The Distribution of Individual Income and Taxes: A New Look at an Old Issue

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Statistics from individual income tax returns reveal some dramatic changes in the past 18 years. The tax reforms of 1981 and 1986 significantly lowered individual income tax rates and, in the latter, substantially broadened the income tax base [1]. Tax law changes effective for 1991 and 1993 initiated rising individual income tax rates and further modifications to the definition of taxable income. In addition, two recessions transpired, and the U.S. economy has become more service-oriented and global in nature. With all of these changes, a question that arises is what has happened to the distribution of individual income and the shares of taxes paid by the various income-size classes?

This paper is an examination of trends in the distribution of individual incomes and tax burdens based on a consistent measure of income. The paper has four sections. The first section briefly summarizes background information on a measure of individual income derived as a "retrospective concept" from individual income tax returns. The second section highlights some of the more substantial changes to the Internal Revenue (Tax) Code, particularly those affecting individual income taxes. The third section presents and analyzes aggregate time series data on individual income and taxes based on individual income tax return filings with the IRS. The last section summarizes the results and presents conclusions [2].

■ A Retrospective Definition of Income

In order to analyze changes in income and taxes over a period of years, a consistent definition of income must be used [3]. However, the most commonly used income concept available from Federal income tax returns, Adjusted Gross Income (AGI), was designed to facilitate tax administration, and its definition has changed over time to reflect modifications to the Internal Revenue Code.

The new tax laws of the 1980's and 1990's, including the Economic Recovery Tax Act of 1981 (ERTA), the Tax Reform Act of 1986 (TRA), the Revenue Reconciliation Act of 1990 (RRA), and the Omnibus Budget and Reconciliation Act of 1993 (OBRA), made significant changes to both the tax rate schedules and the components of AGI. These changes made it more difficult to use AGI for accurate intertemporal comparisons of income. For this reason, an income definition that would be applicable over several years was developed to allow comparisons both before and after the major tax legislation [4].

The 1979 Retrospective Income Concept was developed to address this problem by providing a more uniform measure of income over time. This retrospective definition of income was calculated by including the same income and deduction items from data available on Federal individual income tax returns. Tax Years 1979 through 1986 were used as base years in identifying the income and deduction items included in the concept. As a result, the definition of the 1979 Retrospective Income Concept is consistent throughout the base years and was used for later years to compare income by including only income components common to all years [4,5].

The calculation of the 1979 Retrospective Income Concept is shown in Figure A. Several items partially excluded from AGI for the base years were fully included, the largest of which was capital gains. The full amounts of all capital gains, as well as all dividends and unemployment compensation, were included in the income calculation. Total pensions, annuities, IRA distributions, and rollovers were added, including nontaxable portions that were excluded from AGI. Social Security benefits were omitted because they were not reported on tax returns until 1984. Also, any depreciation in excess of straight-line depreciation, which was subtracted in computing AGI, was added back [5,6].

Figure A.—Components of the 1979 Retrospective Income Concept for 1996

Retrospective Income =
Salaries and wages[1]
Plus (+):
Interest[1]
Dividends[1]
Taxable refunds[1]
Alimony received[1]
Capital gains minus allowable losses reported on Schedule D[1]
Capital gains and losses not reported on Schedule D[1]
Other gains and losses (Form 4797)[1]
Business net income or loss[1]
Farm net income or loss[1]
Rent net income or loss[1]
Royalty net income or loss[1]
Partnership net income or loss[1]
S Corporation net income or loss[1]
Farm rental net income or loss[1]
Estate or trust net income or loss[1]
Unemployment compensation[1]
Depreciation in excess of straight-line depreciation[2]
Total pension income[3]
Other net income or loss[1]
Net operating loss[1]

Minus (-):
Disallowed passive losses (Form 8582)[4]
Moving expenses[1]
Alimony paid[1]
Unreimbursed business expenses[4]

[1] Included in adjusted gross income (AGI) for Tax Year 1996.
[2] Adjustment to add back excess depreciation (accelerated over straight-line depreciation) deducted in the course of a trade or business and included in net income (loss) amounts.
[3] Includes taxable and tax-exempt pension and retirement distributions, including IRA distributions.
[4] Not included in AGI for Tax Year 1996.

The 1979 Retrospective Income Concept applied to 1996 includes many income and deduction items that are components of AGI and also includes nontaxable (i.e., tax-exempt) amounts of income reported on individual income tax returns as well as disallowed passive loss deductions. The Tax Reform Act of 1986 (TRA) limited the deduction of passive losses beginning with Tax Year 1987. Since passive losses had been fully deductible for both income measures prior to 1987, disallowed passive losses had to be deducted in the retrospective income concept calculation for tax years after 1986 in order to preserve comparability.

Deductions that are subtracted in the calculation include employee business expenses, alimony paid, and moving expenses. These items were subtracted in computing AGI until 1987, when unreimbursed business expenses and moving expenses were changed from adjustments to itemized deductions. (Alimony paid was still deducted in computing AGI.) The amounts reported for moving expenses (for 1987-1993) and employee business expenses by taxpayers who itemized deductions were also subtracted in the calculation of retrospective income. Taxpayers who did not itemize deductions, however, could not claim either of these two expenses because they were not allowed as adjustments after 1986 (until 1994, when moving expenses were once again an allowable adjustment). For this reason, the deduction for these two expenses beginning in 1987 is not completely comparable to that for previous years [5,6].

AGI and Retrospective Income

Before TRA became effective, a comparison of income measured by AGI with that measured by retrospective income showed significant differences at income levels of $200,000 or more. But with the elimination of preferential treatment of various income items by TRA, such as the exclusion of a portion of capital gains, much of the difference disappeared. Under tax law prior to 1987, the capital gains exclusion accounted for the largest difference between the two income measures at the higher income levels. For 1996, total retrospective income was 8.3 percent higher than AGI (over all returns). This difference was primarily attributable to inclusion of more than $130.6 billion in nontaxable pensions and annuities (including IRA distributions) in retrospective income.

■ Tax Law Changes

The Internal Revenue Code has been substantially changed in the last 18 years—both the concept of taxable income and the tax rate schedules have been significantly altered. In this section, some of these changes are summarized.

Marginal tax rates for a specific individual income tax return depend on the types and amounts of income reported and assumptions concerning the order in which the income is taxed. This determination is complicated by the presence of the alternative minimum tax, various tax credits, limitations on itemized deductions, and phaseout of exemptions, all of which are not specifically addressed in this study. However, despite these limitations, it is still useful to compare the highest individual marginal tax rates and the highest marginal tax rates for capital gains to the empirically-determined average effective tax rate, all of which are shown in Figure B [7].

From an historical perspective, what is most striking about the top individual marginal tax rate is that it was as high as 70 percent for the highest income levels (such as married filing joint returns with taxable income over $215,400) for 1979 through 1981. These historically high marginal tax rates declined substantially with the passage of the Economic Recovery Tax Act (ERTA) in 1981, effective for Tax Year 1982, which lowered the top marginal rate to 50 percent, where it remained through 1986. The passage of the Tax Reform Act of 1986 (TRA), the most comprehensive revision of the Internal Revenue Code since 1954, broadened the individual tax base by curtailing or rescinding many provisions that had previously eroded the base, while lowering the top marginal tax rate to 28 percent (once fully phased in for 1988).

The new rate structure remained in effect through Tax Year 1990, but, beginning with Tax Year 1991, the top individual rate began to rise. For 1991, the top marginal tax rate climbed to 31 percent, and it again increased, this time to 39.6 percent, under the Omnibus Budget and Reconciliation Act (OBRA) beginning with 1993.

The highest marginal rate for capital gains income is also shown in the figure, since it is a key determinant of the overall effective rate, particularly for high-income individuals who often have substantial capital gains.

Figure B.—Highest Individual Marginal Tax Rates, Highest Marginal Tax Rates for Capital Gains, and Average Tax Rates, 1979-1996
[All figures are expressed as percentages]

Year	Highest Individual Marginal Tax Rate	Highest Marginal Tax Rate for Capital Gains	Average Tax Rate
1979	70.0	28.0	14.0
1980	70.0	28.0	14.6
1981	70.0	28.0	15.1
1982	50.0	20.0	14.0
1983	50.0	20.0	13.0
1984	50.0	20.0	12.9
1985	50.0	20.0	12.9
1986	50.0	20.0	13.1
1987	38.5	28.0	12.9
1988	28.0	28.0	13.1
1989	28.0	28.0	13.0
1990	28.0	28.0	12.8
1991	31.0	28.0	12.5
1992	31.0	28.0	12.7
1993	39.6	28.0	13.1
1994	39.6	28.0	13.3
1995	39.6	28.0	13.6
1996	39.6	28.0	14.1

Despite the high marginal tax rates, particularly in the pre-TRA period, capital gains have generally been taxed at significantly lower levels. In the pre-TRA period, this was mainly attributable to the fact that 60 percent of long-term gains could be excluded. So, even with top marginal rates of 70 percent from taxable income, the 60-percent exclusion effectively created a maximum tax rate of 28 percent (40 percent of 70 percent) [8]. When the top individual marginal tax rate was lowered to 50 percent for 1982, the top capital gains rate declined to 20 percent (40 percent of 50 percent).

Of the three series, the average tax (which was computed from the data base and is discussed later in this paper) is clearly the lowest and the most stable over time. The average tax rate, which was computed from the retrospective income and tax liabilities, varies between 12.5 percent and 15.1 percent over this 18-year period. The variation between years is surprisingly small, despite frequent and substantial changes to the marginal tax rates, which are at considerably higher levels and show substantially more change over time.

■ Time Series Data on Income and Taxes

This section of the paper examines the income percentile data for 1979 through 1996 with attention to the income and tax shares by percentile and average tax rates. The data base for this study ranks individual taxpayers from highest to lowest, by size of retrospective income, annually for the period 1979 to 1996 and groups them into income-size classes. Percentile thresholds were interpolated from the retrospective income-size classes and are displayed in Tables 1-8 for the following: the top 1 percent; 1-to-5 percent; 5-to-10 percent; 10-to-20 percent; the (cumulative) top 20 percent; and the four remaining quintiles (20-to-40 percent; 40-to-60 percent; 60-to-80 percent; and the bottom 20-percent) [9]. Then, the numbers of individual tax returns, the amount of retrospective income, and taxes paid were compiled for each income-size class. Using these data, the income and tax shares and the average taxes have all been computed for each size class for all years. With this data base, we sought to answer the following questions—have the distribution of individual incomes (i.e., income shares), the distribution of taxes (i.e., tax shares), and the average effective tax rates (i.e., tax burdens) changed over time?

Tables 1-4 display the basic data used in this paper. Table 1 shows the income thresholds of the bottom (or entry level) of each income percentile-size class in current whole dollars. For example, while $79,679 of retrospective income was needed to enter the top 1-percent size class for 1979, $245,951 was needed for entry into this size class for 1996. While some of this change is attributable to inflation, as we will later show, the minimum threshold for the top income-size classes have increased substantially, even in inflation-adjusted dollars. Table 2 shows the number of returns for each percentile-size class, while Tables 3 and 4 show the amounts of retrospective income and Federal income taxes, respectively, for these same classes.

Constant Dollar Income Thresholds

All of the computations that follow were based on the data in Tables 1-4 plus the Consumer Price Index, which was used to adjust the income thresholds in Table 1 to determine constant dollar thresholds [10]. These are shown in Table 5 and summarized in Figure C. What is most striking about these data are the changes between 1979 and 1996 for the various income-percentile classes. For example, the threshold for the top 1 percent rose from $109,751 for 1979 to $156,757 for 1996—an increase of nearly 43 percent.

However, the thresholds for each lower percentile-class show smaller increases in the 18-year period—the top 5-percent threshold increased nearly 17 percent, and the top 10-percent class increased 7 percent. The top 20-percentile threshold actually declined in inflation-adjusted dollars, and all the lower quintile thresholds show constant dollar declines, increasingly larger (on a percentage basis) with declining income size.

Income Shares

The data on income shares by percentile-size classes are shown in Table 6. The share of income accounted for by the top 1 percent of the income distribution has climbed steadily from a low of 9.6 percent for 1979 to a

Figure C.—Constant Dollar Income Thresholds, 1979 and 1996

Income percentile	1979 income threshold	1996 income threshold	1979 - 1996 change	1979 - 1996 percent change
1 percent	$109,751	$156,757	$47,006	42.8%
5 percent	56,704	66,140	9,436	16.6
10 percent	44,884	48,105	3,221	7.2
20 percent	34,051	33,545	-506	-1.5
40 percent	21,654	19,407	-2,247	-10.4
60 percent	12,887	11,302	-1,585	-12.3
80 percent	6,441	5,373	-1,068	-16.6

high of 16.5 percent for 1996. While this increase is quite steady, there were some significantly large jumps, particularly for 1986, due to a surge in capital gains realizations after the passage, but before implementation, of TRA. The top 1-percent share also increased for 1995 and 1996. Notable declines in the top 1-percent share occurred in the recession years of 1981 and 1990-1991.

This pattern of an increasing share of total income is mirrored in the 1-to-5 percent class and the 5-to-10 percent class, but both to a considerably lesser degree. For the former group, the income share increased from 12.6 percent to 14.8 percent, while for the latter, the share increased from 10.9 percent to 11.2 percent in this period. All of the other lower percentile-size classes, from the 10-to-20 percent class to the four lowest quintiles, show declines in shares of total incomes over the 18-year period. The top quintile not only accounted for all of the increased income share but also more income than all other quintiles combined, rising from 50.0 percent to 58.5 percent in this period.

Tax Shares

Data on tax shares by percentile-size classes are shown in Table 7. The share of taxes accounted for by the top 1-percent group also climbed steadily in this period, from initially at 19.8 percent for 1979, then declining to a low of 17.4 percent for 1981, before rising to 31.7 percent for 1996. As for incomes, there were some unusually large increases, particularly for 1986, but also for 1988, 1992, 1993 (the first year of the 39.6-percent top marginal tax rate), and 1996. One common thread for all these years was that net capital gains reported in AGI showed double-digit growth from the previous year [6,11].

Even though there was no major tax law change, the share of the top 1-percent group also increased substantially for 1996. A possible explanation is that this is due to increased realizations of taxable capital gains, which increased by nearly 48 percent from 1995 [11]. As for incomes, the tax share of the top 1-percent group declined in recession years.

The 1-to-5 percent size class exhibited relatively modest change in its share of taxes, increasing from 17.5 percent to 18.6 percent in the period. The 5-to-10 percent class, and all lower income-size classes, had declining shares of total taxes [12]. The top quintile increased its share of taxes from 66.8 percent to 75.9 percent of the total in the 1979 to 1996 period.

Effective Tax Rates

Average tax rates by income-size class are presented in Table 8. What is most striking about these data is that the levels of the average tax burdens increase with income size for all years. The progressivity of the individual income tax system is clearly demonstrated.

Despite the fact that the overall average tax rate increased slightly between 1979 and 1996 (i.e., rising from 14.0 percent to 14.1 percent), the average rate for each income-size class has actually declined [12]. While this at first appears to be inconsistent, it is clear how this did, in fact, occur—over time, the proportion of income has shifted to the upper levels of the income distribution, where it is taxed at higher rates.

In examining the average tax data by income-size class, three distinct periods emerge. First, the average tax rates were generally climbing up to the implementation of ERTA in 1982. This was an inflationary period, and prior to indexing of personal exemptions, the standard deduction, and tax brackets, which caused many taxpayers to face higher tax rates. (Indexing became a permanent part of the tax law for Tax Year 1985 [13].) Also, this period marked the recovery from the recession.

Similarly, average taxes also climbed in the period after 1992, the period affected by OBRA. This was not surprising for the highest income-size classes, ones affected by the OBRA-initiated 39.6-percent top marginal tax rate, but the average tax rate increases are also evident in the smaller income-size classes for most years in the 1993 to 1996 period as well.

For the majority of intervening years (i.e., 1982 through 1992), average tax rates generally declined by small amounts for most income-size classes, although the period surrounding the implementation of TRA gave rise to small increases in some classes. Despite the substantial base-broadening and rate-lowering initiated by TRA, for most income-size classes, the changes to average rates were fairly small. However, it should be kept in mind that individuals can and do move between size classes.

The rates for the top 1-percent clearly show the effects of the 1986 capital gains realizations, in anticipation of the ending of the long-term gains exclusion, which began in 1987. The average tax rate for this income-size class dropped for 1986, but rose sharply for 1987, before dropping again for each of the next three years. To assess what happened, it is important to look at the underlying data. The substantial increase in capital gains realizations for 1986 swelled the aggregate income and tax amounts for upper income classes and also raised the income thresholds of these top classes. However, since much of the increase in income for these size classes was from net long-term capital gains, which had a maximum effective tax rate of 20 percent (i.e., a 50-percent maximum rate but with the 60-percent exclusion), it is not surprising that the average tax rate for these top size classes declined.

Comparisons with Other Studies

While we would like to compare these results with those of other distributional studies (including annual compilations from the Census Bureau's Current Population Survey plus other distributional studies, such as those of the Treasury Department and the Congressional Budget Office), we were unable to do so except for one study, that by Feenberg and Poterba, which examined Federal income tax data for very high-income taxpayers [14]. Their data for these groups were for 1979–1989, so the comparison was limited to these years and is shown in Figure D.

The "Feenberg/Poterba" data in the top panel of Figure D are Adjusted Gross Income (AGI) for very high-income taxpayers, while the "Petska/Strudler" data in the lower panel are Retrospective Income for the same income-size classes. Retrospective income was derived from AGI with the adjustments summarized in Figure A. Since retrospective income is generally larger than AGI, especially in the pre-TRA period and at the upper end of the income distribution, it is not surprising that it generally shows a greater concentration of income in these very high size classes than does AGI.

Interestingly, the figures show the most divergence for 1986, the year of the passage of TRA. When TRA was passed in October 1986, eliminating the 60-percent exclusion of long-term capital gains, investors had approximately 9 weeks to realize gains or face losing the exclusion beginning in January 1987. The resulting surge in capital gains realizations increased taxable income, particularly for the very high income-size classes. While the full amounts of long-term gains are included in pre- and post-TRA retrospective income, 60-percent of long-term capital gains are excluded from pre-TRA AGI. This explains why the pre-TRA retrospective income shares are higher for these very high size classes, but this difference is considerably less in the post-TRA data.

For 1988, retrospective income data show slightly smaller concentrations in these high-income size classes than the AGI data do. One possible explanation for this is that the Feenberg/Poterba percentile computations used population counts, not numbers of tax return filings, as a denominator in determining their size classes.

Figure D.—The Cumulative Shares of Income Accruing to Very High-Income Taxpayers

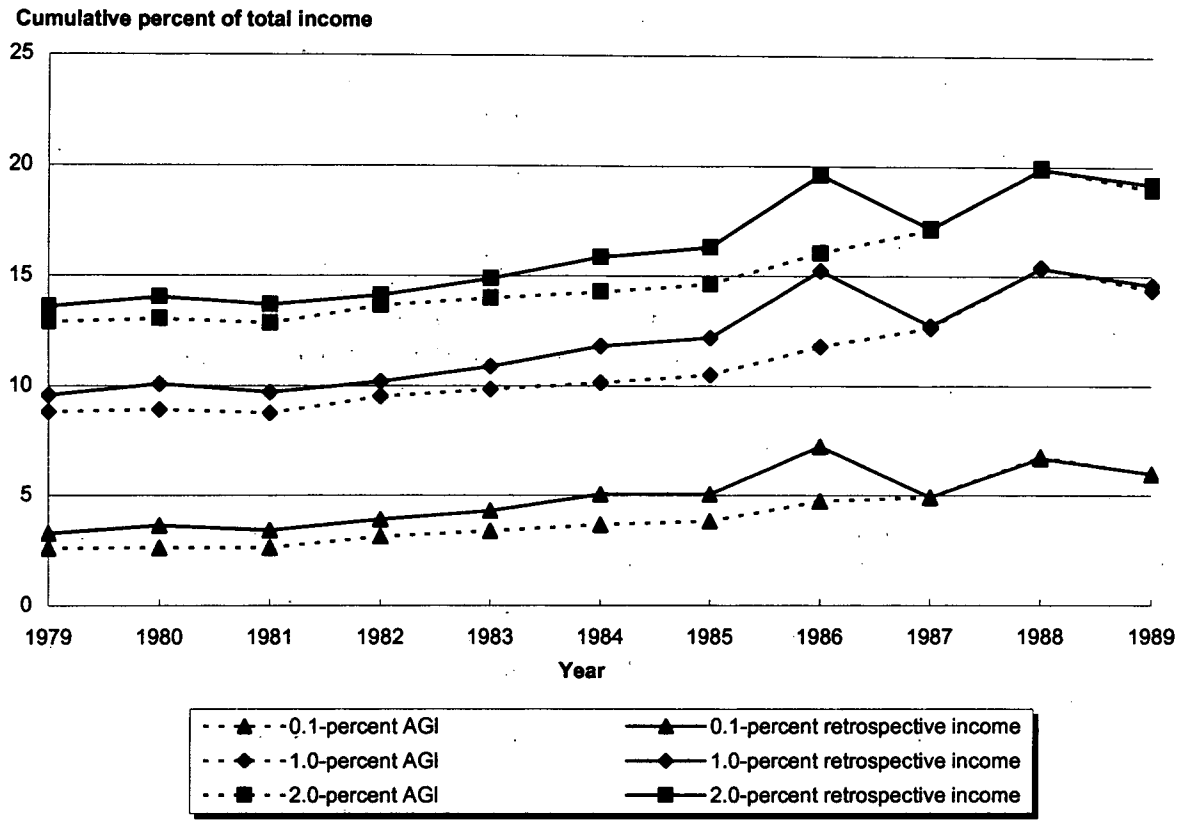
	0.1 percent	0.25 percent	0.50 percent	1.0 percent	2.0 percent
			Feenberg/Poterba AGI		
1979	2.61	4.18	6.05	8.81	12.90
1980	2.63	4.24	6.12	8.91	13.05
1981	2.63	4.19	6.03	8.76	12.85
1982	3.14	4.81	6.73	9.51	13.66
1983	3.38	5.10	7.04	9.84	13.99
1984	3.66	5.41	7.36	10.14	14.29
1985	3.83	5.66	7.66	10.49	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
			Petska/Strudler Retrospective Income		
1979	3.28	4.92	6.81	9.58	13.60
1980	3.64	5.39	7.34	10.09	14.04
1981	3.41	5.08	6.97	9.70	13.69
1982	3.91	5.62	7.50	10.19	14.12
1983	4.30	6.13	8.11	10.88	14.89
1984	5.05	6.95	8.97	11.80	15.86
1985	5.05	7.10	9.24	12.18	16.31
1986	7.22	9.64	12.05	15.25	19.61
1987	4.92	7.15	9.52	12.74	17.17
1988	6.69	9.32	11.97	15.37	19.89
1989	5.98	8.54	11.16	14.60	19.19

While this would adjust for periods in which the percent of the population filing tax returns varied, we do not feel it is as important for a limited time period, such as the years of this study. As a result of this adjustment, their top 0.5-percent class was actually 0.51 percent of the 1989 tax filing population, which would explaining these small differences between AGI and retrospective income.

In addition, unlike AGI, retrospective income is adjusted for disallowed passive losses. Adjusting for retrospective income for these losses, *ceteris paribus*, would lower retrospective income relative to AGI. Since these losses were most prevalent in the very high income-size classes, it is not surprising that AGI shows somewhat higher income concentrations. Why this did not continue for 1989 is not clear, although some previous work indicates a strong movement away from passive investments that had generated deductible losses in the pre-TRA period but whose deductibility was phased out in the 1987-1991 period [15].

The comparison between AGI and retrospective income can be better made in Figure E, where the top 0.1 percent, 1.0 percent, and 2.0-percent series are plotted. In this figure, it is very clear that retrospective income exceeded AGI in all pre-TRA years, peaking with the large increase in capital gains realizations for 1986. But in the post-TRA period, the lines are virtually inseparable.

Figure E.--Retrospective Income and AGI for Top 2.0, 1.0, and 0.1 Percent Income-Size Classes



In general, we believe that retrospective income is a more complete and consistent measure of income concentration than is AGI, particularly when comparing the pre- and post-TRA years. The Feenberg/Poterba data show a 6.04 percentage-point increase in the share of income in the top 2-percent group and that 55.5 percent of this increase is due solely to the top 0.1-percent group. The retrospective income data show similar, though smaller, increases in income-size concentration of the top groups. For example, these data show a 5.59 percentage-point increase in the top 2-percent size class and that 48.3 percent of this increase was due to the top 0.1 percent group. Thus, our view is that Feenberg and Poterba somewhat overstate growth in the very highest levels of the distribution of income mainly because their pre-TRA data do not account for the 60-percent long-term capital gains exclusion. This is especially problematic in analyzing the affects of TRA.

Data Sources and Limitations

The Statistics of Income (SOI) Division of IRS produces annual studies of individual income and taxes by sampling and compiling data from Forms 1040, *U. S. Individual Income Tax Return* [6]. Returns are selected as part of random, stratified cross-sectional samples. For this study, returns from these samples are then tabulated into size classes of retrospective income, and the percentile thresholds are estimated by interpolation [16].

While the 1979 retrospective income concept is a consistent measure for interyear income comparisons, it has shortcomings. First, the data set is based on succes-

sive cross-sectional samples and is not a panel. In the underlying microdata, individuals can move in and out of annual studies, as well as across size classes. For example, a person with a large windfall gain could appear in the top 5-percent class in one year, but then fall to a lower size class in other years.

In addition, the data base is derived from individual tax return filings and is not a family income concept. No attempt was made to link the income of codependents. Cash and in-kind public assistance, as well as Earned Income Tax Credit refunds, are also excluded from retrospective income. Further, while Federal individual income taxes are included, Social Security (FICA) taxes, corporation income taxes, and excise taxes are not.

It should also be reminded that persons with incomes below the filing thresholds, who are not required to file tax returns, are excluded from the data base. However, we feel this is not a major shortcoming for two reasons. First, the focus of this study has been on the upper tail of the income distribution, so minor changes in the filing population (particularly at the lowest end) would not be expected to influence the top income-size classes by much. Second, the tax filing thresholds have not changed appreciably in this time period. In summary, we believe that retrospective income is a good measure of what is included but does have some limitations in content or scope.

■ Summary and Conclusions

Some conclusions can be drawn from examination of these data. First, the income and tax shares of the top 1-percent group increased substantially in this period. The income share of the top 1-percent increased by over 70 percent, rising from 9.6 percent to 16.5 percent of total income, while the share of taxes paid by this group also increased significantly, rising from 19.8 percent to 31.7 percent, an increase of 60 percent. The income share of the 1-to-10 percent group increased modestly, from 23.5 percent to 26.0 percent of the total, but their share of taxes remained basically unchanged. The income share of the top quintile increased from 50.0 percent to 58.5 percent, and their share of taxes increased from 66.8 percent to 75.9 percent.

The bottom four quintiles all had declining shares of total income between 1979 and 1996. Further, while the declines in the percentage shares of total income decreased with decreasing income size, the percentage changes in the shares were actually largest with the lowest quintiles. Clearly, the pre-tax income shares have shifted upward. However, the declining shares of pre-tax income of the bottom four quintiles were somewhat mitigated by their declining shares of taxes [12].

Concerning the average tax rates, all income-size groups had declining average rates between 1979 and 1996 [12]. These declines would have been even larger except that all size classes show average tax increases between 1993 and 1996. The overall levels of average taxes clearly increase with increases in income size, which is conclusive evidence of tax progressivity.

In summary, the upper tail of the income distribution has increased its share of total income at the expense of the lower size classes. However, this rise in inequality in pre-tax income has been somewhat offset by increases in taxes paid by the top size classes, particularly in the post-OBRA period.

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■ Footnotes

[1] See, for example, Internal Revenue Service, *Explanation of the Tax Reform Act of 1986 for Individuals,* Publication 920 and the Joint Committee on Taxation, *General Explanation of the Tax Reform Act of 1986.*

[2] This paper is an extension of an earlier study entitled "Income, Taxes, and Tax Progressivity: An Examination of Recent Trends in the Distribution of Individual Income and Taxes," which was presented at the annual meetings of the American Statistical Association (ASA) in August 1998 in Dallas, Texas and will be published in ASA's *1998 Proceedings of the Social and Government Statistics Sections.* These estimates differ somewhat from those in that, while breaking out additional detail for the top 1-percent income-size class, small differences were made to the percentile thresholds. Further, we detected and corrected a small error in the computation of retrospective income for 1979. For both reasons, these estimates are superior.

[3] See, for example, the following for discussions on measuring economic income: Haig, Robert Murray, "The Concept of Income—Economic and Legal Aspects," *The Federal Income Tax,* Columbia University Press, 1921; Simons, Henry C., *Personal Income Taxation: The Definition of Income as a Problem of Fiscal Policy,* Chicago University Press, 1938; and Nelson, Susan, "Family Economic Income and Other Income Concepts Used in Analyzing Tax Reform," *Compendium of Tax Research, 1986,* Office of Tax Analysis, U.S. Department of the Treasury, 1987.

[4] Hostetter, Susan, "Measuring Income for Developing and Reviewing Individual Tax Law Changes: Exploration of Alternative Concepts," *1987 Proceedings of the American Statistical Association, Section on Survey Research Methods.*

[5] See, for example, Cruciano, Therese, "Individual Income Tax Rates and Tax Shares, 1996," *Statistics of Income (SOI) Bulletin,* Spring 1999, Volume 18, Number 4.

[6] Internal Revenue Service, *Statistics of Income—Individual Income Tax Returns, Publication 1304,* (selected years).

[7] For this paper, marginal tax rate is the top rate paid on taxable income and is based on income tax before credits. Taxes, taxes paid, tax liabilities, tax shares, and average or effective tax rates are based on income tax, defined as income tax after credits plus alternative minimum tax less the nonrefundable earned income credit.

[8] This does not take into account the fact that excluded income was subject to the alternative minimum tax.

[9] After the original estimates, we broke out additional subgroups within the top 1-percent income-size classes by increasing the stratification of retrospective income and recomputing the interpolations. Some of these results are shown in Figure D.

[10] The CPI-U from the U.S. Department of Labor, *Monthly Labor Review,* was used for deflation of the income thresholds.

[11] See, for example, Cruciano, Therese, "Individual Income Tax Returns, 1996," *Statistics of Income (SOI) Bulletin,* Fall 1998, Volume 18, Number 2.

[12] The one exception is for the lowest quintile for Tax Year 1979. The reason for this is that, for 1979, there were an unusually high number of low-income filers who had no tax but were just filing to receive refunds. The Revenue Act of 1978 increased both exemption and zero-bracket amounts so that many lower income tax returns became nontaxable. For 1979, most of these taxpayers still had to file a return in order to receive refunds. Once they had been nontaxable for a year, these individuals could file Forms W-4 instructing their employers to stop withholding income taxes. Thus, after 1979, many taxpayers with lower incomes were no longer part of the individual taxpayer population.

[13] Indexing began with the Tax Reform Act of 1984.

[14] Feenberg, Daniel R. and Poterba, James M., "Income Inequality and the Incomes of Very High-Income Taxpayers: Evidence From Tax Returns," *Tax Policy and the Economy,* Volume 7, Cambridge: MIT Press, 1993.

[15] See, for example: Nelson, Susan and Petska, Tom, "Partnerships, Passive Losses, and Tax Reform," *1989 Proceedings of the American Statistical Association, Section on Survey Research Methods*, 1990; Petska, Tom and Nelson, Susan, "Partnerships and Tax Shelters: An Analysis of the Impact of the 1986 Tax Reform," *1990 Proceedings of the American Statistical Association, Section on Survey Research Methods*, 1991; and Petska, Tom and Nelson, Susan, "Further Examinations of Tax Shelters in the Post-Reform World," *1991 Proceedings of the American Statistical Association, Section on Survey Research Methods*, 1992.

[16] Oh, H. Lock, "Osculatory Interpolation with a Monotonicity Constraint," *1977 Proceedings of the American Statistical Association, Section on Statistical Computing,* 1978.

■ General References

Advisory Commission on Intergovernmental Relations, *Significant Features of Fiscal Federalism, Volume I, Budget Processes and Tax Systems*, (selected years).

Cruciano, Therese, "Individual Income Tax Returns, 1995," *Statistics of Income (SOI) Bulletin*, Fall 1997, Volume 17, Number 2.

Cutler, David M., "Comments," in *Tax Progressivity and Income Inequality*, Cambridge University Press, 1994.

Karoly, Lynn M., "Trends in Income Inequality; the Impact of, and Implications for, Tax Policy" and Cutler, David M., "Comments," in *Tax Progressivity and Income Inequality*, Cambridge University Press, 1994.

Kasten, Richard; Sammartino, Frank; and Toder, Eric, "Trends in Federal Tax Progressivity, 1980-93," in *Tax Progressivity and Income Inequality*, Cambridge University Press, 1994.

Nunns, James R., "Tabulations from the Treasury Tax Reform Data Base," *Compendium of Tax Research, 1986*, Office of Tax Analysis, U.S. Department of the Treasury, 1987.

Pechman, Joseph A., *Federal Tax Policy*, The Brookings Institution, 1987.

Pechman, Joseph A. and Okner, Benjamin A., *Who Bears the Tax Burden?,* The Brookings Institution, 1974.

Scholes, Myron S. and Wolfson, Mark A., *Taxes and Business Strategy: A Planning Approach,* Prentice-Hall, 1991.

Slemrod, Joel and Bakija, Jon, *Taxing Ourselves: A Citizen's Guide to the Great Debate Over Tax Reform*, The MIT Press, 1996.

Steuerle, C. Eugene, *The Tax Decade: How Taxes Came to Dominate the Public Agenda*, The Urban Institute, 1991.

Table 1.-- Income Thresholds for Income-Size Classes, 1979-1996 (whole dollars)

Year	Top 1%	Top 5%	Top 10%	Top 20%	Top 40%	Top 60%	Top 80%
1979	79,679	41,167	32,586	24,721	15,721	9,356	4,676
1980	85,498	44,570	35,496	26,862	17,002	10,106	5,008
1981	93,679	49,483	39,143	29,451	18,577	11,055	5,504
1982	97,376	51,914	41,237	31,016	19,342	11,637	5,857
1983	105,038	55,429	43,596	32,639	20,127	11,970	6,003
1984	114,370	59,420	46,258	34,543	21,179	12,607	6,306
1985	124,120	63,460	48,923	36,217	22,025	13,201	6,552
1986	147,688	68,347	52,034	38,131	23,059	13,605	6,673
1987	145,646	69,216	53,092	39,050	23,318	13,600	6,358
1988	161,795	73,442	55,524	40,405	24,072	14,104	6,589
1989	169,588	77,552	58,436	42,168	24,906	14,514	6,854
1990	174,721	80,408	60,630	43,689	25,929	15,090	7,095
1991	180,316	83,317	62,421	44,600	26,336	15,349	7,281
1992	197,080	87,389	65,295	46,339	27,380	15,970	7,612
1993	199,698	88,992	66,685	47,249	27,663	16,140	7,770
1994	210,056	93,042	69,023	48,963	28,417	16,667	8,050
1995	224,448	98,469	72,179	50,839	29,338	17,151	8,254
1996	245,951	103,773	75,476	52,632	30,449	17,733	8,430

Table 2.-- Number of Returns by Income-Size Classes, 1979 - 1996 (thousands of returns)

Year	Total	Top 1%	1-5%	5-10%	10-20%	Top 20%	20-40%	40-60%	60-80%	Low 20%
1979	92,224	922	3,689	4,611	9,222	18,445	18,445	18,445	18,445	18,445
1980	92,671	927	3,707	4,633	9,267	18,534	18,534	18,534	18,534	18,534
1981	94,629	946	3,785	4,732	9,463	18,926	18,926	18,926	18,926	18,926
1982	94,378	944	3,775	4,719	9,438	18,876	18,876	18,876	18,876	18,876
1983	95,233	952	3,810	4,761	9,524	19,047	19,047	19,047	19,047	19,047
1984	98,335	983	3,934	4,916	9,834	19,667	19,667	19,667	19,667	19,667
1985	100,543	1,005	4,022	5,027	10,055	20,109	20,109	20,109	20,109	20,109
1986	101,881	1,019	4,075	5,094	10,188	20,376	20,376	20,376	20,376	20,376
1987	106,128	1,061	4,245	5,307	10,613	21,226	21,226	21,226	21,226	21,226
1988	108,832	1,088	4,354	5,441	10,883	21,766	21,766	21,766	21,766	21,766
1989	111,274	1,113	4,451	5,563	11,128	22,255	22,255	22,255	22,255	22,255
1990	112,644	1,126	4,506	5,632	11,265	22,529	22,529	22,529	22,529	22,529
1991	113,755	1,138	4,550	5,688	11,375	22,751	22,751	22,751	22,751	22,751
1992	112,594	1,126	4,504	5,629	11,260	22,519	22,519	22,519	22,519	22,519
1993	113,722	1,137	4,549	5,686	11,372	22,744	22,744	22,744	22,744	22,744
1994	115,061	1,151	4,602	5,753	11,506	23,012	23,012	23,012	23,012	23,012
1995	117,334	1,173	4,694	5,866	11,734	23,467	23,467	23,467	23,467	23,467
1996	119,487	1,195	4,779	5,975	11,948	23,897	23,897	23,897	23,897	23,897

Table 3.-- Retrospective Income by Income-Size Classes, 1979 - 1996 (millions of dollars)

Year	Total	Top 1%	1-5%	5-10%	10-20%	Top 20%	20-40%	40-60%	60-80%	Low 20%
1979	1,536,181	147,101	193,551	167,232	260,245	768,129	367,338	227,676	128,647	44,390
1980	1,679,428	169,392	209,174	182,643	284,456	845,665	400,132	247,013	139,040	47,579
1981	1,877,525	182,158	236,287	206,330	320,539	945,314	446,685	275,552	155,473	54,501
1982	1,978,441	201,591	246,539	216,532	336,339	1,001,001	469,059	286,663	164,055	57,664
1983	2,108,846	229,430	267,437	231,637	357,074	1,085,578	493,138	300,263	170,044	59,823
1984	2,330,667	274,964	297,836	254,737	390,584	1,218,121	536,949	326,831	184,139	64,627
1985	2,519,323	306,854	326,387	276,765	421,089	1,331,095	574,624	348,296	196,418	68,890
1986	2,801,375	426,237	368,797	300,270	451,879	1,547,183	610,354	367,642	204,446	71,751
1987	2,854,624	363,729	385,150	317,991	480,041	1,546,911	645,647	384,619	209,480	67,967
1988	3,152,156	484,475	426,365	343,751	511,394	1,765,985	685,718	407,451	222,938	70,064
1989	3,335,581	486,816	460,189	370,113	547,890	1,865,008	728,790	430,576	236,620	74,588
1990	3,494,266	503,585	482,525	388,375	575,784	1,950,269	763,973	453,699	247,466	78,860
1991	3,575,798	478,588	506,650	405,164	596,999	1,987,401	785,662	465,653	255,099	81,982
1992	3,760,326	556,143	533,268	419,450	615,704	2,124,565	808,649	478,496	262,242	86,373
1993	3,849,532	554,075	550,939	432,271	635,060	2,172,345	828,540	490,810	268,962	88,874
1994	4,033,642	579,600	582,355	455,180	664,994	2,282,129	865,129	510,789	282,072	93,522
1995	4,317,506	653,811	630,924	488,204	705,067	2,478,006	911,545	535,622	295,446	96,888
1996	4,670,662	772,718	690,180	522,029	747,684	2,732,611	962,912	564,842	310,196	100,101

Table 4.-- Taxes by Income-Size Classes, 1979 - 1996 (millions of dollars)

Year	Total	Top 1%	1-5%	5-10%	10-20%	Top 20%	20-40%	40-60%	60-80%	Low 20%
1979	214,480	42,361	37,594	26,899	36,452	143,306	43,424	20,834	6,577	339
1980	244,902	43,799	43,305	31,262	42,586	160,952	50,594	24,589	8,001	766
1981	283,894	49,457	49,944	36,674	50,016	186,091	58,937	28,349	9,627	889
1982	277,142	52,646	47,177	34,843	47,631	182,297	57,485	26,883	9,478	998
1983	273,777	55,822	46,303	34,262	46,054	182,441	55,252	26,069	9,053	963
1984	301,386	64,528	51,060	37,578	49,764	202,930	58,959	28,269	10,049	1,179
1985	325,276	71,739	55,215	40,679	53,072	220,705	62,710	29,978	10,670	1,212
1986	366,468	92,954	62,347	43,276	57,497	256,074	66,574	31,871	10,807	1,142
1987	368,902	89,885	68,596	45,558	57,940	261,979	66,090	29,988	9,551	1,294
1988	412,540	112,191	74,612	48,344	62,780	297,927	71,189	31,855	10,292	1,277
1989	432,643	107,515	81,053	51,630	67,977	308,175	77,942	34,270	10,950	1,306
1990	446,896	110,560	82,415	52,875	71,725	317,575	80,595	36,160	11,147	1,420
1991	448,176	107,908	84,603	54,204	72,574	319,289	81,716	35,149	10,773	1,249
1992	476,067	127,345	88,922	56,060	73,600	345,927	83,098	35,225	10,600	1,217
1993	502,638	142,329	93,579	58,330	76,046	370,284	84,845	35,824	10,541	1,144
1994	534,693	150,679	100,227	63,276	80,871	395,053	89,694	37,569	11,122	1,254
1995	588,292	174,582	109,437	69,742	86,067	439,828	95,971	39,442	11,721	1,330
1996	658,055	208,463	122,436	76,964	91,343	499,206	102,921	42,071	12,426	1,431

Table 5.-- Constant Dollar Income Thresholds, 1979 - 1996 (whole dollars; 1982-84=100)

Year	Top 1%	Top 5%	Top 10%	Top 20%	Top 40%	Top 60%	Top 80%
1979	109,751	56,704	44,884	34,051	21,654	12,887	6,441
1980	103,760	54,090	43,078	32,600	20,633	12,265	6,078
1981	103,057	54,437	43,062	32,399	20,437	12,162	6,055
1982	100,908	53,797	42,733	32,141	20,044	12,059	6,069
1983	105,460	55,652	43,771	32,770	20,208	12,018	6,027
1984	110,077	57,190	44,522	33,246	20,384	12,134	6,069
1985	115,353	58,978	45,467	33,659	20,469	12,269	6,089
1986	134,752	62,360	47,476	34,791	21,039	12,413	6,089
1987	128,210	60,930	46,736	34,375	20,526	11,972	5,597
1988	136,767	62,081	46,935	34,155	20,348	11,922	5,570
1989	136,765	62,542	47,126	34,006	20,085	11,705	5,527
1990	133,681	61,521	46,389	33,427	19,839	11,546	5,428
1991	132,391	61,173	45,830	32,746	19,336	11,269	5,346
1992	140,470	62,287	46,540	33,029	19,515	11,383	5,426
1993	138,199	61,586	46,149	32,698	19,144	11,170	5,377
1994	141,738	62,781	46,574	33,038	19,175	11,246	5,432
1995	147,276	64,612	47,362	33,359	19,251	11,254	5,416
1996	156,757	66,140	48,105	33,545	19,407	11,302	5,373

Table 6.-- Income Shares by Income-Size Classes, 1979 - 1996

Year	Total	Top 1%	1-5%	5-10%	10-20%	Top 20%	20-40%	40-60%	60-80%	Low 20%
1979	100.00	9.58	12.60	10.89	16.94	50.00	23.91	14.82	8.37	2.89
1980	100.00	10.09	12.46	10.88	16.94	50.35	23.83	14.71	8.28	2.83
1981	100.00	9.70	12.59	10.99	17.07	50.35	23.79	14.68	8.28	2.90
1982	100.00	10.19	12.46	10.94	17.00	50.60	23.71	14.49	8.29	2.91
1983	100.00	10.88	12.68	10.98	16.93	51.48	23.38	14.24	8.06	2.84
1984	100.00	11.80	12.78	10.93	16.76	52.26	23.04	14.02	7.90	2.77
1985	100.00	12.18	12.96	10.99	16.71	52.84	22.81	13.82	7.80	2.73
1986	100.00	15.22	13.16	10.72	16.13	55.23	21.79	13.12	7.30	2.56
1987	100.00	12.74	13.49	11.14	16.82	54.19	22.62	13.47	7.34	2.38
1988	100.00	15.37	13.53	10.91	16.22	56.02	21.75	12.93	7.07	2.22
1989	100.00	14.59	13.80	11.10	16.43	55.91	21.85	12.91	7.09	2.24
1990	100.00	14.41	13.81	11.11	16.48	55.81	21.86	12.98	7.08	2.26
1991	100.00	13.38	14.17	11.33	16.70	55.58	21.97	13.02	7.13	2.29
1992	100.00	14.79	14.18	11.15	16.37	56.50	21.50	12.72	6.97	2.30
1993	100.00	14.39	14.31	11.23	16.50	56.43	21.52	12.75	6.99	2.31
1994	100.00	14.37	14.44	11.28	16.49	56.58	21.45	12.66	6.99	2.32
1995	100.00	15.14	14.61	11.31	16.33	57.39	21.11	12.41	6.84	2.24
1996	100.00	16.54	14.78	11.18	16.01	58.51	20.62	12.09	6.64	2.14

Table 7.-- Tax Shares by Income-Size Classes, 1979 - 1996

Year	Total	Top 1%	1-5%	5-10%	10-20%	Top 20%	20-40%	40-60%	60-80%	Low 20%
1979	100.00	19.75	17.53	12.54	17.00	66.82	20.25	9.71	3.07	0.16
1980	100.00	17.88	17.68	12.77	17.39	65.72	20.66	10.04	3.27	0.31
1981	100.00	17.42	17.59	12.92	17.62	65.55	20.76	9.99	3.39	0.31
1982	100.00	19.00	17.02	12.57	17.19	65.78	20.74	9.70	3.42	0.36
1983	100.00	20.39	16.91	12.51	16.82	66.64	20.18	9.52	3.31	0.35
1984	100.00	21.41	16.94	12.47	16.51	67.33	19.56	9.38	3.33	0.39
1985	100.00	22.05	16.97	12.51	16.32	67.85	19.28	9.22	3.28	0.37
1986	100.00	25.36	17.01	11.81	15.69	69.88	18.17	8.70	2.95	0.31
1987	100.00	24.37	18.59	12.35	15.71	71.02	17.92	8.13	2.59	0.35
1988	100.00	27.20	18.09	11.72	15.22	72.22	17.26	7.72	2.49	0.31
1989	100.00	24.85	18.73	11.93	15.71	71.23	18.02	7.92	2.53	0.30
1990	100.00	24.74	18.44	11.83	16.05	71.06	18.03	8.09	2.49	0.32
1991	100.00	24.08	18.88	12.09	16.19	71.24	18.23	7.84	2.40	0.28
1992	100.00	26.75	18.68	11.78	15.46	72.66	17.46	7.40	2.23	0.26
1993	100.00	28.32	18.62	11.60	15.13	73.67	16.88	7.13	2.10	0.23
1994	100.00	28.18	18.74	11.83	15.12	73.88	16.77	7.03	2.08	0.23
1995	100.00	29.68	18.60	11.85	14.63	74.76	16.31	6.70	1.99	0.23
1996	100.00	31.68	18.61	11.70	13.88	75.86	15.64	6.39	1.89	0.22

Table 8.-- Average Tax Rates by Income-Size Classes, 1979 - 1996

Year	Total	Top 1%	1-5%	5-10%	10-20%	Top 20%	20-40%	40-60%	60-80%	Low 20%
1979	13.96	28.80	19.42	16.08	14.01	18.66	11.82	9.15	5.11	0.76
1980	14.58	25.86	20.70	17.12	14.97	19.03	12.64	9.95	5.75	1.61
1981	15.12	27.15	21.14	17.77	15.60	19.69	13.19	10.29	6.19	1.63
1982	14.01	26.12	19.14	16.09	14.16	18.21	12.26	9.38	5.78	1.73
1983	12.98	24.33	17.31	14.79	12.90	16.81	11.20	8.68	5.32	1.61
1984	12.93	23.47	17.14	14.75	12.74	16.66	10.98	8.65	5.46	1.82
1985	12.91	23.38	16.92	14.70	12.60	16.58	10.91	8.61	5.43	1.76
1986	13.08	21.81	16.91	14.41	12.72	16.55	10.91	8.67	5.29	1.59
1987	12.92	24.71	17.81	14.33	12.07	16.94	10.24	7.80	4.56	1.90
1988	13.09	23.16	17.50	14.06	12.28	16.87	10.38	7.82	4.62	1.82
1989	12.97	22.09	17.61	13.95	12.41	16.52	10.69	7.96	4.63	1.75
1990	12.79	21.95	17.08	13.61	12.46	16.28	10.55	7.97	4.50	1.80
1991	12.53	22.55	16.70	13.38	12.16	16.07	10.40	7.55	4.22	1.52
1992	12.66	22.90	16.67	13.37	11.95	16.28	10.28	7.36	4.04	1.41
1993	13.06	25.69	16.99	13.49	11.97	17.05	10.24	7.30	3.92	1.29
1994	13.26	26.00	17.21	13.90	12.16	17.31	10.37	7.36	3.94	1.34
1995	13.63	26.70	17.35	14.29	12.21	17.75	10.53	7.36	3.97	1.37
1996	14.09	26.98	17.74	14.74	12.22	18.27	10.69	7.45	4.01	1.43