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Chapter Author: Daniel R. Feenberg, James M. Poterba

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INCOME INEQUALITY AND THE INCOMES OF VERY HIGH-INCOME TAXPAYERS: EVIDENCE FROM TAX RETURNS

Daniel R. Feenberg
NBER

James M. Poterba
Massachusetts Institute of Technology and NBER

EXECUTIVE SUMMARY

This paper uses tax return data for the period 1951–1990 to investigate the rising share of adjusted gross income (AGI) that is reported on very high income tax returns. We find that most of this increase is due to a rise in reported income for the one quarter of one percent of taxpayers with the highest AGIs. The share of total AGI reported by these taxpayers rose slowly in the early 1980s, and increased sharply in 1987 and 1988. This pattern suggests that at least part of the increase in the income share of high-AGI taxpayers was due to the changing tax incentives that were enacted in the 1986 Tax Reform Act. By lowering marginal tax rates on top-income households from 50% to 28%, TRA86 reduced the incentive for these households to engage in tax avoidance activities. We also find substantial differences in the growth of the income share of the

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highest one quarter of one percent of taxpayers, and the share of other very high income taxpayers. This casts doubt on the view that the increasing inequality of reported incomes at very high levels is driven by the same factors that have generated widening wage inequality at lower income levels.

The evolution of U.S. income distribution has recently attracted enormous academic and popular attention. Systematic studies of labor earnings based on large household surveys, such as those by Bound and Johnson (1992), Katz and Murphy (1992), Levy and Michel (1991), and Murphy and Welch (1992), have demonstrated that labor earnings, the most important component of income for all but the highest income households, became more unequal during the 1980s. The returns to college education rose, and the real earnings of low-skill individuals declined relative to those of better-trained workers.

The most controversial feature of the income distribution, however, is the apparent increase in the share of income accruing to a small group of very high-income households: those in the top 1 percent of the income distribution. A widely publicized calculation, described in Krugman (1992), suggests that very high-income households received a disproportionate share of the real income growth in the U.S. economy during the last decade.

Measuring the income and wealth of high-income households is extremely difficult. The economic lives of the rich, especially the rich who are not famous, are something of a mystery. Mandel (1992) estimates that there are only a few thousand highly visible, highly compensated individuals in the U.S. economy—athletes, top executives at large companies, and partners at major law firms and investment banks. Various sources suggest that the compensation received by these individuals rose rapidly during the last decade. Yet whether the experiences of this group generalize to the nearly one million households in the top 1 percent of the income distribution remains an open question. Information from income tax returns remains the most reliable, if imperfect, source of information about the economic activities of this group.

One class of explanations for the apparent increase in the relative incomes of high- versus low-income households focuses on changes in economic institutions or structure that might raise wages or capital incomes for the high-income group. Slemrod (1993) argues that increasing globalization of economic activity may raise the incomes of high-ability individuals by more than that of the less able. The rise of new financial institutions and practices during the last fifteen years—for example, takeovers and leveraged buyouts—may also have expanded the opportu-

nities for a small group of individuals to earn very high incomes. This explanation for rising incomes of top "performers" follows the analysis of superstar compensation developed by Rosen (1981) and explored further in Frank and Cook (1992).

An alternative explanation for the growth of reported income inequality focuses on changes in taxpayer incentives to report taxable income, rather than defer income recognition or otherwise shelter accruing income. Because high-income households derive more of their income from portfolio investments and self-employment than households elsewhere in the income distribution, they are likely to have more opportunity to engage in legal tax avoidance, and more discretion in deciding how, and how much, of their income is reported to the Internal Revenue Service (IRS), than their lower-income counterparts. The tax reforms of 1981 and 1986 lowered marginal tax rates on high-income households, reducing their incentives to engage in various forms of tax avoidance. Taxpayers at the top of the income distribution faced marginal tax rates as high as 70 percent in 1980, while in 1988, their marginal tax rates were capped at 28 percent.

The suggestion that recent tax reforms induced changes in reported taxable income, even if they did not affect taxpayer behavior, lies at the center of the recent debate on whether the tax reforms of the 1980s increased labor supply (see Bosworth and Burtless, 1992, and Lindsey, 1987a, 1988). Because the Congressional Budget Office (CBO) data on income distribution, the data underlying the Krugman (1992) calculation, rely on tax returns for data on the incomes of high-income households, changes in taxpayer reporting behavior could directly affect estimates of income inequality at top income levels.

This paper presents new evidence on the changing share of adjusted gross income (AGI) reported by very high-income taxpayers. We focus primarily on the comparison of annual income distributions for the years 1951–1990 and limit most of our analysis to the top one-half of 1 percent of taxpayers. We document the changing composition of income reported by these households, and we try to provide some evidence on the importance of tax-induced changes in income reporting in contributing to this group's rising share of AGI. We do not explore the variation in the relative incomes of households elsewhere in the income distribution, a subject that has also attracted substantial controversy (see Nasar, 1992, and Roberts, 1992). For studying the distribution of incomes below the top tier, tax returns are not the best source of information. Not all low-income households file tax returns, and even for those who do, tax returns do not include information on most transfer payments.

This paper is divided into six sections. The first describes our methods for using tax return data to estimate the share and composition of income accruing to high-income taxpayers, whom we label *Top AGI Recipients* (TARs). Section II describes the impact of the major tax reforms in 1981 and 1986 on the incentives for high-income taxpayers to report taxable income. The third section presents time series information on the share of AGI, as well as various AGI components such as wages and salaries, dividends, interest, and capital gains, reported by these taxpayers. We find that most of the increase in the share of income reported by taxpayers in the top fifth of the income distribution is accounted for by an increase in the share of reported income in the top *one quarter of 1 percent* of taxpayers.

Our results also suggest that the increase in reported income inequality is not simply an artifact of capital gains realizations in the 1980s, but reflects changes in the distribution of most other income sources as well. The share of income reported by top income taxpayers rose throughout the 1980s, but we find the sharpest increase in 1987 and 1988, the years following a significant decline in marginal tax rates. We therefore conclude that changes in decisions about how much taxable income to report have contributed to the observed increase in the reported incomes of high-income households. Unfortunately, we cannot estimate the share of the reported income increase that is due solely to changes in taxpayer reporting practices.

Section IV presents data on the composition of reported income for high-income households. Wages and salaries became substantially more important, and capital income less important, between 1970 and the mid-1980s. We find that this trend began roughly in 1969, when the top marginal tax rate on earned income fell from 77 percent to 50 percent. The fifth section investigates the extent to which the changing income share of top-income taxpayers can be attributed to changes in the composition of factor rewards in the aggregate economy, rather than to shifts within the distribution of each type of factor income. We find that high stock market returns during the 1980s would have raised the income share of top-income taxpayers even if the ownership of stock had remained fixed at its 1979 levels. The actual share of income received by these households rose faster than the changing distribution of aggregate factor rewards would have predicted. The changing mix of factor incomes is particularly unsuccessful in explaining the rapid growth in the share of AGI reported by high-income households in the years following the 1986 Tax Reform Act. The final section concludes and suggests several avenues for further work.

I. ESTIMATING THE INCOME OF VERY HIGH-INCOME HOUSEHOLDS

The CBO publishes widely cited estimates of the U.S. income distribution (1992a, 1992b). This distribution is defined in terms of adjusted family income (AFI). AFI is similar to AGI as defined by the federal income tax, but it also includes cash transfer payments and imputed corporate taxes, and excludes some business losses that can be deducted when taxpayers compute AGI.

Table 1 shows the CBO's estimates of the share of AFI accruing to households in the top fifth of the income distribution during the period 1977–1988. The estimates show a rising share of income accruing to this group, and in particular show that the top 1 percent of households account for a very large share of the total increase for the top quintile. In 1977, the estimates suggest that the top 20 percent of all households received 45.6 percent of adjusted family income, while in 1988 the analogous group received 51.4 percent of the total. The share received by the top one percent of households, however, rose from 8.3 percent (1977) to 13.4 percent (1988). This 5.2 percent increase is 90 percent of the 5.8 percent increase for the top 20 percent. The lower panel in Table 1 shows the share of wages and salaries accruing to the top 20 percent and the top 1 percent of households. The highest 1 percent accounts for two-

TABLE 1.
CBO Income Distribution Estimates, 1977–1988.

	Percent			
	1977	*1980*	*1985*	*1988*
Share of adjusted family income received by				
Top 20%	45.6	46.7	50.1	51.4
81–90%	15.6	15.7	15.7	15.3
91–95%	10.1	10.1	10.4	10.1
95–99%	11.6	11.7	12.4	12.6
Top 1%	8.3	9.2	11.6	13.4
Share of wages and salaries received by				
Top 20%	42.1	43.5	45.8	47.7
81–90%	17.7	17.8	17.9	17.5
91–95%	10.5	10.7	11.2	11.1
95–99%	9.8	10.3	11.2	11.4
Top 1%	4.1	4.7	5.5	7.7

Source: Congressional Budget Office (1992b). The statistics in the top panel are also reported in the U.S. House of Representatives *1992 Green Book* (p. 1521).

thirds of the gain in the share of wages and salaries reported by the top 20 percent of households.

An income distribution can be defined over households, as in the CBO estimates, individuals, or taxpayers.[1] Each of these three options has advantages and drawbacks. Focusing on households can be misleading because demographic changes can shift the characteristics and number of households. Between 1960 and 1989, the average number of individuals per U.S. household declined from 3.3 to 2.6. The shares of single-person households, and of households headed by a single adult with children, have increased significantly in recent decades. Because these households have lower incomes on average than other households, the share of income accruing to a given fraction of households at the top of the income distribution should increase as a result of this demographic change.[2] Focusing on individuals also raises difficult issues, such as the treatment of spouses and children. Do they receive a proportional share of household income? If so, then if a single high-income taxpayer marries a lower-income earner, she may drop out of the high-income category. The birth of children to high-income households could have the same effect.

Defining the income distribution in terms of a given share of tax returns, the natural choice given our reliance on tax data, can also yield spurious results. The number of tax returns filed varies with changes in the tax law. The 1986 Tax Reform Act was expected to remove almost six million low-income households from the tax rolls, although in practice it had a far smaller effect (see Hausman and Poterba, 1987 and Slemrod, 1992). By shrinking the number of taxpayers, such a reform would lower the number of tax returns in the top percentile of the taxpayer distribution. Because the taxpayers removed from the tax rolls typically have very low incomes, this change would reduce the share of income reported by the top percentile of taxpayers. This could bias comparisons between income distribution statistics, even for adjacent years, when the tax system is in flux.

Our approach to identifying the top of the income distribution begins with tax returns filed in 1989. We select the one-half of 1 percent of these returns with the highest AGI; there were 558,778 tax returns in this

[1] In 1989, of ninety-three million households in the United States, sixty-six million were "family households." There were 113 million tax returns filed in 1989.

[2] While this may contaminate comparisons of the top of the household income distribution in widely separated years, it is unlikely to have a large effect on comparisons of the income distribution over short time periods.

group.[3] We define this number of returns as N_{1989} and then compute an analogous number of returns in other years by multiplying N_{1989} by the ratio of the adult *population* in each year to that in 1989. Our procedure, which follows McCubbin and Scheuren (1988), indexes the number of high-income tax returns to the aggregate population, rather than the number of tax returns filed or the number of households. We define the top N_t taxpayers in each year as "Top AGI Recipients" (TARs). They represent roughly half as many households as the CBO's top 1 percent of the income distribution.[4]

A. Estimating Income Shares Using the Treasury Tax Model

In each year since 1968, the U.S. Treasury has released a data file containing an anonymous sample of individual tax returns, the Treasury Tax Model data base, which can be used to estimate the total income of high-income taxpayers. This data file over-samples high-income tax returns, providing reasonably accurate information on this group's income.

Table 2 shows the number of tax returns at different income levels in the 1989 Tax Model and indicates the sampling weights associated with returns in each group. There are nearly 12,000 returns with incomes of more than $1,000,000 in the data base. The probability that a tax filer with taxable income in this range would be included in the data file is approximately one in five. There are a similar number of tax returns with taxable incomes between $50,000 and $100,000, but each return filed in this income group has less than a 1 in 1,000 chance of being included on the data file. The Treasury Tax Model data bases for each year since 1979 are part of the NBER TAXSIM program, and we use these data files to tabulate the distribution of both AGI and various AGI components for these years.[5]

[3] Our reported income share for high-income households would not change if a top income taxpayer married someone with no income, although it would increase if a high-income taxpayer married another income recipient. It is also possible that marriages or divorces between individuals with high, but not very high, incomes could affect the income reported by the TAR group.

[4] Although our data set on federal tax returns does not include information on the state in which the tax filer resides, we can compare the number of federal income tax returns above various threshold income levels with state revenue statistics. They show some, but not extreme, concentration of tax returns. In 1989, for example, New York residents filed 3.7 percent of all federal income tax returns, but 12.9 percent of all returns with AGI in excess of $1 million.

[5] We compute the changing shares of AGI reported in each year, despite the fact that the *definition* of AGI changes when, for example, the capital gains exclusion is eliminated. This is partly for comparison with the widely cited results from the CBO. Our results also focus on several components of AGI with constant definitions through time.

TABLE 2.
Tax Returns Included in the Treasury Tax Model Data Base.

Income class	Number of returns	Average sample weight
<50K	53,680	1,794
50–100K	11,947	1,087
100–200K	4,561	455
200–500K	6,705	91
500–1,000K	7,700	15
>1,000K	11,996	5

Source: Authors' tabulations from 1989 Tax Model Data File.

B. "Interpolating" Incomes for High-Income Taxpayers

For years prior to 1979, we rely on aggregate data published by the Treasury Department in *Statistics of Income: Individual Income Tax Returns* (SOI) to estimate the income of TARs.[6] The SOI tables show the number of tax returns, and reported AGI, in various taxable income intervals. The reported AGI categories for high-income taxpayers have remained fixed in nominal terms for nearly three decades, with taxpayers divided into those with AGIs of 100–200K, 200–500K, 500–1,000K, and more than one million dollars. Estimating the amount of AGI reported by a given share of taxpayers therefore requires interpolating the IRS data.

To estimate the total income accruing to the top 0.5 percent of taxpayers, we interpolate AGI within categories below $1 million. We estimate a Pareto distribution for high-income tax returns and use our estimated distribution to estimate the total income accruing to top AGI recipients (TARs). The Pareto is a two-parameter distribution that is widely used in modeling the distributions of income and wages (see Johnson and Kotz, 1970).

We present the details of our interpolation procedure in an appendix but illustrate our method in Figure 1. This figure shows our estimated Pareto distribution for 1990, a year when our estimate of the income threshold for the top 0.5 percent of taxpayers (Y^*) was $258,499. In this case, we can determine from the reported IRS data that the AGI threshold for the top 0.5 percent of taxpayers lies between $200,000 and $500,000. We use the reported information on the fraction of tax returns with AGI above $200,000, and on the fraction with AGI above $500,000, to estimate the parameters of a Pareto distribution. We then use this estimated distribution to estimate Y^*.

[6] To ensure comparability over time, in any of our tables or figures that show results for the 1951–1990 period, we also interpolate during the 1979–1990 period when we could make more precise estimates using the Tax Model data base.

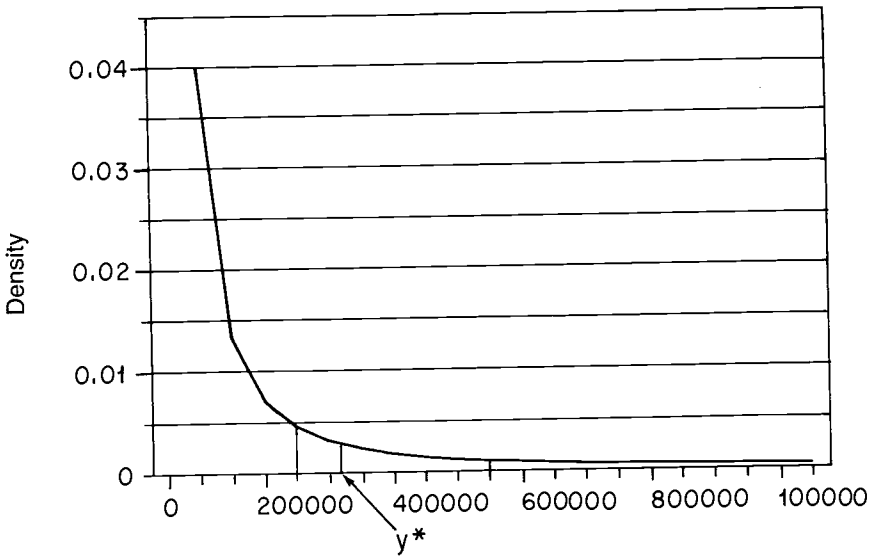

FIGURE 1. ***Sample Pareto Density Function:*** *alpha = 1.59, k = 6,619 (1990 parameters).*

Table 3 describes the results of our interpolation procedure. The first and second columns present our estimates of the cutoff income level for the Top AGI Recipients. Figure 2 plots this income threshold, which increased only 10 percent in real terms between 1970 and 1985, but in the four years, 1985–1989, it increased by nearly 50 percent, or almost $85,000 ($1991). The late 1980s, therefore, appears to be the period of most rapid change in the reported income distribution at high incomes.

The third and fourth columns in Table 3 show the number and share of tax returns that are included in our high-income group. These columns show the net effect of indexing the number of TARs to the adult population, rather than to the number of tax returns filed.[7] In the years since 1986, the share of returns in the TAR group varies very little. Between 1986 and 1987, it declined by .02 percent. There is very little change in the share of tax returns in the TAR group between 1975 and 1986, although there is some evidence that the number of tax returns grew more slowly than population for the period 1955–1975. Our TAR

[7] Indexing to the number of returns filed would make the last column of Table 3 equal to 0.005 in all years.

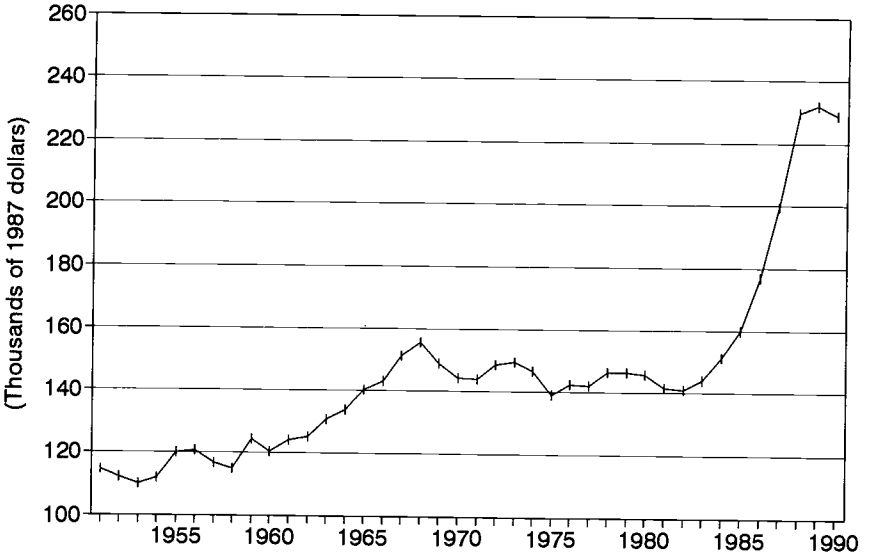

FIGURE 2. ***High-Income Threshold for TARs: 1951–1990.***

TABLE 3.
Income Thresholds for "Top AGI Recipients," 1955–1990.

Year	High-income threshold		Returns above threshold	
	Current dollars	*1991 Dollars*	*Number (000s)*	*Percent of total*
1955	28,466	144,801	334	0.0057
1960	31,290	144,098	355	0.0058
1965	39,836	172,197	384	0.0057
1970	49,594	173,978	410	0.0055
1975	61,721	156,204	441	0.0054
1980	104,611	172,895	502	0.0054
1981	111,670	167,274	510	0.0054
1982	117,797	166,258	517	0.0054
1983	125,448	171,546	523	0.0054
1984	137,723	180,566	529	0.0053
1985	150,996	191,189	535	0.0053
1986	171,195	212,727	541	0.0053
1987	199,436	239,059	548	0.0051
1988	238,652	274,762	554	0.0051
1989	251,338	276,066	558	0.0050
1990	258,499	269,376	564	0.0050

Source: Authors' calculations using data from annual publications of *Statistics of Income: Individual Tax Returns*. Data in column three are in thousands of returns. The definition of the "high income threshold" is the income level that excludes only the 0.005* (Adult Population$_t$)/(Adult Population$_{1990}$) highest-income tax returns.

group includes a larger share of tax returns in 1960 (0.58 percent) than in 1970 (0.55 percent), 1980 (0.54 percent), or 1990 (0.50 percent). This should tend to *increase* the share of reported income accruing to the TAR group in the early years of our data period, and yield a downward bias in our estimate of the trend in the TAR income share over time.

II. TAX CHANGES AND INCENTIVES FOR REPORTING TAXABLE INCOME

Tax policy parameters such as marginal tax rates can affect the amount of income reported on tax returns either by inducing real changes in individual behavior, such as changes in the number of hours that individuals work, or by inducing changes in the reporting of a given income stream. Because taxpayers can use a variety of tax avoidance techniques to defer or reclassify their income, the tax base is sensitive to decisions about how much income to report. This section provides a brief overview of the changing tax avoidance incentives facing high-income taxpayers.

A. Earned Income

The two most significant changes in the tax rates on earned income of high-income taxpayers took place in 1969 and 1986. The Tax Reform Act of 1969 capped the marginal tax rate on earned income at 50 percent, at a time when the top marginal tax rate on unearned income was 70 percent (77 percent including the Vietnam war surtax). The top marginal tax rate on earned income remained at 50 percent through 1986, although rates just below those of top income taxpayers were reduced by the Economic Recovery Tax Act of 1981 (ERTA). The Tax Reform Act of 1986 (TRA86) reduced the top marginal tax rate on earned as well as unearned income from 50 percent to 28 percent, further lowering the incentives to (legally) avoid taxes.

Declining marginal tax rates reduced the incentives to engage in a variety of tax avoidance practices. One simple avoidance strategy involves transforming earned income into fringe benefits, ranging from company cars and conference "vacations," to health and life insurance policies. There is a large literature, summarized in Woodbury and Hammermesh (1992), suggesting that the demand for fringe benefits is sensitive to the marginal tax rate on earned income. A related strategy involves deferring earned income, and the associated taxes, to later years. Over long hori-

zons, income could be deferred with retirement plans or deferred compensation arrangements.[8]

Some taxpayers may also have used income-retiming strategies over shorter tax-planning horizons, moving wages and salaries income from 1986 to 1987 or 1988, and capital gain realizations from later years to 1986. Taxpayers with some control over the timing of when clients are billed for their services, and those who receive large bonuses or otherwise lumpy earned income, faced strong incentives in 1986 to find ways to avoid recognizing income until lower tax rates became effective in later years. Deferring income by fourteen months, from December 1986 to January 1988, could raise a taxpayer's after-tax income by 44 percent (from $0.50 on the dollar to $0.72). This provided powerful incentives to engage in a wide range of income-retiming activities, which are unfortunately difficult to measure from tax returns or other public data sources.[9]

A particularly significant dimension of TRA86 was its change in the incentives for using Subchapter C corporations to avoid recognizing personal income. Before 1986, a dollar reported as individual income faced a tax burden of $0.50, while a dollar earned by a Subchapter C corporation faced a marginal tax rate of 46 percent, with somewhat lower rates on the first $100,000 of income. Corporate income could bear subsequent individual-level taxes if it was distributed as wages or dividends, although there were strategies, for example, bequeathing stock in a closely held business, that could reduce such taxes.

After TRA86 was fully phased in, the top personal income tax rate was below the corporate tax rate. A dollar of income reported directly on an individual income tax return faced a tax burden of 28 percent starting in 1988, compared with at least 34 percent if it was earned by a Subchapter C company. As Gordon and Mackie-Mason (1990) explain, these tax changes reduced the incentive to use corporations to shelter income, and they could have led to an increase in reported income for high-income taxpayers. Anecdotal evidence of the potential importance of this effect is provided by Scholes and Wolfson (1992), who note that there were 225,000 S-corporation elections in the last three weeks of 1986, compared with only 75,000 elections in the entirety of 1985.

[8] In the first few years of a low-tax rate regime, such as 1987 and 1988, it is even possible that individuals who had previously deferred income by contributing to retirement plans would *withdraw* plan assets, also leading to an increase in reported income.

[9] Scholes, Wilson, and Wolfson (1992) document the importance of retiming of *corporate* income around this tax change, which reduced the statutory corporate tax rate from 46 percent to 34 percent.

B. Capital Income

The tax changes that were enacted in 1981 reduced the top tax rate on unearned income other than capital gains from 70 percent to 50 percent. TRA86 further reduced this top rate to 28 percent. The tax rules affecting capital gains are more complex. Between 1969 and 1978, 60 percent of long-term capital gains could be excluded from taxable income, implying a top marginal tax rate of 28 percent (70%*.4). For some taxpayers, however, because the excluded portion of capital gains was considered a tax preference item for the minimum tax, the marginal rate on realized gains could exceed 40 percent (see Lindsey, 1987b). This situation was changed by the Tax Reform Act of 1978 (TRA78), which excluded capital gains from the set of minimum tax preference items, effective January 1, 1979. In addition, the 1978 reform lowered the share of long-term gains that was included in taxable income from 50 percent to 40 percent for gains realized after October 31, 1978. These changes reduced the maximum statutory tax rate on long-term capital gains to 28 percent beginning with the 1979 tax year. The preannounced reduction in top marginal rates at the highest incomes led to significant delay in the realization of capital gains by TARs. The 1981 tax reform, ERTA, further reduced the marginal tax rate on gains for top income taxpayers, because the reduction in marginal tax rates to 50 percent coupled with the 60 percent exclusion generated a top capital gains tax rate of 20 percent.

The Tax Reform Act of 1986 *raised* the top marginal rate on capital gains from 20 percent to 28 percent, because it eliminated the partial exclusion of long-term gains from taxable income. Because the 1986 changes were legislated to take effect in 1987, there was a strong incentive for taxpayers with accrued but unrealized gains to realize these gains in 1986. This "retiming" of gains is a striking feature of the time series on gain realizations (see Auerbach, 1988).

This brief summary of the tax rates facing high-income households suggests that there have been important changes over time in the after-tax income gains associated with tax avoidance strategies.[10] We now consider the detailed information on income reports by these households, to investigate whether there is evidence that such changes in taxpayer behavior took place.

[10] The discussion has focussed on legal tax avoidance strategies, although some taxpayers may resort to illegal strategies such as income underreporting. Poterba (1987) provides evidence on the potential sensitivity of evasion for capital gains, an important income source for high-income households, with respect to marginal tax rates.

III. THE SHARE OF INCOME RECEIVED BY TOP AGI RECIPIENTS

This section reports our basic findings on the changing concentration of reported income among high-income taxpayers. Figure 3 shows our estimate of the share of AGI accruing to TARs in each year between 1951 and 1990.[11] The AGI share of this group declined during the 1950s and 1960s, was roughly stable during the 1970s, and increased during the 1980s. The share of AGI reported by roughly the top one-half of 1 percent of taxpayers rose from 6 percent in 1981 to over 12 percent in 1988. The sharpest increase in AGI concentration occurred between 1985 and 1988, when the income share of this group rose from 8 percent to 12 percent. The TAR share of AGI also fell more than a full percentage point in 1989 and 1990, which could be consistent with an active role for short-term and one-time income retiming strategies in the years immediately following enactment of TRA86.

One possible explanation for the rising concentration of AGI among top income recipients is that capital gains realizations rose during the 1980s, and that they are a highly concentrated form of income. Figure 4 shows the share of AGI *excluding capital gains* reported by the top AGI recipients. The figure focuses on the period since 1979, and shows that while the nongain AGI share of this group rose by almost one percentage point between 1979 and 1986, it rose by more than three percentage points between 1986 and 1988. This figure suggests that capital gains are *not* the explanation for the broad trend in the concentration of AGI. It also demonstrates, however, that there was a rapid increase in reported noncapital gain income among TARs in the years immediately following TRA86. This is consistent with the view that these taxpayers reported more of their income in taxable form when marginal tax rates declined.

Although most of our analysis focuses on the top one-half of 1 percent of tax returns, we also examined reported AGI for several other subsets of the high-income population. The first two columns of Table 4 report the AGI share for the top one-tenth and one-quarter of 1 percent of tax returns. The middle column reports data for the top one-half of 1 percent of taxpayers, the TAR group that we focus on elsewhere. The two rightmost columns show the share of AGI reported by the top 1 and 2 percent

[11] We have not made the various adjustments to AGI that the Congressional Budget Office uses in computing "economic income" of households. For households in our AGI class, the most important CBO modifications are exclusion of some losses on real property, arguably the result of tax shelter investments, and the inclusion of some corporate tax payments as a component of taxpayer income.

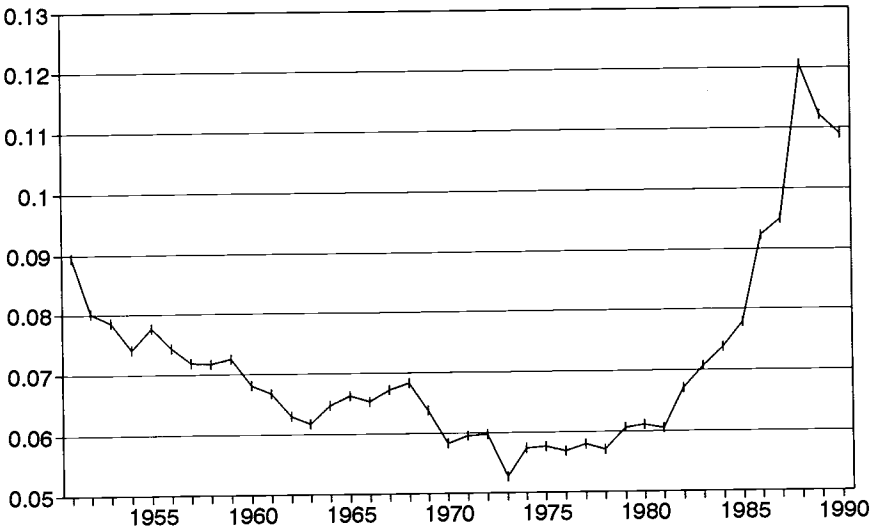

FIGURE 3. *TAR Share of Total AGI: 1951–1990.*

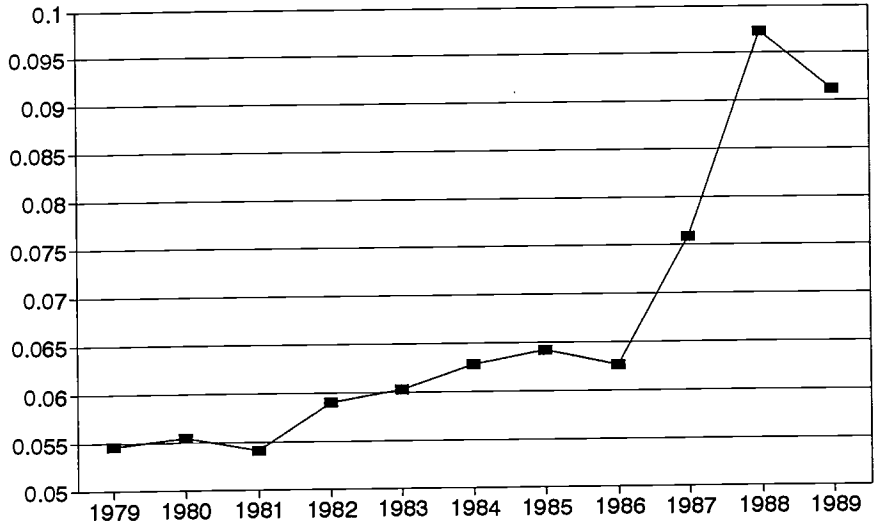

FIGURE 4. *Share of Nongain Income to TARs: 1979–1989 (ranked by nongain income).*

TABLE 4.
The Share of Income Accruing to Very High-Income Taxpayers, 1979–1989.

Year	Fraction of the income distribution (%)				
	Top 0.001%	*Top 0.0025%*	*Top 0.005%*	*Top 0.01%*	*Top 0.02%*
Panel A: Adjusted Gross Income					
1979	2.61	4.18	6.05	8.81	12.90
1980	2.63	4.24	6.12	8.91	13.05
1981	2.63	4.19	6.03	8.76	12.85
1982	3.14	4.81	6.73	9.51	13.66
1983	3.38	5.10	7.04	9.84	13.99
1984	3.66	5.41	7.36	10.14	14.29
1985	3.83	5.66	7.66	10.49	14.64
1986	4.74	6.71	8.84	11.79	16.05
1987	4.90	7.10	9.44	12.64	17.12
1988	6.75	9.38	12.02	15.41	19.93
1989	5.96	8.43	11.00	14.37	18.94
Panel B: Adjusted Gross Income Excluding Capital Gains					
1979	2.19	3.66	5.45	8.14	12.15
1980	2.24	3.74	5.54	8.24	12.29
1981	2.20	3.66	5.40	8.04	12.05
1982	2.54	4.08	5.90	8.59	12.64
1983	2.66	4.21	6.02	8.68	12.73
1984	2.87	4.46	6.28	8.94	12.96
1985	2.95	4.58	6.42	9.09	13.10
1986	2.83	4.43	6.26	8.95	13.00
1987	3.65	5.53	7.60	10.52	14.75
1988	5.09	7.37	9.73	12.85	17.18
1989	4.62	6.80	9.12	12.27	16.66

Source: Authors' tabulations using U.S Treasury Individual Tax Models for years 1979–1989.

of taxpayers for the years 1979–1989. These estimates are based on the Treasury Tax Model data bases.

Table 4 shows that even within the top 2 percent of the taxpayer distribution, the gains in reported AGI during the 1980s were highly concentrated. The share of AGI reported on the top 2 percent of tax returns rose by 6.04 percent between 1979 and 1989, but more than half of this increase, 3.35 percent, was reported on the top one tenth of 1 percent of tax returns (roughly 100,000 tax returns). More than two-thirds of the increase in AGI for the top 2 percent was reported by the top one-quarter of 1 percent of taxpayers. These findings are consistent with Krugman's (1992) "fractal" hypothesis about the shape of the income distribution.

Figure 5 makes the same point with a slightly different approach. It

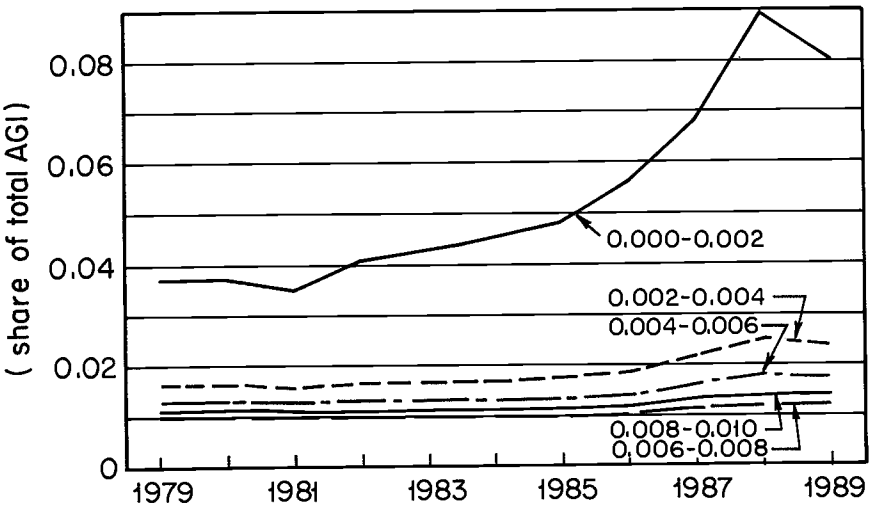

FIGURE 5. ***Distribution of AGI Within Top Percent: 1979–1989.***

shows the share of AGI reported by five nonoverlapping groups: the top 0.2 percent, the *next* 0.2 percent, etc. The top line is the share of AGI reported by the top one-fifth of 1 percent of taxpayers. It shows a sharp increase between 1986 and 1988, and declines slightly in 1989. There has been a relatively small increase in the AGI shares for all groups below the top one-fifth of 1 percent of taxpayers.[12] This casts doubt on the view that the factors responsible for the increase in reported incomes among high-income taxpayers, especially in the 1986–1988 period, are the same factors that were responsible for the widening of the wage distribution over a longer time period. Figure 5 also underscores the importance of the post-1986 period in contributing to the changes in reported income concentration during the 1980s.

The lower panel of Table 4 reports similar calculations for AGI excluding capital gains. The same pattern emerges, with more than half of the increase in nongain AGI for the top 2 percent of taxpayers accruing to the top 0.1 percent of taxpayers. Comparing the upper and lower panels of Table 4 provides interesting evidence, however, on the relative timing of the concentration of gain and nongain income. While the share of total AGI, including gains, reported by the top 0.1 percent of taxpayers

[12] Our tabulations focus on the distribution of income for taxpayers in each year, not the distribution of the *same* taxpayers over time. Thus, the taxpayers in the top AGI category in one year may be different from those in this category in the next year. Slemrod (1991) provides some evidence on the persistence of income for high-income taxpayers.

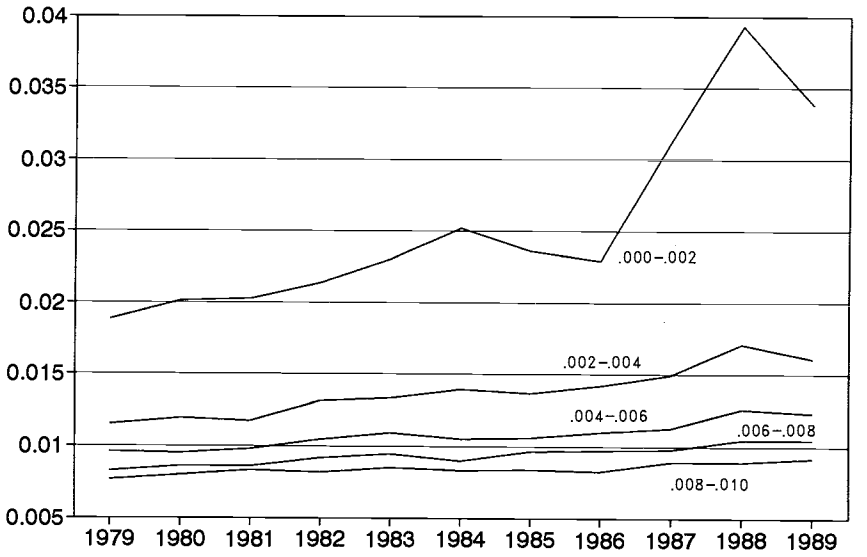

FIGURE 6. ***Wage Shares Within the Top Percentile: 1979–1989.***

rose from 2.6 percent to 3.8 percent between 1979 and 1985, the share of nongain income increased less than one percentage point, from 2.2 percent to 2.95 percent. In the post-1986 period, however, the nongain income share for this group grew faster than its share of total AGI. Capital gain realizations, therefore, were a more important factor in the concentration of AGI in the early than in the late 1980s.

We can also perform a similar analysis for components of income. Figure 6 presents data on the share of wages and salaries accruing to taxpayers in the top 1 percent of the taxpayer distribution.[13] There is some growth in the share of wages for each of the high-income groups between 1979 and 1989, but a dramatic increase in the share of wages for the top 0.2 percent of taxpayers. Three-quarters of this increase occurs between 1986 and 1988, and the sharp break in the trend growth rate in 1986 is strongly suggestive of a link between TRA86 and this pattern of reported income.

Figure 7 presents similar data for a longer time period. This data series is based on aggregate IRS data, and shows the share of wages and salaries reported by top AGI Recipients. While the rapid increase in wage concentration after 1986 is unusual by historical standards, the trend toward rising concentration of wages and salaries began in the

[13] We continue to sort taxpayers by total AGI in preparing this figure.

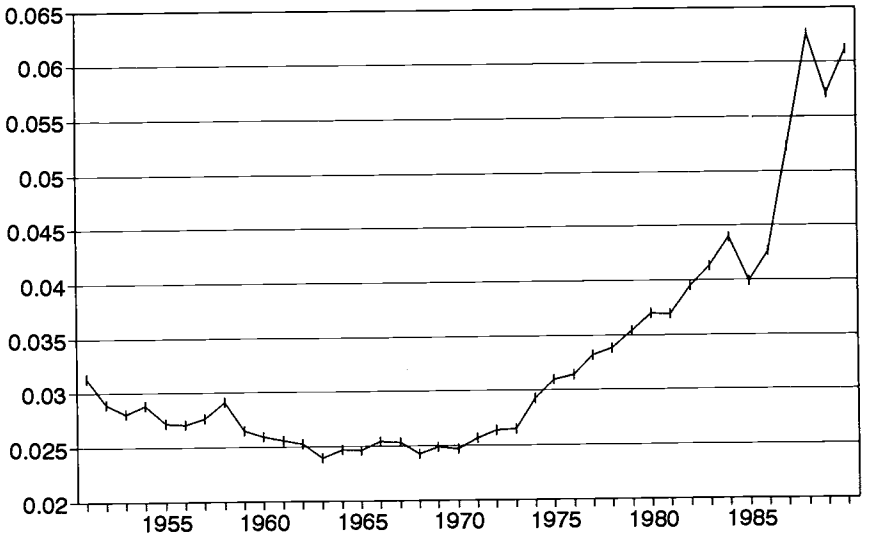

FIGURE 7. ***TAR Share of Total Wages: 1951–1990.***

early 1970s. The wage share of the TARs rose by nearly 1.5 percentage points between 1970 and 1980, by another 0.5 percent between 1980 and 1985, and then by more than two percentage points in the two years after the Tax Reform Act of 1986. The beginning of the trend toward rising wage and salary concentration is roughly coincident with the Tax Reform Act of 1969, which reduced the top tax rate on earned income from 77 percent to 50 percent. We suspect that the large increase in reported TAR wages and salaries in the years after 1986 reflects, at least in part, a reporting response to lower marginal tax rates.[14]

Our findings suggest that whatever forces were behind the rising concentration of reported income in the high-income ranks during the 1980s, they were strongly concentrated within a small group of taxpayers, and strongly concentrated in the years after 1986. Without much more precise information on the financial and tax-planning activities of high-income taxpayers, it is impossible to determine how much of the increase in reported income was due to changes in tax avoidance behavior; how

[14] The difference between Slemrod's (1993) conclusion that there is no evidence for a high-income "Laffer curve," and our finding supporting a positive elasticity of reported taxable income with respect to tax rate reductions, can be traced to the data we analyze. Slemrod examines data on relatively few years between 1962 and 1988, and does not focus on the short-term changes that take place between tax years 1985 and 1988. His methodology is therefore designed to detect long-term trends, rather than high-frequency fluctuations such as those associated with income retiming.

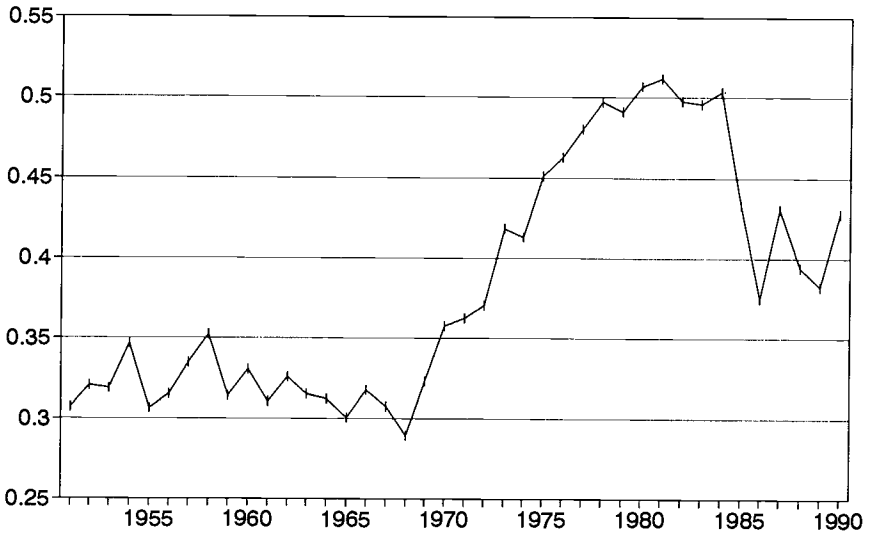

FIGURE 8. *Wage Share of AGI Among the TAR: 1951–1990.*

much was due to changes in real behavior such as labor supply; and how much was due to changing returns to the factors, labor and capital, that high-income taxpayers own. This is a central goal for future work.

IV. THE INCOME COMPOSITION OF HIGH-INCOME TAXPAYERS

The previous section considered the high-income taxpayers' share of total AGI, AGI excluding capital gains, and wages and salaries. This section explores the fraction of total income reported by top-income taxpayers that is from various income sources, and asks how this income mix has changed over time.

Figure 8 shows wage and salary income as a share of AGI for TARs over the 1951–1990 period. This share rose during the 1970s, from one-third to one-half of the AGI for this group.[15] During the 1980s, however, while the concentration of wage income increased, the wage share of income for the TARs actually declined. This is not just an artifact of rising capital gain

[15] The U.S. House Ways and Means Committee (1991) reports data from the Congressional Budget Office on the top 1 percent of the income distribution for households. The increase in the share of wage income, from 34.2 percent in 1977 to 38.4 percent in 1988, is less pronounced in part because of the larger set of households included in the CBO's "top 1 percent" group.

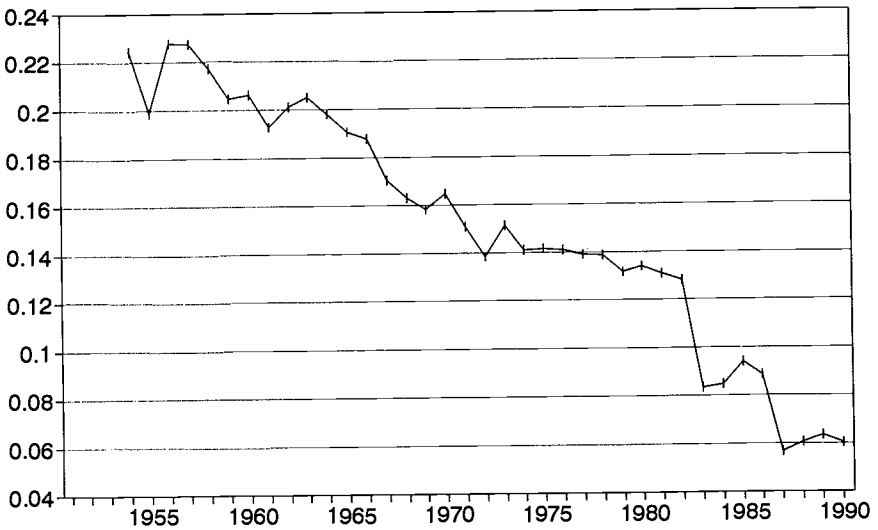

FIGURE 9. ***Share of Dividends in TAR Income: 1951–1990.***

realizations; if the figure were redrawn with the share of wages in nongain AGI, it would look almost identical. Figure 8 also shows a very sharp decline, by over ten percentage points, between 1985 and 1987.

Figure 9 reports an analogous calculation for dividend income. The stylized view that high-income taxpayers derive most of their income from dividend payments has become increasingly inappropriate during the last three decades. TARs drew roughly one-quarter of their taxable income from dividends in the early 1950s, but only 6 percent of their AGI from this source in 1989.[16] Figure 10 shows that the share of dividends received by high-income taxpayers has also fallen. In the late 1980s, the top 0.5 percent of taxpayers reported roughly one-quarter of the dividends on all tax returns, compared with nearly half of all dividends in the late 1950s. These calculations are based on taxable dividends, and therefore exclude dividends received on equity held in IRAs, 401(k)s, and other tax-sheltered forms. It is difficult to argue that the growth of such investment vehicles is large enough to explain the pattern in Figure 10.

The analogous time series for interest income, shown in Figure 11, displays a rather different pattern. The share of interest income received TARs declined between 1951 and the early 1960s, was stable at about 10 percent until 1986, and then rose by almost five percentage points be-

[16] One factor that may partly explain this trend, especially in the 1980s, is the rise of money market mutual fund shares, which may generate dividends for lower-income households.

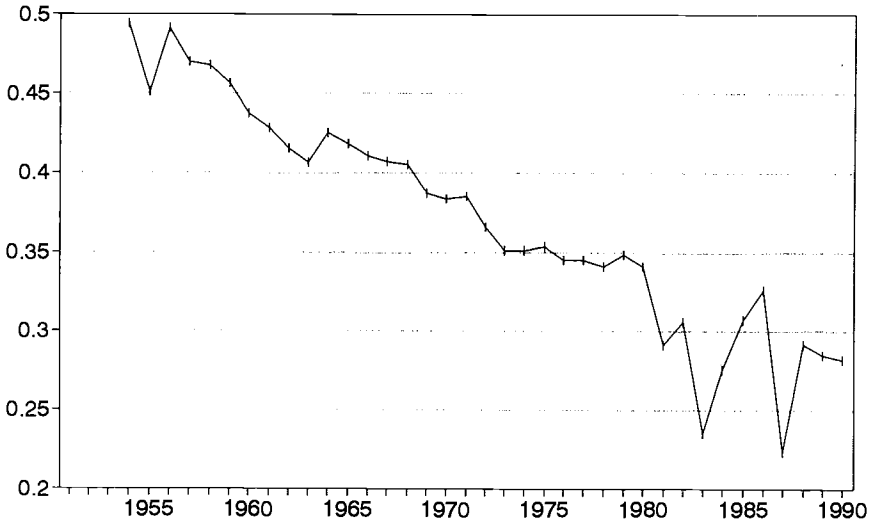

FIGURE 10. *TAR Share of Total Dividend Income: 1954–1990.*

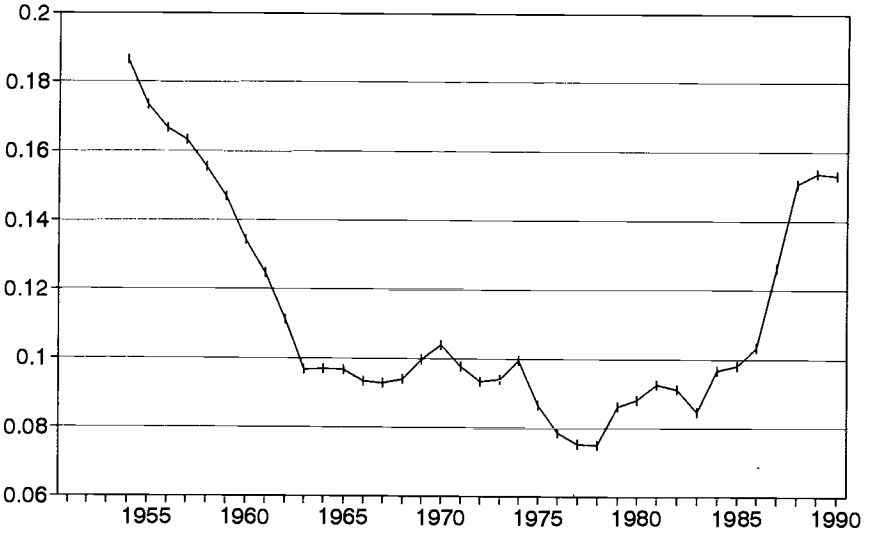

FIGURE 11. *TAR Share of Total Interest Income: 1951–1990.*

tween 1986 and 1988. Because clientele models of asset ownership suggest that the relative tax rates of different investors play a key role in determining portfolio composition, the post-1986 changes may reflect the changing relative marginal tax rates of TARs and other investors. TRA86 reduced the tax penalty associated with holding interest-bearing securities at top-income brackets. This legislated tax reduction was reinforced by declining inflation rates in the late 1980s, which further reduced the effective tax burden on interest income received by high-income households.

The next source of income we consider is capital gains. Figure 12 shows that the share of all capital gains reported by top-income taxpayers was stable at approximately 45 percent throughout the 1950s and 1960s, but fell to only 20 percent in the late 1970s. This was a period when, as we noted previously, the marginal tax rate on capital gains received by high-income taxpayers could exceed 40 percent. The share of capital gains reported by these taxpayers rose during the 1980s, to just over 50 percent in the second half of the decade.

The sharp decline in the top AGI recipients' share of capital gains in 1978 reflects behavioral response to the preannounced reduction in capital gains tax rates that was enacted in TRA78. Because the minimum tax provisions that affected realizations in calendar year 1978, but not 1979, only affected very high-income households, only these households had

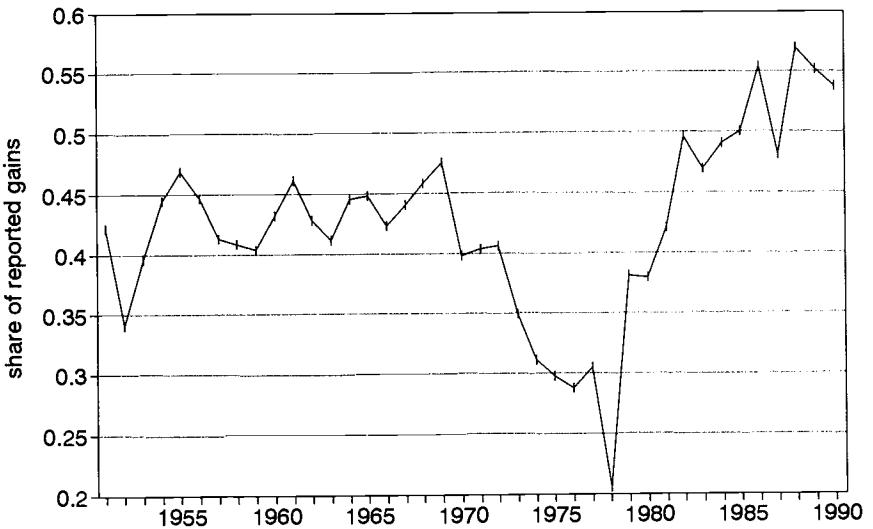

FIGURE 12. *TAR Share of Net Capital Gains: 1951–1990.*

an incentive to delay gain realizations from 1978 to 1979. Consequently, their share of reported gains fell sharply in 1978 and rebounded in 1979.

This example highlights a more general point about the interpretation of our data on TAR shares of various income sources. These shares are sensitive to *relative* tax incentives, and the relative opportunities to respond to these incentives, that face taxpayers at different places in the income distribution. In 1978, when only top-income households had an incentive to delay gains, their share of total gains changed dramatically. This should be contrasted with the relatively stable TAR share of gain realizations around the enactment of TRA86. In 1986, taxpayers throughout the income distribution had an incentive to realize gains to avoid prospective marginal rate increases. The total volume of realized gains rose sharply, but the *share* of these gains realized by high-income households was not very different from the share in other years.

We consider one further income category, income from Subchapter S corporations. Figure 13 shows that the share of profits from these companies reported by TARs rose during the 1980s, but the most rapid increase occurred between 1981 and 1984. Subchapter S profits are now highly concentrated at top income levels: taxpayers in the top 0.1 percent of the distribution reported more than half of all Subchapter S income in the

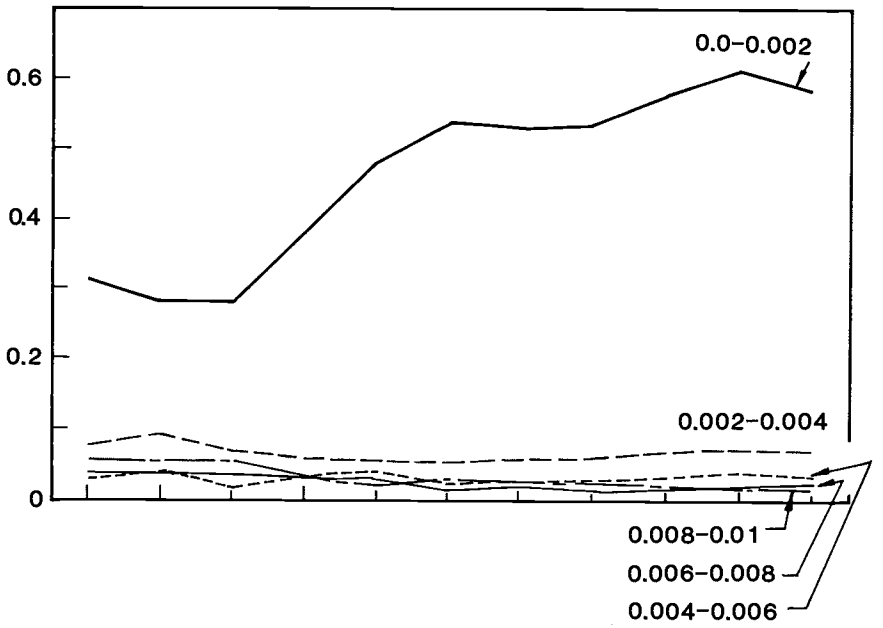

FIGURE 13. *Distribution of Subchapter S Profits: 1979–1989.*

1987–1989 period. The increase in the share of Subchapter S income was also very concentrated, with relatively little increase in the share of this income reported by taxpayers just below the top 0.1 percent.

Although the share of Subchapter S income reported by TARs did not rise appreciably in the years after TRA86, the total amount of such income did increase sharply (see Gordon and Mackie-Mason (1990)). Our tabulations of Subchapter S income reported in the Treasury Tax Model data files suggest this income category doubled between 1985 and 1988, and accounted for more than $40 billion in 1988. Because TARs (the top 0.5 percent of taxpayers) receive approximately 70 percent of Subchapter S income, the 1985–1988 increase explains approximately $14 billion of the reported income growth for this group.

V. THE CHANGING MIX OF FACTOR INCOMES AND INCOME INEQUALITY

Some types of income are distributed less equally than others. The distribution of reported AGI may become more unequal if the inequality of some AGI components increases, or the relative importance of some particularly unequally distributed components increases.[17] In this section we investigate whether the changing mix of income components during the 1980s can explain much of the increasing concentration of AGI that we observed in previous sections.

We investigate this question by constructing a counterfactual income distribution for each year of the 1980s. We maintained the 1979 distribution of each type of income across tax returns but allowed the level of each income type to vary from year to year as the aggregate *Statistics of Income* data suggest.[18]

Table 5 presents the results of our calculations, which suggest that the shifting mix of factor incomes did contribute to an increase in the concentration of AGI during the 1980s. If the distribution of each income type had remained at its 1979 level, but the mix of income types had changed as it did, the share of AGI accruing to TARs would have increased from 6.05 percent in 1979 to 7.69 percent by 1988. This is substantially less than the actual increase, to 12.02 percent. Our predicted income share tracks the actual income share much better for the years before 1986 than

[17] Karoly (1993) shows how to formally decompose one measure of aggregate income inequality, the Gini coefficient, into a weighted sum of Gini coefficients for the various income components.

[18] In cases where an income source can be negative, for example with Schedule C or E income, we varied and distributed positive and negative income separately.

TABLE 5.
Actual Income Shares versus Forecast Shares Using 1979 Factor Distributions.

Year	Adjusted gross income (%)		AGI excluding capital gains (%)	
	Actual	*Forecast*	*Actual*	*Forecast*
1979	6.05	6.05	5.45	5.45
1980	6.12	5.84	5.54	5.35
1981	6.03	5.73	5.40	5.26
1982	6.73	5.72	5.90	5.22
1983	7.04	5.88	6.02	5.23
1984	7.36	5.95	6.28	5.27
1985	7.66	6.15	6.42	5.41
1986	8.84	6.97	6.26	5.34
1987	9.44	7.15	7.60	5.57
1988	12.02	7.69	9.73	6.11
1989	11.00	7.52	9.12	6.00

Source: Authors' calculations using annual data from U.S. Treasury *Statistics of Income: Individual Tax Returns* publications, as well as the U.S. Treasury Individual Tax Model for years 1979–1988. Cell contents indicate the share of aggregate income on tax returns going to top AGI recipients.

in the 1987–1988 period. We also present results for a similar exercise with AGI excluding capital gains, which yields similar results. These estimates suggest that the rising share of income reported by TARs during the last decade cannot simply be attributed to a shifting mix of income components, but rather reflects some shift in the underlying distribution of these components as well.

VI. CONCLUSIONS AND FURTHER RESEARCH

Our analysis of tax return data suggests that the rising share of AGI reported on high-income tax returns in the last decade is largely due to an increase in the share of AGI reported by only a few tenths of 1 percent of the taxpaying population. The changes through time in the reported incomes of taxpayers near the top of the income distribution, even those in the "lower half" of the top 1 percent of all taxpayers, are substantially different than the changes for the highest income taxpayers, especially in the years following the 1986 Tax Reform Act. This suggests that the rapid growth in reported incomes at very high-income levels may not be part of a general trend toward a widening income distribution, but rather may reflect other factors including a tax-induced change in the incentives that high-income households face for reporting taxable in-

come. Our evidence casts doubt on the view, presented forcefully in Barlow, Brazer, and Morgan's (1966) study, that tax incentives have little effect on the decisions of high-income households.

Our results are not inconsistent with the widely documented pattern of growing wage inequality in recent years. Many of the studies that find widening wage disparities are based on the Current Population Survey (CPS), however, so they have little or no information on the incomes of top-income households. Income items are "top-coded" at $100,000 in the CPS. The widening inequality observed throughout the wage distribution creates a strong presumption that wages and salaries at the very top of the income distribution have increased relative to those elsewhere. Yet those studies do not suggest that the period after 1986 was marked by sharp acceleration in the dispersion of earning power. The finding that the growth in AGI for very high-income taxpayers was most rapid in the post-1986 years suggests that the underlying determinants of reported AGI for this group may be significantly different from the determinants of relative incomes at lower incomes.

There are many directions in which our work can be extended. Our analysis focuses on *pretax* incomes, rather than the *after-tax* incomes that provide individuals with command over resources. Computing effective tax rates on different taxpayers requires various imputations of taxes on firms and workers, as in Kasten, Sammartino, and Toder (1993) or CBO (1992b), and we have not attempted this complex task.

The most pressing research priority involves searching for sources of data other than tax returns that provide information on the accruing incomes of high-income individuals. There are some sources of information on compensation for highly paid individuals. These include the data set on chief executive officer pay compiled by Joskow, Rose, and Shepard (1993), as well as surveys of earnings by lawyers and doctors that are carried out by professional organizations. These data sets may permit some analysis of how tax reforms have affected the mix of compensation, while also providing further evidence on the trends in earnings, if not total income, for high-income taxpayers.

TECHNICAL APPENDIX: INTERPOLATION USING THE PARETO DISTRIBUTION

The Pareto distribution specifies that the probability that a randomly chosen taxpayer's income, y, is greater than x is:

$$Pr(y > x) = (k/x)^{\alpha}. \tag{1}$$

The two parameters are k, the minimum income that the Pareto distribution applies to ($k > 0$), and α, the exponent that determines the shape of the distribution.

Our objective is to estimate the total income of roughly the top 0.5 percent of taxpayers. Reported data on the number of tax returns and total AGI for taxpayers in different AGI categories provide us with exact income totals for several groups of high-income taxpayers. We can therefore identify the income range where the threshold for the top 0.5 percent of taxpayers will fall. To estimate the precise threshold, we estimate the parameters of the Pareto distribution using information on the reported income cutoffs that bracket the actual threshold in each year.[19] Denote these cutoff incomes as y_1 and y_2, and the associated probabilities that a taxpayer's income will fall *below* these cutoffs as F_1 and F_2, respectively. Equating these observed probabilities with those implied by the Pareto distribution yields

$$1 - F_1 = (k/y_1)^{\alpha} \tag{2a}$$

and

$$1 - F_2 = (k/y_2)^{\alpha}. \tag{2b}$$

Solving these two equations yields an estimate of α:

$$\hat{\alpha} = \log [(1 - F_1)/(1 - F_2)]/\log [y_2/y_1]. \tag{3}$$

Given this value for $\hat{\alpha}$, our estimate of k is

$$\hat{k} = y_1(1 - F_1)^{(1/\alpha)}. \tag{4}$$

A discussion of some of the issues involved in estimating parameters of the Pareto distribution can be found in Johnson and Kotz (1970) and Quandt (1966). Ryoo and Rosen (1992) present a recent application of the Pareto distribution to relatively high incomes.

Table A-1 shows our parameter estimates for each year between 1951 and 1990. The parameter k is measured in current dollars and corresponds to the income level below which the Pareto distribution would not apply. The estimates of $\hat{k}$ are surprisingly small. We found that the Pareto distribution fit the actual distribution very poorly in the range of

[19] McCubbin and Scheuren (1988) discuss an alternative approach to interpolation from the published SOI data.

TABLE A-1.
Estimated Pareto Distribution Parameters, 1951–1990.

Year	$\hat{\alpha}$	$\hat{k}$
1951	1.83	1061
1952	1.79	967
1053	1.89	1159
1954	1.90	1205
1955	2.08	1720
1956	2.03	1661
1957	2.06	1731
1958	2.08	1782
1959	1.98	1685
1960	2.17	2124
1961	2.18	2240
1962	2.20	2366
1963	2.20	2503
1964	2.15	2454
1965	2.11	2505
1966	2.13	2713
1967	2.12	2919
1968	2.22	3558
1969	2.32	4006
1970	2.46	4725
1971	2.44	4892
1972	2.38	4959
1973	2.43	5587
1974	2.38	5674
1975	2.38	5891
1976	2.37	6342
1977	2.35	6621
1978	2.36	7445
1979	2.27	7324
1980	2.26	7904
1981	2.24	8293
1982	2.13	7614
1983	2.04	7174
1984	2.04	7876
1985	1.99	8036
1986	1.96	8711
1987	1.73	6830
1988	1.54	5390
1989	1.62	6845
1990	1.59	6698

Source: Authors' estimates using the method described in the text.

$\hat{k}$, but fit well at high incomes. The α parameter, which determines the rate at which the density of households declines as one moves to higher incomes, rises between the early 1950s and 1970, and then declines for the following two decades.

The income threshold y^* that only 100s% of all taxpayers have incomes above satisfies the equation $s = (\hat{k}/y^*)^{\hat{\alpha}}$, so $y^* = \hat{k}s^{-1/\hat{\alpha}}$. Our estimate of the total income accruing to taxpayers with incomes above y^* is therefore

$$Y_{\text{top}} = N\int_{y^*}^{\infty} x\, f(x)\, dx = N\int_{y^*}^{\infty} \hat{\alpha}\hat{k}^{\hat{\alpha}}x^{-\hat{\alpha}}dx, \tag{5}$$

where N denotes the total number of tax returns. When we need to interpolate particular types of income rather than AGI, we assume that the amount of income in each category (w_i) is related to AGI (y) according to a power function, $w_i = cy^{\delta}$. For example, total wages and salaries received by taxpayers with incomes above y_1, which we shall denote w_1, is given by:

$$w_1 = N\int_{y_1}^{\infty} cx^{\delta}\alpha k^{\alpha}x^{-\alpha-1}\, dx. \tag{6}$$

Evaluating this expression and a similar equation for w_2 using our estimates of k and α yields two equations in two unknowns, δ and c. Solving yields:

$$\delta = \log[w_1/w_2]/\log[y_1/y_2] + \alpha \tag{7}$$

and

$$c = w_1(\alpha - \delta)/N\alpha k^{\alpha}x^{\delta-\alpha}. \tag{8}$$

Because the actual amount of wage income above y_2 is a published aggregate, only the amount of wages between y^* and y_2 needs to be approximated.

We performed several validation exercises on our estimated Pareto distributions and found that they fit the actual income data reasonably well in the neighborhood of y^*. For years since 1979, we can compare our estimate of the share of income accruing to top-income taxpayers with the more accurate estimates from the public use version of the Treasury Individual Tax Model. Table A-2 presents the results of this validation exercise. The largest error in our estimate of the share of total income accruing to high-income taxpayers is 0.44 percent, in 1982, and the next largest error is 0.36 percent in 1986. That year's exceptional level of

TABLE A-2.
Actual and Estimated Income Share of Top AGI Recipients, 1979–1989.

Year	Percent		
	Estimate using treasury tax model micro-data	*Estimate using pareto distribution interpolation*	*Absolute difference*
1979	6.04	6.06	0.02
1980	6.12	6.11	0.01
1981	6.03	6.05	0.02
1982	6.27	6.71	0.44
1983	7.04	7.06	0.02
1984	7.35	7.38	0.03
1985	7.65	7.78	0.13
1986	8.83	9.23	0.36
1987	9.44	9.49	0.05
1988	12.02	12.05	0.03
1989	11.00	11.21	0.21

Source: Authors' calculations using annual data from U.S. Treasury *Statistics of Income: Individual Tax Returns* publications, as described in the text, as well as the U.S. Treasury Individual Tax Model for years 1979–1988.

capital gain realizations may contribute to our error, particularly if realized capital gains are not distributed according to a Pareto distribution.

References

Auerbach, Alan J. (1988). "Capital Gains Taxation in the United States: Realizations, Revenue, and Rhetoric." *Brookings Papers on Economic Activity* 2, 595–631.

Barlow, Robin, Harvey Brazer, and James Morgan (1966), *Economic Behavior of the Affluent*, Washington: Brookings Institution.

Bosworth, Barry, and Gary Burtless (1992). "Effects of Tax Reform on Labor Supply, Investment, and Saving." *Journal of Economic Perspectives* 6 (Winter), 3–25.

Bound, John, and George Johnson (1992). "Changes in the Structure of Wages During the 1980s: An Evaluation of Alternative Explanations." *American Economic Review* 82, 371–392.

Frank, Robert, and Phillip Cook (1992). "Winner Take All Markets." Mimeo, Cornell University Department of Economics.

Gordon, Roger, and Jeffrey Mackie-Mason (1990). "Effects of the Tax Reform Act of 1986 on Corporate Financial Policy and Organizational Form." In *Do Taxes Matter?* 91–131. J. Slemrod, ed. Cambridge: MIT Press.

Hausman, Jerry A., and James M. Poterba (1987). "Household Behavior and the Tax Reform Act of 1986." *Journal of Economic Perspectives* 1, 101–126.

Johnson, Norman L., and Samuel Kotz (1970). *Distributions in Statistics: Continuous Univariate Distributions—1*. New York: John Wiley.

Joskow, Paul L., Nancy L. Rose, and Andrea Shepard (1993). "Political and

Regulatory Constraints on CEO Compensation." *Brookings Papers on Microeconomic Activity* (forthcoming).

Karoly, Lynn A. (1993). "Trends in Income Inequality: The Impact of, and Implications for, Tax Policy." In *Tax Progressivity*, J. Slemrod, ed., forthcoming.

Kasten, Richard, Frank Sammartino, and Eric Toder (1993). "Trends in Federal Tax Progressivity, 1980–1993." In *Tax Progressivity*, J. Slemrod, ed., forthcoming.

Katz, Lawrence F., and Kevin M. Murphy (1992). "Changes in Relative Wages, 1963–1987: Supply and Demand Factors." *Quarterly Journal of Economics* 107, 35–78.

Krugman, Paul (1992). "The Right, the Rich, and the Facts: Deconstructing the Income Distribution Debate." *The American Prospect* (Fall 1992).

Levy, Frank, and Richard C. Michel (1991). *The Economic Future of American Families*. Washington, DC: The Urban Institute Press.

Lindsey, Lawrence (1987a). "Individual Taxpayer Response to Tax Cuts: 1982–1984, With Implications for the Revenue-Maximizing Tax Rate." *Journal of Public Economics* 33, 173–206.

——— (1987b). "Capital Gains Rates, Realizations, and Revenues." In *The Effects of Taxation on Capital Accumulation*, 69–97. M. Feldstein, ed. Chicago: University of Chicago Press.

——— (1988). "Did ERTA Raise the Share of Taxes Paid By Upper-Income Taxpayers? Will TRA86 be a Repeat?" In *Tax Policy and the Economy*, vol. 2, 131–160. Lawrence Summers, ed.

McCubbin, Janet, and Fritz Scheuren (1988). "Individual Income Tax Structures and Average Tax Rates: Tax Years 1916–1950." *Statistics of Income Bulletin*, vol. 8 (Winter 1988–89).

Mandel, Michael (1992). "Who'll Get the Lion's Share of the Wealth in the 1990s?" *Business Week* (June 8), 86–88.

Murphy, Kevin M., and Finis Welch (1992). "The Structure of Wages." *Quarterly Journal of Economics* 107, 285–326.

Nasar, Sylvia (1992). "However You Slice the Data, the Richest Did Get Richer." *New York Times* (May 11, 1992).

Poterba, James M. (1987). "Tax Evasion and Capital Gains Taxation." *American Economic Review* 77, 234–239.

Quandt, Richard (1966). "Old and New Methods of Estimation and the Pareto Distribution." *Metrika* 10, 55–82.

Roberts, Paul Craig (1992). "Income Data . . . Untitled." *Washington Times* (May 11).

Rosen, Sherwin (1981). "The Economics of Superstars." *American Economic Review* 71 (December), 845–858.

Ryoo, Jaewoo and Sherwin Rosen (1992), "The Market for Engineers," mimeo, University of Chicago Center for the Study of the Economy and the State.

Scholes, Myron, and Mark Wolfson (1992). *Taxes and Business Strategy: A Planning Approach* (Englewood Cliffs: Prentice Hall).

———, Peter Wilson, and Mark A. Wolfson (1992). "Firms' Responses to Anticipated Reductions in Tax Rates: The Tax Reform Act of 1986." NBER Working Paper 4171.

Slemrod, Joel (1991). "Taxation and Inequality: A Time-Exposure Perspective." In *Tax Policy and the Economy*, vol. 6, 105–127. J. Poterba, ed. Cambridge: MIT Press.

——— (1992), "Did the Tax Reform Act of 1986 Simplify Tax Matters?" *Journal of Economic Perspectives*, 6, 45–58.

——— (1993). "On the High Income Laffer Curve." In *Tax Progressivity*, J. Slemrod, ed., forthcoming.

U.S. Congress, Congressional Budget Office (1992a). "CBO's Method for Simulating the Distribution of Combined Federal Taxes Using Census, Tax-Return, and Expenditure Micro-Data." Mimeo, Washington, DC.

U.S. Congress, Congressional Budget Office (1992b). *Measuring the Distribution of Income Gains*. Washington, DC: CBO.

U.S. House of Representatives, Committee on Ways and Means (1991). *1991 Green Book: Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means*. Washington, DC: Government Printing Office.

U.S. Treasury Department, Internal Revenue Service (1991). "Individual Income Tax Returns: Preliminary Data, 1989." *Statistics of Income Bulletin* 10 (Spring 1991), 7–21.

———, ——— (1992). "Individual Income Tax Returns: Preliminary Data, 1990." *Statistics of Income Bulletin* 11 (Spring 1992), 11–23.

———, ——— (various years). *Statistics of Income: Individual Income Tax Returns*. Washington, DC.

Woodbury, Stephen, and Daniel Hammermesh (1992). "Taxes, Fringe Benefits, and Faculty." *Review of Economics and Statistics* 287–296.