2001; Shailah Murray and David Rogers, "Democrats Attempt to Draw Rein As Republicans Study Wish Lists," *The Wall Street Journal*, February 8, 2001; Glenn Kessler, "Treasury's Tax Cut Data Can Cut 2 Ways," *The Washington Post*, March 9, 2001; David Cay Johnston, "Even for Wealthy, Tax Plan's Benefits Could Vary Widely," *The New York Times*, May 15, 2001; and Glenn Kessler, "Tax Cut Debate's Division Problem," *The Washington Post*, May 17, 2001.

tables that analyzed President Bush's tax plan as it developed and discusses the problems associated with the presentation of data in the tables.[3] Section III describes how averages are improperly used in distribution analysis. Section IV demonstrates how many taxpayers are misclassified when assigned to income categories. Section V briefly discusses how distribution tables ignore the importance of income mobility. Section VI provides policy recommendations, including 10 useful guideline questions that users of distribution tables should ask when evaluating the presentation of distribution tables. Section VII offers concluding remarks that discuss the implications for policymaking.

II. DIFFERENCES IN DISTRIBUTION TABLES

The official sources of tax distribution data are the Office of Tax Analysis (OTA) of the Department of the Treasury; the Congressional Joint Committee on Taxation (JCT); and, to a lesser extent, the Congressional Budget Office (CBO).[4] All of these organizations apply different assumptions and methodologies to the analysis of tax legislation. In addition, various interest groups and think tanks release unofficial distribution tables to influence the policy process and the debate over particular aspects of tax legislation.

Distribution tables are constructed based on data sources that sample segments of the population in order to make inferences about the population at large, not data sources that count the entire population like a census. Furthermore, many economic, incidence, and mathematical assumptions are relied upon in order to fashion distribution tables. The end results are tables that often consist of numbers expressed with a high degree of specificity—down to one or even two decimal places. This specificity projects a false sense of precision that hides larger problems just below the surface.

It is well-known to most taxpayers that tax liabilities often differ among families with the same income; e.g., most taxpayers know different families with the same income will experience different tax liabilities. Differences can occur due to family size, filing status, whether a taxpayer itemizes deductions or takes the standard deduction, whether a taxpayer owns or rents, the nature of a family's income, number of children, and other factors. Additionally, some families reduce their tax liabilities more aggressively than others. For example, tax liability can be reduced legally by contributing to a 401(k) plan, an individual retirement account, or a medical savings account. However, this is not the image portrayed by distribution tables.

Distribution tables are not all created equal.[5] Much information is necessary to effectively evaluate the distributional change of proposed tax legislation, such as what items are included in income, what types of taxes are included/excluded, and over what time horizon the effects are being measured, among other things. Producers of these tables use different methodologies, definitions, and presentations to convey the results of their analyses. Additionally, the concept of "fairness" is as highly subjective a concept as "income." What might be fair to some is considered unfair to others. It is possible to bias the debate on a proposed change in tax policy by focusing an analysis and presentation of data in a manner that provides an incomplete or distorted perspective. Research published in U.S. Congress, Joint Economic Committee studies has demonstrated that a lack of complete and necessary information is prevalent with virtually all of the actual distribution tables released into the public domain.[6]

3. The debate surrounding the 2001 tax plan, beginning with the 2000 presidential campaign of George W. Bush and advanced under his presidential Administration, was chosen because it offers a unique opportunity to compare distribution tables released by a Democratic and Republican Administration analyzing similar tax proposals.
4. For a more detailed discussion of their respective roles, see Michael J. Graetz, "Distributional Tables, Tax Legislation, and the Illusion of Precision," in David F. Bradford, ed., *Distributional Analysis of Tax Policy* (Washington, D.C.: AEI Press, 1995), p. 20.
5. Readers interested in further exploring these important differences are encouraged to review the following references: Martin A. Sullivan, "How to Read Distribution Tables," *Tax Notes*, March 26, 2001; U.S. Congress, Joint Economic Committee, "A Guide to Tax Policy Analysis: Problems With Distributional Tax Tables," January 2000; and Bradford, ed., *Distributional Analysis of Tax Policy.*
6. See, for example, U.S. Congress, Joint Economic Committee, "A Guide to Tax Policy Analysis: Problems with Distributional Tax Tables," January 2000; "A Guide to Tax Policy Analysis: The Central Tendency of Federal Income Tax Liabilities in Distributional Analysis," May 2000; "The Misleading Effects of Averages in Tax Distribution Analysis," September 2003; and "A Comparison of Tax Distribution Tables: How Missing or Incomplete Information Distorts Perspectives," December 2003.

Table 1 CDA 04-13

Joint Committee on Taxation: Distributional Effects of the Conference Agreement for H.R. 1836

Calendar Year 2006

Income Category (2)	Change in Federal Taxes (3)		Federal Taxes (3) Under Present Law		Federal Taxes (3) Under Proposal		Effective Tax Rate (4)	
	Millions	Percent	Billions	Percent	Billions	Percent	Present Law Percent	Proposal Percent
Less than $10,000	–$76	–0.9%	$8	0.4%	$8	0.4%	10.4%	10.3%
10,000 to 20,000	–3,789	–13.6%	28	1.2%	24	1.1%	7.6%	6.6%
20,000 to 30,000	–7,853	–11.4%	69	3.1%	61	2.9%	13.7%	12.2%
30,000 to 40,000	–7,839	–7.9%	99	4.4%	91	4.4%	16.0%	14.7%
40,000 to 50,000	–7,570	–6.5%	116	5.2%	108	5.2%	17.2%	16.0%
50,000 to 75,000	–18,755	–6.0%	313	14.0%	294	14.0%	18.6%	17.5%
75,000 to 100,000	–17,212	–5.8%	297	13.3%	280	13.3%	21.3%	20.0%
100,000 to 200,000	–30,208	–5.1%	588	26.3%	558	26.6%	23.9%	22.7%
200,000 and over	–44,177	–6.1%	719	32.1%	675	32.1%	28.3%	26.6%
Total, All Taxpayers	**–$137,476**	**–6.1%**	**$2,238**	**100.0%**	**$1,740**	**100.0%**	**21.7%**	**20.3%**

Source: Joint Committee on Taxation, JCX–52–01, May 26, 2001.

Detail may not add due to rounding.

(1) Includes provisions affecting the child credit, individual marginal rates, a 10% bracket, limitation of itemized deductions, the personal exemption phaseout, the standard deduction, 15% bracket and EIC for married couples, deductible IRAs, and the AMT.

(2) The income concept used to place tax returns into income categories is adjusted gross income (AGI) plus: (1) tax-exempt interest, (2) employer contributions for health plans and life insurance, (3) employer share of FICA tax, (4) worker's compensation, (5) nontaxable Social Security benefits, (6) insurance value of Medicare benefits, (7) alternative minimum tax preference items, and (8) excluded income of U.S. citizens living abroad. Categories are measured at 2001 levels.

(3) Federal taxes are equal to individual income tax (including the outlay portion of the EIC); employment tax (attributed to employees); and excise taxes (attributed to consumers). Corporate income tax and estate and gift taxes are not included due to uncertainty concerning the incidence of the tax. Individuals who are dependents of other taxpayers and taxpayers with negative income are excluded from the analysis.

(4) The effective tax rate is equal to federal taxes described in footnote (3) divided by income described in footnote (2) plus additional income attributable to the proposal.

The following four distribution tables are real examples of tables released into the public domain that analyzed various aspects of President Bush's tax plan as it developed.[7] Though the tables were not all prepared at the same time, the methodologies and presentations of data are consistent with those routinely used by the various groups and provide a useful illustration of the role distribution tables play in the tax policy process.

- Table 1 is a copy of a distribution table prepared by the Joint Committee on Taxation of the U.S. Congress (JCT);
- Table 2 was prepared by the Treasury Department's Office of Tax Analysis (OTA 2000) under former President Clinton;
- Table 3 was prepared by the Treasury Department's Office of Tax Analysis (OTA 2001) under President Bush; and
- Table 4 was prepared by Citizens for Tax Justice (CTJ), a labor-backed advocacy group.

The point of this section is not to focus on the numbers and outcomes of the analyses *per se*, but on what information is and is not presented and how the presentation of the information can alter

7. See note 4.

Table 2 CDA 04-13

Clinton Administration Office of Tax Analysis, Department of the Treasury: Major Provisions Passed by the House Ways and Means Committee[1]

(2000 Income Levels) Very Preliminary

Family Economic Income[2]	Number of Families (millions)	Average Tax Change ($)	Total Tax Change Amount (millions)[3]	Total Tax Change Percent Distribution (%)	Percent Change In: Current Federal Taxes[4]	Percent Change In: After-Tax Income[5] (%)
Lowest[6]	22.4	–13	–286	0.4%	–2.1%	0.1%
Second	23.0	–77	–1,762	2.7%	–2.5%	0.3%
Third	23.0	–192	–4,426	6.8%	–2.4%	0.6%
Fourth	23.0	–380	–8,748	13.4%	–2.4%	0.6%
Highest	23.0	–2,164	–49,877	76.6%	–4.2%	1.4%
Total[6]	**115.2**	**–566**	**–65,131**	**100.0%**	**–3.6%**	**1.0%**
Top 10%	11.5	–3,442	–39,586	60.9%	–4.5%	1.6%
Top 5%	5.8	–5,632	–32,490	49.9%	–4.9%	1.8%
Top 1%	1.2	–17,074	–19,840	30.5%	–5.5%	2.2%

Source: U.S. Department of the Treasury, Office of Tax Analysis, July 17, 2000.

(1) This table distributes the estimated change in tax burdens due to the following major provisions passed by the House Ways and Means Committee in H.R. 7, H.R. 8, H.R. 2990, H.R. 3832, H.R. 3916, H.R. 4810, and H.R. 4843.

(2) Family Economic Income (FEI) is a broad-based income concept. FEI is constructed by adding to AGI unreported and under-reported income; IRA and Keogh deductions; nontaxable transfer payments such as Social Security and AFDC; employer-provided fringe benefits; inside build-up on pensions; IRAs, Keoghs, and life insurance; tax-exempt interest; and imputed rent on owner-occupied housing. Capital gains are computed on an accrual basis, adjusted for inflation to the extent that reliable data allow. Inflationary losses of lenders are subtracted and gains of borrowers are added. There is also an adjustment for accelerated depreciation of noncorporate businesses. FEI is shown on a family rather than a tax-return basis. The economic incomes of all members of a family unit are added to arrive at the family's economic income used in the distributions.

(3) The change in federal taxes is estimated at 2000 income levels assuming fully phased-in law. Current and proposed taxes are estimated using FY2000 budget assumptions. The tax benefit of the increase in retirement contribution limits is measured as the present value of tax savings on one year's contributions.

(4) The taxes included are individual and corporate income, payroll, excises, customs duties, and estate and gift taxes. The individual income tax is assumed to be borne by payers, the corporate income tax by capital generally, payroll taxes (employer and employee shares) by labor (wages and self-employment income), excises on purchases by individuals in proportion to relative consumption of the taxed good and proportionately by labor and capital and excises on purchases by businesses and customs duties proportionately to labor and capital, and the estate tax by decedents. Federal taxes are estimated at 2000 income levels but assuming 2009 law and, therefore, exclude provisions that expire prior to the end of the budget period and are adjusted for the effects of unindexed parameters.

(5) After-tax income is Family Economic Income less current federal taxes.

(6) Families with negative incomes are excluded from the lowest quintile but included in the total line.

Note: Quintiles begin at FEI of: Second $17,988; Third $34,844; Fourth $59,019; Highest $100,767; Top 10% $140,581; Top 5% $189,835; Top 1% $462,053.

perspectives on the burdens and benefits of the same plan. [8]

Through this presentation, the Joint Committee on Taxation shows how much each income group would benefit in dollars, the amount of tax each group currently pays, the amount of tax each group would pay in 2006 under the proposed legislation, and the effective tax rate under current law and under the proposed changes.

Most taxpayers think of income solely in terms of their wages. Some other taxpayers might think of income as what they report on their income tax

8. The Congressional Budget Office (CBO) did not prepare any tax distribution tables that were subsequently publicly released during this period. Hence, CBO is not represented below.

Table 3 CDA 04-13

Bush Administration Office of Tax Analysis, Department of the Treasury: Major Individual Income Tax Provisions of the President's Tax Proposal[1]

(2000 Income Levels)

Cash Income Class[2]	Distribution of Proposed Changes in Individual Income Taxes (%)	Distribution of Total Individual Income Taxes[3]		Average Individual Income Taxes With Proposed Changes ($)	Percent Change in Individual Income Taxes (%)
		Current Law (%)	With Proposed Changes[4] (%)		
0 – 30	9.3	–1.0	–2.8	–457	–136.2
30 – 40	6.5	2.5	1.8	993	–38.3
40 – 50	7.8	4.1	3.4	2,210	–28.0
50 – 75	17.2	12.2	11.3	4,279	–20.8
75 – 100	13.6	12.2	12.0	7,848	–16.3
100 – 200	19.8	27.1	28.3	16,625	–10.7
200 & Over	25.4	42.9	45.9	103,931	–8.7
Total[5]	**100.0**	**100.0**	**100.0**	**6,322**	**–14.6**

Source: U.S. Department of the Treasury, Office of Tax Analysis, March 8, 2001.

(1) The major individual income tax provisions are: (i) lower individual income tax rates; (ii) increase the child credit to $1,000, raise the income level at which it phases out, and allow the child credit against the AMT; (iii) allow a 10% deduction for the earnings of the lower-earning spouse (up to $30,000) in two-earner families; (iv) allow taxpayers who do not itemize to deduct charitable contributions up to the amount of the taxpayer's standard deduction; and (v) provide a refundable tax credit for individually purchased health insurance.

(2) Cash Income consists of wages and salaries, net income from a business or farm, taxable and tax-exempt interest, dividends, rental income, realized capital gains, cash transfers from the government, and retirement benefits. Employer contributions for payroll taxes and the federal corporate income tax are added to place cash on a pre-tax basis. Cash income is shown on a family rather than on a tax return basis. The cash incomes of all members of a family are added to arrive at a family's cash income used in the distributions.

(3) The refundable portions of the earned income tax credit (EITC) and the child credit are included in the individual income tax. Federal taxes are estimated at 2000 income levels but assuming fully phased-in law and therefore exclude provisions that expire prior to the end of the budget period and are adjusted for the effects of unindexed parameters.

(4) The change in federal taxes is estimated at 2000 income levels assuming fully phased-in law.

(5) Families with negative incomes are excluded from the lowest income class but included in the total line.

returns. The JCT uses a relatively easy-to-understand income concept called expanded income. Of all the income concepts used by the various producers of distribution tables, the JCT's would be the most familiar to the public, as it closely relates to income reported on a federal individual income tax return. Expanded income includes adjusted gross income (AGI), taken right from the federal income tax return, plus some government transfers and some employer-provided benefits. Additionally, the JCT uses as its unit of analysis a tax-filing unit. The tax-filing unit roughly corresponds to the filing status of federal income tax returns.

The data as presented in the JCT table indicate that the proposed changes are distributionally neutral. That is, each income group would pay roughly the same percentage of the tax burden after the proposed tax change as before. However, see footnote 3 in the table. Here, the JCT discloses that it has excluded the effects of the estate and gift taxes, as well as the corporate tax, from their analysis due to uncertainty over the incidence or who actually bears the burden of these taxes. Though not completely precise, excluding any tax from a distributional analysis for which the incidence is uncertain can actually be more accurate because including taxes where the incidence is uncertain requires subjective conjecture by an analyst that can end up distorting the results.

Missing from the JCT analysis is the number of units associated with each income class. Without this information, it is impossible to determine the

Table 4 CDA 04-13

Citizens for Tax Justice: Effects of the House GOP Tax Plan

Income Group	Income Range	Average Income	Tax Cut (billions)	Average Tax Cut	% of Total Tax Cut
Lowest 20%	Less than $13,300	$8,400	–$0.7	–$29	0.5%
Second 20%	$13,300 – 23,800	18,300	–3.6	–144	2.4%
Middle 20%	23,800 – 38,200	30,300	–8.9	–350	5.8%
Fourth 20%	38,200 – 62,800	49,100	–18.1	–712	11.8%
Next 15%	62,800 – 124,000	83,600	–28.8	–1,513	18.8%
Next 4%	124,000 – 301,000	173,000	–24.7	–4,866	16.1%
Top 1%	301,000 or more	837,000	–68.3	–54,027	44.6%
ALL		**$48,700**	**–$153.1**	**–$1,199**	**100.0%**
Addendum					
Bottom 60%	Less than $38,200	$19,000	–$13.3	–$174	8.7%
Top 10%	$89,000 or more	$204,000	–$105.8	–$8,355	69.1%

Source: Citizens for Tax Justice, "House GOP Tax Plan: The Rich Get Richer," July 27, 1999.

Notes: Figures show the annual effects of (1) a 10% cut in personal income tax rates; (2) a reduction in the income tax rates on realized capital gains from 20% to 15% (for those in all but the bottom regular tax bracket) and from 10% to 7.5% (for those in the bottom regular tax bracket); (3) elimination of the estate tax; (4) repeal of the individual Alternative Minimum Tax; (5) a $200 interest and dividend exclusion ($400 for couples); (6) an increase in the standard deduction for couples to double the single amount; (7) increased contribution and benefit limits for pensions and 401(k)s; (8) deductions for health insurance for people without employer plans; and (9) various corporate tax breaks. Not included are about $3 billion a year in miscellaneous tax breaks, mostly for certain health and education expenses. All figures are at 1999 levels, showing full-year effects after phase-ins are completed.

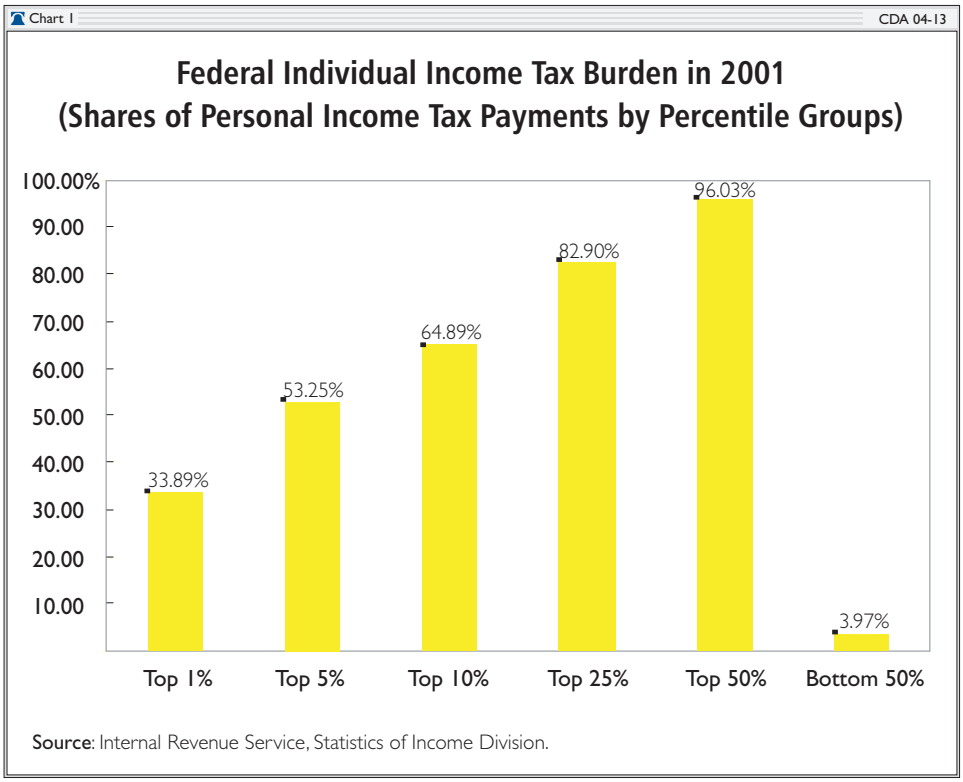
number of taxpayers that would receive the benefits listed in the table. The JCT table does provide information pertaining to the percentage of federal taxes each income group is estimated to bear both before and after the proposed change in taxes. The inclusion of tax shares is an improvement in the presentation of distribution analysis and provides needed context, since a complete analysis of the costs and benefits of a tax change should not be made without an understanding of the current tax burden. This information illustrates that many tax relief proposals effectively keep the burden of taxation relatively the same, even if upper-income groups might receive a greater nominal dollar benefit.

The JCT table does not include an average or median amount of tax benefit that taxpayers in corresponding income groups would expect to receive as a result of a change in tax policy. Regardless of the JCT's reasoning for excluding average tax benefits, many opponents of tax relief legislation favor highlighting the average tax cut that various income groups can expect to receive. This is because, due to the very nature of our progressive tax system, even a tax cut that is a disproportionately smaller percentage for upper-income taxpayers can result in higher-income groups (which pay a higher percentage of total federal taxes) receiving a higher nominal dollar amount of benefit. Opponents of tax relief legislation, therefore, prefer comparisons of average tax cuts because they can almost invariably show by such comparisons that the rich benefit more dollar-for-dollar from even a proportionate tax cut, enabling "class warfare" assertions.

Table 2 was prepared by the OTA under the Clinton Administration and during the presidential campaign of 2000. Unlike the JCT, OTA prefers to categorize the units of analysis as families, not taxpayers, and place them into quintiles based on economic income, not dollar income levels. This has the effect of broadening the unit of analysis and lumping together as "families" many taxpayers that

traditionally are not considered families, such as single taxpayers.

The OTA's use of families as an income concept groups together tax units with very different tax liabilities and different abilities to pay. For example, the OTA aggregates the income of all tax filers in a household into a single-family unit. This means that the income of dependents that file tax returns is added to the income of the primary taxpayers. Therefore, a single "family" taxpayer with $50,000 of income would be categorized in the same group as a family with both spouses earning $20,000 and a dependent child earning $10,000, for a combined "family" income of $50,000. Obviously, even though these two "families" have similar incomes, they have much different abilities to pay and, therefore, to bear a tax burden.



Though this critique can also partly be applied to the JCT unit of analysis (tax filing unit), the impact is much greater with the use of "families" as the unit of analysis. This use of "families" further makes it difficult to judge both the horizontal and vertical equity of the proposed changes in tax policy on individual taxpayers.[9]

The main columns of interest in the 2000 OTA table are the "Average Tax Change" and the two columns under "Total Tax Change." The 2000 OTA analysis shows lower-income groups receiving what looks like a pittance in income tax relief while upper-income groups receive what appears to be a disproportionate amount of tax relief. The perception that the income tax relief is skewed toward the rich is further emphasized in the last column relating to the percent change in after-tax income.

The 2000 OTA analysis shows that lower-income groups would receive substantially less of a change in their after-tax income than higher-income groups. However, this is due primarily to the current progressive nature of the U.S. income tax system, whereby lower-income groups pay little or no federal income taxes.[10] In fact, an estimated 50.6 million tax returns, or 35.6 percent of all tax returns, had zero or negative income tax liability in 2001.[11] Though an OTA paper released under the Clinton Administration states that "the only tax burden measure with some theoretical basis is the percentage change in after-tax income,"[12] focusing solely on changes in after-tax income can be misleading because it implies that the amount of taxes currently paid is irrelevant to judging the equity of a proposed tax cut.

9. Horizontal equity refers to a principle of judging the fairness of taxation, which holds that taxpayers who have the same income should pay the same amount in taxes. Vertical equity is another principle of judging fairness and holds that, in a progressive tax system, taxpayers with higher incomes should pay higher levels of taxes.
10. Joint Committee on Taxation, "Updated Distribution of Certain Federal Tax Liabilities by Income Class for Calendar Year 2001," JCX–65–01, August 2, 2001.
11. *Ibid.*

For example, Chart 1 shows that the entire bottom half (bottom 50 percent) of taxpayers who reported positive AGI paid 3.97 percent of all individual federal income taxes in 2001. This means that the top half of all taxpayers paid 96.03 percent of all individual federal income taxes. Moreover, the top 1 percent of taxpayers paid 33.89 percent, the top 5 percent paid 53.25 percent, and the top 10 percent paid 64.89 percent (almost two-thirds of all federal individual income taxes paid by taxpayers). It is virtually impossible to provide a federal income tax cut that does not benefit the top half of taxpayers, since they account for virtually all federal income taxes paid. The bottom half of taxpayers pay almost no federal income taxes; therefore, it is difficult to provide meaningful tax cuts to this group of taxpayers.

Unlike the JCT analysis, the distribution table by the 2000 OTA presents the proposed tax plan as *disproportionately* skewed to the wealthy, thereby reducing the progressivity in the current tax system. However, without information on how much in income tax each income group currently pays, it is impossible to assess the fairness or equity of the tax plan fully. The 2000 OTA estimate omits such necessary information.

It is important to note another key difference between the JCT analysis and the 2000 OTA analysis. The 2000 OTA uses a very broad measure of income that is unfamiliar to most Americans and even to many legislators. The "Family Economic Income" (FEI) concept used by the 2000 OTA is a *theoretical* attempt to measure income based on a concept that economists refer to as the Haig–Simons income concept. The Haig–Simons income concept defines income as the "total value of rights exercised in the market, together with the accumulation of wealth in that period."[13] Unlike tangible dollar amounts—such as wages, dividends, and capital gains—that make up adjusted gross income, the FEI concept is measured by adding to AGI such items as in-kind income (e.g., cash transfers and food stamps); *imputed* income from durable goods consumption (e.g., imputed rental income from an owner-occupied home); and accrued (i.e., unrealized) capital gains.

The idea behind the Family Economic Income concept is to impute a cash measure including as income all forms of value that are not received in monetary form and are therefore not subject to taxation. In essence, the economic theory behind the imputation of income under the Haig–Simons income concept includes as "income" any flow of net value attributable to the consumption of all durable goods, such as houses, cars, and washing machines. Under Haig–Simons, "the value of leisure and unpaid work (such as food grown for home use)" is also imputed as income to individuals and families.[14] Besides the imputed value of owner-occupied housing, the Haig–Simons income concept includes an imputation for personal interest income, "which includes the benefits of banking services provided free to customers in lieu of interest."[15] The Clinton OTA includes some types of imputed income in FEI (e.g., imputed rental income from owner-occupied housing) but not others (e.g., the value of leisure).

Additionally, FEI *excludes* in-kind transfers such as Medicare and Medicaid, which often benefit middle- and lower-income groups, even though the payroll taxes to fund these benefits are *included* in the 2000 OTA analysis of tax burden. The OTA's justification for excluding Medicare and Medicaid is based on "the difficulty of assigning a value of benefits to the recipient, and the difficulty of properly identifying recipients."[16] The OTA faces similar, if not more difficult, problems with imputing values for unreported income, income from people who do not file tax returns, and rental income from owner-occupied housing, but these items *are* included in the OTA

12. Julie-Anne Cronin, "U.S. Treasury Distributional Analysis Methodology," U.S. Department of the Treasury, Office of Tax Analysis, *OTA Paper* 85, September 1999, p. 34.
13. Robert Murray Haig, "The Concept of Income: Economic and Legal Aspects," in R. M. Haig, ed., *The Federal Income Tax* (New York: Columbia University Press, 1921), and Henry C. Simons, *Personal Income Taxation: The Definition of Income as a Problem of Fiscal Policy* (Chicago: University of Chicago Press, 1938).
14. Jane G. Gravelle, "Imputed Income," in Joseph J. Cordes, Robert D. Ebel, and Jane G. Gravelle, eds., *The Encyclopedia of Taxation and Tax Policy* (Washington, D.C.: Urban Institute Press, 1995), p. 168.
15. *Ibid*.
16. Cronin, "U.S. Treasury Distributional Analysis Methodology."

FEI concept. Many of the imputed additions to income that are included in the FEI concept consist of non-monetary items that have never been—and could not logistically be—included in the tax base. If these items cannot be included in the tax base, it is questionable why such a measure is used at all for purposes of analyzing tax policy.

In short, the OTA Family Economic Income concept and methodology used in the 2000 analysis inflates the income amounts for those families primarily included in the middle- and upper-income brackets while lowering their average tax rate. The opposite effect holds for the lower-income groups. Hence, virtually any broad-based income tax reduction proposal, as viewed under the 2000 OTA approach to tax distribution analysis, would leverage the already skewed presentation to show even greater disproportionate benefits to the "wealthy" and even less progressivity of any proportional change.

The table produced by the OTA in 2001 takes an approach that is markedly different from the table produced by the 2000 OTA. The FEI concept and quintiles were replaced by a cash-income concept and dollar-income ranges similar to those utilized by the JCT. Additionally, this table presents some new information. For starters, the last column of the 2001 OTA table presents the "Percent Change in Individual Income Taxes." This column shows that the proposed tax cuts fall as a percentage of income as income rises. Therefore, in percentage terms, the lower-income groups would benefit substantially relative to the higher-income groups. As opposed to emphasizing the average tax benefit that would result for each income group, the 2001 OTA table shows the percentage reduction in taxes each group will pay after the tax change. As with the JCT tables, the inclusion of income tax shares is an advancement in distributional analysis.

Also, in the second-to-last column, the table provides the estimated average amount of individual income taxes that would be paid under the proposed tax plan. Presenting the data in this manner, as opposed to showing only the average tax cut, shows that a member of the lowest-income group would actually receive a negative tax—mainly due to the refundable portions of the Earned Income Tax Credit (EITC) and proposed changes in the Child Tax Credit—while a member of the highest-income group would pay on average more than $100,000.

Like the JCT analysis, and as explained earlier, the 2001 OTA analysis excludes estate and gift taxes from the analysis due to the uncertainty of their incidence. Also, the 2001 OTA analysis excludes other federal taxes from the analysis, such as payroll taxes paid by employees, though it adds the portion of payroll taxes paid by employers to employee income to place cash on a pre-tax basis. Some economists believe that all forms of taxes (income, payroll, excise, etc.) should be included in any analysis of tax policy in order to get a total understanding of the burden of taxation, since many lower-income earners pay more in payroll taxes than they pay in income taxes. However, other economists have argued that payroll taxes *should be excluded* from income tax analysis because payroll taxes and excise taxes are designed to pay for a present or future benefit to the payer that is not reflected in the analysis, whereas income taxes finance general expenditures.

In any event, if payroll taxes are included in the income tax analysis, then, at the very least, an estimate of the benefits associated with social insurance programs should be included in any distribution analysis, either as income or as a net against payroll taxes paid. As Michael J. Graetz writes:

> As tax-policy analysts know, when viewed in isolation the social security payroll tax is regressive, but when benefits are taken into account, the social security system is quite progressive. Nevertheless, estimates of the existing tax burden and of changes in tax burdens since 1977 (frequently used as a baseline by CBO) or since 1980 (which marks the beginning of the Reagan administration) routinely include payroll taxes without indicating the benefits that they finance.[17]

The table produced by the OTA in 2000 makes the tax plan appear to overly benefit the wealthy and give virtually nothing to the lower-income groups. In contrast, the presentation of the data in the 2001 OTA table counters opponents of President Bush's tax plan who contend that it overly and unfairly benefits the wealthy. Even though it contin-

17. Graetz, "Distributional Tables, Tax Legislation, and the Illusion of Precision," p. 66.

ues to release OTA distribution tables, the Bush Administration has publicly questioned the limitations of distribution tables and has noted that a one-year snapshot of the distributional effects of proposed tax legislation can be misleading.[18]

The tables produced by many advocacy groups and think tanks exhibit problems similar to those discussed above. The table produced by Citizens for Tax Justice easily tilts in the direction of biasing any debate toward "class warfare" assertions focusing only on which groups would get how much while completely ignoring the distribution of the current tax burden. From the data in Table 4, the CTJ table clearly shows that upper-income groups would receive a hefty tax break while the lower-income groups get virtually nothing. However, the tables produced by CTJ and often cited in major newspapers routinely fail to discuss or disclose the distribution of taxes under current law. The omission of data relating to the distribution of taxes under current and future law makes it impossible to judge the merits of any tax change and the progressivity of the tax system. For example, any tax change that actually results in a proportional 10 percent reduction in taxes for each income group would appear in a CTJ table as a windfall for the wealthy and a pittance for the poor, even though all groups would receive an equal 10 percent reduction in taxes.

Further, CTJ fails to disclose in this table the income concept used in its analysis and whether families or tax returns are the unit of analysis. Although the CTJ table is categorized by quintiles or percentage groupings, since the total number of taxpayers is not presented, the number of taxpaying units per income class cannot be determined. There is also no disclosure on which existing taxes are included in the analysis (i.e., income, payroll, estate and gift, etc.). The lack of disclosure in this table should serve as a warning that the presentation of the data is designed more to support CTJ's political viewpoints than to illuminate the nuances of the tax plan and add to the general debate.

III. MISUSE OF AVERAGES

Michael Graetz, former Deputy Assistant Secretary for Tax Policy, argues that "The current practice of fashioning tax legislation to achieve a particular result in a distribution table creates the illusion of precision when such precision is impossible."[19] It is statistically possible, even probable, based on averages, that some taxpayers in a given income class would receive no tax cut or even face a tax increase regardless of the average tax change for their income group. Furthermore, not only is precision impossible, but the use of averages misrepresents the central tendency of the data.

However, it is often necessary to describe data using a single number. The central tendency of the distribution of data is a point estimate or single number that corresponds to a typical, representative, or middle score for a given set of data. Examples of such measures are the mean, the median, and the mode.

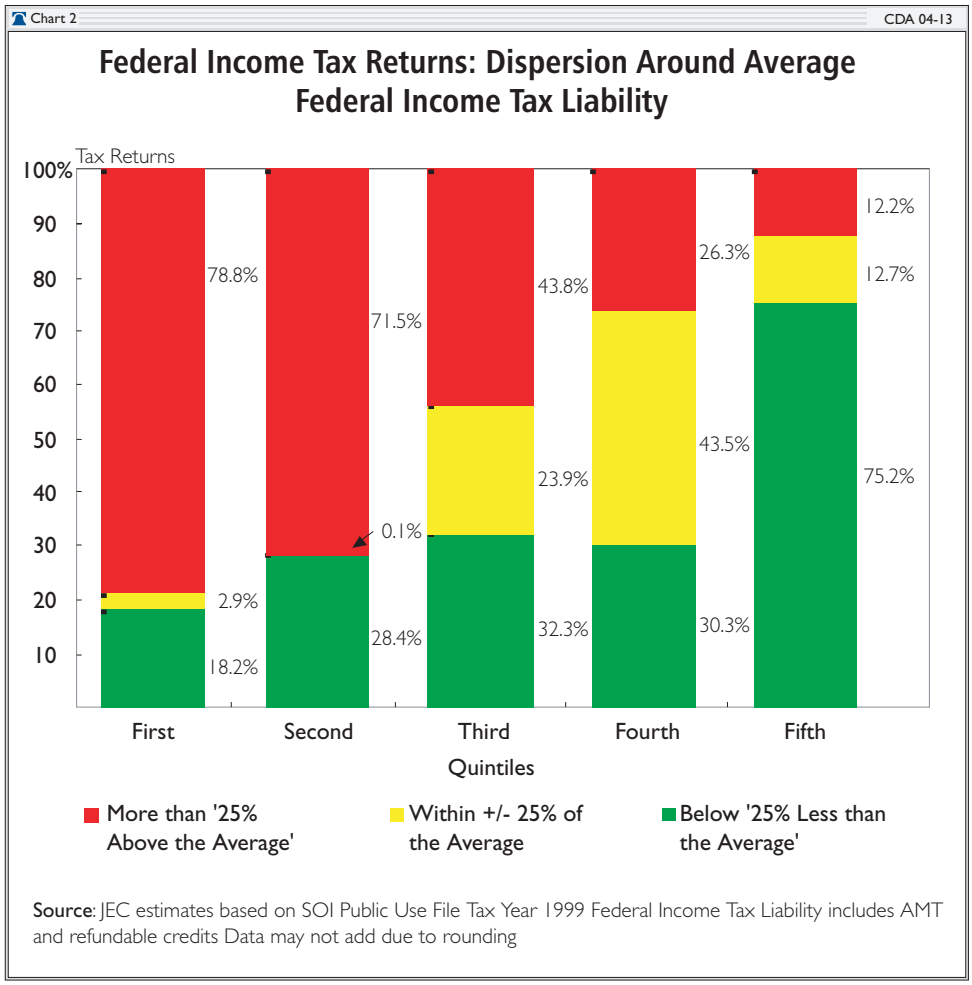
The mean, commonly referred to as the average, is the most recognized and easily understood measure of central tendency. To calculate the average, the value for each observation in the data is added together with the others and the sum is then divided by the total number of observations. Some common uses of averages are batting averages in baseball and student grade point averages.

The use of averages is simple and easy for people to understand. However, the use of averages may not be appropriate if the data exhibit large variability, there are many outliers in the data, or the data do not fit the pattern of a normal distribution. This is because the average as a measure of central tendency can be highly influenced by extreme values. For example, if all humans were either 10 feet tall or two feet tall and divided equally between the two, it would not be helpful to describe humans, on average, as six feet tall and build all homes and cars as if all humans were six feet tall.

In the context of tax distribution analysis, the average is actually the *least* representative measure. Chart 2 details the dispersion of 1999 federal income tax returns around the average federal income tax liability. The unit of analysis is federal income tax returns for 1999, grouped into quintiles by adjusted gross income.[20] The data are further grouped into three categories: "More than '25% Above the Average'"; "Within +/– 25% of the Average"; and "Below '25% Less than the Average."[21]

18. Executive Office of the President, Council of Economic Advisers, *The Annual Report of the Council of Economic Advisers*, together with the *Economic Report of the President* (Washington, D.C.: U.S. Government Printing Office, February 2003), Chapter 5.
19. Graetz, "Distributional Tables, Tax Legislation, and the Illusion of Precision," p. 18.

The average federal income tax liability for the first quintile (the lowest ranked by AGI) is –$240. (See Table 1.) The amount of tax liability is *negative* because so many taxpayers in the first quintile either have zero tax liability or receive a net transfer from the government due to the refundable portion of the Earned Income Tax Credit. Hence, many of the returns in the first quintile do not actually pay federal income taxes and, due to the refundable portion of the EITC, many do not effectively pay payroll taxes.



Source: JEC estimates based on SOI Public Use File Tax Year 1999 Federal Income Tax Liability includes AMT and refundable credits Data may not add due to rounding

Additionally, in the first quintile, only 2.9 percent of all returns reported federal income tax liability within plus or minus 25 percent of the average. The most representative grouping in the first quintile is "More than '25% Above the Average.'" At first glance, it might be surprising that 78.8 percent of returns in the first quintile report a tax liability that is greater than the average. However, as stated earlier, the average as a measure of central tendency can be highly influenced by extreme values. Extreme values can be either positive or negative. For tax year 1999, the maximum refundable credit (or maximum transfer from the government) was $3,816 or a federal income tax liability of –$3,816.[22]

Approximately 3.4 million tax returns in the first quintile received a net transfer of more than $1,000 from the government in 1999, while 12.2 million reported zero tax liability and 7.0 million reported positive tax liability. Though 78.8 percent of returns in the first quintile have tax liabilities more than 25 percent above the average, the 3.4 million tax returns with negative tax liability over $1,000 skew the average. Hence, the average is an inappropriate measure of central tendency in the first quintile.

Similar to the first quintile, the average tax liability for the second quintile is also negative (–$110) and the most representative grouping is returns with tax liability more than 25 percent above the average.

20. The data used in this study are from the Internal Revenue Service—Statistics of Income Division Public Use File for tax year 1999, the most recently available public use file at the time this research was performed. For a full description of the IRS Public Use File, including sampling error and disclosure avoidance procedures, see Mike Weber, U.S. Internal Revenue Service, Statistics of Income Division, "General Description Booklet for the 1999 Public Use Tax File."
21. For example, if the average were $100, then "More than '25% Above the Average'" would include returns with tax liability greater than $125; "Within +/– 25% of the Average" would include $75–$125; and "Below '25% Less than the Average'" would include returns with tax liability below $75.
22. Joint Economic Committee estimates based on SOI Public Use File Tax Year 1999.

The average is even less representative in the second quintile and, therefore, a more inappropriate measure of central tendency, with only 0.1 percent of tax returns reporting tax liability within plus or minus 25 percent of the average. Such a small representation is due partly to the small magnitude of the average tax liability for the second quintile and the fact that returns with zero or very little positive tax liability will be just above the average. The average for the second quintile is –$106. This equates to a range of plus or minus 25 percent around the average of –$132 to –$79. Under such a tight range, only 20,000 returns fall into this category—0.1 percent of the approximately 25.4 million tax returns in the second quintile.

Table 5 CDA 04-13

Average Federal Income Tax Liability

	Average	Below "25% Less than the Average"	Greater than "25% More than the Average"	Maximum Transfer Payment
All Returns	$6,670	$5,000	$8,340	**–$3,820**
Quintile 1	**–$240**	**–$300**	**–$180**	**–$3,820**
Quintile 2	**–$110**	**–$130**	**–$80**	**–$3,820**
Quintile 3	$1,780	$1,340	$2,230	**–$2,300**
Quintile 4	$4,610	$3,460	$5,760	$0
Quintile 5	$27,310	$20,480	$34,140	$0

Notes: Data rounded to tens.
Negative amounts in Bold.
Federal Income Tax Liability includes AMT and refundable credits.
Maximum refundable credit in 1999 was –$3,816.

Source: Joint Economic Committee estimates based on SOI Public Use File Tax Year 1999.

Though the most representative grouping in the third quintile is still "More than '25% Above the Average,'" the dominance declines. Only 43.8 percent of returns fall into this category, and those returns falling within plus or minus 25 percent of the average increase to 23.9 percent. The fourth quintile exhibits the most normal statistical distribution, with 43.5 percent of returns reporting tax liability within plus or minus 25 percent of the average.

The distribution around the average becomes skewed once again in the fifth quintile. The existence of extreme outliers in the fifth quintile raises the average tax liability to $27,310. The top 1 percent of returns alone reported an average tax liability over $250,000.[23] However, and not surprisingly, many taxpayers in this quintile pay less than 25 percent below the average. In the fifth quintile, 75.2 percent fall into this category. Therefore, the average is an inappropriate measure of central tendency in the fifth quintile as well.

Table 5 displays the average federal income tax liability for all returns and by quintile. The table also displays the corresponding dollar cutoff amount for the three groupings used in the analysis for Chart 2. It is interesting to note that many returns up through the third quintile received net transfers from the government (i.e., reported a negative income tax liability).

As shown in Table 6, for tax year 1999, 25.6 percent of all tax returns reported zero or negative federal income tax liability. This amounts to 32.5 million tax returns. The 32.5 million returns with no federal income tax liability is *less* than the 50.6 million (35.6 percent) with zero or negative federal income tax liability identified in calendar year 2001 by the JCT.[24] The difference is based on the different years under analysis but is due mostly to the fact that the JCT's estimated number of tax units (142.0 million) includes both filing and *non-filing* units. Non-filers are generally individuals with incomes below the amount necessary to file a tax return. However, the data used for this analysis are based only on taxpayers that file income tax returns and do not include "non-filers." Therefore, the estimated number of taxpayers with no federal

23. Michael Parisi and Dave Campbell, "Individual Income Tax Rates and Shares, 1999," Internal Revenue Service, Statistics of Income Division, *SOI Bulletin*, Winter 2001–2002. pp. 34 and 35. (Total income tax reported for top 1 percent equals $317.4 billion divided by 1.26 million returns in the top 1 percent.)

24. Joint Committee on Taxation. "Updated Distribution of Certain Federal Tax Liabilities by Income Class for Calendar Year 2001."

Table 6 CDA 04-13

Returns With Negative or Zero Federal Income Tax Liability

	Returns with Negative or Zero Tax Liability		Returns with Negative Tax Liability		Returns Receiving Less than $500 in Refundable Credits		Returns Receiving $500 to $999 in Refundable Credits		Returns Receiving $1,000 or More in Refundable Credits	
	Returns	% of Returns in Category	Returns	% of Returns in Category	Returns	% of Returns in Category	Returns	% of Returns in Category	Returns	% of Returns in Category
All Returns	32,540,700	25.6%	16,051,200	12.6%	3,328,000	2.6%	1,589,900	1.3%	11,133,300	8.8%
Quintile 1	18,384,500	72.3%	6,157,000	24.2%	2,221,400	8.7%	553,600	2.2%	3,381,900	13.3%
Quintile 2	10,051,500	39.5%	7,318,400	28.8%	269,800	1.1%	494,600	1.9%	6,553,900	25.8%
Quintile 3	3,658,600	14.4%	2,575,800	10.1%	836,700	3.3%	541,600	2.1%	1,197,400	4.7%
Quintile 4	395,300	1.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Quintile 5	50,800	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Notes: Data may not add due to rounding (rounded to hundreds), weighting, and disclosure requirements of IRS-SOI.
Federal Income Tax Liability Includes AMT and Refundable Credits.
Total Number of Returns = 127,075,200 with approximately 25.4 million returns per quintile.
Source: Joint Economic Committee estimates based on SOI Public Use File Tax Year 1999.

income tax liability is less than the JCT estimate of 50.6 million.

It is also interesting to note that there are actually taxpayers in each quintile who reported zero tax liability on their federal tax returns in 1999. Table 6 further places into context how the use of averages in distribution analysis is an inappropriate measure to represent all taxpayers in a given group. Table 6 displays the number of federal income tax returns that reported zero or negative income tax liability in 1999. The data are categorized by quintile and show the number of returns as well as the percent of returns for each category.

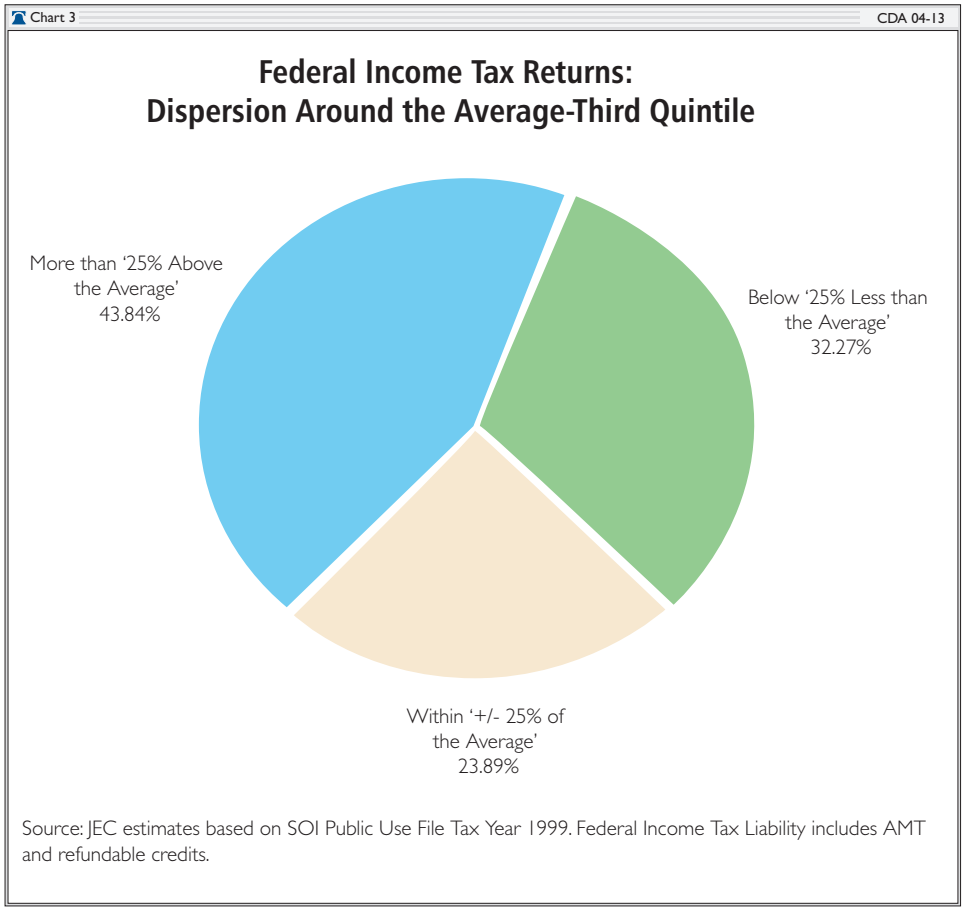
As previously stated and shown in Table 6, for 1999, there were over 32.5 million returns that reported zero or negative federal income tax liability—25.6 percent of all returns. In the first quintile, 18.4 million returns, or 72.3 percent, reported zero or negative income tax liability. The number of returns with zero or negative tax liability declines to 39.5 percent in the second quintile and 14.4 percent in the third quintile. In the fourth and fifth quintiles, there are no returns with negative income tax liability, but 1.6 percent of returns in the fourth quintile and 0.2 percent in the fifth quintile reported zero tax liability.

Note also the number of returns that receive a net transfer from the government of $1,000 or more. Not only did the returns in this category pay zero federal income taxes, but many also effectively did not pay any payroll taxes, as the check from the government canceled the payroll tax liability for many. For all returns in 1999, 11.1 million, or 8.8 percent, received a net transfer from the government of $1,000 or more. In the first quintile, almost 3.4 million returns, or 13.3 percent, received a check of $1,000 or more. Notice that more than 6.5 million, or 25.8 percent, of returns in the second quintile received a net transfer from the government of $1,000 or more. The greater number of returns receiving $1,000 or more from the government in the second quintile over the first quintile is due to the many people in the second quintile with earned incomes that qualify for the Earned Income Tax Credit.

The existence of 32.5 million returns—or one-quarter of all federal income tax returns—that pay zero or negative income tax skews the average and makes the use of the average misleading. Further, since tax distribution tables focus predominantly on the "average tax cut" that each income group would expect to receive, the debate over the benefits of a tax cut is clouded when one-quarter of tax

returns cannot receive a federal income tax cut because they do not pay federal income taxes.

Using the same data that appear in Chart 2, Chart 3 presents a pie chart for the third, or middle, quintile. As Chart 3 demonstrates, when these categories are analyzed, the category of "Within +/– 25% of the Average" is the least representative category.



Regrettably, many disseminators of tax distribution tables continue to use averages in their distribution tables despite the inherent problems with the use of averages. For example, focusing on a claim that an Administration tax proposal would result in an average tax cut of $1,083, authors in a *Tax Notes* article illustrated how the use of averages can be misleading by pointing out that "under the administration's proposal, 78.4 percent of income tax filers and 71.1 percent of income tax payers would receive less than $1,000."[25]

Shortly thereafter, these authors released a tax distribution table in the same publication using the average as the sole measure of central tendency to characterize taxpayers and purport to show the average tax cut resulting from the benefits of the Economic Growth and Tax Relief Reconciliation Act of 2001.[26] Presumably, the same authors that criticized the use of an *average* tax cut amount as misleading in one article would similarly be aware that they were misleading in their subsequent article by focusing on *average* tax cut amounts. Many groups, however, consistently misuse the average in reporting the results of their distributional analyses.[27]

Tax distribution tables ultimately focus on how much more or less in taxes income groups will pay under a change in tax law. As Graetz has also stated:

> All that a distributional table can show is the total impact on all the families or couples within the same income classification. This rather obvious and important point often seems to be lost to policy makers.[28]

25. William Gale and Peter Orszag, "The President's Tax Proposal: Second Thoughts," *Tax Notes*, January 27, 2003, p. 607.
26. William Gale, Matthew Hall, and Peter Orszag, "Future Income Tax Cuts from the 2001 Tax Legislation," *Tax Notes*, February 17, 2003.
27. See, for example, Andrew Lee and Joel Friedman, "Administration Continues to Rely on Misleading Use of 'Averages' to Describe Tax-Cut Benefits," Center on Budget and Policy Priorities, May 28, 2003; Bob McIntrye, "Final Tax Plan Tilts Even More Toward Richest," Citizens for Tax Justice, May 22, 2003; and Urban–Brookings Tax Policy Center, "Table 5.1—Conference Agreement on the Jobs and Growth Tax Relief Reconciliation Act of 2003: Distribution of Income Tax Change by AGI Class, 2003," May 22, 2003.
28. Graetz, "Distributional Tables, Tax Legislation, and the Illusion of Precision," p. 45.

In other words, the use of averages alone is inappropriate because averages cannot accurately show the impact on most taxpayers within the same income classification. Hence, because the majority of distribution tables that are released focus on the average as a measure of central tendency, they give the false impression that the average properly typifies each taxpayer.

As the graphs in this analysis have demonstrated, using the average as the measure of central tendency when analyzing or discussing tax policy initiatives is quite misleading, but this is the basis for computing projected tax changes in distribution tables. The use of averages when displaying distribution data for income and tax liability can mislead the public and cloud the transparency necessary for the public to evaluate the merits of any proposed tax plan.

But the use of averages is only part of the story. Not only is the use of averages as a measure of central tendency misleading, but so is the use of quintiles or income categories based on AGI or any other measure of income. These arbitrary categories imply that the taxpayers grouped into these categories are similar in economic status and pay similar taxes. This assumption is far from the case.

IV. MISCLASSIFICATION OF TAXPAYERS

It is well known to most taxpayers that tax liabilities often differ among families with the same income. This can be because of family size, filing status, whether a family itemizes their deductions or elects to take the standard deduction, whether a family pays a mortgage on their home and deducts the interest expense or rents, the nature of a family's income, and many other factors. Additionally, some families are more aggressive than others in reducing their tax liabilities. For example, this can be done legally by contributing to a 401(k) plan, an individual retirement account, or a medical savings account, and in many other ways as well.

The use of averages is further misleading by the grouping of taxpayers by income measures, which could suggest that there exists horizontal equity, or close similarities, among these taxpayers with respect to the amount of federal tax liability. The suggested correlation that higher-income taxpayers always have higher tax liabilities is not necessarily the case. As former Congressional Budget Office Director Rudolph G. Penner discusses, tax distribution tables "obscure very large differences in the tax treatment of individuals within any income group."[29]

While it seems counterintuitive that a taxpayer in a lower income category can pay more in taxes than a taxpayer in a higher category, this is possible because millions of taxpayers have more in common with each other based on tax liability than they do based on income. This important fact is ignored in typical tax distribution tables. It could be suggested that incidents of taxpayers in a lower income quintile paying more in taxes than taxpayers in a higher quintile are outliers and should be discarded from the sample. Not only would discarding these observations fail to highlight these cases in our tax system, but it would also fail to enlighten the public that taxpayer misclassification is actually a problem involving millions of taxpayers, not just a few extreme cases.

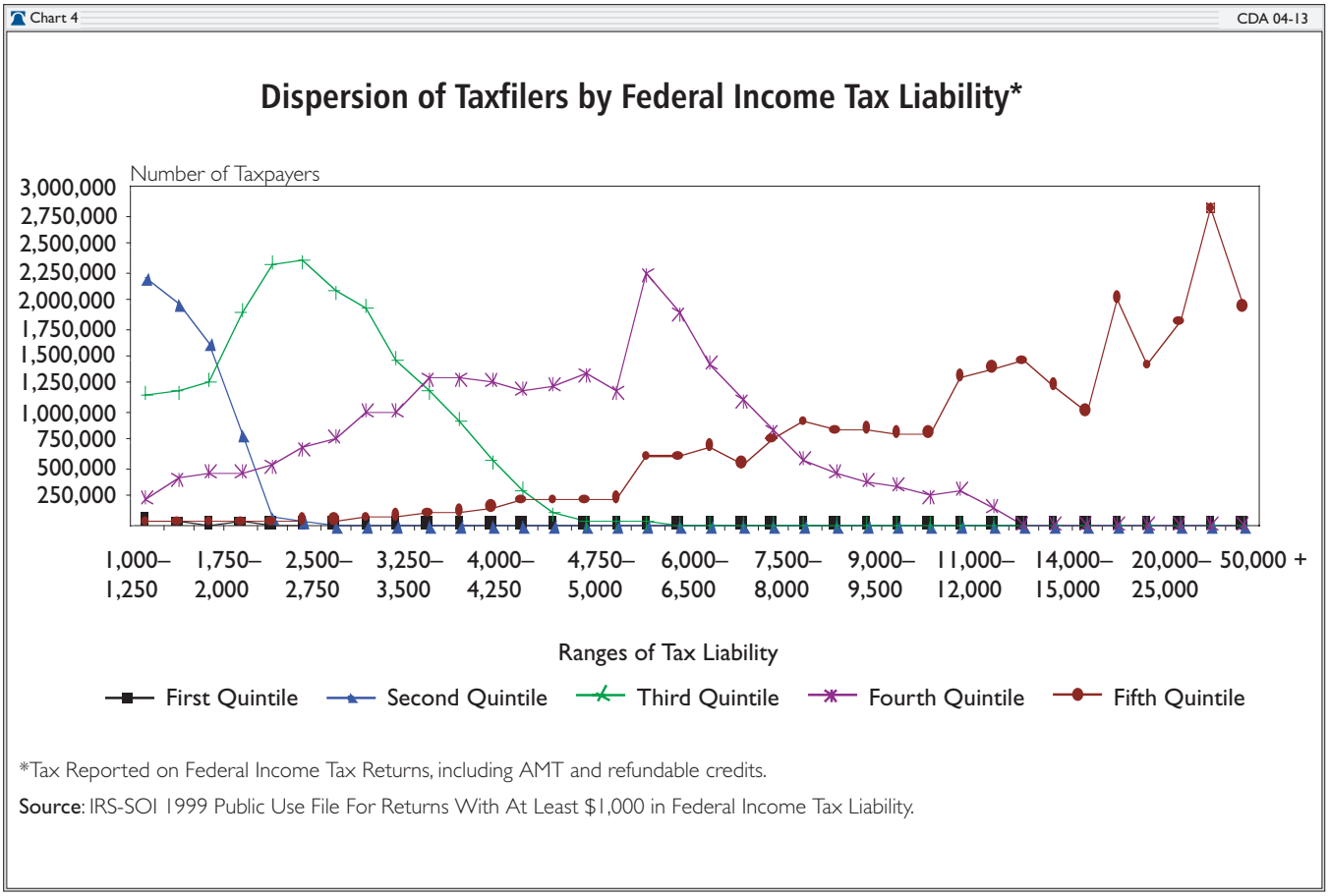
The focus of Chart 4 is on all tax returns that paid over $1,000 in federal income tax in 1999, ranked by AGI and grouped into quintiles. As the chart shows, there are millions of taxpayers in the third quintile who pay more in taxes than is paid by millions of taxpayers in the fourth quintile. Similarly, there are millions of taxpayers in the fourth quintile who pay more in taxes than is paid by millions of taxpayers in the fifth quintile.

Based on Chart 4, Chart 5 shows that there are 4.6 million tax returns in the third quintile that paid $3,000 or more in federal income taxes, compared with 5.6 million tax returns in the fourth quintile that paid less than $3,000, even though these taxpayers are in a higher income quintile.

Chart 6 sheds light on a similar story between the fourth and fifth quintiles. Even though they are in a lower income quintile, 3.3 million tax returns in the fourth quintile paid more than $7,000 in federal income tax in 1999, compared with almost 4.1 million tax returns in the fifth and "richest" quintile that paid less than $7,000.

For tax year 1999, there were roughly 127.1 million federal tax returns. This amounts to about 25.4 million tax returns per quintile. Chart 5 suggests that, based on a tax liability of $3,000, over

29. Rudolph G. Penner, "Searching for a Just Tax System," Urban–Brookings Tax Policy Center, *Discussion Paper* No. 13, January 2004.



5.6 million taxpayers in the fourth quintile (approximately 22 percent of returns in the fourth quintile) might have more in common with 20.8 million taxpayers in the third quintile than they do with the other members of the fourth quintile. Similarly, Chart 6 suggests that 4.1 million taxpayers in the fifth quintile (approximately 16 percent of returns in the fifth quintile) might have more in common with 22.1 million taxpayers in the fourth quintile than they do with the rest of the taxpayers in their own quintile.

Ultimately, since tax distribution tables are concerned with the amount of tax that is currently paid and the amount of tax that is to be paid after proposed tax legislation is enacted, it is questionable whether policymakers and the public are best served by classifying taxpayers into rigid income categories. It is especially questionable when, based on income measures alone, millions of taxpayers have less in common with taxpayers of their own income quintile because the amount of tax they pay is more similar to the amount paid by taxpayers in other income quintiles.

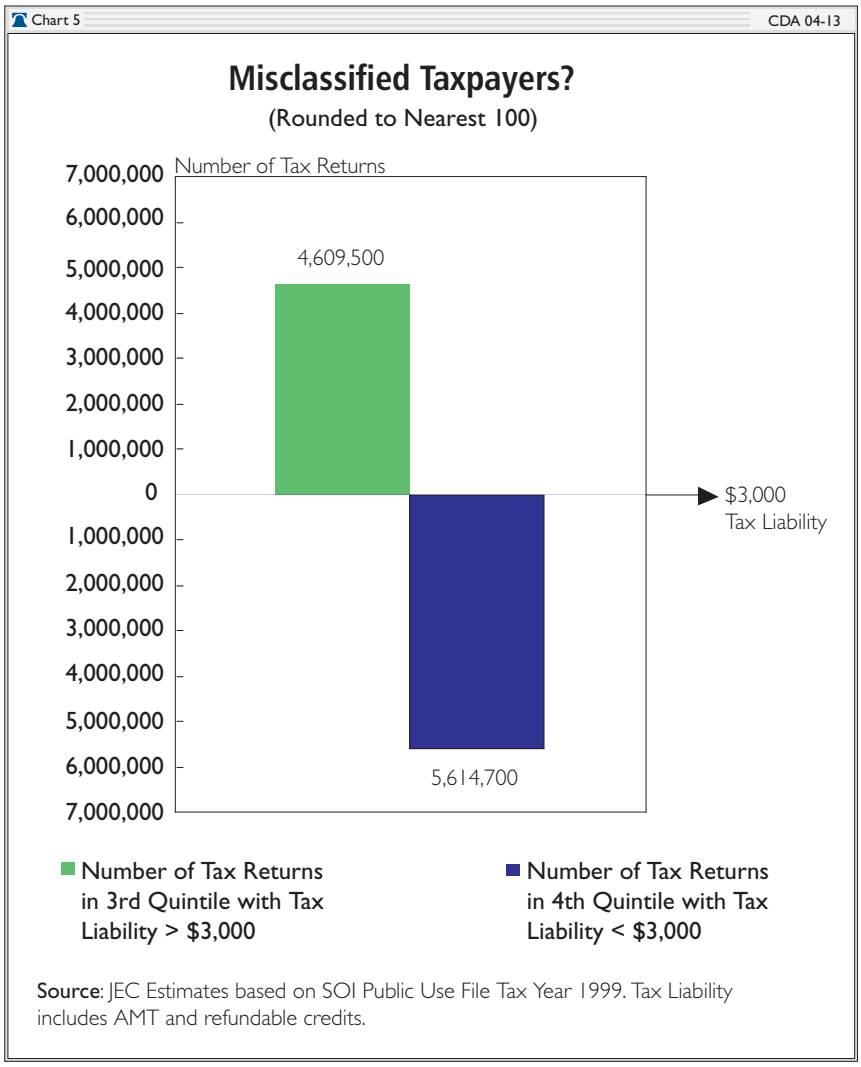
However, this analysis is not suggesting that distribution tables should be categorized by tax liabilities. Doing so would pose problems as challenging as those posed by categorizing tax returns based on income measures. The use of rigid income categories along with the use of averages can suggest that there is similar ability to pay and similar tax liability within an income category. This is wrong.

The point is that focusing on income measures alone contributes to the illusion of precision and does not allow for a complete analysis of equity. Without any understanding or discussion of wealth, debt, or budget constraints, focusing on income as a measure of ability to pay can be misleading. The use of income categories without detailed descriptions of the limitations of the data misleads the public by suggesting that tax distribution tables are accurate and precise and that they completely reflect a correct picture of the American taxpaying population.

V. INCOME MOBILITY

Because distribution tables are based on an annual period, they fail to account for income

mobility, or the dynamic nature of society where people move in and out of income groups over the course of their lives. The significant degree of income mobility is evident in data released by the Council of Economic Advisers (CEA) and provides further evidence that tax distribution tables are misleading. The CEA table is reproduced as Table 7.[30]



The tabulations indicate a substantial amount of mobility between income classes over a 10-year period. Taxpayers who remained subject to the same statutory tax rate in both the beginning year of the study (year 1) and the final year of analysis (year 10) are shown in bold along the diagonal. For example, between 1987 and through 1996, 66.2 percent of taxpayers exited the bottom tax bracket (33.8 percent remained; subtracted from 100 percent, this equals 66.2 percent that exited). Over the same period, 76.0 percent exited the 28 percent bracket, while 50.9 percent exited the top tax bracket.

According to the tabulations, 53 percent of taxpayers were in a different tax rate bracket at the end of the 10-year period. These data show that over half of all taxpayers studied during the 10-year period eventually experienced changes in their lives that resulted in changes in their incomes and moved them to a different income tax bracket. This movement can be either upwards or downwards. According to the CEA:

> [A]bout 51 percent of the taxpayers in the top bracket in the first year were in a lower tax bracket after 10 years. Forty-seven percent of taxpayers in the top two brackets in year 1 had moved down to at least the 28 percent tax bracket by year 10.[31]

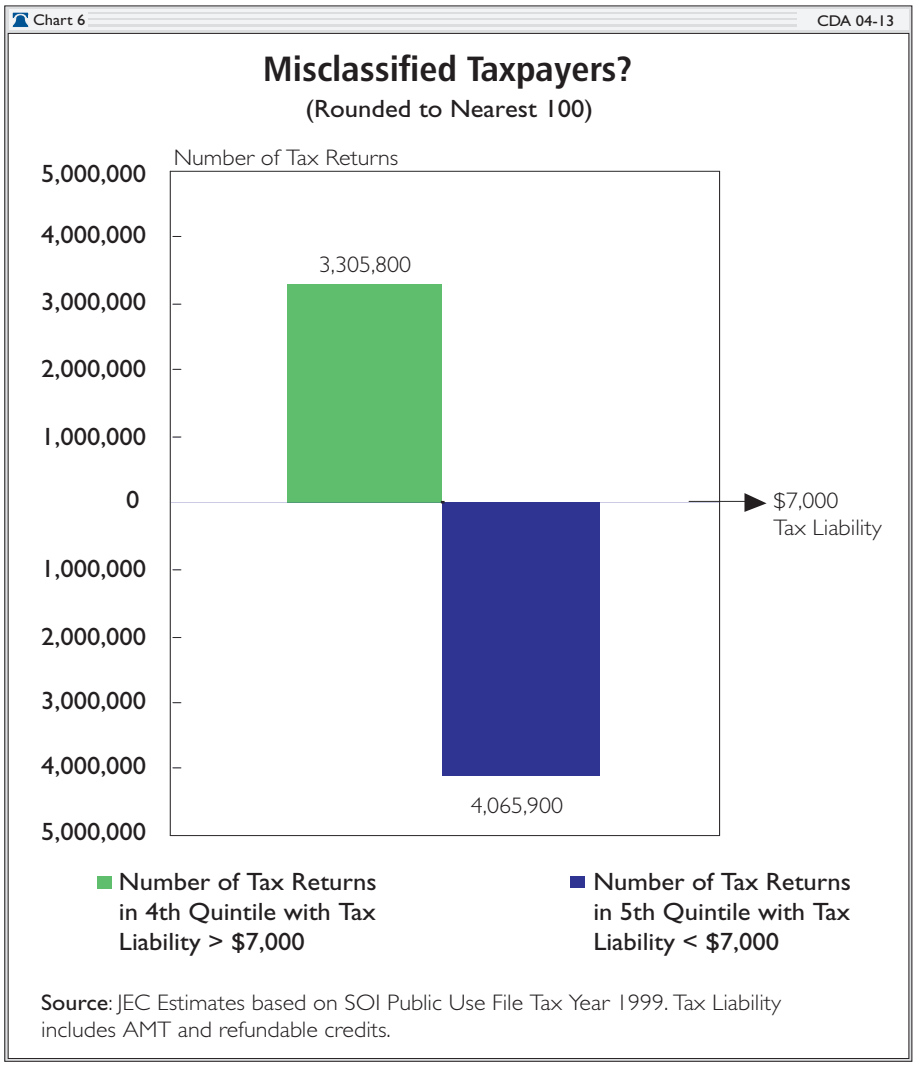
By their very nature, tax distribution tables show only a "snapshot" of taxpayers at one specific point in time. They therefore fail to account for the dynamic nature of income mobility in society. The result is tables that mislead the public by cementing taxpayers into particular income groups and failing to indicate "that tax burdens in a given year may tell a very different story of the distribution of the tax burden than do measures of tax burdens over longer horizons."[32]

VI. POLICY RECOMMENDATIONS

At this juncture, it is important to mention a weakness in all distribution tables: the failure to consider

30. Council of Economic Advisers, *The Annual Report of the Council of Economic Advisers*, together with the *Economic Report of the President*, February 2003, p. 199.
31. *Ibid.*
32. *Ibid.*, p. 201.

how tax changes alter the after-tax prices and costs of goods and services, thereby adjusting the relative mix of inputs used in production, the types of goods and services businesses offer, and the amount of labor and capital. Tax changes can alter the economy and can produce broad economic effects that are not reflected in tax distribution tables, including changes in economic growth, personal incomes, and consumption. Therefore, attempts to ascertain the distributional impact of proposed tax legislation should at least consider the possible macroeconomic effects through some type of sensitivity analysis.[33]



Further, although a broader discussion of the use of the tax code for social policy is beyond the scope of this review, it is important to note that distribution tables also generally fail to account for the social welfare benefits received by various income groups. Though some producers of distribution tables will account for government transfers as income, one could argue that they are another form of redistribution of income that should be netted against tax liability.

The Earned Income Tax Credit is handled in this manner by the JCT: Instead of being added to income, the refundable portion of the EITC is netted against tax liability. The refundable portion of the EITC is why many lower-income taxpayers actually have a negative tax liability.[34] If other cash transfers were treated the same way, the distribution tables would show lower-income households receiving a much larger negative tax liability and greater progressivity in the current tax system.

This analysis has discussed how tax distribution tables are often presented in manners that fail to provide a balanced and accurate perspective on tax policy. Unless there is greater public recognition of both the art and the science of distributional analysis, tax policy will be unduly influenced by misleading tax distribution tables. Although what is considered fair depends on philosophical and ethical judgments over which people can disagree, the presentation of tax data within distribution

33. A sensitivity analysis is used to ascertain how the output results of a model depend upon input parameters, including the time period under analysis and the measurement of variables. A sensitivity analysis is necessary to check whether the results are sensitive to the assumptions upon which the model is based and is an important method for assessing the quality, consistency, and reliability of an analysis.

34. Joint Committee on Taxation, "Updated Distribution of Certain Federal Tax Liabilities by Income Class for Calendar Year 2001."

tables often hides or omits much of the important information that is required if the merits of any proposed tax legislation are to be evaluated effectively.

Table 7 CDA 04-13

CEA Data on Income Mobility of Taxpayers

Taxpayers by EGTRRA Rate Bracket Using Panel of Taxpayers from 1987 through 1996

Year 1 tax bracket (percent)	Year 10 tax bracket (percent)							Returns in year 1 (thousands)
	0	10	15	25	28	33	35	
	Taxpayers by rate bracket (percent distribution)							
0	**33.8**	24.7	32.1	7.7	0.8	0.5	0.3	10,360
10	20.1	**29.3**	40.8	8.8	0.6	0.3	0.1	15,370
15	8.6	13.3	**53.4**	22.9	1.2	0.4	0.2	50,059
25	3.9	5.1	29.9	**51.4**	6.7	2.2	0.8	31,427
28	3.3	2.8	11.6	35.9	**24.0**	14.7	7.5	2,682
33	4.7	2.6	9.1	21.0	18.9	**23.9**	19.8	1,096
35	5.1	1.9	5.7	10.4	8.8	19.0	**49.1**	633

Note: Tabulations from 1987–1996 panel of taxpayers. Tabulations include only non-dependent taxpayers present in all years of the panel data set. Each cell entry indicates the percent of taxpayers in a rate bracket in the last year of the panel (i.e., column entry) relative to the number of all taxpayers in that rate bracket in the first year of the panel (i.e., row sum).

Some scholars might argue that tax distribution tables cannot accurately summarize the complex and dynamic nature of income and wealth in the economy.[35] Other scholars might argue that, due to the current opaque nature of communicating even the simplest facts about tax policy to the American public, tax distribution tables should be abandoned as a basis for legislative decision-making.[36] At the very least, the discussion presented throughout this analysis demonstrates that the process, development, presentation, and release of tax distribution tables are in need of fundamental reform.

Given that it is highly unlikely that the use of distribution tables will be abandoned, the best recommendation is that the public should demand full disclosure of any and all relevant data. Full disclosure includes, at the very least, using income measures that are understood by the public (like cash income or adjusted gross income), providing median values as well as averages, fully describing any imputations, conducting sensitivity analyses, disclosing measures of variance, and fully explaining the limitations of the data and subsequent distribution tables. But how is the public supposed to know what questions to ask and what data to demand?

Although not an exhaustive list, the 10 questions listed below can serve as a guide to help the reader unveil important information that is not always revealed in tax distribution tables and better illuminate the merits of proposed tax legislation. Anyone who is unable to answer all 10 questions should ask the issuing group to provide the missing information. Agencies or groups that release tax distribution tables that withhold or omit the answers to these questions, misuse the average as the sole measure of central tendency, or are based on statistically compromised data sources should be questioned on the issues of motive, transparency, accuracy, and reliability.

Only when armed with the answers to all of the following questions can readers make informed decisions about the distributional merits of tax proposals:

1. Is the median presented as a measure of central tendency, or at least provided in addition to the average?
2. What measure of income is used (e.g., Adjusted Gross Income, cash income, or Family Economic Income)?
3. What taxes are included in the analysis, and are the taxes used in the analysis both before and after the effects of a proposed tax change identical (e.g., income taxes, payroll taxes, estate taxes, etc.)?

35. See, for example, Furchtgott–Roth, "Abuses of Income Distribution Tables in Tax Policy."
36. See, for example, Graetz, "Distributional Tables, Tax Legislation, and the Illusion of Precision," pp. 75 and 76.

4. How many taxpayers reside within the displayed income categories?
5. What is the range of income and tax liability associated with each category?
6. What are the current and proposed levels of taxation (percent of total taxes paid to the government) for each income category?
7. What are the current and proposed effective tax rates for each income category?
8. What are the ranges and medians of the amount of tax change that each income group is estimated to receive after full enactment of the tax legislation?
9. Are the estimates presented free of imputations? If not, what imputations have been made to arrive at the estimates presented in the tax distribution tables?
10. Are the accuracy and reliability of the estimates presented in the tax distribution tables, and are data limitations disclosed?

VII. CONCLUSION

In isolation, a tax distribution table is a poor and incomplete tool with which to test the merits and fairness of proposed changes in tax policy. A change in tax policy should not be judged solely on the grounds of whether or not it benefits one income group more than another.

No distribution table can be perfect or present every nuance associated with estimated changes in the distribution of taxes. It is possible to include enough information so that the results are not presented in a biased or misleading manner, although there is little assurance they will not be interpreted and reported in a biased and misleading manner. Until distribution tables are either abandoned or reformed, the best defenses against misleading tables are education and full disclosure of information.

A more transparent dissemination of data and an insightful understanding of the "tricks of the trade" will enable policymakers and the public to achieve a better understanding of tax distribution tables, make informed decisions about the merits of proposed tax legislation, and promote a better understanding of tax policy. The result will be more informed public debates and better tax policy decisions.

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