

**How Fair? Changes in Federal Income Taxation  
And the Distribution of Income, 1978 to 1998**

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## ***Abstract***

*In this paper we determine how tax law and income distribution changes have separately contributed to the changes in tax progressivity over time, and also how a specific pre-tax distribution of income affects the equalizing ability of a given tax change. We use information from the Current Population Survey for years that follow immediately after significant tax law changes or after the full enactment of these changes to measure the effect of income taxes on income distribution for selected years over the period 1978 to 1998. We find that, even when account is taken of the induced effect of changes in federal income tax laws on pre-tax income, the individual income tax structure has been less successful in equalizing after-tax income since the 1980s and into the early 1990s. We also find that a given tax law's equalizing effect on the distribution of income is significantly affected by the pre-tax distribution of income.*

**Keywords:** Income Distribution, Taxation, Gini Coefficient, Suits Index.

## INTRODUCTION

The federal individual income tax in the United States has long been viewed as an instrument to redistribute income. While the progressivity of the individual income tax has been supported in some circles by the ability-to-pay principle of taxation, the extent to which the tax should be progressive has been hotly debated for decades, and the actual amount of progressivity of the tax has also been the subject of much analysis and discussion.<sup>1</sup>

Tinkering with the federal tax code over the last two decades has resulted in numerous changes to the individual income tax code, both in the definition of the income tax base and in the tax rates applied to this base, and these changes have had significant effects on the progressivity of the income tax. There have been several useful studies of the distributional effects of some of these tax law changes. For example, Wallace, Wasylenko, and Wiener (1991) find that the Tax Reform Act of 1986 increased the progressivity of the individual income tax, although the effects are typically small. Scott and Triest (1993) find a drop in the progressivity of the federal income tax between 1979 and 1984, and then a slight increase in progressivity between 1984 and 1989 (at least when high-income returns are excluded). In contrast, Gouveia and Strauss (1994) show that equalization of income through the federal individual income tax decreased over time through 1989. Kasten, Sammartino, and Toder (1994) analyze the effect of major changes in the federal income tax laws on the progressivity of the income tax for the period 1980 to 1993, and find that the progressivity of the income tax increased slightly. Burman, Gale, and Weiner (1998) focus more specifically on effective marginal tax rates in the

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<sup>1</sup> The literature on taxation and progressivity is enormous and, like many things in economics, goes back all the way to Smith (1776). Also, see Blum and Kalven (1953) and Musgrave (1959) for classic discussions of the theoretical conditions under which the ability-to-pay principle justifies—or does not justify—progressive taxation, and see

federal income tax over the period 1980 to 1995, and they find that marginal tax rates fell significantly for most taxpayers, especially after the 1981 and 1986 tax law changes. More recently, Mitrusi and Poterba (2000) examine the combined tax burdens of the individual income and the payroll taxes from 1979 to 1999, and show that decreases in income tax liabilities have on average been largely offset by increases in payroll tax obligations.<sup>2</sup>

However, despite the numerous insights from these prior studies, there are still important and unresolved empirical issues about the effects of these tax law changes, even aside from the somewhat conflicting conclusions of these studies on the overall effects on tax progressivity. In particular, the impact of tax law changes on tax progressivity is often confounded by significant changes in the pre-tax distribution of income, changes that are likely to be at least partly caused by the tax law changes themselves; that is, *how have tax law and income distribution changes separately contributed to the changes in tax progressivity over time?* In the same vein, the ability of tax law changes to affect the income distribution may well depend upon the specific distribution of income that exists at the time that taxes are changed. A given change in the tax base or in the rate structure may have differential effects on progressivity that vary with the underlying pre-tax distribution of income; that is, *how does a specific pre-tax distribution of income affect the equalizing ability of a given tax change on the post-tax distribution of income?*

This paper revisits the distributional effects of recent tax law changes in an attempt to answer these questions. We use information from the U.S. Department of Labor, Bureau of Labor Statistics (BLS) *Current Population Survey* (CPS) for various years that follow either

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Bradford (1995) for more recent treatment of these issues.

<sup>2</sup> See also Lerman and Yitzhaki (1995) for discussion and analysis of the impact of taxes and transfers on the relative

immediately after significant tax law changes or after the full enactment of these changes (for example, 1978, 1984, 1987, 1989, 1992, 1995, and 1998) to measure the effect of income taxes on the distribution of income for selected years over the period 1978 to 1998. We explicitly consider the effects of five major tax initiatives of the federal government over the period: the Economic Tax Recovery Act of 1981 (ERTA81), the Tax Reform Act of 1986 (TRA86), the Omnibus Budget Reconciliation Act of 1990 (OBRA90), the Omnibus Budget Reconciliation Act of 1993 (OBRA93), and the Taxpayer Relief Act of 1997 (TRA97). An important and novel aspect of our analysis is the use of a series of counterfactuals that attempt to isolate the direct distributional impact of changes in federal tax policy from the induced changes in the pre-tax distribution of income. To do this, we hold constant in some calculations the pre-tax distribution of income at, say, the 1978 level, and we then simulate the distributional effects of each of the five major tax changes. By varying the year at which the income distribution is held constant (for example, 1978, 1984, 1987, 1989, 1992, 1995, and 1998), and examining each of the five tax law changes for each of these years, we are able to isolate the separate effects of tax changes for a given income distribution. This procedure also allows us to examine how the equalizing ability of a given tax change varies with a specific pre-tax distribution of income.

We find that, even when account is taken of the induced effect of changes in federal income tax laws on pre-tax income, the individual income tax structure has been less successful in equalizing after-tax income since the 1980s and into the early 1990s. We also find that a given tax law's equalizing effect on the distribution of income is significantly affected by the pre-tax distribution of income and thus by the year in which the law is implemented. For example, the

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rankings of individuals.

OBRA90 law is more equalizing if it had been applied to the pre-tax distribution of income in 1987; however, OBRA90 had the least equalizing impact of all the tax reforms considered because it was in fact fully implemented in 1992 with the pre-tax income distribution that existed at that time.

## **FEDERAL INDIVIDUAL INCOME TAX LAW CHANGES, 1978 TO 1998**

Since 1978 there have been several major changes to the federal individual income tax. We classify the changes into two categories: base changes (including deductions, exemptions, and credits), and rate/bracket changes. The major changes are listed in Tables 1, 2, and 3.<sup>3</sup>

[Tables 1, 2, and 3 about here]

### **Base Changes**

Base changes have been many and varied over the last two decades. Some have followed a theme of reducing preferential treatment of certain types of income. For example, in 1979 unemployment compensation benefits were made taxable for persons earning other income over \$20,000 (\$25,000 for married couples), and in 1987 unemployment compensation benefits were made taxable for all persons regardless of the amount they earned in other income. The federal taxation of social security benefits has also increased over the years. In 1984 half of the social security benefits were made taxable for persons with other income over \$25,000 (\$32,000 for

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<sup>3</sup> A detailed list of the provisions of each tax act can be found in selected years of Office of Management and Budget, *The Budget of the United States*. See also Steuerle (1992) and Graetz (1997) for comprehensive discussions of the individual income tax.

married couples). This was expanded in 1993 to tax up to 85 percent of benefits for individuals with other income over \$25,000.

Other base changes over the years have narrowed the tax base through various tax expenditures. One of the more expensive provisions of ERTA81 was to allow deductible contributions to individual retirement accounts (IRAs) for most all individuals. ERTA81 also expanded the contribution limits for Keogh accounts, and provided for inflation adjustments of rate brackets, personal exemptions, and standard deductions beginning in 1985.

In the last two decades, TRA86 contained the largest individual income tax base-broadening provisions of any federal tax law. The details are widely known, and they include a severe reduction in deductible IRA contributions, the elimination of the deductibility of sales taxes and consumer interest (other than home-mortgage interest), limitations in the deductibility of medical, business meals and entertainment, and miscellaneous expenses, and repeals of the capital gains exclusion and the two-earner deduction. These changes of TRA86 served to expand the tax base, and were accompanied by a significant reduction in marginal tax rates, as discussed later.

OBRA90 also made a number of adjustments to the tax base. The earned income tax credit (EITC) was increased, and the phase-out percentage was increased. A new phase-out was also added for itemized deductions. For taxpayers with adjusted gross income (AGI) in excess of \$100,000, total itemized deductions (except for medical, casualty and theft, and investment interest) were reduced by 3 percent of the amount of AGI in excess of \$100,000, and the total reduction was limited to 80 percent.

Although the main feature of OBRA93 was the introduction of two additional rates on high-income taxpayers, there were also changes to the tax base. The amount of social security benefits subjected to tax was increased from a maximum of 50 percent to a maximum of 85 percent, and the phase-out of itemized deductions and personal exemptions for high-income taxpayers introduced in OBRA90 was made permanent in OBRA93. Other base changes in the 1993 tax legislation included a major expansion of the EITC and the allowance of deductibility of the appreciated value (rather than the acquisition value) of tangible gifts to charities.

The Taxpayer Relief Act of 1997 introduced the most significant base changes to the income tax code since the base broadening efforts of TRA86. Under TRA97, higher income taxpayers became eligible for traditional IRAs. TRA97 also introduced the Roth IRA. In contrast to a traditional IRA, contributions to a Roth IRA are not deductible; however, the returns to a Roth IRA are untaxed, just as with a traditional IRA, and a Roth IRA allows tax-free withdrawals for home purchases and education. TRA97 also introduced a nonrefundable \$500 tax credit for each dependent child under 17, as well as two nonrefundable education credits. The HOPE Scholarship Credit pays up to \$1,500 for the first two years of post-secondary, and the Lifetime Learning Credit pays 20 percent of tuition up to \$5,000 after the first two years. TRA97 also provided a limited deduction for interest on student loans. All the credits are phased out as income increases.

### **Tax Rates and Brackets**

Tax rates and brackets have undergone numerous changes over the past two decades. ERTA81 significantly reduced statutory marginal tax rates. The top marginal tax rate was reduced from 70

percent to 69.125 percent in 1981, and in 1982 it was further reduced to 50 percent. TRA86 also reduced statutory marginal tax rates by phasing down the rates. The top rate in 1987 was reduced from 50 percent to 38.5 percent, and was reduced even further in 1988 to 28 percent, with a phase-out of the benefits of the first bracket rate and the personal exemptions for high-income taxpayers increasing the effective top marginal rate to 33 percent. (Recall that TRA86 also provided an increase in personal exemptions and standard deductions.) OBRA90 combined the top two post-TRA rates of 33 and 28 percent into one top marginal tax rate of 31 percent.<sup>4</sup> It also increased the alternative minimum tax rate from 21 to 24 percent.

OBRA93 created two new tax brackets (36 percent and 39.6 percent) for high-income taxpayers, thereby moving the top statutory marginal tax rate closer to pre-TRA86 levels.

TRA97 reduced the top rate on capital gains from 28 percent to 20 percent, and reduced the 15 percent rate on capital gains to 10 percent.

In total, these many tax law changes are likely to have significant, and complicated, effects on the distribution of tax of tax burdens.

## **DATA SOURCES AND METHODOLOGY**

### **Data Sources**

We use the U.S. Department of Labor, Bureau of Labor Statistics *Current Population Survey (CPS)-Annual March Supplement* as the primary source of data to measure the effect of federal income taxes on the distribution of income for selected years. The Department of Labor compiles

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<sup>4</sup> The top statutory marginal rate was changed to 31 percent, but this rate does not reflect the impact of the phase-outs of itemized deductions and personal exemptions. Overall, the combination of changes increased estimated

the CPS data from a sampling of about 50,000 households. It contains data for each selected household in the sample as well as data for each person in the household. The survey records characteristics such as income, age, race, household structure, education, family relationships, occupation, and employment history. We use CPS data for the years 1979, 1985, 1988, 1990, 1993, 1996, and 1999 to capture the progressivity trends of federal individual income taxes before and after a number of significant tax law changes. Note that the income variables in the CPS are income reported for the previous year; that is, 1993 CPS contains income data for 1992. Our choice of these CPS years corresponds to our intent to calculate tax burdens following the major tax law changes over the last two decades. For example, we use the 1988 CPS year data with its income data for 1987 to measure the effects of the partially phased-in Tax Reform Act of 1986, and the 1990 CPS year data with income information for 1989 to calculate the impacts of the fully phased-in act.

We also use data from the Internal Revenue Service (IRS) Statistics of Income (SOI) to impute to the CPS a crucial piece of information, or itemized deductions, which are necessary for calculating tax liabilities. The IRS compiles SOI data annually from an extensive sample of actual individual income tax returns from which identification information has been removed, and the data have been sufficiently blurred to prevent identification of individual taxpayers.<sup>5</sup>

## **Methodology**

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revenue yield due to the amount of income in the previously defined 28 percent bracket (Steuerle, 1992).

<sup>5</sup> The IRS Statistics of Income Tax File is a nationally representative micro-level sample of actual federal individual income tax returns, and is available annually from the IRS, with a two-to-three year lag. The cost of each year's File is approximately \$3,000. We did not have each year of the SOI data available to conduct a year-by-year analysis.

*Defining and Measuring Income.* The most widely accepted definition of income, sometimes referred to as “comprehensive income” or the Haig-Simons (1921, 1938) definition of income, states that income equals the amount of an individual’s consumption plus the change in his net worth in a given period. This definition of income includes standard items such as wages, interest, dividends, rent, and transfers, but it also includes non-cash income (such as in-kind transfers and the imputed rent of owner-occupied housing) and income from assets as income is accrued rather than when it is realized. Unfortunately, no agency compiles such a measure of comprehensive income on a regular basis. Further, for tax purposes, income is measured on a cash and realized income basis. Some income distribution studies attempt to derive accrued income and some non-cash income from the national income and product accounts (NIPA).<sup>6</sup> However, these efforts require many adjustments to the data while working with little more than the NIPA aggregates.

For purposes of this analysis, we would like to measure income as broadly defined as possible to look at the impact of taxes on income distribution, but we must also be able to closely approximate taxable income so that we can calculate tax liabilities. Accordingly, our measure of “comprehensive income” aggregates the following components of income: wages and salary, income from self-employment, farm income, workers’ compensation, social security, retirement income, interest, dividend, rent, child support payments, alimony, welfare receipts, unemployment income, and “other income.”<sup>7</sup> Our objective is to measure the distribution of comprehensive income before and after the federal income tax is applied. The CPS data do not

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<sup>6</sup> See, for example, Pechman and Okner (1974) and Pechman (1985).

<sup>7</sup> “Other income” is defined in the CPS as periodic income received that does not include wages, self-employment, social security and railroad retirement, supplemental security, public assistance and welfare, interest, dividends,

include precise measures of income tax liability, so we use taxable components of the CPS income items to simulate the calculation of tax liabilities. Some notable differences from the actual tax measure of income used by the IRS and the taxable income measure derived from our CPS data are that our data do not include information on allowable moving expenses, self-employed health insurance deductions, and capital gains on stocks. As seen in the Table 4, the resulting differences in “CPS Taxable Income” and “SOI Taxable Income” are relatively small; similar results hold for other years as well. We believe that our CPS-based analysis consistently and accurately measures the relative rankings of income groups before and after taxes.

[Table 4 about here]

*Imputing Itemized Deductions.* An important advantage of the CPS is that it is a rich source of micro-level data on sources of income, especially for government transfers to low income households. However, as noted above, the CPS data do not capture certain sources of capital income, such as capital gains, interest on state and municipal bonds, and tax shelters (such as IRAs).<sup>8</sup> This omission is likely to be offset by the inclusion in the CPS of various forms of income that are not included in data files compiled by the tax authorities. For example, income that is not reported on tax forms due to non-filing and to tax avoidance activities is generally included in the CPS data, and the distributional patterns of these forms of income are likely to be similar (Alm, 1999). Of perhaps more importance, unlike data collected for tax administration purposes, important items of information for calculating tax liabilities are not in the CPS. For this study, one crucial piece of data for calculating tax liabilities that is not in the

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veterans payments, public and private pensions, and alimony and child support.

<sup>8</sup>The CPS data are also topcoded by income type at \$100,000. Since each specific type of income (for example, wages, interest, dividends, farm income) is topcoded, total income is effectively topcoded at \$100,000 times the number of specific income items the observations hold. According to Census and SOI information, the topcoding

CPS is itemized deductions. We therefore impute itemized deductions using SOI data.

The imputation is made in two steps. First, we identify itemizers in our CPS data file. We create 16 income classes that are available in the published SOI data, and then determine the share of the taxpayers in each income class that itemize using the appropriate year's published SOI data on itemizers by income group based on adjusted gross income (AGI).<sup>9</sup> Because of the extremely small share of itemizers in income classes below \$10,000, we assume that no persons with income below \$10,000 are itemizers; we also exclude as itemizers pensioners who are not homeowners. For those persons with income above \$10,000, we group individuals in our CPS data set into the 16 income classes (defined by adjusted gross income) that correspond to those adjusted gross income classes in the SOI data set.<sup>10</sup> For each of these 16 income classes in the CPS, we randomly designate as itemizers the share of the individuals in that income class that equals the share of itemizers in the corresponding SOI income class.

Second, we determine the amount of itemized deductions. To impute the amount of itemized deductions for itemizers, we calculate itemized deductions as a share of the itemizer's adjusted gross income (based on the published SOI data) for each income class in the SOI data for each year we analyze. The shares so obtained are then used to impute the amount of itemized deductions to designated itemizers in the respective income classes in our CPS data set. Table 5 shows the results of these calculations for two years of our analysis (1998).

[Table 5 about here.]

*Simulating Major Federal Income Tax Law Changes, 1978 through 1998.* We use these

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affects less than 3 percent of the total population.

<sup>9</sup> The Statistics of Income Division of the IRS publishes very detailed tabulations on certain tax-related items such as itemized deductions. For example, see <http://www.irs.gov/taxstats/article/0,,id=96586,00.html>.

<sup>10</sup> The precise definition of adjusted gross income varies from tax year to tax year, as determined by law.

CPS data to simulate the impacts of income tax law changes. At the core of the microsimulation model is a tax calculator that takes as inputs the federal individual income tax rules for a given year and the individual-level data (CPS) on taxpayers. For each taxpayer in the data set, the calculator uses the federal tax rules that we programmed for a given year to simulate the calculations that the taxpayer (or his tax preparer) make to arrive at his tax liability when he files his annual income tax return. It is assumed throughout that individuals bear the full burden of the individual income tax. Throughout, we consistently model tax bases, tax brackets, rates, itemized and standard deductions, personal exemptions, earned income tax, and child credits; we are not able to include certain credits, such as the foreign tax credit and adoption credit due to data limitations.

The simulator is calibrated with federal tax rules for 1978, 1984, 1987, 1989, 1992, 1995, and 1998, corresponding to CPS income data for the years used in the study. Tables 2 and 3 show the federal tax parameters for several of these years. The output of the microsimulation model is a calculated effective federal tax rate and a calculated federal tax liability for each observation in the sample. The output can be aggregated over any subset of individuals in the sample to produce effective tax rates for the subset. We subtract this calculated federal tax liability from our measure of comprehensive income to determine the “post-tax” distribution of income.

*Calculating Gini Coefficients.* A separate module within the microsimulation model calculates the Gini Coefficient ( $G$ ) measures of the distribution of comprehensive income before taxes and after taxes for the selected years. The Gini Coefficient calculator begins by grouping the observations into fifty income classes that are 2 percent apart. The module then calculates the

Gini Coefficient on the grouped data of 50 observations using the following algorithm:

$$G = \frac{\sum_i \sum_j |y_i - y_j|}{2N^2 \mu},$$

where  $\{y_1, y_2, \dots, y_n\}$  denotes the distribution of income across a population of  $N$  individuals or groups and  $\mu$  is the mean income. Berliant and Strauss (1993) find that relative rankings of income classes are largely unaffected by the number of income classes, although the number of income classes does affect cardinal values of calculated indexes of income inequality.

There is an extensive literature on the appropriate measure of the redistributive effects of taxation. For example, Musgrave and Thin (1948) define a tax progressivity index as  $m = (1 - G_a)/(1 - G_b)$ , where  $G_a$  and  $G_b$  are the Gini Coefficients of after-tax and before-tax income, respectively. Kiefer (1991) summarizes alternative indices, and concludes that there are differences in magnitudes of these measures but that the relative progressivity rating of states is similar under a variety of progressivity measures. Berliant and Strauss (1993) also apply a variety of measures to calculate the progressivity of federal and state income taxes pre- and post-1986, and they find generally similar results across these indicators. Accordingly, we rely on the Gini Coefficient measure as a well-tested index of progressivity. For comparative purposes, we also calculate a Suits (1977) Index for each year in addition to the Gini Coefficient.

There are several novel aspects of our calculations. Most previous studies of the changes in the distribution of the federal income tax have not attempted to hold constant the potentially endogenous changes in the distribution of income that occur as a result of tax law changes. However, there is an enormous literature on the behavioral responses of taxation that indicates

that taxes have some impact on labor supply, capital income, and savings.<sup>11</sup> To the extent that this is so, measurements of pre- and post-tax distributions of comprehensive income in a given year are confounded by these behavioral impacts; that is, the pre-tax distribution of income may itself be altered by tax policy so that retrospective analyses of the progressivity of the income tax cannot isolate the separate effects of tax law and of behavior. Of course, it is not possible to capture fully any induced changes in the distribution of income. However, these different impacts may be isolated in part by constructing several counterfactuals that hold constant the pre-tax distribution of income and that then measure the effects of appropriately deflated tax codes on this constant distribution of income.

For example, by holding the distribution of income constant at, say, 1978 levels, we can calculate the distributional impact of the 1978, 1984, 1987, 1989, 1992, 1995, and 1998 tax codes on the 1978 distribution of income. We can then vary the distribution of income that is held constant (that is, the distribution of income for CPS years 1978, 1984, 1987, 1989, 1992, 1995, and 1998), and apply each of the different year's tax code to each of these income distributions. This enables us to isolate the separate effects of the tax code on the after-tax distribution of income from the potentially complicated tax policy effects on the pre-tax distribution of income. Note that this procedure also simulates a given tax law against a changing distribution of income, thereby giving some insight into what may have happened to progressivity if the federal tax code were left alone at different points in time.

The construction of these counterfactuals therefore allows us to answer the following

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<sup>11</sup> For example, see Aaron and Pechman (1981) and Slemrod (1992) for a number of studies that attempt to measure these behavioral responses.

question: *How have tax law and income distribution changes separately contributed to the changes in tax progressivity over time?* It also allows us to address the question: *How does a specific pre-tax distribution of income affect the equalizing ability of a given tax change on the post-tax distribution of income?*

## **RESULTS**

We focus upon several main sets of results. Our first set presents the basic Gini Coefficient and Suits Index calculations for the different years and tax codes. We conclude with our various counterfactuals, which allow us both to isolate the direct distributional impact of changes in federal tax policy from the induced changes in the pre-tax distribution of income and to examine the impact of a given pre-tax distribution of income on the ability of a tax change to affect the post-tax income distribution.

### **Basic Calculations**

Table 6 presents the Gini Coefficients and Suits Indices for pre- and post-tax income distributions for each of the years. Recall that the Gini Coefficient equals 0 if income is equally distributed, and equals 1 if a single household receives all income. Also, the Suits Index can vary from  $-1$  (a regressive tax) to 0 (a proportional tax) to  $+1$  (a progressive tax). As indicated in Table 6, there have been significant changes to the pre- and post-tax distributions of income.

[Table 6 about here.]

Both the Gini Coefficient and the Suits Index calculations suggest that the federal individual income tax structure has become gradually less able to equalize post-tax income since

the early 1980s, at least until the OBRA93 was introduced; that is, the percent decline in the pre-tax and post-tax Gini Coefficients tends to become smaller over the 1984 to 1994 period, before increasing in 1995. Until 1995, it does not appear that the distribution of pre-tax income has made the job of redistribution more difficult. In fact, our data show that from 1984 through 1994 the pre-tax Gini Coefficients are quite similar. There is a significant increase in the pre-tax Gini Coefficient in 1995, which reflects the well-documented increase in income inequality during the 1990s.<sup>12</sup> Similarly, the Suits Index tends to decline through the early 1990s, reaching its lowest level in 1992. The measure always exceeds 0, thereby indicating an overall progressive tax, but its decline reflects a reduction in progressivity. Even with a slight increase in the Suits Index in 1995 and 1998, its magnitude remains significantly lower in 1998 than at the start of our analysis in 1978, by nearly 17 percent.

Our results are generally consistent with the findings of other studies of progressivity of the individual income tax. However, direct comparisons with other studies are complicated by the use of different data and time periods. For example, Scott and Triest (1993) examine the distributional impact of taxes through 1989, relying upon a Reynolds and Smolensky (1977) measure of progressivity, and our Gini Coefficient estimates are similar to their estimates, in large part because the Gini Coefficient and the Reynolds and Smolensky (1977) measures are

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<sup>12</sup> Since the CPS is topcoded each year, we also calculated the Gini coefficients eliminating high-income observations (or those over the topcode thresholds) and using a consistent, indexed value of the topcoded income. The results of these calculations are quite similar to those in Table 6:

<b>Year</b>	<b>1978</b>	<b>1984</b>	<b>1987</b>	<b>1989</b>	<b>1992</b>	<b>1995</b>	<b>1998</b>
Percent Change in Gini Coefficient	– 8.30%	– 8.91%	– 7.77%	– 6.73%	– 5.76%	– 6.11%	– 6.58%

quite similar.<sup>13</sup> Similarly, Gouveia and Strauss (1994) use effective tax rates as a measure of income tax progressivity, and, like us, they conclude that the progressivity of the federal income tax tended to decrease during the period 1978 to 1989. Berliant and Strauss (1993) also conclude that the after-tax distribution of income became less equal between 1985 and 1987. The Congressional Budget Office (2001) reports a decrease in the effective individual income tax rate for the highest income quintile through the early to mid 1980s, and then a reduction in the effective tax rate until 1993 when the effective tax rate rose again for the highest income group.

### **Counterfactuals**

It is tempting, but risky, to conclude at this point that the statutory changes in federal tax policy have actually affected the net distribution of income. Because individuals are likely to respond to tax law changes, the pre-tax distributions of income used in the earlier calculations may have changed as a result of the changes in tax policy. One way to draw more specific conclusions about the effect of any tax law on the distribution of income is to hold the pre-tax distribution of income constant at some level and simulate the statutory (or static) effects of changes in federal tax policy on this constant distribution of income. This is one purpose of our counterfactuals. A related issue of interest is the effect of changes in the underlying distribution of income on the effectiveness of the statutory changes in redistributing income; that is, do the static impacts of the policies contained in, say, ERTA81 have the same impact on progressivity with the 1978 distribution of income as they do with, say, the 1998 distribution of income? Policymakers may

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<sup>13</sup> Note, however, that our Suits Index measures are somewhat sensitive to CPS topcoding. The Suits Index focuses upon the distribution of taxes paid, and the taxes paid by very high income taxpayers may not be fully captured given the way in which the CPS “caps” the income of these taxpayers.

look back on previous tax reforms fondly, but the usefulness and the lessons from old reforms may not live on under the current distribution of income. These impacts can be analyzed by using another set of counterfactual experiments in which a given tax law is applied to each of the pre-tax distributions of income from 1978 to 1998.

The results of these counterfactual experiments are presented in Tables 7 and 8. Table 7 indicates that, *holding the pre-tax distribution of income constant at 1978 levels*, the impacts of the various tax policy changes are quite similar to those presented earlier, largely because the 1978 pre-tax Gini Coefficient is generally of similar magnitude to the pre-tax Gini Coefficients for the other years. Consequently, even holding the pre-tax distribution of income constant at its 1978 level, there is a decrease in the net progressivity of the individual income tax through OBRA90, and then an increase in the effect in the 1995 and 1998 laws. However, the percent changes in the Gini Coefficients are generally somewhat different than the earlier estimates in Table 6, sometimes larger and sometimes smaller. For example, using the actual 1992 distribution of income, the enactment of OBRA90 reduces the Gini Coefficient by 5.78 percent (see Table 6); holding constant the income distribution at its 1978 level, the enactment of OBRA90 now reduces the Gini coefficient by 5.94 percent (see Table 7).

[Tables 7 and 8 about here]

Table 8 shows some different counterfactuals, in which a *given* tax law is applied to a *variety* of pre-tax distributions of income. If the objective of the individual income tax is to increase the progressivity of the post-tax distribution of income, then different tax laws are more effective if imposed at different points in time. For example, ERTA81 would have equalized the post-tax distribution of income in 1987 more that it actually did in 1984. Similarly, TRA86

would have had a more equalizing impact in 1984 than in the years after 1986. OBRA90 would have had the greatest equalizing impact in 1987, and in fact it had the least equalizing impact in 1992, 1994, and 1998. TRA97 would have had the greatest impact under the 1978, 1984, and 1987 distributions of income. Overall, the 1978 tax law appears to be the most successful in terms of its static impact on the overall distribution of post-tax income, since the 1978 law consistently indicates a roughly 10 percent reduction in the post-tax Gini Coefficient across most all years. In contrast, OBRA90 tends to have the smallest impact on the post-tax Gini Coefficient, with an average reduction of only about 6 percent across all years.

## **CONCLUSIONS**

Does the federal individual income tax redistribute income? Our calculations clearly show that income taxation has consistently worked to equalize the distribution of income, as shown by a post-tax Gini Coefficient that is lower than the pre-tax Gini Coefficient and by a Suits Index that indicates a slightly progressive income tax. However, our calculations also show that the amount of redistribution from the income tax has tended to decrease over time, through the early- to mid-1990s. The impact of the income tax on the post-tax Gini Coefficient declined over much of the 1978 to 1998 period, only increasing in the last two years of our analysis. Similarly, the decrease in the Suits Index over this same period suggests a federal income tax that has tended to become less progressive over time.

These results immediately raise the question of the extent to which the diminishing ability of the federal income tax to redistribute income is due more to changes in the base versus changes in the rate structure. While our study does not address this issue directly, the results

suggest that over the period examined here it is largely changes in the rate structure that have pushed the income tax system towards being less progressive. For example, most of the base broadening changes in the Tax Reform Act of 1986 (for example, the increase in standard deductions and personal exemptions, the expansion of the earned income tax credit, the repeal of the two-earner deduction, of the dividend exclusion, of the capital gains exclusion, of income averaging, of state and local sales tax deduction, and the like) tend to make the income tax more progressive. Even so, our results show that the net effect of the 1986 tax reform was a less progressive income tax system. This suggests that the changes in the rate structure from the 1986 reform, which tend to move the tax system towards being less progressive (for example, the top rate was reduced from 50 percent to 38.5 percent), overwhelmed the more progressive base changes. Our results suggest that this is true of most of the other major tax policy changes that were enacted over the period.

Finally, our calculations show that, for policy goals to be met, tax policy needs to be developed for the specific time in which it is enacted. A given tax reform will not accomplish the same distributional objectives at all points in time because the underlying pre-tax distribution of income influences the amount of redistribution that the reform can achieve. This result may be a major reason for why we see a reduction in the equalization of the personal income tax over time.

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**Table 1. Major Federal Individual Income Tax Base Changes, 1978 to 1998**

<b>Year/Tax Act</b>	<b>Provision</b>
1979–1981	<ul style="list-style-type: none"> <li>•Increased personal exemptions and standard deductions</li> </ul>
Economic Recovery Tax Act of 1981 (ERTA81)	<ul style="list-style-type: none"> <li>•Indexed brackets, standard deductions, and personal exemptions (effective 1985)</li> <li>•Introduced taxation of unemployment compensation</li> <li>•Expanded deductibility of IRAs</li> <li>•Expanded the Keogh contribution limit</li> </ul>
Social Security Amendment of 1983	<ul style="list-style-type: none"> <li>•Introduced taxation of social security benefits</li> </ul>
Railroad Retirement Revenue Act of 1983	<ul style="list-style-type: none"> <li>•Introduced taxation of railroad retirement benefits</li> </ul>
Tax Reform Act of 1986 (TRA86)	<ul style="list-style-type: none"> <li>•Increased standard deductions and personal exemptions</li> <li>•Increased the earned income tax credit</li> <li>•Repealed the two-earner deduction, the dividend exclusion, the capital gains exclusion, income averaging, state and local sales tax deduction</li> <li>•Limited unemployment compensation exclusion, IRA deductions, medical, business meals and entertainment, and miscellaneous expense deductions</li> <li>•Eliminated the charitable contribution deduction for non-itemizers</li> </ul>
Omnibus Reconciliation Act of 1987	<ul style="list-style-type: none"> <li>•Limited home-mortgage interest deduction</li> </ul>
Omnibus Budget Reconciliation Act of 1990 (OBRA90)	<ul style="list-style-type: none"> <li>•Limited itemized deductions for high-income taxpayers</li> <li>•Adjusted the phase-out of personal exemptions</li> <li>•Expanded the earned income tax credit</li> </ul>
Omnibus Budget Reconciliation Act of 1993 (OBRA93)	<ul style="list-style-type: none"> <li>•Expanded taxation of social security benefits</li> <li>•Made permanent limitations on itemized deductions for high-income taxpayers</li> <li>•Made permanent the phase-out of personal exemptions for high-income taxpayers</li> <li>•Expanded the earned income tax credit</li> <li>•Allowed deductibility of the appreciated value of tangible property gifts to charities</li> </ul>
Taxpayer Relief Act of 1997 (TRA97)	<ul style="list-style-type: none"> <li>•Extended traditional IRAs to higher income taxpayers</li> <li>•Introduced Roth IRAs (for example, contributions are non-deductible, withdrawals are tax-free, withdrawals for home purchases and education are penalty-free)</li> <li>•Introduced Education IRAs (forexample, contributions are non-deductible, and withdrawals for educational expenses are penalty-free)</li> <li>•Introduced a child tax credit</li> <li>•Introduced tax credits for post-secondary education expenses (for example, the HOPE Scholarship Credit and the Lifetime Learning Credit)</li> <li>•Allowed limited deductibility of interest on student loans</li> </ul>

Sources: Steuerle (1992), Office of Management and Budget (various years), Advisory Commission on Intergovernmental Relations, *Significant Features of Fiscal Federalism* (various

years), and Commerce Clearing House (various years).

**Table 2. Federal Individual Income Tax, Tax Rates and Brackets, 1978 to 1998**

<b>Years</b>	<b>Tax Rates: Range in Percent</b>	<b>Lowest Tax Rate: Amount Under</b>	<b>Highest Tax Rate: Amount Over</b>
1978	14.0–70.0	1,000	200,000
1979	0–70.0	3,400	215,400
1980	0–70.0	3,400	215,400
1981	0–69.125	3,400	215,400
1982	0.0–50.0	3,400	85,600
1983	0.0–50.0	3,400	109,400
1984	0.0–50.0	3,400	162,400
1985	0.0–50.0	3,540	169,020
1986	0.0–50.0	3,670	175,250
1987	11.0–38.5	3,000	90,000
1988	15.0–33.0	29,750	71,900
1989	15.0–33.0	30,950	74,850
1990	15.0–33.0	32,450	78,400
1991	15.0–31.0	34,000	82,150
1992	15.0–31.0	35,800	86,500
1993	15.0–39.6	36,900	250,000
1994	15.0–39.6	38,000	250,000
1995	15.0–39.6	39,000	256,500
1996	15.0–39.6	40,100	263,750
1997	15.0–39.6	41,200	271,050
1998	15.0–39.6	42,350	278,450

Sources: Steuerle (1992), *Significant Features of Fiscal Federalism* (1995), Tax Foundation, *Facts and Figures on Government Finance* (2000), Office of Management and Budget (various years), and Commerce Clearing House (various years), and Tax Policy Center, available at <http://www.taxpolicycenter.org/TaxFacts/tfdb/TFTemplate.cfm?topic2id=30>. Access date: April 10, 2002.

**Table 3. Other Federal Tax Parameters**

Year	Married Couple Filing Jointly		Single Individual	
	Standard Deduction	Personal Exemption	Standard Deduction	Personal Exemption
1978	\$3,200	\$1,500	\$2,200	\$750
1979	3,400	2,000	2,300	1,000
1980	3,400	2,000	2,300	1,000
1981	3,400	2,000	2,300	1,000
1982	3,400	2,000	2,300	1,000
1983	3,400	2,000	2,300	1,000
1984	3,400	2,000	2,300	1,000
1985	3,550	2,080	2,400	1,040
1986	3,670	2,160	2,480	1,080
1987	3,760	3,800	2,540	1,900
1988	5,000	3,900	3,000	1,950
1989	5,200	4,000	3,100	2,000
1990	5,450	4,100	3,250	2,050
1991	5,700	4,300	3,400	2,150
1992	6,000	4,600	3,600	1,300
1993	6,200	4,700	3,700	2,350
1994	6,350	4,900	3,800	2,450
1995	6,550	5,000	3,900	2,500
1996	6,700	5,100	4,000	2,550
1997	6,900	5,300	4,150	2,650
1998	7,100	5,400	4,250	2,700

Sources: Steuerle (1992), Advisory Commission on Intergovernmental Relations, *Significant Features of Fiscal Federalism* (1995), Tax Foundation, *Facts and Figures on Government Finance* (2000), Office of Management and Budget (various years), and Commerce Clearing House (various years), Tax Policy Center, available at <http://www.taxpolicycenter.org/TaxFacts/tfdb/TFTemplate.cfm?topic2id=30>. Access date: April 10, 2002.

**Table 4. Comparison of SOI and CPS Tax Liabilities**

<b>Year</b>	<b>SOI Tax Liability</b> (in millions of dollars)	<b>CPS Tax Liability</b> (in millions of dollars)	<b>CPS/SOI Tax Liability</b> (as percent)
1978	\$188,200	\$190,411	101.17%
1984	301,900	302,886	100.33
1987	369,200	348,230	94.32
1989	432,900	410,360	94.79
1992	476,200	454,813	95.51
1995	588,400	615,713	104.64
1998	788,500	736,236	93.37

Source: Authors' calculations from CPS files and IRS, Statistics of Income Bulletin.

**Table 5. Distribution of Itemizers and Itemized Deductions, 1984 and 1998**

<b>Adjusted Gross Income Class</b>	<b>1984</b>		<b>1998</b>	
	<b>Percent of Returns Itemizing</b>	<b>Itemized Deductions as Percent of Total Adjusted Gross Income For Itemizers</b>	<b>Percent of Returns Itemizing</b>	<b>Itemized Deductions as Percent of Total Adjusted Gross Income for Itemizers</b>
Under \$20,000	14%	41%	5%	80%
\$20,000 under \$30,000	52	27	17	42
\$30,000 under \$50,000	57	23	37	29
\$50,000 under \$75,000	95	23	64	23
\$75,000 under \$100,000	96	23	82	20
\$100,000 under \$200,000	98	23	91	19
\$200,000 or more	98	22	92	12

Source: IRS, Statistics of Income: Individual Income Tax Returns (1984 and 1998).

**Table 6. Gini Coefficients and Suits Indices, 1978 to 1998**

<b>Year of Income and Law</b>	<b>Gini Coefficient</b>	<b>Suits Index</b>
1978	Pre-tax: 0.40362 Post-tax: 0.36942 Percent Change: -8.47	0.27301
1984	Pre-tax: 0.43030 Post-tax: 0.39289 Percent Change: -8.69	0.28311
1987	Pre-tax: 0.42714 Post-tax: 0.39312 Percent Change: -7.96	0.26715
1989	Pre-tax: 0.43191 Post-tax: 0.40390 Percent Change: -6.49	0.22562
1992	Pre-tax: 0.41364 Post-tax: 0.38971 Percent Change: -5.78	0.20904
1995	Pre-tax: 0.48913 Post-tax: 0.45543 Percent Change: -6.89	0.22189
1998	Pre-tax: 0.49122 Post-tax: 0.45493 Percent Change: -7.38	0.22917

**Table 7. Distributional Impact of Federal Tax Policy:  
Pre-tax Distribution of Income Held Constant at 1978 Levels**

<b>Tax Law</b>	<b>Pre-tax Gini Coefficient</b>	<b>Post-tax Gini Coefficient</b>	<b>Percent Change in Gini Coefficient</b>
ERTA81 (1984 Law)	0.40362	0.36698	-9.08
TRA86 (1989 Law)	0.40362	0.37426	-7.27
OBRA90 (1992 Law)	0.40362	0.37963	-5.94
OBRA93 (1995 Law)	0.40362	0.37649	-6.72
TRA97 (1998 Law)	0.40362	0.37369	-7.41

**Table 8. Distributional Impact of Federal Tax Policy:  
Gini Coefficients for Constant Law and Changing Pre-Tax Distribution of Income**

Tax Law	Year of Pre-tax Distribution of Income						
	1978	1984	1987	1989	1992	1995	1998
1978 Law	Pre-tax: 0.40362 Post-tax: 0.36942 Percent Change: -8.47	Pre-tax: 0.43030 Post-tax: 0.38792 Percent Change: -9.85	Pre-tax: 0.42714 Post-tax: 0.38295 Percent Change: -10.35	Pre-tax: 0.43191 Post-tax: 0.39270 Percent Change: -9.08	Pre-tax: 0.41364 Post-tax: 0.38212 Percent Change: -7.62	Pre-tax: 0.48913 Post-tax: 0.43911 Percent Change: -10.23	Pre-tax: 0.49122 Post-tax: 0.43958 Percent Change: -10.51
ERTA81 (1984 Law)	Pre-tax: 0.40362 Post-tax: 0.36698 Percent Change: -9.08	Pre-tax: 0.43030 Post-tax: 0.39289 Percent Change: -8.6	Pre-tax: 0.42714 Post-tax: 0.38744 Percent Change: -9.29	Pre-tax: 0.43191 Post-tax: 0.39502 Percent Change: -8.54	Pre-tax: 0.41364 Post-tax: 0.38249 Percent Change: -7.53	Pre-tax: 0.48913 Post-tax: 0.44641 Percent Change: -8.73	Pre-tax: 0.49122 Post-tax: 0.45753 Percent Change: -6.86
TRA86 (1989 Law)	Pre-tax: 0.40362 Post-tax: 0.37426 Percent Change: -7.27	Pre-tax: 0.43030 Post-tax: 0.39457 Percent Change: -8.30	Pre-tax: 0.42714 Post-tax: 0.39513 Percent Change: -7.49	Pre-tax: 0.43191 Post-tax: 0.40390 Percent Change: -6.49	Pre-tax: 0.41364 Post-tax: 0.38996 Percent Change: -5.72	Pre-tax: 0.48913 Post-tax: 0.45555 Percent Change: -6.87	Pre-tax: 0.49122 Post-tax: 0.45732 Percent Change: -6.90
OBRA90 (1992 Law)	Pre-tax: 0.40362 Post-tax: 0.37963 Percent Change: -5.94	Pre-tax: 0.43030 Post-tax: 0.40276 Percent Change: -6.40	Pre-tax: 0.42714 Post-tax: 0.39639 Percent Change: -7.20	Pre-tax: 0.43191 Post-tax: 0.40313 Percent Change: -6.66	Pre-tax: 0.41364 Post-tax: 0.38971 Percent Change: -5.78	Pre-tax: 0.48913 Post-tax: 0.45682 Percent Change: -6.61	Pre-tax: 0.49122 Post-tax: 0.45882 Percent Change: -6.59
OBRA93 (1995 Law)	Pre-tax: 0.40362 Post-tax: 0.37649 Percent Change: -6.72	Pre-tax: 0.43030 Post-tax: 0.40009 Percent Change: -7.02	Pre-tax: 0.42714 Post-tax: 0.39834 Percent Change: -6.74	Pre-tax: 0.43191 Post-tax: 0.39882 Percent Change: -7.66	Pre-tax: 0.41364 Post-tax: 0.38998 Percent Change: -5.72	Pre-tax: 0.48913 Post-tax: 0.45543 Percent Change: -6.89	Pre-tax: 0.49122 Post-tax: 0.46146 Percent Change: -6.06
TRA97 (1998 Law)	Pre-tax: 0.40362 Post-tax: 0.37369 Percent Change: -7.41	Pre-tax: 0.43030 Post-tax: 0.39657 Percent Change: -7.84	Pre-tax: 0.42714 Post-tax: 0.38952 Percent Change: -8.80	Pre-tax: 0.43191 Post-tax: 0.39894 Percent Change: -7.63	Pre-tax: 0.41364 Post-tax: 0.38889 Percent Change: -5.98	Pre-tax: 0.48913 Post-tax: 0.45846 Percent Change: -6.27	Pre-tax: 0.49122 Post-tax: 0.45493 Percent Change: -7.38