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2 Rates, Realizations, and Revenues of Capital Gains

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The effect of the capital gains tax on the sale of capital assets and the realization of gains on these assets has been a matter of substantial academic and political controversy. Capital gains are only taxed when an asset is sold, so inclusion of gains in taxable income is largely discretionary from the point of view of the taxpayer. As a result, sensitivity to tax rates is probably greater for capital gains income than for other kinds of income.

This sensitivity may take a number of forms. Capital gains and losses on assets held for less than a specified time period, currently six months, are taxed as ordinary income, while gains and losses on assets held for longer periods of time are taxed at lower rates. Planning of sales around this capital gains holding period was studied by Kaplan (1981), who concluded that eliminating the distinction between long-term and short-term gains and taxing all assets under current long-term rules would enhance capital gains tax revenue. Fredland, Gray, and Sunley (1968) also found that the length of the holding period had a significant effect on the timing of asset sales.

The deferral of taxes on capital gains until realization enhances the incentive to postpone selling assets. A taxpayer might defer selling one asset and purchasing another with a higher pretax return because capital gains tax on the sale makes the transaction unprofitable. This is known as the "lock-in" effect. Feldstein, Slemrod, and Yitzhaki (1980) estimated that the effect of lock-in was substantial enough to imply that a reduction in tax rates from their 1978 levels would increase tax revenue. Their study focused on sales of common stock using 1973 tax return

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data. The results mirrored those of an earlier work by Feldstein and Yitzhaki (1977), which relies on data from the 1963–64 Federal Reserve Board Survey of the Financial Characteristics of Consumers.

Brannon (1974) found evidence of reduced realizations of capital gains as a result of tax rate increases in 1970 and 1971. A lock-in effect was also identified by Auten (1979). Later work by Auten and Clotfelter (1979) found a substantially greater sensitivity of capital gains realizations to short-term fluctuations in the tax rate than to long-term, average tax rate levels. Minarik (1981) studied the lock-in effect and concluded that a 1% reduction in the capital gains tax rate would raise realizations, but by substantially less than 1%. The U.S. Department of the Treasury (1985) released a report to the Congress that presented substantially higher estimates of the elasticity of capital gains realizations to tax rates and concluded that the tax rate reductions of 1978 had the effect of increasing capital gains tax revenue.

The objective of the present paper is to examine the relationship among capital gains tax rates, the level of realizations of long-term gains subject to tax, and revenues from capital gains taxation over an extended period of time. The Tax Reform Act of 1969 began an era of high variability in the capital gains tax rate, which had been relatively constant for the preceding fifteen years. Further changes in the tax reform bills of 1976, 1978, and 1981 continued this variability. Smaller changes in the capital gains tax rate occurred in intervening years due to changes in ordinary tax rates, changes in other provisions of the tax law, and bracket creep.

The changes in the effective capital gains tax rate that resulted from these laws were quite complex and often involved the interaction of several provisions. This paper estimates the effective marginal tax rate on capital gains for various income groups over the period 1965–82. The tax rate calculations use the detailed tabulation data of personal income tax returns provided by the *Statistics of Income*. These calculations show smaller actual variability in rates than suggested by other studies that relied on calculations of maximum effective tax rates.

Sector balance sheets and reconciliation statements from the Federal Reserve Board's *Flow of Funds* series are used to estimate the level and composition of the wealth of the household sector. This data also provide estimates of the change in the value of these holdings caused by movements in asset prices. These changes are closely related to the stock of unrealized capital gains in the household sector, which is the base from which capital gains are realized and reported on tax returns.

2.1 Measuring Capital Gains Tax Rates

The Internal Revenue Code of 1954 distinguished between gains on assets held at least six months and those held longer. The former were

taxed as ordinary income, while the latter, termed long-term gains, were given a 50% exclusion from taxable income. However, this exclusion was limited to net capital gains: long-term gains in excess of short-term losses. Therefore, to the extent that long-term gains simply canceled short-term losses, the long-term marginal tax rate equaled the short-term rate, which was the same as the tax rate on ordinary income.

Poterba (1985) examined 1982 tax return data and found that taxpayers with net long-term gains composed the majority of all returns reporting capital gains or losses. He noted, however, that a sizable fraction of taxpayers were subject to the capital loss limitation and therefore could realize additional long-term gains without incurring any additional current tax liability. These taxpayers are unaffected by the current marginal tax rate on capital gains, generate no capital gains tax liability, and are therefore neglected in the present study.

This study focuses only on taxpayers with long-term gains in excess of short-term losses. Inclusion of taxpayers with net capital losses would imply a lower level of capital gains revenue and a lower revenue-maximizing capital gains tax rate than is reported here. The current rule is that the tax rate on these net long-term gains is 40% of a taxpayer's ordinary rate. Since ordinary rates currently go up to 50%, the top marginal tax rate on long-term gains is 20%.

Prior to 1982, the top tax rate on capital gains was always higher than this. Ordinary tax rates ranged up to 70% in earlier years. Prior to November 1978, half of all capital gains were subject to tax, not the current 40%. In addition, there were a number of other provisions of the tax code that affected the capital gains tax rate. These included the Alternative Tax Computation, the Additional Minimum Tax, the Maximum Tax on Personal Service Income, and the Alternative Minimum Tax. The effect of each was calculated using detailed tabulation from the *Statistics of Income*.

The Alternative Tax Computation permitted taxpayers to limit the marginal tax rate on at least some of their capital gains to 25%. Although this provision is generally described as having "effectively truncated the tax rate schedule,"[1] careful analysis of the data suggests that this was not the case.

Prior to 1970, taxpayers could calculate their tax using the ordinary tax schedule to compute the tax on their non-capital-gains income and adding 50% of their taxable capital gains to figure their total tax. Taxpayers could pay either this "alternative" amount or the tax they would owe using the ordinary tax consumption. However, because of the way the tax was designed, a significant fraction of high-income capital gains

1. See, e.g., the U.S. Department of Treasury's report to the Congress on the capital gains tax reductions of 1978, p. 35. A similar statement appears in the description of the alternative tax computation in the *Statistics of Income 1966:* "The effect of this computation was a maximum tax of 25 percent on net long-term capital gain" (p. 164).

taxpayers did not choose the alternative tax but paid the ordinary tax: it involved a higher marginal tax rate but a lower average tax rate on their capital gains income. For example, in 1966, one-sixth of all capital gains taxpayers with adjusted gross income (AGI) between $200,000 and $500,000 paid the ordinary tax, as did one-quarter with AGI between $100,000 and $200,000.[2]

Consider the taxpayer with long-term gains of $200,000, other income of $50,000, and exclusions and itemized deductions of $40,000. The taxpayer excludes half of the long-term gain from taxable income, leaving an AGI of $150,000 and a taxable income of $110,000. Using the tax schedule of the era (1965–69), the ordinary tax computation would produce a tax liability of $51,380, but the alternative tax computation involved a tax of $51,820.

This taxpayer would elect to be taxed under the ordinary schedule because it produced a lower tax liability. However, the marginal tax rate on capital gains under the ordinary method is 31% compared with the 25% under the alternative method. Due to the design of the tax, the alternative method could produce a higher *average* tax rate even though it produced a lower *marginal* tax rate.

The Tax Reform Act of 1969 changed the alternative tax computation by limiting the lower marginal rate to the first $50,000 of net long-term capital gains. As a result of this change, less than half of high-income taxpayers had a low marginal tax rate on capital gains because of the alternative tax computation. In spite of the ineffectiveness of this provision at the margin, a substantial amount of tax revenue was lost by extending the inframarginal benefit to these taxpayers. The net results were a low tax rate on capital gains that the taxpayer was going to realize anyway and a high tax rate on capital gains about which the taxpayer was undecided. This produced the wrong type of incentive system for generating capital gains tax revenue.

The Additional Minimum Tax was levied in two forms, one from 1970 through 1975 and one from 1976 through 1978. Both had the peculiar feature of lowering the additional tax rate as the taxpayer's taxable income rose. Under the Additional Minimum Tax, a taxpayer summed a list of tax preference items that included the excluded portion of capital gains and paid a tax on the excess of this amount over a base. In the early version of the tax, this base was the sum of $30,000 plus the taxpayer's ordinary tax liability. Later, this base was lowered to the greater of $10,000 or one-half of the taxpayer's ordinary tax liability.

In either event, as the taxpayer's ordinary taxes rose, this base amount, termed an "offset," also increased. When a taxpayer realized an additional dollar of capital gains, the excluded fifty cents entered

2. These data were derived from the *Statistics of Income 1966*, p. 94.

the minimum tax as a preference, while the rest was taxed at ordinary tax rates, thus also increasing the offset. At a capital gains tax rate of 25%, half of the preference was offset. At a rate of 35%, thirty-five cents of the fifty-cent capital gains preference was offset. So, at high ordinary tax rates, the amount subject to the minimum tax was lower, and the additional minimum tax rate was correspondingly lower.

The changes in 1976 not only reduced the tax base but also increased the additional tax rate from 10% to 15%. The IRS estimates that this resulted in an elevenfold increase in the number of taxpayers paying the minimum tax and a sixfold increase in minimum tax revenues.[3]

The Maximum Tax on Personal Service Income, enacted as part of the Tax Reform Act of 1969, lowered the tax rate on wage, salary, and professional income below that on other types of income for many taxpayers. Instead of the statutory 70% top rate, the tax rate on personal service income was taxed at 60% in 1971 and 50% thereafter. As Lindsey (1981) showed, the maximum tax was ineffective at achieving this lower rate for the vast majority of high-income taxpayers. However, a complex interaction between the maximum tax and capital gains had the effect of raising the capital gains tax rate for many taxpayers.

Every dollar of capital gains income converted a dollar of earned income, taxed at the low rate, into "unearned" income, taxed at the higher rate. This had the effect of adding as much as ten percentage points to the effective capital gains tax rate. The conversion of earned into unearned income due to capital gains became known as "poisoning."

Changes in the rules on poisoning in 1976 dramatically increased the effect of this provision. For example, the effect on the capital gains tax rate for taxpayers in the $100,000–$200,000 income group rose sixfold between 1976 and 1977. This led to a dramatic upward shift in the capital gains tax rate until poisoning was eliminated in 1979.

The Alternative Minimum Tax replaced the Additional Minimum Tax on capital gains beginning in 1979. This tax was levied at 10%, 20%, or 25% on a tax base that was broader than the ordinary tax base. The taxpayer had to pay the greater of his ordinary tax or his alternative minimum tax. Since these tax rates were generally lower than the ordinary tax rates on capital gains, the alternative minimum tax lowered the effective tax rate on capital gains.

Table 2.1 presents calculations of the average effective tax rate on capital gains faced by taxpayers with net long-term capital gains. The calculations weighted all taxpayers with net gains equally in order to minimize the statistical simultaneity between the tax rate and the level of realizations. The tax rates in table 2.1 reflect the effects of each of

3. These data were presented in *Statistics of Income 1976*, table 3B, p. 83.

Table 2.1 **Average Effective Marginal Tax Rate on Capital Gains**

Year	Income Class					
	Under $50,000	$50,000–$100,000	$100,000–$200,000	$200,000–$500,000	$500,000–$1,000,000	Over $1,000,000
1965	11.1	25.5	26.5	26.6	26.0	25.3
1966	11.1	25.5	26.5	26.6	26.0	25.3
1967	12.5	25.5	26.5	26.6	26.0	25.3
1968	13.4	27.4	28.4	28.5	27.9	27.1
1969	13.8	28.0	29.0	29.1	28.5	27.7
1970	12.9	27.8	30.5	32.2	32.1	32.0
1971	12.5	26.3	29.1	32.0	33.3	33.9
1972	12.5	26.6	28.7	32.5	33.9	34.6
1973	12.5	26.6	28.9	32.8	34.3	35.0
1974	12.0	26.3	28.9	32.6	33.6	34.4
1975	11.6	26.3	28.8	32.5	33.5	34.7
1976	11.5	27.2	29.9	34.0	36.1	37.3
1977	10.8	27.8	31.7	36.3	39.2	41.2
1978	10.6	27.8	32.2	36.3	37.9	39.1
1979	10.6	19.4	25.3	27.3	27.0	26.9
1980	10.6	19.5	25.4	27.6	27.6	27.6
1981	10.8	19.1	22.9	24.1	24.2	24.2
1982	11.2	17.6	20.0	20.0	20.0	20.0

the provisions discussed here and other changes in the tax law that occurred during this period.

2.2 The Value of Personal Assets

Evaluation of the importance of capital gains tax rates in determining the level of realizations is complicated by changes in the value of personal wealth including accrued but unrealized gains. The Federal Reserve Board issues a quarterly *Flow of Funds* report on the holdings of various sectors of the U.S. economy, including the household sector, which is the focus of this study.

The components of household wealth include many elements such as cash, checking and saving deposits, and pension fund and insurance wealth on which taxpayers do not realize capital gains. This study therefore grouped household wealth into nontraded assets such as these and tradeable assets on which taxable capital gains are reported and taxed.

Tradeable assets include land, residential structures, corporate equities, and equity in noncorporate businesses. This last category includes the value of nonresidential real estate held by households. Tangible assets, such as consumer durables, that are seldom traded were excluded. These tradeable assets constituted about two-thirds of house-

hold wealth over the period of the study. They also accounted for some 97% of the value of capital gains reported on tax returns.[4]

The components of this tradeable wealth varied over time. For example, nonresidential real estate peaked at 39.4% at the beginning of the period. Corporate equities fell from nearly 23% of total wealth in 1968 to only 9.5% in 1979.

In order to model this variation, household wealth was apportioned among six income groups on a component-by-component basis. Each component of wealth was allocated according to the distribution of income likely to flow from it, as reported on tax returns. For example, the distribution of corporate equities in a given year was assumed to be the same as the distribution of dividends reported in that year.

Shares of wealth were therefore determined from the same tax-based data as the distribution of reported capital gains. Observations on individual income classes in each year were therefore independent of observations in other years. At the same time, the aggregate level of wealth was determined independently of the data on capital gains realizations.

The *Flow of Funds* data also include sectoral reconciliation statements that estimate the change in asset prices. These revaluations were computed for periods ranging from one to seven years. They were converted into inflation-adjusted terms to reflect the real value of asset appreciation for each year studied. However, the data suggested that revaluation periods of more than one year did not significantly affect the rate of realizations. Rather, accrued capital gains over long periods became indistinguishable from other types of wealth.

2.3 Econometric Results

The data on capital gains tax rates, realizations, and household wealth were analyzed statistically. The basic results showed that a one-percentage-point reduction in the capital gains tax rate resulted in 6.2% more net gains realized. The implication of this finding is that revenues from capital gains taxes are maximized when the capital gains tax rate is 16%. At higher tax rates, the revenue gained from taxing realized gains at higher rates is more than offset by a reduction in the amount of capital gains realized. At lower tax rates, the revenue lost from the lower rate is not recouped by the broadening of the tax base. This estimate of the revenue-maximizing rate is best interpreted as being in the center of a range of possible rates from 14.3% to 18.5%.

Capital gains realizations also appeared to rise in direct proportion to the value of traded assets in household wealth. This is as expected.

4. This was calculated from U.S. Department of Treasury's (1985) report to the Congress on the capital gains tax reductions of 1978, table 1.9, pp. 18–19.

Realizations also turned out to be negatively related to the level of nontraded wealth such as cash. If capital gains were often realized for consumption purposes, we would expect this result. When households have a great deal of cash and other liquid assets, they have less need to sell assets to finance consumption. The statistical results also suggest that a rise in the value of household wealth caused by rising asset prices induces more realizations, as expected.

These results were tested against a number of econometric specifications. The result was a range of estimates of the effect of tax rates from a 5.1% increase in realizations per point drop in tax rates to a 7.4% increase in realizations per point drop in tax rates. These results suggested a range of revenue maximizing capital gains tax rates of 13.5%–20%.

It is also likely that a good deal of any increased realization caused by a decrease in the tax rate is temporary. The data showed that the overall response of 6.2% more realizations per point of the tax rate was the combination of a first-year response of 8.4% per point and a long-run response of 5.4% per percentage point of the tax rate. This in turn implies that a long-run revenue-maximizing tax rate would be 18.5%.

The high responsiveness of capital gains realizations to tax rates is unlikely to be duplicated in other areas of the income tax. Taxed commodities such as labor supply will show comparatively little response to reductions in marginal tax rates because a relatively high proportion of the maximum possible level of supply is already in the market. By contrast, only a very small portion of existing capital gains are realized in a given year.

For example, total capital gains realized in 1982 amounted to a record $86.1 billion. But the revaluation in personally traded assets during that year alone was $306 billion, implying that realizations accounted for only 28.2% of that year's gains. In the high tax year of 1978, only $48.6 billion of gains were realized on total revaluations of $694 billion, or 7%. Clearly, the potential for increased realizations in 1978 was substantial. The large and growing stock of unrealized capital gains makes possible significant taxpayer responsiveness to the cost of realization. This in turn makes capital gains tax rates far more sensitive than other types of income.

Finally, it is important to stress that taxation of any commodity at its revenue-maximizing level is not optimal in any economic sense. The last dollars of revenue collected at the revenue-maximizing rate created enormous burdens on the economy relative to the extra dollars raised. The conclusions stated here can only be interpreted as implying that rates above the revenue-maximizing level are counterproductive.

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