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TAX EVASION AND CAPITAL GAINS TAXATION

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ABSTRACT

This paper uses time-series data to investigate how changes in capital gains tax rates affect taxpayer compliance. It finds that a one percent increase in the marginal tax rate reduces voluntary compliance by between one half and one percent. These results confirm the findings of previous studies based on individual household data. They also suggest that at least one quarter of the observed capital gain realization response to changes in marginal tax rates is due to changes in reporting behavior, rather than portfolio behavior.

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The Internal Revenue Service estimates that in 1985 tax evasion reduced personal income tax receipts by $84 billion, or nearly twenty percent. Unpaid income taxes were forty percent as large as the federal deficit. The responsiveness of tax compliance to changes in marginal tax rates has attracted significant policy interest in the last two years, since the Tax Reform Act of 1986 lowers marginal tax rates for more than half of the taxpaying population. Three recent studies have used micro data for the United States to investigate the relationship between marginal tax rates and tax evasion. Two of these studies, Charles Clotfelter (1983) and Craig Alexander and Jonathan Feinstein (1986), find sizable marginal tax rate effects. A third study, by Joel Slemrod (1985), finds no effect. This paper provides new evidence on how marginal tax rates affect compliance levels by analyzing the time series movements in voluntary reporting rates for one type of income, capital gains, between 1965 and 1982.

Two factors make capital gains evasion during this time period a natural experiment in tax compliance. First, the top marginal tax rate on long-term capital gains varied from twenty to thirty-five percent. Second, capital gains transactions were not subject to information reporting requirements so the potential for evasion was much higher, and the probability of detection much lower, than for other income sources such as wages. This is reflected in higher voluntary reporting rates for wage and interest income, 94.9% and 88.1% respectively, than for capital gains income. The compliance rate for capital gains was only 64.3% prior to the recent changes in information reporting rules.

The paper is divided into three sections. The first discusses several methodological issues that arise in interpreting cross-sectional studies of how marginal tax rates affect individual tax compliance and household behavior more generally. Section II presents new empirical evidence on how tax rates affect compliance based on time series analysis of capital gains reporting rates. The conclusion evaluates the debate over whether the capital gains tax reduction of 1978 was self-financing in light of these findings on evasion behavior.

1. Cross-Sectional vs. Time Series Data in Empirical Public Finance

Most previous studies of individual tax evasion, like studies of charitable giving and the realization of capital gains, analyze cross-section data on individual tax returns. Two problems arise in using these data to assess how marginal tax rates affect household behavior. First, it is very difficult to separate income effects from marginal tax rate effects. Most of the dispersion in marginal tax rates is generated by variation in income, so estimated tax rate coefficients may reflect nonlinear income effects rather than tax rate effects. Slemrod (1985) is unable to separate income and tax effects with any confidence, and even when estimated tax coefficients are statistically significant, they may not describe the behavioral response to a tax reform. Daniel Feenberg (1982) suggests a potential remedy for this problem and uses interstate variation in income tax rates to identify the impact of marginal tax rates on charitable giving. Additional progress could be made with panel data spanning multiple tax regimes, but such information is not available in the tax evasion context.

The second problem with cross-sectional data is that much of the variation in marginal tax rates conditional upon income results from household choices. These choices may be correlated with omitted individual characteristics that also affect the behavior, such as evasion, under investigation. For example, married taxpayers face lower marginal tax rates than single taxpayers with identical earnings, but marriage may affect a taxpayer's compliance behavior through channels other than the marginal tax rate. Unobserved characteristics that affect a taxpayer's level of charitable giving or his demand for homeownership will also affect marginal tax rates, but they may affect the proclivity to evade taxes as well. Because tax returns contain minimal demographic data, controlling for these omitted characteristics is extremely difficult.

Relying on time series analyses of tax rates and household behavior is appealing precisely because the experimental variation derives from changes in the tax code. Time series studies encounter other difficulties, however. First, it is difficult to summarize the tax system in one or a few variables. For most behavioral decisions, there is enormous heterogeneity in the marginal tax rates facing different taxpayers. For capital gains, marginal rates vary both because of differences in investors' non-capital gains income that affect their marginal tax rates on capital gains, as well as from particular gain and loss realization patterns (see Poterba (1987)). Fortunately, the capital gains tax reforms of the last two decades affected the marginal tax rates facing most investors in similar ways, so they may still be useful for tax research.

The second problem with time series data is the inevitable difficulty of controlling for other factors that affect taxpayer behavior. Two factors are particularly significant for analyzing capital gains tax evasion. First, intertemporal variation in tax enforcement is potentially very important. In 1965, the first year of my sample, 4.6% of individual tax returns were examined by IRS revenue agents and auditors. By 1982, the last year, only 1.5% of returns were examined. There have also been changes in tax shelter enforcement that may affect capital gains reporting. In 1973, the IRS began an enforcement program directed at oil and gas shelters; the program was expanded to other shelters in the late 1970s. Second, the composition of gains also affects capital gains compliance. Some types of gains, notably those on stocks and bonds, have voluntary reporting rates of nearly 90%. Corporate stock accounts for only a third of capital gains, however, and many other transactions such as sales of real property have much lower compliance rates (see Thomas Thompson (1987)). The mix of gains has shifted through time, with real estate transactions becoming increasingly important, and this may affect the compliance level.

Despite these difficulties, time series data provide a new source of evidence on taxpayer behavior. At worst, they constitute a useful validation of the estimates from cross-sectional studies, and at best they may yield more reliable estimates of how structural tax reform will affect household behavior. The next section analyzes time series data on the capital gains tax voluntary reporting percentage (VRP) to explore how marginal tax rates affect tax evasion.

2. Time Series Evidence on Tax Rates and Tax Compliance

The Internal Revenue Service estimates the fraction of realized capital gains that are reported on tax returns, the VRP, as part of each Taxpayer Compliance Monitoring Program survey. There were six TCMP surveys between 1965 and 1982, and the estimated VRPs varied from a high of 83.2% in 1965 to a low of 61.1% in 1976. These data, plotted as the solid line in Figure I, are described in more detail in Internal Revenue Service (1983).

I investigate the relationship between the capital gains VRP and two measures of the marginal tax burden on capital gain realizations. The first, MTR1, is the maximum statutory tax rate on long-term gains. I ignore a variety of complicated capital gains tax provisions the affected a very small fraction of investors during the mid-1970s (see Lawrence Lindsey (1987) for a more detailed discussion of these provisions, which involve the alternative minimum tax and the maximum tax on earned income). This tax rate series is plotted as the broken line in Figure I. The second tax rate series, MTR2, is a weighted average of actual marginal rates on realized long-term gains computed by Lindsey (1987). Its movements are similar in direction, but less dramatic, than those in MTR1. Although Joseph Stiglitz (1983) and George Constantinides (1983) emphasize the impossibility of distilling the capital gains tax system into a single marginal tax rate that affects household behavior, I argue elsewhere (1987) that the marginal tax rates on long-term gains realized by a majority of investors move in tandem with these series. Some investors may develop trading strategies that shelter gains and therefore face zero marginal tax rates on capital gains, so the tax reforms have no effect on them. Very few, if any, investors received reductions in their capital gains tax rates as a result of the legislation that raised the top marginal rate.

I estimate regression equations linking the logarithm of the voluntary reporting percentage with the log of the marginal tax rate and a time trend, the latter included to capture changes in enforcement, tax compliance mores, and other factors. The results for the two basic equations are shown below, with standard errors in parentheses:

$$\begin{array}{llllll} (1) & \ln(VRP) = & -0.680 & - .410*\ln(MTR1) & - .044*TIME & R^2 = .68 \\ & & (0.250) & (.197) & (.022) & \end{array}$$

$$\begin{array}{llllll} (2) & \ln(VRP) = & -1.787 & - .979*\ln(MTR2) & - .042*TIME & R^2 = .39 \\ & & (1.065) & (.652) & (.031) & \end{array}$$

Equation (2) is estimated by instrumental variables, since MTR2 is based on reported capital gains, with the maximum statutory rate (MTR1) as an instrument.

Both equations suggest important marginal tax rate effects on the tax evasion decision. The first equation implies that a one percent change in the marginal tax rate raises the reported tax base by .4 percent. A change like the 1978 tax reform, which lowered the marginal tax rate from 35% to 28%, would therefore raise reported capital gains by roughly eight percent. The second equation suggests an even larger tax rate effect, with reported gains displaying a unit elasticity with respect to the marginal tax rate. Because the 1978 tax reform has a smaller effect on MTR2 than on MTR1, reducing it only from 21.8% to 17.7%, the second equation predicts only a 4% change in the reported tax base.

Although these equations are estimated using only six observations, the MTR coefficient is statistically significant at the .15 level in first equation and at just below the .20 level in the second. The trend variable in these equations may be capturing changes over time in tax enforcement. To allow for this possibility I replaced the trend variable with the fraction of individual tax returns that were audited. The estimated marginal tax rate coefficient changes very little between (1) and this specification, but the coefficient on enforcement probability is statistically insignificant. Its point estimate is large, however, and suggests that a one percentage point increase in the examination probability raises tax compliance by about four percent.

To control for the possibility that attitudes toward tax evasion in general had evolved through time in ways that were spuriously correlated with the capital gains tax rate, I also estimated an equation controlling for the level of tax evasion on other types of capital income:

$$(3)\quad \ln(VRP_{cg}/VRP_{int\&div}) = \underset{(.108)}{-.250} - \underset{(.262)}{.368}*\ln(MTR_{cg}/MTR_{div}) - \underset{(.029)}{.046}*TIME \qquad R^2=.51$$

The dependent variable is the log of the VRP on capital gains, divided by the VRP for interest and dividend income. The tax variable is MTR1 divided by a weighted average marginal tax rate on individual dividend income, calculated by Martin Feldstein and Joosung Jung (1987). This equation tests the hypothesis that changes in the relative tax burdens on different types of capital income, capital gains versus interest and dividends, lead to changes in the relative compliance rates on the different income sources. The results support this view. Although the standard error on the tax rate variable is now somewhat higher than in equation (1), the coefficient changes relatively little and the implied elasticity of the tax base with respect to the marginal tax rate is .37.

The time series evidence on the sensitivity of tax evasion to marginal tax rates is surprisingly similar to the findings of cross-sectional studies. Evaluated at the 1976 values of the compliance level and marginal tax rate, the estimates in equations (1) and (2) imply elasticities of unreported capital gains with respect to marginal tax rates of .64 and 1.54 respectively. By comparison, Clotfelter (1983) reports an elasticity of unreported taxable income of 1.46 with respect to the marginal tax rate for high income filers, the group most comparable to the taxpayers reporting capital gains. The comparison with Alexander and Feinstein (1986) is more difficult, because they report primarily probit results on the discrete choice of whether or not to evade. For a taxpayer with total taxable income of $100,000 and $20,000 of taxable capital gains, their estimates imply that reducing the taxpayer's marginal tax rate from .45 to .33 (as the Tax Reform Act of 1986 does) would reduce the probability of tax evasion from .72 to .55. If all individuals who evade fail to report the same amount of income, this would imply an elasticity of unreported income with respect to marginal tax rates of 1.53.

The estimates from (1) and (2) are only suggestive for two reasons. First, they fail to control for changes through time in the composition of capital gains, principally the increased importance of residential capital gains. If anything this would induce a downward trend in the measured VRP over time, making the 1982 compliance increase even more difficult to explain. Second, the estimates make only a crude correction for varying enforcement patterns. The results do however support earlier studies that find a significant role for marginal tax rates in determining tax compliance.

3. Tax Policy Implications

The influence of marginal tax rates on taxpayer compliance is a central issue in assessing the revenue effects of tax reform. Total revenue raised from a tax is the product of the tax rate and the reported tax base:

$$T = \tau * \nu(\tau) * B(\tau) \tag{4}$$

where the reported base is the product of the true tax base, $B(\tau)$, and the voluntary reporting percentage $\nu(\tau)$. The revenue effect of a tax reform can therefore be decomposed into three parts, a rate effect, a reporting effect, and a behavioral effect on the true tax base. Although the elasticity of the reported capital gains base $\nu(\tau) * B(\tau)$ with respect to tax rates has been a subject of substantial debate, there has been virtually no discussion of the effect of tax rates on tax compliance $\gamma(\tau)$ as opposed to gain realization, $B(\tau)$. Most previous studies treated $\nu(\tau)$ as fixed at one in interpreting their findings on the distortions due to the capital gains tax. The time series estimates using MTR2 imply that a one percent change in the marginal tax rate leads to a one percent change in reported income, so even without any change in the true tax base, $B(\tau)$, capital gains tax cuts would be essentially self-financing. The estimates using MTR1 imply that only half of the revenue lost through reduced rates is made up by increased reporting.

The estimates from the last section can be used to evaluate the relative importance of reporting effects, $\partial \ln\nu/\partial \ln\tau$, and realization effects, $\partial \ln B/\partial \ln\tau$, in accounting for the elasticity of the capital gains tax base with respect to tax rates. First, consider the cross-sectional data on the elasticity of reported realizations. Studies using panel data to disentangle temporary and permanent changes in marginal tax rates suggest an elasticity of realized long-term gains with respect to marginal tax rates of between -1.2 and -2.2 (see U.S. Treasury (1985) and Gerald Auten and Clotfelter (1982)). The compliance effects in the last section imply that between one quarter and half of these effects could be due to variability in taxpayer reporting, not to changing realization behavior. Feldstein, Slemrod, and Shlomo Yitzhaki (1980) estimated larger realization elasticities than those from the panel data studies, however, so reporting effects explain a smaller fraction of their results.

There have also been time series studies of how capital gain realizations respond to marginal tax rates. Lindsey (1987) concludes that a one percentage point reduction in the marginal tax rate on capital gains, measured as MTR2, will raise realized long-term gains by five percent. This implies that a tax change like the 1978 reform would increase the reported capital gains tax base by twenty percent, so the evasion effects could account for between 20% and 40% of the total effect. Both the micro and time series estimates suggest that previous studies overstate the behavioral distortions from the capital gains tax.

The problem of distinguishing reporting effects from more substantive behavioral effects arises in other microeconometric tax research as well. Studies of charitable giving that estimate how marginal tax rates affect contribution levels may be capturing in part a tax compliance effect. Richard Fratanduono (1986) reports estimates from the 1982 TCMP showing that charitable contributions were overstated by 10%, in comparison with 14.7% overstatement in the late 1960s when marginal tax rates were typically much higher. An important but unresolved issue concerns the extent to which the sizable increase in reported taxable income following the marginal rate reductions of 1981 (see Lindsey (1985)) can be attributed to changing compliance patterns.

Recognizing the possibility of capital gains tax evasion, and changing evasion opportunities over time, can also affect analyses of tax distortions. There are wide inter-asset disparities in noncompliance rates. Compliance is much lower for sales of real assets such as business property and personal residences than on corporate stock and bonds (see Thompson (1987)). This effectively reduces the tax burden on structures (see Roger Gordon, James Hines, and Lawrence Summers (1987)) and also implies that recent initatives to increase tax compliance by requiring information reporting on most asset sales will alter the relative tax burdens on different assets. Complete analysis of this problem requires integrating work on the deadweight burden due to income tax evasion with work on inter-asset and intertemporal distortions.

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