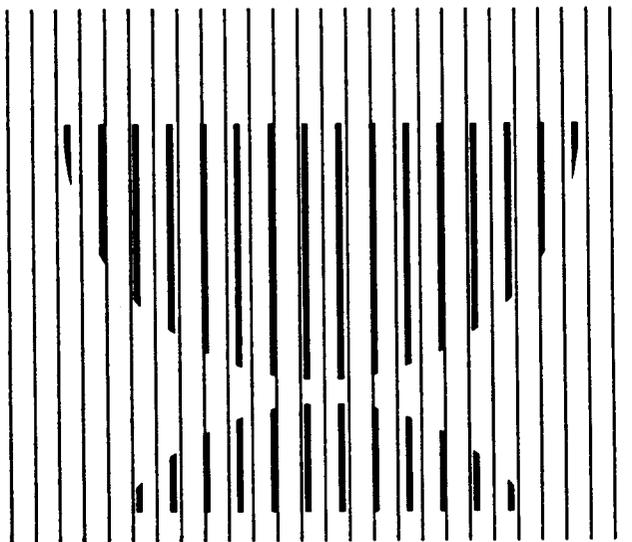


CBO STAFF MEMORANDUM

**MEASURING THE DISTRIBUTION OF
INCOME GAINS**

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**CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515**

For several years, the Congressional Budget Office (CBO) has developed estimates of the distribution of income and federal taxes in response to requests from Committees of the Congress. CBO published the original estimates, and various publications of the Committee on Ways and Means have included more recent estimates along with explanations of the methodology used to calculate them and the staff's descriptions of the patterns they reveal.¹ Policy analysts, commentators, and the media frequently reconfigure, interpret, analyze, and criticize the estimates. In the process, the interpretations and conclusions of these secondary appraisals are sometimes--and incorrectly--attributed to CBO.

A case in point: recent media stories have used CBO statistics on incomes to buttress a contention about the increasing inequality of after-tax incomes among families. For example, *The New York Times* reported on March 5 that "The richest 1% of families received 60% of the after-tax income gain" between 1977 and 1989. That figure, which was attributed to both CBO and Professor Paul Krugman of the Massachusetts Institute of Technology, was actually Professor Krugman's reconfiguration of CBO data contained in a December 1991 report issued by the House Committee on Ways and Means.² Many of the commentaries that resulted criticized CBO's estimates and methodology or ascribed the conclusions in the original article to CBO.³

This memorandum seeks to clarify some of the confusion surrounding the meaning and derivation of estimates reported in the original *New York Times* article. It first explains what is being measured in discussions of the distribution of income gains among families and then considers alternative measures of income for looking at that distribution. A concluding section discusses limitations to analyses of incomes.

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1. See, for example, Subcommittee on Human Resources of the Committee on Ways and Means, U.S. House of Representatives, *Background Material on Family Income and Benefit Changes*, Committee Print 102-30 (December 19, 1991), pp. 61-81, and Committee on Ways and Means, U.S. House of Representatives, *1991 Green Book: Overview of Entitlement Programs*, Committee Print 102-9 (May 7, 1991), pp. 1286-1329. CBO discussions of these issues appear in *The Changing Distribution of Federal Taxes: 1975-1990* (October 1987); *The Changing Distribution of Federal Taxes: A Closer Look at 1980* (July 1988); and testimony of Robert Reischauer before the Committee on the Budget, U.S. House of Representatives, July 17, 1991, and the Committee on Finance, U.S. Senate, November 26, 1991.
 2. Subcommittee on Human Resources, *Background Material on Family Income and Benefit Changes*.
 3. Clayton Yeutter, "When 'Fairness' Isn't Fair," *The New York Times* (March 24, 1992), p. A21; Paul Craig Roberts, "The Congressional Budget Office's Skewed Numbers," *Business Week* (March 23, 1992), pp. 18-19; and Alan Reynolds, "The Middle Class Boom of the 1980s," *The Wall Street Journal* (March 12, 1992), p. A12.

INCOME CHANGE FROM 1977 TO 1989

In 1977, 81 million families shared an overall after-tax income of nearly \$2.2 trillion.⁴ Families in the bottom 80 percent of the income distribution received 57 percent of that income, while those in the top 20 percent received 44 percent.⁵ Families in the top 1 percent received 7 percent of the income.

By 1989, the number of families had grown 27 percent to 102 million; total after-tax income had grown 38 percent to \$3.0 trillion, a rise of about \$830 billion. Of the total rise in aggregate income, about one-third went to the bottom 80 percent of the income distribution and two-thirds to the top 20 percent. About one-fourth went to families in the top 1 percent.

The rise in overall income says nothing about whether the average family at any point in the income distribution was better off as a result or how any improvements in well-being were distributed among families. If average family income had not changed, the 27 percent increase in the number of families alone would have increased aggregate income by that percentage, or about \$580 billion; that amounts to more than two-thirds of the total actual increase.

The remaining \$250 billion rise in aggregate income reflected an increase in the average income per family. Average family income after taxes increased by 9 percent--from about \$27,000 in 1977 to nearly \$29,500 in 1989. If families in each income category had experienced the same percentage growth in average income, the overall gain in average income would have mirrored the income shares of 1977: that is, families in the bottom 80 percent of the income distribution would have gotten about 57 percent of the gain and those in the top 1 percent would have received about 7 percent.

Income growth was greater, however, at the top end of the income distribution than at the bottom (see Table 1). Of the \$250 billion aggregate increase in income beyond that accounted for simply by population growth, 70 percent went to families in the top 1 percent of the income distribution and 46 percent to the next wealthiest 19 percent. The decline in the average

4. CBO analyses regard individuals not living with relatives as one-person families. (In contrast, the Bureau of the Census counts as families only groups of two or more people related by blood, marriage, or adoption.) Incomes here and throughout this memorandum are measured in 1989 dollars.

5. CBO defines percentiles of the income distribution based on people, not families. Thus, families in the top quintile of the distribution do not constitute one-fifth of all families but rather one-fifth of the population.

The distribution of families into income categories is made on the basis of family income adjusted for family size. See the following section for a discussion of this adjusted family income (AFI) measure.

income of families in the bottom 40 percent explains why the top fifth of the income distribution accounts for more than 100 percent of the total increase.

As a result of the different changes in average income, the share of income going to families in the top 1 percent of the income distribution rose from about 7 percent in 1977 to about 12 percent in 1989. That distribution of the total rise in *average* incomes was reported (with incorrect numbers) in the *New York Times* article.

MORE ACCURATE MEASURES WOULD ADJUST FOR CHANGE IN FAMILY SIZE

The distribution of shares of gains in average after-tax income, however, provides an incomplete picture of how groups have shared income gains. Between 1977 and 1989, average family size declined by about 10 percent, from 2.7 persons to 2.4 persons. Although average size decreased at least slightly in every income category, the largest changes were to families in the middle three quintiles; they experienced declines of between 10 percent and

TABLE 1. SHARES OF AFTER-TAX INCOME, AND DISTRIBUTION AMONG INCOME CATEGORIES, OF CHANGE IN AVERAGE INCOME, 1977 THROUGH 1989^a (In percent)

Income Category	Share of After-Tax Income		Share of Gain in Average After-Tax Income
	1977	1989	
Bottom 20 Percent	6	4	-11
Second 20 Percent	12	10	-7
Middle 20 Percent	16	15	2
Fourth 20 Percent	23	22	8
81st to 90th Percentiles	16	15	11
91st to 95th Percentiles	10	10	10
96th to 99th Percentiles	11	12	25
Top 1 Percent	7	12	70

SOURCE: Congressional Budget Office tabulations of combined data from the Census Bureau Current Population Survey and the Internal Revenue Service Statistics of Income.

a. Because families with zero or negative incomes are omitted, percentage shares of the gain in after-tax income add up to more than 100 percent. If those were included, they would be added to the bottom 20 percent.

15 percent. Because smaller families need less income than larger ones to reach a given standard of living, unadjusted family cash income either understates increases or overstates decreases in average well-being.

To correct for differences in family size, CBO measures family income in terms of multiples of the poverty thresholds for families of different sizes. The measure is called adjusted family income (AFI). Because average family size changed most for families in the middle three quintiles, the substitution of AFI for unadjusted family income has the greatest effect on those groups.

Between 1977 and 1989, the average after-tax AFI for all families rose 15 percent--from 3.1 times poverty to 3.6 times poverty. Of the aggregate gain in average AFI, one-fifth went to families in the bottom 80 percent of the income distribution and four-fifths to families in the top 20 percent; about 44 percent went to families in the top 1 percent (see Table 2). That distribution of gains meant that the share of after-tax income going to the top 1 percent increased from about 8 percent in 1977 to about 13 percent in 1989.

TABLE 2. SHARES OF AFTER-TAX ADJUSTED FAMILY INCOME, AND DISTRIBUTION AMONG INCOME CATEGORIES, OF CHANGE IN AVERAGE INCOME, 1977 THROUGH 1989^a (In percent)

Income Category	Share of After-Tax Income		Share of Gain in Average After-Tax Income
	1977	1989	
Bottom 20 Percent	6	4	-7
Second 20 Percent	11	10	3
Middle 20 Percent	15	15	11
Fourth 20 Percent	22	21	15
81st to 90th Percentiles	16	15	11
91st to 95th Percentiles	10	10	8
96th to 99th Percentiles	12	13	19
Top 1 Percent	8	13	44

SOURCE: Congressional Budget Office tabulations of Census Bureau Current Population Survey and Internal Revenue Service Statistics of Income combined data.

a. Because families with zero or negative incomes are omitted, percentage shares of the gain in after-tax income add up to more than 100 percent. If those were included, they would be added to the bottom 20 percent.

HOW DO CAPITAL GAINS AFFECT THE PICTURE?

CBO's measure of income includes realized capital gains as reported on income tax returns. Because realized capital gains can vary widely from year to year, including them in income could affect the portrayal of the distribution of income and the changes in it over a period of time. Table 3 shows shares of adjusted family income excluding capital gains in 1977 and 1989, as well as shares of the increase in average income between those two years.

Excluding capital gains from income reduces the share of the rise in average income going to the richest families. Using the CBO adjusted income measure--which includes capital gains--families in the top 1 percent of the income distribution received 8 percent of after-tax income in 1977 and 13 percent in 1989. If capital gains are excluded, those shares decline to 6 percent and 10 percent, respectively. And if capital gains are excluded, 33 percent of the aggregate rise in average income goes to families in the top 1 percent, compared with 44 percent if gains are *included*.

TABLE 3. SHARES OF AFTER-TAX ADJUSTED FAMILY INCOME EXCLUDING CAPITAL GAINS, AND DISTRIBUTION AMONG INCOME CATEGORIES, OF CHANGE IN AVERAGE INCOME, 1977 THROUGH 1989^a (In percent)

Income Category	<u>Share of After-Tax Income</u>		Share of Gain in Average After-Tax Income
	1977	1989	
Bottom 20 Percent	6	5	-6
Second 20 Percent	11	10	4
Middle 20 Percent	16	15	13
Fourth 20 Percent	23	22	17
81st to 90th Percentiles	16	16	13
91st to 95th Percentiles	10	10	10
96th to 99th Percentiles	12	13	18
Top 1 Percent	6	10	33

SOURCE: Congressional Budget Office tabulations of Census Bureau Current Population Survey and Internal Revenue Service Statistics of Income combined data.

a. Because families with zero or negative incomes are omitted, percentage shares of the gain in after-tax income add up to more than 100 percent. If those were included, they would be added to the bottom 20 percent.

LIMITATIONS OF THE DATA

All income data have limitations. Choices must be made among alternative measures of income, and the choices affect the resulting estimates. Consider, for example, the following issues.

Year for Measurement

CBO has developed income data for five years--1977, 1980, 1985, 1988, and 1989.⁶ Given the available data, a number of factors influence the choice of years for analyzing incomes. It is preferable to select years in which economic conditions were roughly comparable. By doing so, findings do not confuse short-term changes resulting from the state of the economy and more long-lasting changes. Yet, regardless of the state of the economy, the recent data hold special interest: they reflect current policies and affect decisions about what policies should be chosen for the future. Because those factors often conflict, selecting years for analysis inevitably involves trade-offs.

Table 4 shows the distribution of the gain in average income among income groups for three periods: 1977 through 1989, 1980 through 1989, and 1985 through 1989. During the first two of those periods, about four-fifths of the change in average after-tax income went to families in the richest 20 percent of the income distribution, with roughly two-fifths of the total gain going to the top 1 percent. In the 1985-1989 period, the top 20 percent received about three-fifths and the top 1 percent about two-fifths. The share going to the bottom 80 percent was roughly twice as great during the 1985-1989 period as it was during the 1977-1989 period.

Measures of Income

Income can be measured in many ways. To approximate family well-being, analysts like to have a measure of "economic income"--the value of a family's consumption during a given year plus the increase (or minus the decrease) in the family's wealth. But the data needed for such a calculation are not available, so other measures must be used. Because the income files CBO developed are used primarily to analyze tax issues, CBO has designed the measure to approximate income subject to federal taxes. CBO will continue

6. Income data were first developed to examine changes in the distribution of taxes since the late 1970s, focusing on the effects of major tax legislation in 1981 and 1986. That study used income data for 1977 and 1984 and projected values for 1988. (The data did not take account of differences in family size.) Data for 1980 were developed in response to a subsequent request for an alternative comparison. When adjustments for family size were made for later analyses, data for 1985 replaced those for 1984. Since that initial analysis, CBO has developed income files for each year as data have become available; because of the difficulty and expense involved, however, the files do not encompass earlier years.

to examine other measures of income and report on how the choice of measure affects findings about the distribution of income.

More fundamentally, income is only one factor that determines family well-being. Wealth, the cost of living, health needs, and work effort also have significant effects. Income alone can provide only an imprecise proxy for well-being.

Whatever the choices made, these data have inherent limitations. Two important ones follow.

Many Factors Influence Incomes. Analyses of changes in income and its distribution are often interpreted as measures of the effectiveness or ineffectiveness of changes in government policies. Yet, market forces, demographic factors, and international economic conditions play much greater roles.

TABLE 4. DISTRIBUTION AMONG INCOME CATEGORIES OF CHANGE IN AVERAGE AFTER-TAX ADJUSTED FAMILY INCOME FOR SELECTED PERIODS^a (In percent)

Income Category	1977-1989	1980-1989	1985-1989
Bottom 20 Percent	-7	-3	2
Second 20 Percent	3	3	12
Middle 20 Percent	11	11	15
Fourth 20 Percent	15	15	12
81st to 90th Percentiles	11	14	12
91st to 95th Percentiles	8	8	1
96th to 99th Percentiles	19	19	13
Top 1 Percent	44	38	37

SOURCE: Congressional Budget Office tabulations of Census Bureau Current Population Survey and Internal Revenue Service Statistics of Income combined data.

a. Because families with zero or negative incomes are omitted, percentage shares of the gain in after-tax income add up to more than 100 percent. If those were included, they would be added to the bottom 20 percent.

Families Move Through the Income Distribution over Time. Observers sometimes interpret analyses of changes in income distribution as assertions of how the incomes of individual families have changed. In fact, analyses like CBO's describe only the relative position of large groups of families defined by income in different years. Because of the significant degree of economic mobility in American society, different families make up these groups in different years. CBO is currently studying the degree of income mobility during the 1980s.

