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Are the Rich Different?

by

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ARE THE RICH DIFFERENT?*

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"Let me tell you about the very rich. They are different from you and me...They think, deep in their hearts, that they are better than we are...They are different."
F. Scott Fitzgerald

"The rich and the poor are differentiated by their incomes and nothing else, and the average millionaire is only the average dishwasher dressed in a new suit."
George Orwell

1. Introduction

There is little doubt that the rich are in fact different from the rest of us. There is the obvious and significant dimension that they have more income than the average person. However, there are numerous other dimensions that are also important to explore. Aside from their level of income, do the rich differ from the rest of us in their composition of income? How have these levels and compositions of income changed in the last decade, both for the rich and others, a period in which there have been several major changes in tax policies? There is also the possibility that there is much heterogeneity within the rich themselves; that is, are the rich different not only from the rest of us but also from each other?

A particularly important dimension is that of behavioral responses of the rich: are the rich more or less responsive to changes in taxes than other groups of individuals? Recently, the behavioral responses of the very rich have received increasing attention, especially their decisions on how much income to report on their tax returns. The magnitudes of these responses are a central issue in debates about the effects of income taxation, especially the impact of changes in marginal tax rates on the level of tax revenues. Evidence from several studies suggests that high-income taxpayers are

particularly sensitive to changes in marginal tax rates (Feenberg and Poterba 1992; Slemrod 1994; Feenberg and Feldstein 1995), even if the average taxpayer is not especially responsive; that is, these studies suggest that the rich are different from the rest of us, at least in the way that they respond in their reporting decisions to taxes.[1]

In this paper we attempt to answer these and other questions about the rich, by examining a wide range of taxpayer reporting decisions over the last decade. In particular, we examine the reporting behaviors of individuals in the top 1 percent and the top 0.5 percent of the distribution of income (what we term the "very rich"), and compare these behaviors to that at the population mean (the "average" taxpayer). Our analyses are based upon the 1984, 1989, and 1994 Individual Tax Model Files (ITMFs) from the Internal Revenue Service Statistics of Income. These ITMFs are micro-level data sets that contain detailed information on individual observations from a stratified random sample of United States taxpayers. They have information on federal individual income tax reporting decisions prior to the enactment of the Tax Reform Act of 1986 (the 1984 ITMF), after the reform was fully phased in (the 1989 ITMF), and after the enactment of the Omnibus Reconciliation Acts of 1990 and 1993 (the 1994 ITMF). For each of the three years, we select from each return the levels of numerous types of reported income (e.g., wages and salaries, interest, dividend, capital gains, Schedules C and E incomes and losses, passive and nonpassive incomes and losses, adjusted gross income, a calculated measure of comprehensive income); we also select the major forms of itemized deductions (e.g., charitable contributions, mortgage interest deductions, and state/local tax deductions) and various other items. We examine the level, composition,

and trends of these reporting decisions that individuals at different income levels made in 1984, 1989, and 1994. We also attempt to explain the reasons for changes in these decisions over time by applying a method of analysis that attempts to exploit the natural experiment aspect of tax changes, called the difference-in-difference approach. The various tax changes in the last decade each constituted a significant break from previous tax policy. If we can control for the major influences on reporting behavior that reflect such things as the growth in income over time and changes in the definition of the tax base, then any differences in reported decisions that we observe over time must be largely due to modifications in individual behavior in response to tax policies.

Our results indicate that taxes matter in the reporting decisions of most individuals. However, there are significant differences in the reporting responses across (and within) income levels, across income types, and even across tax regimes. In short, our analyses suggest that the rich are different from the rest of us, that the rich are different from each other, and that the rich are different now compared to what they were a decade ago.

In the next section we briefly discuss the major tax changes in the last decade. We then present the data and methods employed in section 3. Results are considered in section 4. Summary and conclusions are in section 5.

2. Tax policies in the last decade[2]

There have been three -- at least -- major tax changes since 1986. The first was the Tax Reform Act of 1986 (TRA86). Also signed into law over the last decade were

the Omnibus Budget Reconciliation Act of 1990 (OBRA90) and of 1993 (OBRA93). This section highlights the major features of these tax bills.

TRA86 was arguably the most comprehensive federal income tax reform in the last fifty years. Signed into law by President Reagan in October 1986, its basic features are well-known. First, it sharply reduced marginal tax rates on nearly all taxpayers. The top individual income tax rate was reduced from 50 percent to 28 percent, and marginal tax rates for other brackets were also substantially reduced. Fourteen marginal tax brackets ranging from 11 to 50 percent were reduced for years after 1987 to two (15 and 28 percent); however, the top marginal tax rate was actually 31 percent, due to a provision that phased out the tax benefits of exemptions and deductions for certain high-income taxpayers. Overall, individual income rates fell by an average of 7 percent. Second, TRA86 changed a number of features in the definition of income, most of which had the effect of greatly expanding the tax base. For example, eligibility for tax savings from individual retirement accounts was restricted, the dividend exclusion was eliminated, and various itemized deductions (e.g., medical expenses, interest expenses, state and local sales taxes, business expenses, the two-earner deduction) were also limited or eliminated. In addition, preferential tax treatment of realized capital gains was eliminated, and the ability to use passive investment losses as an offset to other forms of income was sharply curtailed. The standard deduction and personal exemptions were also increased.[3]

The intent of TRA86 was, at least in part, to encourage individuals (and firms) to devote more of their efforts to productive activities. The reduction in marginal tax rates

allowed individuals to keep more of each dollar of earned income, and reduced incentives to engage in activities whose only purpose was to save taxes. The expansion of the tax base reduced their ability to engage in tax shelter and arbitrage activities. However, the actual magnitudes of the individual responses to these massive federal and state changes in the income remain controversial.

OBRA90 reversed the downward trend in marginal tax rates that began in the 1980s. In exchange for a Congressional promise to restrain spending growth, President Bush reversed his campaign pledge of "no new taxes" and agreed to raise income taxes. The top statutory marginal tax rate was increased from 28 to 31 percent, so that there were now three tax brackets (15, 28, and 31 percent), although the top rate on realized capital gains remained at 28 percent. Again, some high-income taxpayers faced effective marginal tax rates in excess of 31 percent due to limits on deductions and exemptions; for taxpayers with adjusted gross income (AGI) above $100,000, total itemized deductions (excluding medical expenses, casualty and theft losses, and investment interest) were reduced by 3 percent of the amount of AGI in excess of $100,000. OBRA90 also increased the earned income tax credit (EITC) and its phase-out percentage, and it increased the alternative minimum tax (AMT) tax rate from 21 to 24 percent.

OBRA93 was enacted in President Clinton's first year in office, and it continued the upward movement in marginal tax rates begun in 1990. The top tax rate was increased to 36 percent for couples with taxable income above $140,000, and couples with income above $250,000 were also subject to a 10 percent surcharge that raised

their marginal tax rate to 39.6 percent (or 36 percent plus 3.6 percent). Consequently, the three tax brackets under previous law were replaced with five (15, 28, 31, 36, and 39.6 percent), although realized capital gains continued to be taxed at a top rate of 28 percent. OBRA93 also expanded the income tax base, by limited various itemized deductions (e.g., business meals and entertainment expenses, club dues, and moving expenses) and by increasing the portion of Social Security benefits subject to the income tax. It also increased the AMT rates and exemption amounts, and it raised the EITC for lower-income families.

Each of these bills represented a major change in the tax environment facing all taxpayers. The next section discusses our approach to analyzing the ways in which individuals responded to these changes.

3. Data and methods

A. Data

Our analyses are based upon the 1984, 1989, and 1994 Individual Tax Model Files (ITMFs) from the Statistics of Income of the Internal Revenue Service. These ITMFs are micro-level data sets that contain detailed information on individual observations from a stratified random sample of U.S. taxpayers.[4] The 1984 ITMF contains 79,556 individual records drawn from a population total of approximately 110 million tax return records; the 1989 file contains 96,588 records from a population of over 112 million records; and the 1994 ITMF contains 96,385 records from a population of 115.9 million records. In all years high-income tax returns, or those for taxpayers with

AGI above $200,000, are significantly oversampled, so that these ITMFs contain perhaps the most detailed and comprehensive information available for high-income taxpayers. For example, the 1994 ITMF contains 29,260 high-income returns, which represent 30.3 percent of the total ITMF sample of records and 2.6 percent of the total population of high-income returns. Similarly, the 1984 and 1989 ITMFs contain 21,675 and 28,402 returns for taxpayers with AGI above $200,000.

Each individual record of an ITMF contains roughly 200 variables that represent information coded from the actual federal individual income tax return. The taxpayer name, Social Security number, and other identifying information (other than the primary state of residence) are excluded from the file. We include returns filed by married couples filing jointly and separately and those filed by single individuals; we exclude returns filed by heads of households and by dependents.[5]

The main advantages of the ITMFs are their incredibly rich information on items reported on the tax returns and their very large numbers of observations on individuals at all points in the income distribution, especially at higher income levels. However, there are several problems with these data. One limitation of the ITMFs is the relative lack of demographic information. Although the ITMFs contain virtually all reported tax items, the tax returns contain little information on individual characteristics. Nevertheless, we are able to extract a limited amount of demographic information from items reported on the returns. For example, we infer the age of an individual based on their use of the elderly exemption, the marital status from the filing form, and the number of children from the child exemptions that are claimed on the return.

Another limitation of the ITMFs is that each is a cross-section of different individuals at a point in time, so that the same individuals are not included in each of the two years. Ideally, we would like to examine the responses of the same individuals over time, as in Feldstein (1995) and Auten and Carroll (1997), something that is not possible with separate cross-sections. Nevertheless, we have examined various aspects of the individuals in the two years, and their characteristics in such dimensions as proportions that are elderly or married are generally similar over time. In addition, the estimation approach used here can be viewed as transforming unrelated cross-sections over time into something like panel data; this estimation method is discussed in more detail later. It is important to note that, as with any time-series data (separate cross-sections or even panel data), the individuals in the top 1 percent in 1984 are not necessarily the same as those in the top 1 percent in 1989 or 1994. This is because the classification of taxpayers in the top 1 and 0.5 percent is based on income, so that, if individuals experience a decrease in any component of income from one year to the next, then they could fall to a lower ranking. This issue of rank reversal has been discussed in depth elsewhere (Slemrod, 1994).

For each of the three years, we select from each return the levels of numerous reported income types, such as wages and salaries, interest, dividend, capital gains, Schedules C and E incomes and losses, passive and nonpassive incomes and losses, and AGI. We supplement these measures of reported income by calculating a measure of total, or "comprehensive" income, as the sum of AGI, Social Security income not included in AGI, dividends not reported in AGI, pension income not reported in AGI,

capital gains not reported in AGI, retirement contributions, and self-employed health insurance deductions; this definition of total income captures as much of an individual's income as can be measured using tax return information, and also gives a consistent definition of total income over time.[6] We also select the major forms of itemized deductions (e.g., charitable contributions, mortgage interest deductions, and state/local tax deductions), as well as several other reported items of interest. Our intent is to compare the levels of these various items that individuals report in 1984, 1989, and 1994 holding constant as many factors as possible that might affect these decisions. To do this, we must consider such things as structural changes in the definition of the income tax base and secular trends in nominal income over the period 1984 to 1994.

Accordingly, we make several adjustments in the reported information to control for these types of changes. First, for dividend and capital gains incomes we add back the portion of each that is not included in AGI so that our measure represents the true level of each income type actually received. Second, all nominal amounts (except interest income) are adjusted to 1994 levels by the rate of inflation over the entire period. Any remaining changes in incomes are, we believe, largely due to changes in reporting behavior as people respond to the different tax regimes.

Tables 1 to 7 contain a variety of information on the composition of income, the distribution of various tax return items, demographic information, and the growth in incomes for 1984, 1989, and 1994 for high-income earners, as well as the general tax filing population. These tables are discussed in detail in section 4.[7]

B. Methods

The trends shown in the tables are of interest on their own merits, and we spend some time discussing them later. In addition, we use these files to estimate the responses of individuals in their reporting behavior to changes in individual income taxation arising from TRA86, OBRA90, and OBRA93. We focus here on the responses of individuals in their reporting of wages and salaries, interest income, capital gains income, dividend income, AGI, and total income, as well as in their reporting of various itemized deductions.

It should be emphasized that the reporting response of, say, wages and salaries is not the same as, say, a simple labor supply response. Although reporting behavior will certainly be influenced by any changes in hours worked or in labor force participation rates that may occur in response to tax reform, the reporting decision is a far broader decision. It is affected also by behavioral changes in such dimensions as employee compensation, itemized deductions, the realization of incomes, tax compliance, and the like.[8] Similar comments apply to other reporting decisions.

Importantly, it should also be emphasized that this reporting response is likely to vary for individuals at different levels of income and with different forms of income, and may also vary over different tax regimes. As implied above, the magnitude of the change in incentives faced by, say, higher income individuals is significantly different than that faced by lower income individuals. Also, the ability to vary the reporting of, say, wages and salaries is not likely to be the same as that for capital gains.

We use several approaches in our estimation of the reporting responses of the

rich. The starting point is a basic ordinary least squares (OLS) specification for each form of reporting behavior, or

$$Y = \beta X + \epsilon \quad (1)$$

where Y is some reported item, β is a vector of parameters (including a constant), X is a vector of individual characteristics, and ϵ is an error term. By estimating separate equations for different reported items, we are able to measure differential responses across these various items.

Individual characteristics include: a dummy variable for **Marital Status**, equal to 1 if married and 0 otherwise; the number of **Children**, as reported via dependent exemptions; a dummy variable for the receipt of **Unemployment** compensation, equal to 1 if unemployment compensation is reported and 0 otherwise; a dummy variable for **Elderly** status, equal to 1 if the elderly deduction is claimed and 0 otherwise; a dummy variable for **Itemization** status, equal to 1 if the individual itemizes deductions on the federal tax return and 0 otherwise; a dummy variable for the use of **Schedule C** (for reporting income from a business or a profession operated as a sole proprietor), equal to 1 if the individual files a Schedule C form and 0 otherwise; and a dummy variable for the use of **Schedule E** (for reporting income from rental real estate, royalties, partnerships, S corporations, estates, and trusts), equal to 1 if the individual files a Schedule E form and 0 otherwise.

We modify equation (1) to incorporate the impact of taxpayer reporting behavior

stemming from the major changes in taxation represented by TRA86, OBRA90, and OBRA93. In particular, we apply a method of estimation that has sometimes been called the differences approach, and has been increasingly employed in the analysis of such things as labor supply decisions (Angrist, 1991; Eissa and Liebman, 1996), minimum wages (Card, 1993), and health insurance (Gruber, 1994; Gruber and Poterba, 1995). TRA86, OBRA90, and OBRA93 each constituted a significant break from previous tax policy. If we can control for the major influences on reporting behavior that reflect such things as the growth in income over time, changes in the definition of the tax base, and other factors as discussed later, then any differences in reported incomes that we observe between 1984 and 1989 will be largely due to modifications in individual behavior in response to TRA86, and any differences in reported incomes that we observe between 1989 and 1994 will be largely due to modifications in individual behavior in response to OBRA90 and OBRA93.

The basic notion underlying the differences approach is to use the momentous changes in tax policy stemming from TRA86, OBRA90, and OBRA93 as a natural experiment, comparable to controlled experiments in the natural sciences. Suppose that we assume that a tax innovation like TRA86 (the natural experiment) affects one group of taxpayers (the treatment group) but not another group (the control group). If we measure the change in response of each group (the group difference), then the difference between these responses is the "difference-in-difference" estimate of the impact of taxation.

It should be noted that the use of the differences approach is not without some

difficulties. As emphasized by Heckman (1996) and Burman (1997), the differences approach assumes that the experiment affected only the treatment group and that other events over the period affected both groups equally, even though it is difficult to know this. In particular, if there is a difference in the trend growth of income for the treatment and the control group, and if this difference is independent of any tax changes, then the differences approach will mistakenly attribute this change in behavior to tax changes. In fact, Goolsbee (1998) argues that recent trends in compensation of higher-income individuals versus lower-income individuals are quite different; that is, the relative income of the rich has increased significantly in recent years, independently of any tax changes, so that a difference-in-difference estimator will overstate the marginal tax rate responses of the rich. The approach also often attributes the difference-in-difference estimate to a specific feature of the experiment, such as changes in marginal tax rates, even though there are numerous other tax provisions that are also changed by major tax bills like TRA86, OBRA90, and OBRA93. We discuss the relevance of these issues for our estimation results later.

The crucial issue in the differences approach is how to determine the sources of identifying variation. As discussed in more detail in the next section, we use several sources of identification. The most obvious source is a time-specific factor (e.g., pre- versus post-TRA86, or pre- versus post-OBRA90/OBRA93). We also use an individual-specific factor (e.g., individuals who are high-income versus those who are low-income). These variables are introduced as separate dummy variables and as interacted variables.

To illustrate the differences approach, consider the information on, say, wages and salaries pre- and post-TRA86 in Table 2. The simplest comparison of the effect of TRA86 on the reporting decisions of individuals is between 1984 and 1989 levels. This time-specific comparison shows that the reporting of wage income increased on average by $177 (or $25,447-$25,270) over this period, controlling for nominal changes in income over time, and this is one measure of the effect of tax reform on reporting behavior. When expressed as a percentage change (or 0.7 percent) by the use of the difference in the natural logarithms, and then divided by the percentage change in marginal tax rates (or -7.2 percent), this "difference" (*D*) estimator is one measure (or -0.1) of the marginal tax rate elasticity of wages and salaries.

However, it may be inappropriate to attribute this change in wages entirely to TRA86, since individual-specific factors may also be responsible, and it may also be necessary to allow for differential responses by income class. Another comparison, a "difference-in-difference" (or *DID*) estimator introduces such individual-specific factors with the time-specific factors, and also allows us to identify the differential responsiveness of high-income individuals. Suppose that it is assumed that high-income individuals (say, those in the top 1 percent of the income distribution) behave differently than all other individuals, before and after TRA86. The difference in the average amount of wages and salaries reported by the top 1 percent between 1984 and 1989 is $49,209, while the difference for all other individuals is $-318; these are denoted the time differences within the high- and low-income groups in wages between 1984 and 1989. The difference between the two income groups in 1984 is $132,452, and is $181,979 for

1989; these are denoted the individual differences at a point in time. This "difference-in-difference" in wages and salaries is therefore $49,527, equal either to ($49,209-$-318) or to ($181,979-$132,452); it can be expressed as a percent, and, when divided by a similar calculation for the difference-in-difference in marginal tax rates, it can be converted to a marginal tax rate elasticity for wages and salaries. This estimator equals -1.2.

The efficiency of the difference approach can be increased by controlling for other factors that may affect taxpayer decisions. In a regression context, this suggests that we estimate a variant on equation (1). If the only source of identification is time-specific (say, a dummy variable *TRA86*, equal to 1 for 1989 observations and 0 for 1984 observations), then we can estimate

$$Y = \beta X + \phi_1 \, TRA86 + \epsilon \qquad (2)$$

where Y, X, β, and ϵ are defined as in equation (1). The coefficient on *TRA86*, or ϕ_1, represents the difference estimator for the effects of tax reform on reporting behavior, and measures the difference in reporting of, say, wages and salaries, before versus after the enactment of TRA86. If we introduce individual-specific variation with time-specific variation, then we estimate

$$Y = \beta X + \phi_1 \, TRA86 + \phi_2 \, Highincome + \phi_3 \, TRA86 * Highincome + \epsilon \qquad (3)$$

where *Highincome* is a dummy variable equal to 1 for individuals in the top 1 percent of income recipients and 0 otherwise. Now it is the coefficient on *TRA86 * Highincome*, or

ϕ_3, that represents the difference-in-difference estimator for the effects of tax reform on reporting behavior. More precisely, ϕ_3 measures the difference in reporting of wages and salaries of high-income individuals relative to low-income individuals after the enactment of TRA86; it measures whether the reporting of high-income individuals changed more after the tax reform than did the reporting of low-income individuals. This framework is easily modified to incorporate the other tax bills or various demographic variables.

We apply this basic difference approach to the entire sample and to the high-income subsamples (the top 1 percent and the top 0.5 percent), for the two separate periods 1984-1989 and 1989-1994. Also, by estimating for the two periods we are to examine separately any taxpayer differential responses to TRA86 and to OBRA90/OBRA93. We have also estimated a wide range of alternative specifications, with relatively little impact on our results. In some specifications, we have used the shares of the income types as the dependent variables. We have used different definitions for the top income earners in the construction of the individual-specific dummy variable *Highincome*. We have also estimated all specifications using both unweighted and weighted ITMF data.[9] All of these results are available upon request.

4. Results

A. Who are the rich?

Table 1 reports some limited demographic information on the rich, as well as on all taxpayers, generated from the ITMFs. This information reveals that the rich are

different from us, but not that different from each other. For example, in 1984 nearly 38 percent of all returns reported some dependents, but over one-half of the two top earner groups reported dependents. Further, in 1984 the very rich were significantly more likely to claim the elderly deduction, to be married, and to be self-employed than the average taxpayer. Similar demographic characteristics occurred in 1994, with one notable exception: the rich are no longer more likely to report an elderly deduction. This latter result is consistent with other information that shows a growth in the "new millionaires", or those relatively young individuals who made their incomes as entrepreneurs in the 1980s and 1990s.

Table 1
Demographic Characteristics, 1984 and 1994

Characteristic	1984		
	Percent of Top 1%	Percent of Top 0.5%	Percent of All Returns
Dependents?	53.41%	50.88%	37.97%
Elderly?	20.92%	25.28%	11.96%
Married?	86.83%	85.89%	48.62%
Self	26.93%	28.30%	11.30%

Characteristic	1994		
	Percent of Top 1%	Percent of Top 0.5%	Percent of All Returns
Dependents?	50.62%	47.81%	36.20%
Elderly?	13.93%	14.30%	12.00%
Married?	88.37%	88.47%	44.23%
Self	29.77%	28.44%	13.64%

Source: Authors' calculations from ITMFs, various years.

B. The composition of income

Table 2 shows the composition of comprehensive income for the top income holders, as well as for the entire taxpaying population. The pre-TRA86 composition of income is heavily weighted toward non-wage forms of income for both the top 1 and top 0.5 percent of the taxpaying population. In 1984, wages and salaries comprised 44 and 38 percent respectively of the top 1 percent and top 0.5 percent of filers. The entire population received about twice as much of their income in wages and salaries (79 percent) for the same period. For the high-income earners, capital gains income played an especially important role in 1984, when it accounted for over one-third of total comprehensive income for the upper income earners. At the same time, the general population earned less than 6 percent of their income in the form of capital gains.

In 1989, the composition of income changed somewhat, at least partially in response to TRA86. Net capital gains income dropped significantly for the top income earners. Also, Schedule E income as a share grew the most of any one item, likely due to a combination of the reduction in passive losses allowed by law and to the transfer of C- to S-corporations stemming from the relative reduction in individual versus corporate income tax rates. While similar patterns of change in the composition of income occurred for the entire population, this Schedule E shift was much greater for high-income earners. Other changes in the composition of income between 1984 and 1989 were relatively minor.

From 1989 to 1994 there was a movement away from capital income (or interest, dividend, and capital gains income) as a share of total comprehensive income toward

wages and salaries income. Recall that in 1993 there was a significant increase in the top marginal tax rate on taxable income. If capital income is somewhat more moveable than other forms of income, then it is not surprising to see evidence of this shift in the composition of income for high-income earners.

Table 2
Composition of Comprehensive Income,
1984, 1989, and 1994

Income Type	1984			1989			1994		
	Top 1%	Top 0.5%	All	Top 1%	Top 0.5%	All	Top 1%	Top 0.5%	All
Wages and Salaries	44.03%	38.08%	79.30%	41.12%	37.09%	73.07%	47.02%	42.83%	73.89%
Interest	5.71%	5.70%	5.57%	7.61%	7.98%	5.60%	5.19%	5.73%	3.16%
Dividends	4.26%	4.42%	2.21%	5.67%	5.97%	2.42%	4.44%	4.82%	1.99%
Net Capital Gains	34.92%	40.70%	5.69%	19.26%	22.05%	4.29%	15.17%	17.68%	3.34%
Schedule C Net Income	4.54%	3.50%	3.12%	5.37%	4.32%	3.95%	5.67%	4.69%	4.07%
Schedule E Net Income	3.83%	4.53%	-0.13%	13.55%	15.18%	2.04%	19.22%	21.60%	3.35%
Social Security Benefits	0.44%	0.32%	1.64%	0.39%	0.28%	2.35%	0.48%	0.33%	2.81%

Source: Authors's calculations from ITMFs, various years.

C. Levels of reported items

Table 3 shows the mean levels of various tax return items for the top 1 percent of tax filers and the mean of all tax filers (in italics in parentheses), for the three years 1984, 1989, and 1994; also shown in Table 3 is the coefficient of variation for the top group (in parentheses). Table 4 presents similar information for the top 0.5 percent of tax filers. Recall that all amounts are adjusted for changes in prices, and are in constant dollars; also, the individual income item entries are adjusted for changes in tax base definitions over the period.

Over the period 1984 to 1989, most mean real reported entries grew significantly at all income levels, especially the various types of reported incomes. For example, average real wages and salaries of the top 1 percent of filers increased on average by 28 percent, interest by 83 percent, dividends by 83 percent, and pensions by 34 percent (Table 3). Mean Schedule C net income (or income from sole proprietorships) and, especially, Schedule E net income (or income from real estate, royalties, partnerships, S-corporations, estates, and trusts) rose enormously, by 62 and 386 percent, respectively. Overall, mean real AGI of the top 1 percent grew from $269,000 to over $467,000, an average increase of 77 percent; our measure of mean comprehensive income rose by 38 percent, from $383,000 to nearly $500,000. The increase in Schedule E net income is particularly striking, and is likely due in large part to the increased incentive for the use by individuals of S-corporations rather than C-corporations stemming from TRA86. Note, however, that average capital gains fell significantly from 1984 to 1989, from $129,000 to $96,000 thousand, as preferential

treatment of realized gains was eliminated by TRA86.

It is also worth noting that mean real levels of itemized deductions rose significantly for the top 1 percent of tax filers. State and local income taxes, mortgage interest, and charitable contributions all increased from 1984 to 1989.

As shown in Table 4, the reported incomes of the top 0.5 percent of tax filers show a similar pattern for the years 1984 to 1989, with if anything slightly larger percentage increases. Specific forms of income (e.g., wages and salaries, interest, dividends, Schedules C and E incomes, pensions) rose enormously. Mean AGI and comprehensive income also rose by slightly greater percentage amounts than

Table 3
Means and Coefficients of Variation for Top 1% of Tax Filers, Tax Years 1984, 1989, and 1994 in Constant Dollars
(*population means*)

Variable	Means (Coefficient of Variation)		
	1994	1989	1984
Comprehensive Income	455,768 (1,618) *(34,432)*	499,991 (1,913) *(34,824)*	383,416 (1,839) *(31,864)*
Adjusted Gross Income (AGI)	451,248 (1,644) *(32,889)*	467,152 (2,156) *(33,462)*	268,986 (1,886) *(29,201)*
Wages and Salaries	214,305 (1,138) *(25,443)*	205,606 (1,248) *(25,447)*	156,397 (903) *(25,270)*
Interest	23,634 (6,381) *(1,088)*	38,048 (3548) *(1,948)*	21,439 (2,786) *(1,774)*
Dividends	20,228 (5,431) *(687)*	28,353 (7,799) *(841)*	22,908 (4,566) *(705)*
Schedule C Net Income/(Loss)	25,823 (3,780) *(1,402)*	26,861 (4038) *(1,375)*	15,815 (4,498) *(996)*
Net Capital Gains/(Loss)	69,169 (7,298) *(1,152)*	96,306 (7,347) *(1,492)*	127,992 (4,835) *(1,815)*
Schedule E Net Income/(Loss)	87,591 (3,968) *(1,153)*	67,747 (4,820) *(710)*	13,169 (14,208) *(-40)*
Social Security Benefits	2,203 (1,912) *(969)*	1,973 (1,757) *(818)*	1,969 (1,717) *(521)*
State and Local Income Taxes	24,324 (2,174) *(885)*	24,361 (2,620) *(837)*	15,773 (2,102) *(828)*
Home Mortgage Interest	12,304 (773) *(1,546)*	13,330 (913) *(1,508)*	6,599 (1,024) *(1,027)*
Total Contributions	14,626 (6,723) *(594)*	13,192 (11,082) *(576)*	11,905 (5,155) *(589)*
Total Income Tax	126,600 (1,734) *(4,493)*	111,952 (21,18) *(4,493)*	89,768 (2,111) *(4,221)*

Source: Authors' calculations from ITMFs, various years.

Table 4
Means and Coefficients of Variation for Top 0.5% of Tax Filers:
Tax Years 1984, 1989, and 1994 in Constant Dollars
(*population means*)

Variable	Means (Coefficient of Variation)		
	1994	**1989**	**1984**
Comprehensive Income	671,179 (1,419) *(34,432)*	760,264 (1,346) *(34,824)*	580,493 (1,284) *(31,864)*
Adjusted Gross Income (AGI)	666,832 (1,165) *(32,889)*	709,204 (1,476) *(33,462)*	388,319 (1,362) *(29,201)*
Wages and Salaries	287,447 (874) *(25,443)*	281,945 (925) *(25,447)*	201,185 (695) *(25,270)*
Interest	38,469 (4,164) *(1,088)*	60,695 (2,336) *(1,948)*	32,626 (2,786) *(1,774)*
Dividends	32,326 (3,601) *(687)*	45,357 (5,152) *(841)*	37,159 (2,996) *(703)*
Schedule C Net Income/(Loss)	31,458 (3,187) *(1,402)*	32,877 (4,038) *(1,375)*	17,787 (3,947) *(966)*
Net Capital Gains/(Loss)	118,659 (4,522) *(1,152)*	167,670 (4,440) *(1,492)*	226,049 (2,901) *(1,815)*
Schedule E Net Income/(Loss)	144,965 (2,530) *(1,153)*	115,377 (2,947) *(710)*	23,747 (838) *(-40)*
Social Security Benefits	2,191 (1,492) *(969)*	2,098 (1,295) *(818)*	8,717 (1,302) *(521)*
State and Local Income Taxes	36,489 (1,524) *(885)*	38,146 (1,739) *(837)*	23,978 (1442) *(848)*
Home Mortgage Interest	13,559 (629) *(1,546)*	14,998 (732) *(1,508)*	6,833 (862) *(1,027)*
Total Contributions	22,975 (4,554) *(594)*	20,985 (7,319) *(576)*	19,069 (3,417) *(589)*
Total Income Tax	196,948 (1,162) *(4,493)*	173,354 (1,418) *(4493)*	141,686 (1,399) *(4,221)*

Source: Authors' calculations from ITMFs, various years.

experienced by the top 1 percent of filers. Again, capital gains income fell for the top 0.5 group, from $226,000 to $168,000, and itemized deductions all increased.

Compared to these two top groups, the average tax filer did not fare nearly so well over the 1984 to 1989 period. Although most forms of income rose, the increases were generally quite modest. For example, average real wages and salaries grew by only $177, AGI by $4,261, and comprehensive income by $2,960. Like the two top groups, however, Schedules C and E incomes of the average taxpayer rose, and mean capital gains fell. There are no consistent patterns in itemized deductions.

The experiences of the different groups of individuals for the 1989 to 1994 period were substantially different. Although mean real wages and salaries continued to rise modestly for the top two groups of filers, most other forms of their income tended to fall. For example, mean real AGI of the top 1 percent (top 0.5 percent) fell by 4 percent (6 percent), and mean real comprehensive income of the top 1 percent (top 0.5 percent) dropped by 9 percent (12 percent). AGI and comprehensive income also fell for the average taxpayer, but these drops (2 and 3 percent, respectively) were slightly smaller than those experienced by the top groups.

It should be noted that many of the entries in Tables 3 and 4 are simple averages of reported items for the two top income groups. These averages mask considerable -- and sometimes enormous -- variation in some specific reported items, as measured by the coefficient of variation (CV), calculated as the standard deviation of an entry divided by its mean. Although there is relatively little variation in broad-

based measures of income like AGI or comprehensive income for the top income groups, the component parts of income often vary enormously. For example, the CVs for taxable interest, dividends, Schedule C income, capital gains, and Schedule E income typically exceed three thousand for the top 1 percent in 1984, 1989, and 1994, and some specific entries like passive or non-passive losses have CVs well in excess of ten thousand. The CVs for the top 0.5 percent also often vary enormously. These results suggest that the rich are a very diverse group in where they get their incomes.

D. Shares in income of the rich

The wealthy obviously hold a significant amount of the reported income of the tax filers in our samples. Table 5 shows the percent of various income items received by the top 1 percent and top 0.5 percent of the tax filing population for each year, 1984, 1989, and 1994. As shown in these data, the top income earners received over 11 percent of total comprehensive income in 1984. The greatest concentration of any one income type was in the form of capital gains income in 1984, when the affluent held over 70 percent of reported capital gains. The difference between the concentration of income for the top 1 percent and top 0.5 percent is quite subtle. For example, the 0.5 percent group held about 75 percent of all comprehensive income held by the top 1 percent group, 64 percent of the wages held by the top 1 percent, and 88 of the capital gains income held by the top 1 percent in 1984.

By 1989 there was an increase in this concentration of all income in the top groups. The top 1 percent increased their holdings of comprehensive income by about 3 percentage points over 1984. In virtually all categories, the top earners' shares increased (with the exception of capital gains, pension, and Social Security income). This general growth did not, however, change the relative concentration between the top 1 and top 0.5 percent groups. For example, in 1989 the top 0.5 percent held 76 percent of the total comprehensive income of the top 1 percent group. As discussed above, this was the period of the explosion in Schedule E income.

The trend from 1989 to 1994 differed from that of 1984 to 1989. The top income groups saw a slight decrease in their holdings of total comprehensive income, from 14.4 percent of the total to 13.7 percent. During this period, the top income earners increased their share of wage and salary income slightly over the earlier period, while their share of capital income fell. As explained below, these trends are consistent with expected responses (true behavioral or timing) to the tax changes that occured during these periods.

Table 5
Distribution of Income
(as percent of total)

Income Type	1984		1989		1994	
	Top 1%	Top 0.5%	Top 1%	Top 0.5%	Top 1%	Top 0.5%
Comprehensive Income	11.78%	8.92%	14.39%	10.96%	13.73%	10.47%
Wages and salaries	6.19%	3.98%	8.10%	5.56%	8.73%	6.07%
Interest	12.08%	9.19%	19.56%	15.63%	22.52%	18.99%
Dividends	32.47%	26.33%	33.75%	27.05%	30.53%	25.27%
Net Capital Gains	70.52%	62.27%	64.46%	56.04%	62.25%	55.33%
Schedule C Net Income	15.88%	8.93%	19.57%	12.00%	19.09%	12.05%
Schedule E Net Income[a]	-326.21%	-294.12%	95.59%	81.56%	78.73%	67.49%
Social Security Benefits	3.77%	2.27%	2.42%	1.29%	2.36%	1.21%

[a] The total amount of Schedule E Net Income is negative in 1984, while the amounts received by the top 1 percent and the top 0.5 percent are positive.

Source: Authors' calculations from ITMFs, various years.

D. Growth in incomes

Table 6 shows the indexed percent growth in each individual income item for the top income filers, as well as for the entire filing population, from 1984 to 1989. Over this period there was a substantial growth in income for the top earners. The patterns of income growth for the top two income groups are again somewhat similar, but the patterns for the top groups are very different from those for the entire population. The rich filers saw an larger increase in every income item except for capital gains, Schedule E income, and pension and Social Security income. The relative growth in comprehensive income was almost twice as large for the high-income earners as for the entire population. Capital income (except capital gains) soared for these top income groups, again relative to the entire population.

The second period tells a much different story (Table 7). The relatively large growth in income items in the 1984-1989 period was followed by a slight decrease in total indexed comprehensive income for the top income groups, while the overall population witnessed a small increase in comprehensive income. For the top groups, gains came from wages and salaries (much less so for the entire population), and other, smaller forms of income. Capital income growth was negative for all filers. This is again roughly consistent with some expectations associated with tax law changes.

Another way to investigate these changes is by allocating the total growth in various income amounts to the top income groups. For example, total comprehensive income grew for all taxpayers by over $671 billion dollars from 1984

to 1989. Of this total, the top 1 percent of tax filers claimed about 27 percent of the growth, and the top 0.5 percent claimed 21 percent. This basic result holds for most types of capital income, general pension income, and income from Schedules C and E. For the period 1989 to 1994, while the top income earners' total comprehensive income decreased, their shares of wages and salaries, interest income, and dividend income grew substantially.

Table 6
Total Indexed Growth, 1984-1989

Income Type	Top 1%		Top 0.5%		All	
	Total	Mean	Total	Mean	Total	Mean
Comprehensive Income	47.48%	30.40%	48.43%	30.97%	20.74%	7.01
Wages and Salaries	48.68%	31.46%	58.82%	40.14%	13.63%	0.70%
Interest	100.70%	77.47%	110.82%	86.03%	23.97%	9.81%
Dividends	39.97%	23.75%	38.33%	22.06%	34.69%	19.43%
Net Capital Gains	-13.26%	-24.76%	-14.89%	-25.83%	-5.43%	-17.75%
Schedule C Net Income	92.08%	69.85%	109.47%	84.43%	55.85%	38.05%
Schedule E Net Income	481.83%	414.44%	450.61%	385.86%	2085.70%	1875.00%
Social Security Benefits	13.39%	0.20%	0.25%	0.03%	77.08%	57.01
AGI	96.41%	73.67%	106.98%	82.63%	26.17%	11.82%

Source: Authors' calculations from ITMFs, various years.

Table 7
Total Indexed Growth, 1989-1994

Income Type	Top 1%		Top 0.5%		All	
	Total	Mean	Total	Mean	Total	Mean
Comprehensive Income	-1.80%	-3.78%	-3.01%	-4.81%	0.22%	-1.91%
Wages and Salaries	8.29%	6.51%	9.14%	7.55%	1.28%	-0.83%
Interest	-55.83%	-58.86%	-54.24%	-56.93%	-67.09%	-70.58%
Dividends	-36.90%	-39.56%	-37.85%	-40.25%	-18.69%	-21.33%
Net Capital Gains	-31.46%	-31.94%	-28.74%	-29.37%	-21.60%	-21.90%
Schedule C Net Income	3.97%	2.10%	2.21%	0.51%	0.89%	-1.18%
Schedule E Net Income	11.72%	10.00%	9.28%	7.70%	27.79%	26.27%
Social Security Benefits	10.63%	8.95%	8.94%	7.33%	18.29%	16.53%
AGI	-4.57%	-6.61%	-5.60%	-7.44%	-0.81%	-2.96%

Source: Authors' calculations from ITMFs, various years.

E. Estimation results

Tables 8 and 9 report some selected results from the difference-in-difference estimations for charitable donations, wages and salaries, AGI, and comprehensive income, for the two periods 1984 to 1989 and 1989 to 1994. The results for other forms of itemized deductions (e.g., mortgage interest deductions and state and local income taxes), as well as for the different forms of capital income (e.g., interest, dividend, and capital gains incomes) are more variable, but generally show similar patterns.

Recall that it is the coefficient of the interaction term (e.g., *TRA86*Highincome* in Table 8) that represents the difference-in-difference estimator for the effects of tax reform on reporting behavior of the affluent. More precisely, this coefficient, denoted ϕ_3 in equation (3), measures the difference in reporting of, say, wages and salaries of high-income individuals relative to low-income individuals before versus after the enactment of tax reform; it measures whether the reporting of high-income individuals changed more after the tax reform than did the reporting of low-income individuals. The comparable coefficient in Table 9 is on the term *OBRA*Highincome*, where *OBRA* is a dummy variable equal to 1 for 1994 observations and 0 for the 1989 observations and *Highincome* is defined as in Table 8. Note that we present two sets of results in each table. In the first set the data include all tax filers, while in the second set we limit our observations to the top 1 percent of tax filers in order to focus on the reporting behavior of this group of individuals. For these latter results, *Highincome* is defined as a dummy variable equal to 1 for individuals in the top 0.5 percent of all tax filers and 0 otherwise. Other variable definitions were discussed earlier.

As shown in Table 8 by the coefficient on *TRA86*, tax reform by itself had a consistently positive impact on the income reporting decisions of all tax filers, as well as on charitable donations of these individuals. Not surprisingly, high-income individuals also reported enormously greater amounts of income and donated significantly greater amounts to charities than low-income individuals, as shown by the coefficient on *Highincome*. Of most importance, the coefficient on the interaction term, or ϕ_3, demonstrates that the reporting decisions of high-income individuals increased relative to those of low-income individuals after the enactment of tax reform; that is, the reporting of high-income individuals changed more after the tax reform than did the reporting of low-income individuals. This difference is $18,062 for wages and $114,039 for AGI; the coefficient is not statistically significant for comprehensive income. This coefficient varies considerably across income type, with a much larger magnitude for AGI than for wages and salaries. Charitable donations responded as expected to the decline in marginal tax rates, as indicated by the negative coefficient of $-2,126 on the interaction term.[10]

It would be convenient to attribute all of these changes in reporting directly to the changes in taxation represented by TRA86. However, it should be recognized that ϕ_3 may also measure nontax factors that increased the relative incomes of high-income individuals, factors such as technological change, international trade, the returns to education, and the like.[11] Also, as noted earlier, there are good reasons for cautious interpretation of the results from the differences method.

Despite these concerns, we find a similar pattern when we use different definitions

of *Highincome*. When *Highincome* is defined as a dummy variable equal to 1 for individuals in the top half of all tax filers and 0 otherwise, the sign on the interaction term remains positive and significant for most forms of reported income in the 1984-1989 period, while this coefficient is not significant for the 1989-1994 period. Not surprisingly, however, the magnitude of the coefficient drops significantly, since the coefficient is now measuring the relative difference in reporting of groups of individuals whose incomes are much closer in size (e.g., the top half versus the bottom half rather than the top 1 percent versus the bottom 99 percent). For example, the impact of TRA86 on reported wages changes from $18,062 in Table 8 to $3,522, and its impact on AGI changes from $114,039 to $10,481.

We also find similar results even when the sample includes only the top 1 percent of tax filers, or a sample in which nontax factors should operate in broadly similar ways on all individuals. As shown in Table 8, ϕ_3 is large, positive, and statistically significant for wages and AGI, and it is negative and significant for charitable donations.[12] The coefficient ϕ_3 also tends to be larger when the sample is limited to the top 1 percent of income earners. These results suggest that there is a difference in reporting behavior even among the very rich.

Importantly, our results are quite similar when we apply the differences approach to the tax changes of the 1990s, or a period in which there is little evidence of different trends in the income growth of high- versus low-income groups. These results are reported in Table 9. When the sample includes all taxpayers, the coefficient on the interaction term is consistently negative and significant (except for wages and salaries),

so that the amounts of income reported by the rich tended to fall more than those of other individuals; when the sample includes only the top 1 percent of tax filers, a similar pattern is found.[13] As for charitable donations, ϕ_3 is positive and significant for both samples. Given that TRA86 substantially reduced marginal tax rates while OBRA90 and OBRA93 raised rates, the results in Table 9 are broadly consistent with those in Table 8, in that both tend to show that income reporting and marginal tax rates are negatively related, while itemized deductions and marginal tax rates are positively related.

These DID estimates can be converted to marginal tax rate elasticities, as reported in Tables 8 and 9.[14] In general, the income reporting elasticities vary substantially, between -0.5 and -2.4 with a clustering around -1.0; the charitable donations elasticities are consistently less than one. There is also a clear tendency for all of the elasticities to be higher in the earlier than in the later period, as well as for the income reporting elasticities to vary both across the type of income type and the nature of the sample. These reporting elasticities are similar to those estimated by Feldstein (1995) and Auten and Carroll (1997).[15]

The signs on the control variables are generally consistent with expectations. When the sample includes all tax filers, married individuals, couples with children, and individuals who itemize or who have Schedule E income tend to have higher forms of all reported incomes. In contrast, individuals who receive unemployment compensation, who are elderly, and who report Schedule C income typically have lower reported incomes. When the sample includes only the top 1 percent of tax filers, these results change somewhat. For example, when the elderly report lower levels of wage income,

they sometimes have higher levels of other reported incomes (e.g., capital gains, dividends, and interest). Not surprisingly, the receipt of Schedule E income among the top groups is associated with lower levels of wages but higher levels of AGI and comprehensive income.

Table 8
OLS Estimation Results, 1984-1989

Independent Variable	All Tax Filers				Top 1% of Tax Filers			
	Dependent Variable				Dependent Variable			
	Charitable Donations	Wages and Salaries	AGI	Comprehensive Income	Charitable Donations	Wages and Salaries	AGI	Comprehensive Income
Constant	-173*	11248***	9408***	10458***	-10647*	47835***	-138605***	85970*
Marital Status	55	15059***	14371***	15873***	-3541	46072***	5099	-10778
Children	8	1523***	496	261	-349	10602***	-10072*	-9270
Unemployment	-127	-3586***	-3061*	-2761*	-4598	-31245*	-106937*	-75945
Elderly	375**	-22694***	-4535***	-1309	13386***	-126764***	21397	28681
Itemization	1352***	22351***	28013***	27085***	13323***	-67507***	262763***	62671*
Schedule C	166	-12391***	-4676***	-2925***	4402**	67528***	7219	46878***
Schedule E	435**	2563***	7249***	10550***	4145*	-657	77979***	90165***
TRA86	102	2591***	5421***	4125***	427	87	43955**	10548
Highincome	12261***	128952***	251142***	381556***	16487***	116675***	275785***	472756**
TRA86* Highincome	-2126**	18062***	114039***	9156	-4381*	17766***	129751***	31015
R^2	0.010	0.266	0.068	0.093	0.003	0.075	0.027	0.030
DID Marginal Tax Rate Elasticity	0.8	-0.7	-1.7	---	0.6	-1.2	-2.4	---

[a] For regressions using all tax filers, Highincome is a dummy variable equal to 1 for individual in the top 1% of tax filers and 0 otherwise. For regressions using the top 1% of tax filers, Highincome is a dummy variable equal to 1 for individuals in the top 0.5% of tax filers and 0 otherwise.

***: $P \leq .001$; **: $P \leq .01$; *: $P \leq .05$

Table 9
OLS Estimation Results, 1989-1994

Independent Variable	All Tax Filers				Top 1% of Tax Filers			
	Dependent Variable				Dependent Variable			
	Charitable Donations	Wages and Salaries	AGI	Comprehensive Income	Charitable Donations	Wages and Salaries	AGI	Comprehensive Income
Constant	-123	13138***	13003***	13304***	-15858***	83563***	-26249	131994***
Marital Status	36	15564***	15804***	17065***	-1310	47801***	-17454	-11573
Children	10	1773***	718	381	-634	8198***	-9800*	-15491**
Unemployment	-136	-3883***	-3421*	-3294**	-6217	-94577***	-210868***	-111145**
Elderly	428**	-22461***	-3905***	-274	16474***	-137627***	21400	30800*
Itemization	1573***	24349***	31267***	29514***	16807***	57692***	208348***	55363*
Schedule C	111	-12050***	-4739***	-3378***	2476	-72461***	4742	12997
Schedule E	464**	-3883***	10164***	12424***	5690**	-20477***	113351***	107291***
OBRA	4	206	-116	-43	1512	3154	13670	14702
Highincome	11424***	161746***	408433***	439353***	13667***	151873***	448659***	488530***
OBRA* Highincome	866*	449	-40311***	-31034***	3088*	-2846*	-34662*	-32783*
R^2	0.006	0.249	0.077	0.112	0.003	0.066	0.028	0.034
DID Marginal Tax Rate Elasticity	0.6	—	-0.8	-0.6	0.6	-0.5	-0.9	-0.8

[a] For regressions using all tax filers, Highincome is a dummy variable equal to 1 for individual in the top 1% of tax filers and 0 otherwise. For regressions using the top 1% of tax filers, Highincome is a dummy variable equal to 1 for individuals in the top 0.5% of tax filers and 0 otherwise.

***: $P \leq .001$; **: $P \leq .01$; *: $P \leq .05$

5. Conclusions

So, are the rich different? Our results indicate clearly that the answer is yes. The rich differ from the average taxpayer in terms of their demographics, their income composition, and their income changes. There is also some evidence that they differ from the average population in their responses to tax changes. And our results suggest that the rich are different from each other, at least in terms of the magnitudes of their responses to tax law changes. It seems likely that these differential responses are due largely to the greater control and flexibility of the rich in overall financial matters and, especially, in the forms of their compensation.

Nevertheless, these results must be tempered by the difficulties inherent in any empirical work. There is little doubt that data on the behavior of the rich are limited and flawed in important ways; in particular, the data do not allow for a complete examination of timing versus accounting versus real responses of the rich. There is also little doubt that the estimation method used here is subject to some criticism, even though we believe that the limitations of the differences approach do not negate our main results. Until -- if ever -- these issues are resolved, our conclusions must remain suggestive.

Endnotes

1. Also, the reporting decisions of all taxpayers have been examined. For example, Lindsay (1987) uses information from 1979 and 1982 samples of individual tax returns to estimate reporting changes from the Economic Recovery Tax Act of 1981, and Feldstein (1995) and Auten and Carroll (1997) use panel data from individual tax returns to estimate reporting changes arising from the Tax Reform Act of 1986. All of these studies have found that the individual reporting responses can be substantial. For general discussions of behavioral responses to taxation, see Aaron and Pechman (1981), Slemrod (1992), and Auerbach and Slemrod (1997).

2. An especially informative guide to tax policies of the 1980s is Steuerle (1992).

3. In part because of changes in the federal income tax, many states also altered their state income taxes. Among states that relied heavily on the definition of the income tax base in the federal income tax, a typical state action was to reduce marginal tax rates in the state individual income tax, in order to avoid a major income tax increase on state citizens. For a similar reason, another common action was to modify in some way the federal base definition. Some states changed neither their rates nor their definition of the tax base, which led to a significant increase in state income taxes. For a detailed discussion of state and local responses to TRA86, see Bahl (1987), Courant and Rubinfeld (1991), and Metcalf (1993).

4. For more detailed information on these data sets, see the Internal Revenue Service (1984, 1989, 1993).

5. We exclude dependent returns because of the significant change in tax treatment of such returns between 1984 and 1989.

6. Note that total income does not include such items as nonretirement transfer payments, fringe benefits, unrealized capital gains, and underreported income, items about which there is no information on the individual tax return; it also does not include income that is mistakenly or purposely underreported or that is not reported at all on tax returns. See Erard and Ho (1995) for an analysis of the factors that determine nonfiling.

7. See Levy and Murname (1992), Papadimitriou and Wolff (1994), and Danziger and Gottschalk (1995) for detailed discussions of studies that detail the distributional changes in the last several decades.

8. Lindsay (1987), Feldstein (1995), and Auten and Carroll (1997) make a similar point.

9. The use of weighted versus unweighted observations is discussed by DuMouchel and Duncan (1983).

10. Note also that the coefficient on the interaction term is not significant in regressions for dividend income, it is positive and significant for interest income, and negative and significant for capital gains income.

11. Again, see Levy and Murname (1992), Papadimitriou and Wolff (1994), and Danziger and Gottschalk (1995) for a discussion of these factors and their contributions to increasing inequality.

12. The coefficient and the interaction term for the top 1 percent of tax filers is positive and significant for interest income, negative and significant for capital gains income, and insignificant for dividend income.

13. The coefficient for ϕ_3 for the 1989-1994 estimations is consistently negative and significant for all other forms of income (e.g., dividend, interest, and capital gains income).

14. The elasticity based upon equation (3), with *TRA86* and *Highincome*, is calculated as

$$\frac{[(\ln(Y_{1989,Highincome})-\ln(Y_{1989,Lowincome}))-(\ln(Y_{1984,Highincome})-\ln(Y_{1984,Lowincome})]}{[(\ln(MTR_{1989,Highincome})-\ln(MTR_{1989,Lowincome})-(\ln(MTR_{1984,Highincome})-\ln(MTR_{1984,Lowincome})]}$$

where $Y_{1989,Highincome}$ is some type of reported income for high-income taxpayers in 1989, $MTR_{1989,Highincome}$ is the combined federal-state marginal tax rate for high-income taxpayers in 1989, and so on. Other elasticities are calculated in a comparable manner.

15. Feldstein (1995) and Auten and Carroll (1997) report tax price elasticities, rather than the marginal tax rate elasticities used here; that is, their elasticities equal $[\partial Y/\partial(1-MTR)][(1-MTR)/Y]$, where Y is some form of reported income and MTR is the marginal tax rate. The elasticities reported here equal $[\partial Y/\partial(MTR)][MTR/Y]$. It is straightforward to convert one elasticity to the other.

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