
REVENUE ESTIMATION OF CAPITAL GAINS TAXES NEEDS IMPROVEMENT

Introduction

Two recent studies in IRET's *Capital Gains Tax Series* have examined the taxation of capital gains from two different perspectives.

The first study is "The Effect of the Capital Gains Tax Rate on Economic Activity and Total Tax Revenue" by IRET President Stephen J. Entin.¹ The Entin paper looks at how changes in the tax rate on capital gains and dividends (currently 15% for both) affect the *economy*. In particular, it examines the effects on the amount of capital investment, productivity, wages, and GDP. These are the *macroeconomic effects* of the tax. They influence the size of the capital stock and the amount of economic output and income (GDP). These changes in turn affect the amount of taxable income and government tax revenue.

The effects are large, important, and should be considered when making decisions about what to tax and what the tax rate should be. They are sufficient to offset between 92% and 95% of the expected increase in *income tax* revenue from an increase in the capital gains tax rate to 20% or 28%. Factoring in the losses of *other tax* revenue due to the lower levels of wages and GDP, total revenues would fall, not rise. All told, the revenue loss from the *economic damage* would offset more than 180% of the expected revenue gains from raising the rate from 15% to 20%, 24%, or 28%.

¹ Stephen J. Entin, "The Effect Of The Capital Gains Tax Rate On Economic Activity And Total Tax Revenue," *IRET Capital Gains Tax Series*, No. 1, October 9, 2009, available at <http://iret.org/pub/CapitalGains-1.pdf>.

The second study, "The Relationship Between Realized Capital Gains and Their Marginal Rate of Taxation, 1976-2004," is by Professor Paul D. Evans of Ohio State University.² The Evans paper focuses on one aspect of taxpayer behavior: how a tax rate change would affect the *quantity of existing capital gains that taxpayers choose to realize* on a permanent basis, beyond temporary timing effects. This realization effect is a *microeconomic change in taxpayer behavior* that does not affect the size of the capital stock or the amount of economic output and income. The Evans paper predicts a moderately large ongoing taxpayer *realizations response* at current tax rates, which would offset about 106% of the increased income tax revenue that would be calculated to occur from a one percentage point hike in the capital gains tax assuming the amount of gains did not change.

The permanent realizations response to a tax rate change depends in part on how high the rate was to begin with. Various other studies of this type, studying different years and using a variety of methods, have come up with answers that range from quite large (resulting in revenue losses if the rate were to be raised, and net gains if it were to be reduced) to fairly small (offsetting about a sixth of the "no reaction" revenue change) at various initial levels of the tax rate. These offsets would be due only to the change in the quantity of gains taken, not to any economic changes resulting from the change in the tax on capital.

In this paper, we look at the findings of earlier studies on the realizations and timing effects of tax rate changes on capital gains. The purpose is to gain a better understanding of what the revenue estimators do, what they tell the Congress, and how they influence policy decisions. The goal is to explore how seriously the Congress should take these projections, and to suggest that the Congress ought to take additional factors into consideration in deciding what to do with the tax. This focus on the revenue consequences for the federal Treasury is not to be taken as an assertion that federal revenues are the most important aspect of the imposition of the tax. In the case of capital gains taxes, and other taxes that have large economic impacts, the effect of the tax on the income and employment of the population deserves more attention than the narrowly-estimated revenue effect on the federal budget.

Revenue estimators look at only half the problem

As large as the Evans paper finds the microeconomic capital gains realizations response to be, it deals only with what might happen to the income tax revenue from a change in realizations, assuming no change in GDP, other income tax revenue, and other tax receipts. The macro-economic effect of a higher tax rate on total tax revenue from all sources is larger. Whether the realizations

² Prof. Paul Evans, "The Relationship Between Realized Capital Gains And Their Marginal Rate Of Taxation, 1976-2004," *IRET Capital Gains Tax Series*, No. 2, October 9, 2009, available at <http://iret.org/pub/CapitalGains-2.pdf>.

response is found to be small, medium, or large, it is dwarfed by, or more than matched by, the additional revenue effects from the change in the economy.

There have been numerous studies of the realizations effect, but few of the macroeconomic consequences. One reason is that government revenue estimators are willing to take the microeconomic response of taxpayers into account in preparing revenue estimates of tax changes, but the estimators deliberately exclude the larger macroeconomic effects of tax policy changes on their estimates. The Joint Tax Committee explains:

"The starting point for a revenue estimate prepared by the Joint Committee staff is the Congressional Budget Office ("CBO") 10-year projection of Federal receipts, referred to as the "revenue baseline." ... Underlying the baseline revenue forecast is a 10-year forecast of macroeconomic conditions, which CBO produces at the beginning of each calendar year, and updates each August. Revenue estimates produced by the Joint Committee staff generally incorporate as underlying assumptions relevant parts of the CBO baseline macroeconomic forecast, including total output, investment, inflation and interest rates, and growth rates for specific income flows such as corporate profits and wages...

"In providing conventional estimates, the Joint Committee staff assumes that a proposal will not change total income and therefore holds Gross National Product (GNP) fixed. The use of fixed economic assumptions does not prevent the Joint Committee staff from taking into account possible shifts in economic activity across sectors or markets and/or changes in the timing of such activity in response to proposed tax changes, so long as GNP remains unaffected."³

"Although conventional revenue estimates are sometimes referred to as 'static,' ... Joint Tax Committee staff revenue estimates have taken into account taxpayers' likely behavioral responses to proposed changes in the tax law. Because such responses are constrained by the fixed-macroeconomic convention (fixed GNP), they are sometimes referred to as microeconomic behavioral effects...

"Probably the most well known example of timing shifts included in revenue estimates is the realization rate for capital gains. When estimating the effect of changes to the capital gains tax rate (or of other aspects of the tax law that may affect the incentive to realize capital gains), the Joint Committee staff assumes that taxpayers will respond by changing the timing of their decision to realize capital

³ Joint Committee on Taxation, "Overview of Revenue Estimating Procedures and Methodologies Used by the Staff of the Joint Committee on Taxation," February 2, 2005 (JCX-1-05), page 9.

gains or losses out of their accrued gains or losses. For instance, in response to the separate rate structure on capital gains that was enacted in 1997, the Joint Committee staff assumed that there would be a relatively large short-term increase in realizations, followed by a smaller long-term increase. The revenues resulting from this dynamic response in realization behavior roughly offset the loss in revenues that would have resulted from applying the rate change to a static forecast of capital gains realizations. The magnitude of the response has been the topic of considerable debate."⁴

One reason for not taking macroeconomic considerations into account is that there is no unanimous, or even general agreement among economists as to how the tax rates on capital gains affect the economy, or by how much. Before 1978, tax economists were inclined to assume the effect was minor, and did little research.

The strength of the behavior changes revealed in the earliest studies surprised the profession. Since then, there has been considerable debate about which tax and other variables, model structure, type of equation, and statistical techniques ought to be used. The results have been sensitive to all these differences, as well as to differences in the years studied. As long as there is disagreement in the economics profession (which means forever), the revenue estimators feel justified in making a zero impact assumption for their convenience, and for the convenience of the Congress in having a fixed baseline to work from in dealing with the budget process. Unfortunately, this zero impact assumption is certainly an extreme position. The only question is whether it is modestly, moderately, or massively wrong.

Short run and long run reactions to rate changes

There are two types of short run behavior effects that tax analysts generally expect from changes in the capital gains tax rate. After a rate reduction, analysts anticipate a temporary surge in gains as people realize gains that had been "locked up" under the previous higher tax rates. This is called the "unlocking effect". In the other direction, a pre-announced rate increase would be expected to cause people to realize a larger than normal amount of gains immediately before the rate hike, and report fewer gains than normal immediately afterwards. This timing shift would also be temporary, affecting the months before and the months after the rate change.

There appears to be a more permanent behavior effect of tax rate changes, lasting beyond the year or two immediately after a rate change. There are two possible explanations. One involves the quantity of gains remaining to be taken after the initial reaction to the rate change. For example, a surge in realizations before a rate increase might "use up" many of the gains that taxpayers had accrued, reducing the remaining amount of gains to be taken after the rate has risen. This is not

⁴ *Ibid.*, page 18.

likely to be the primary explanation for lingering realization effects, because the amount of gains existing in the economy reflect much of the rising value of the entire capital stock, which is in the tens of trillions of dollars and increases with reinvestment over time. These values dwarf the amount of gains realized in even the most active years.

A second explanation, the more likely by far, is that a tax deferred is less painful than a tax paid immediately. Taxpayers tend to defer the taking of gains when rates are high in order to reduce the present value of the tax paid. They are more likely to realize gains more quickly when tax rates are low. The step-up in basis at death and the age of the taxpayer are part of this process. The higher the capital gains tax rate, the more likely that elderly asset holders will feel the lock-in effect and defer the realization of gains. When assets are held until death, the beneficiary's tax basis in the asset is "stepped up" to the value at the time of the death of the decedent. Accrued gains up to that point are eliminated from the tax base. Though subject to estate tax, the asset does not trigger an additional capital gains tax on receipt of the asset by the beneficiary. If the recipient later sells the asset, he or she is subject to a capital gains tax only on any additional increase in value beyond the stepped-up basis.

This permanent realizations effect — an increase after rates are lowered and a reduction after rates are increased — is part of the taxpayer behavior that revenue estimators must consider, even under their self-imposed estimation regime that involves static macro-economic assumptions with only micro-economic behavior allowed to be dynamic.

Realization and timing

If the realization and timing effects are all that revenue estimators are willing to consider, what do the studies show about the two effects? It is somewhat difficult to separate the timing and realizations effects in the periods immediately before and after the changes in the tax rates. Researchers employ various techniques for doing so, with mixed results. Most studies that attempt the distinction find that the initial timing effects are greater than the longer term effects, but that the longer term effects are non-negligible, and, in some cases, remain quite large. The timing and realization responses together are often presented as offsetting the revenue effect from the change in the capital gains tax rate in the first year or two after a rate cut. Thereafter, the realizations effect alone may, but is less likely to, erase all of the revenue change.

Various studies, reviewed below, have shown the permanent realization response to be sufficient to offset 20%, 66%, 90%, or 160% of the expected revenue change from raising or lowering the capital gains tax rate. The larger the realizations response, the less is the net gain in federal revenue from raising the tax rate, and the less is the economic damage it would take to make the rate increase unwise. Timing effects have been large in the past, and are clearly reflected in

Treasury and JCT revenue estimates. The realizations effects are handled a bit differently by the two estimating agencies.

A half century of capital gains realizations and revenue

The table on the next page is from the Department of the Treasury, Office of Tax Analysis. It displays the amount of capital gains realized and the tax paid in dollars, the average effective tax rate, realized gains as a percent of GDP, and the maximum tax rate on long-term gains from 1954 to 2005. The numbers cover all types of capital gains, including those on real estate, corporate stock, non-corporate businesses, bonds, and other assets. The maximum rate includes adjustments for exclusions, surcharges, the alternative tax and alternative minimum tax, and the phase-out of itemized deductions as income rises. These are features of the tax code that have been in place at various times. Thus, for example, the basic top tax rate on capital gains is currently 15 percent, but the Treasury calculates that the AMT and the phase-out of itemized deductions can boost the marginal rate to 16.05%. In our discussion, we refer mainly to the basic rates.

Major rate changes since 1978

There have been four major reductions and two major increases in the capital gains tax rate since 1978.

The Steiger Amendment lowered the basic tax rate on long term gains in mid- 1978, from just under 40% to 28%. Realizations were 2.20% of GDP in 1978, and rose by about a fourth to between 2.58% and 2.86% of GDP in 1979-1981. The Economic Recovery Tax Act of 1981 reduced the top rate to 20% in the spring of that year. Realizations were 2.77% of GDP in 1982, rising to 3.47% in 1983 and 4.08% in 1985.

The longest and most interesting change occurred following the Tax Reform Act of 1986, which raised the top capital gains tax rate from 20% to 28%. The rate hike was effective January 1, 1987. To beat the 1987 rate hike, asset holders realized a large amount of capital gains in the last months of 1986. Realizations surged from 4.08% of GDP in 1985 to 7.36% in 1986. There was a subsequent drop in realizations in 1987, to 3.13% of GDP.

This two-year rise and fall could have been due to a simple timing shift, moving gains from 1987 to 1986. However, gains remained depressed as a share of GDP for a decade. Realizations continued falling to 1.86% of GDP in 1991 (a recession year), and struggled back only to 3.34% of GDP in 1996, still below the 1985 share. Gains did not recover their 1985 share of GDP until 1997, when the capital gains tax rate was again reduced to 20% by the Taxpayer Relief Act of 1997, effective as of May 8th of that year. ***This episode of a decade-long depression in realizations and tax revenue simply cannot be dismissed as either short-term timing or a fluke.***

**Capital Gains and Taxes Paid on Capital Gains
for Returns with Positive Net Capital Gains, 1954-2005
(dollar amounts in millions)**

Year	Total Realized Capital Gains	Taxes Paid on Capital Gains	Average Effective Tax Rate (percent)	Realized Gains as a Percent of GDP	Maximum Tax Rate on Long-Term Gains
1954	7,157	1,010	14.1	1.88	25.00
1955	9,881	1,465	14.8	2.38	25.00
1956	9,683	1,402	14.5	2.21	25.00
1957	8,110	1,115	13.7	1.76	25.00
1958	9,440	1,309	13.9	2.02	25.00
1959	13,137	1,920	14.6	2.59	25.00
1960	11,747	1,687	14.4	2.23	25.00
1961	16,001	2,481	15.5	2.93	25.00
1962	13,451	1,954	14.5	2.29	25.00
1963	14,579	2,143	14.7	2.36	25.00
1964	17,431	2,482	14.2	2.62	25.00
1965	21,484	3,003	14.0	2.98	25.00
1966	21,348	2,905	13.6	2.70	25.00
1967	27,535	4,112	14.9	3.30	25.00
1968	35,607	5,943	16.7	3.91	26.90
1969	31,439	5,275	16.8	3.19	27.50
1970	20,848	3,161	15.2	2.01	32.21
1971	28,341	4,350	15.3	2.51	34.25
1972	35,869	5,708	15.9	2.89	36.50
1973	35,757	5,366	15.0	2.58	36.50
1974	30,217	4,253	14.1	2.01	36.50
1975	30,903	4,534	14.7	1.89	36.50
1976	39,492	6,621	16.8	2.17	39.875
1977	45,338	8,232	18.2	2.23	39.875
1978	50,526	9,104	18.0	2.20	39.875/33.85
1979	73,443	11,753	16.0	2.86	28.00
1980	74,132	12,459	16.8	2.65	28.00
1981	80,938	12,852	15.9	2.58	28.00/20.00
1982	90,153	12,900	14.3	2.77	20.00
1983	122,773	18,700	15.2	3.47	20.00
1984	140,500	21,453	15.3	3.57	20.00
1985	171,985	26,460	15.4	4.08	20.00
1986	327,725	52,914	16.1	7.36	20.00
1987	148,449	33,714	22.7	3.13	28.00
1988	162,592	38,866	23.9	3.18	28.00
1989	154,040	35,258	22.9	2.81	28.00
1990	123,783	27,829	22.5	2.13	28.00
1991	111,592	24,903	22.3	1.86	28.93
1992	126,692	28,983	22.9	2.00	28.93
1993	152,259	36,112	23.7	2.29	29.19
1994	152,727	36,243	23.7	2.17	29.19
1995	180,130	44,254	24.6	2.43	29.19
1996	260,696	66,396	25.5	3.34	29.19
1997	364,829	79,305	21.7	4.39	29.19/21.19
1998	455,223	89,069	19.6	5.18	21.19
1999	552,608	111,821	20.2	5.96	21.19
2000	644,285	127,297	19.8	6.56	21.19
2001	349,441	65,668	18.8	3.45	21.17
2002	268,615	49,122	18.3	2.57	21.16
2003	323,306	51,340	15.9	2.95	21.05/16.05
2004	499,154	73,213	14.7	4.27	16.05
2005 1/	690,152	102,174	14.8	5.55	16.05

Following the 1997 rate cut to 20%, realizations remained elevated until the dot.com stock market crash and economic recession in 2001. The Jobs and Growth Tax Relief Reconciliation Act of 2003 reduced the top rate from 20% to 15%. Realizations rose from 2.95% of GDP to 4.27% in 2004 and to 5.55% in 2005. Precise capital gains data is not available yet for later years, but Treasury did report continued increases in "non-withheld" (i.e. estimated) tax payments (including those for capital gains) in the years following, until the latest recession and stock market crash in 2008. In all these cases, there appears to have been a longer term response to the lower rates, in addition to a short-run unlocking event after a rate cut or a timing shift in anticipation of a rate hike.

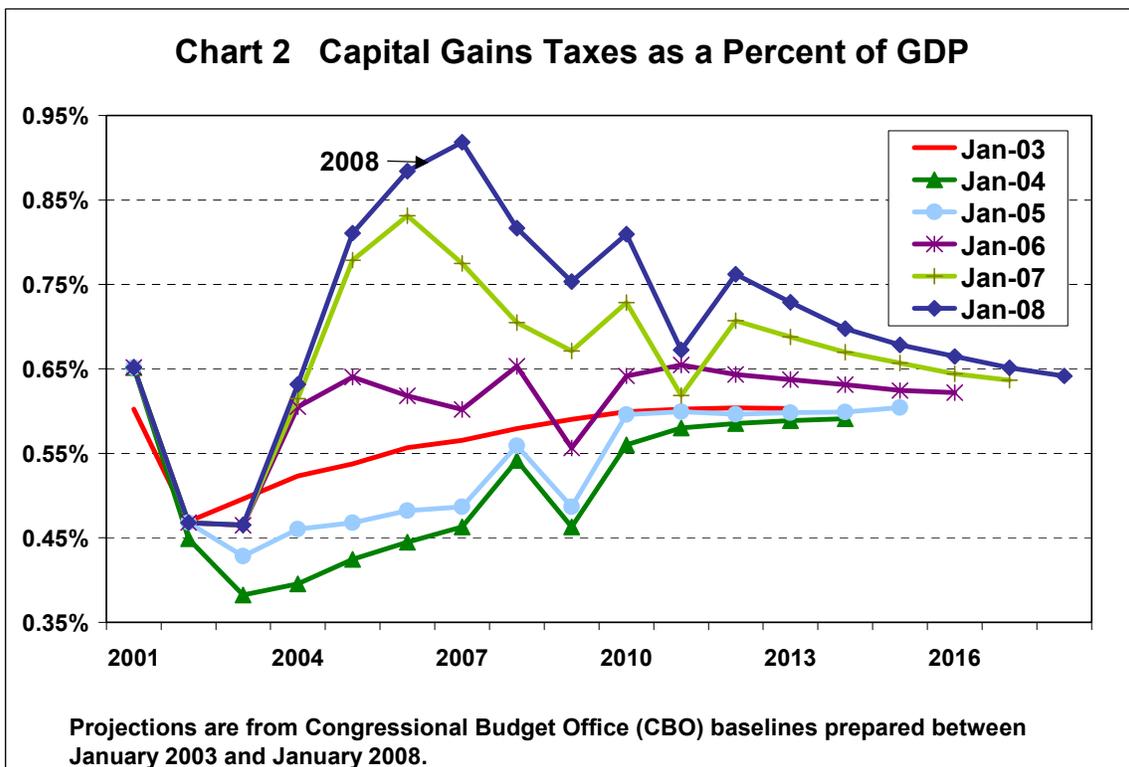
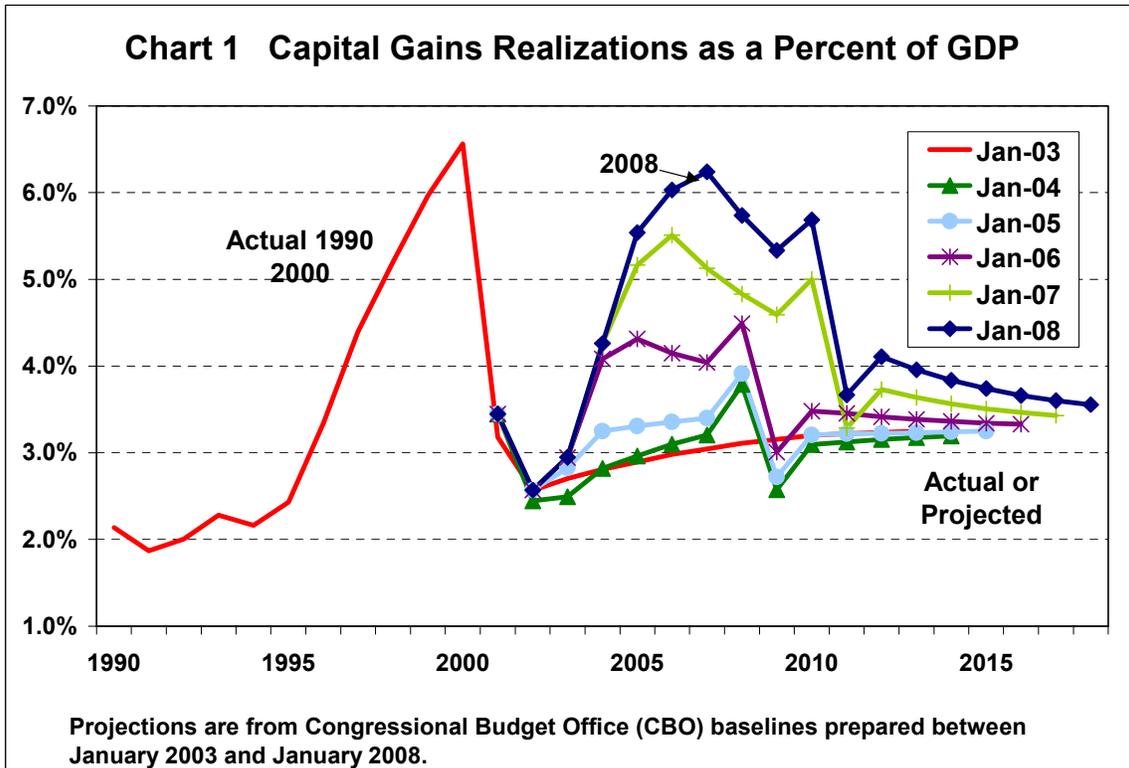
This thirty year period indicates that people hold assets longer, and take fewer gains over time, at higher capital gains tax rates than they do at lower rates. This is a permanent realizations effect that government revenue estimators should take into account. However, there is much controversy over how large this effect is.

Timing shift allowed for

In recent years, the Congressional Budget Office has issued annual baseline forecasts for GDP and the various types of income that underlie the revenue forecasts of the Joint Committee on Taxation. Treasury produces baseline forecasts for the Administration in conjunction with the CEA, OMB, and the Department of Commerce. The CBO capital gains forecasts of January, 2003 through January 2008 are shown in the following charts. They display the actual and forecast capital gains realizations and tax revenue as a percent of GDP. The starting points shift slightly for each new forecast as the actual data for the most recently available year became available.

The January 2003 forecast was issued before the capital gains rate was reduced from 20% to 15% in the tax legislation later that year. It forecast a gradual increase in the tax revenue to 3.2% of GDP by 2013. CBO may have estimated that the drop in the stock market following the 2001 recession was holding down gains early in the decade, and they would rebound to a more normal level over the next ten years. The 2003 tax cut provided for a reduced 15% top tax rate on gains through 2008, returning to 20% in 2009. CBO forecast that the 2003 legislation would generate a timing effect, creating a jump in realizations in 2008, a reduction in 2009, and a return to a trend toward the unchanged 3.2% long run target at the 20% tax rate thereafter.

In each subsequent year, the chart shows the timing event followed by a return to a trend line pointing toward a 3.2% to 3.4% share of GDP some years out. In 2006, Congress extended the 15% rate through 2010, and the timing effect shifted in the next CBO forecast to occur in 2010 and 2011. The paths to the expected long run share of GDP shift over time as the changes in the actual realizations become available, which alters the starting point year after year. The end points of the CBO forecasts assume current law for the outyears, which involves a return to the 20% tax rate on



gains. Therefore, in this series of forecasts, they do not seem to indicate any difference in gains in the outyears after the reversion to a 20% rate, compared to pre-2003 levels.

One could not expect the January 2003 CBO report to anticipate the 2003 capital gains tax rate reduction, nor the unlocking effect that year. Note, however, that CBO underestimated the longer term effects of the rate reduction in each of its forecasts from 2004 through 2008. Each year, it had to ratchet up its starting points above the levels it had forecasted in the previous reports to match the actual amounts revealed as the data came in. For example, the January 2005 and January 2006 reports had to show the actual 2004 realizations well above what the 2004 CBO forecast had predicted for 2004. That pattern of upward adjustments continued for forecasts through 2008. One would expect a surge in realizations in 2003 after the rate cut, and in 2010 before the tax rate reverts to 20%, but the multi-year elevation of realizations in 2004-2008 must reflect an ongoing sensitivity to the 15% tax rate. That is something that CBO obviously missed.

The important points revealed by these charts are: 1) that the CBO (and the Joint Tax Committee revenue estimators) do adjust for microeconomic timing decisions on the part of taxpayers in the months before and after a change in the capital gains tax rate, and 2) the CBO (and JCT) analysts seem to underestimate what the longer term reaction to a tax rate change will be.

Early long run estimates accepted by Treasury, CBO and JCT

In 1990, the George H. W. Bush Administration proposed to create a 30% tax exclusion for capital gains. If this had been enacted, it would have reduced the top tax rate of 28% to 19.6%. The JCT prepared a paper explaining how it derived its revenue estimates for the tax proposal. The paper also compared the JCT estimates and techniques to those that the Treasury Department used for estimating the revenue from the same plan.⁵

Both agencies were assuming that the rate reduction would trigger a short run behavior change that would fully offset the revenue loss from the rate reduction, for two years under JCT assumptions, and for four years under Treasury assumptions. In later years, the realization effect would recoup much, but not all, of the static revenue loss from the rate cut alone. Even in the sixth year following the tax rate reduction, the realization effect would be offsetting about 66% of the static revenue loss under (what was then) the CBO elasticity assumption, and about 92% under (what was then) the Treasury elasticity assumption. The CBO and JCT have generally preferred a lower realization response than the Treasury, a difference that continues to this day.

⁵ "Explanation of Methodology Used to Estimate Proposals Affecting the Taxation of Income from Capital Gains," Prepared by the Staff of the Joint Committee on Taxation, March 27, 1990.

CBO and Treasury Estimates of 1990 Proposal to Reduce Tax Rate on Capital Gains by 30%							
	1990	1991	1992	1993	1994	1995	1990 - 1995
CBO: revenue	-2.6	-17.7	-18.7	-19.9	-20.4	-20.9	-100.2
realizations effect	3.0	18.9	14.4	14.9	13.4	13.8	78.4
net	0.4	1.2	-4.3	-5.0	-7.0	-7.1	-21.8
Percent offset	1.15	1.07	0.77	0.75	0.66	0.66	0.78
Treasury: revenue	-2.1	-14.3	-15.6	-16.6	-17.5	-18.4	-84.5
realizations effect	2.8	19.3	18.4	17.0	16.6	17.0	91.1
net	0.7	5.0	2.8	0.4	-0.9	-1.4	6.6
Percent offset	1.33	1.35	1.18	1.02	0.95	0.92	1.08
From "Explanation of Methodology Used to Estimate Proposals Affecting the Taxation of Income from Capital Gains," Staff of the Joint Committee on Taxation, March 27, 1990.							

Since that time, at least one new study by Burman and Randolph (see below) has suggested higher initial effects and lower permanent effects than were used in the 1990 paper and revenue work. The CBO and JCT may have taken that study more to heart than the Treasury in recent years. The CBO and JCT may now expect lower permanent offsets, perhaps about 20% instead of 66%.

Early studies

In a 1978 paper, Martin Feldstein examined the behavior of a modest sample of taxpayers and found that the effects of a capital gain tax rate change produce a permanent effect of some significant size. He concluded that reducing the capital gains tax rate from its 1973 top rate in excess of 40% to 25% would increase realizations by enough to raise revenue. "Limiting the tax rate to 25 percent causes a more than three-fold increase in realized gains, from \$5.3 billion to \$17.2 billion... A decrease in the tax rate causes a substantial increase in tax revenue."⁶

⁶ Martin Feldstein, Joel Slemrod, and Shlomo Yitzhaki, "The Effects of Taxation on the Selling of Corporate Stock and the Realizations of Capital Gains," *The Quarterly Journal of Economics*, Vol. 94, No. 4 (June, 1980), pp. 777-791.

In a 1982 paper, Gerald Auten and Charles Clotfelder revisited the Feldstein work and tried to separate the short term and permanent realizations effect more fully.⁷ They concluded that "both effects appear in the expected directions but that the transitory effect is generally larger and more consistently significant... the permanent tax rate effect is smaller than that estimated by Feldstein *et al.*... [O]ur estimates suggest that cuts in capital gains tax rates may produce significant increases in realizations of long term capital gains. They do not produce strong support, however, for the hypothesis that such rate reductions will be revenue increasing..."⁸ Their results suggested a short run elasticity of about -1.5 (a 10% cut in the tax rate would increase realizations by about 15%), but a more permanent elasticity of about -0.5. In the short run, the revenue response would be positive, in the longer run, only about half the revenue loss would be offset. This is still a significant offset, and makes the economic losses loom larger compared to the amount of revenue raised.

An early Treasury study on how the tax affects the realizations of long term gains was done in 1985, at the request of the Senate Finance Committee.⁹ It presented a cross-section study¹⁰ that suggested that revenue increased following the decrease in the top capital gains tax rate from nearly 40% to 28% in 1978,¹¹ and increased again when the rate was reduced to 20% in 1981. A time series study¹² was appended that suggested that the second rate cut may have increased revenue in the short term but did not increase revenue permanently. However, the time series chapter was later found to

⁷ Gerald E. Auten and Charles T. Clotfelder, "Permanent Versus Transitory Tax Effects and the Realization of Capital Gains", *The Quarterly Journal of Economics*, Vol. 97, No. 4 (November 1982), pp. 613-632.

⁸ *Ibid.*, p. 603.

⁹ "Report to Congress on the Capital Gains Tax Reductions of 1978," Department of the Treasury, Office of Tax Analysis, September 1985.

¹⁰ A cross section study looks at a large sample of taxpayers in a given year, noting the relationship between the tax rate each individual taxpayer faces and his or her realizations. Additional information on each taxpayer may be added to the equation to improve the estimate. Care must be taken to distinguish between timing effects that may be in play in the year of the cross-section, and the longer term realization behavior.

¹¹ Before the 1978 tax cut, the top rate was commonly close to 40%, as shown in the Treasury table, but could reach 49% for certain taxpayers, as follows: the top income tax rate was 70%, and long-term capital gains received a 50% exclusion, which resulted in a regular top tax rate on capital gains tax of 35%; however, the 35% rate was augmented by the inclusion of the untaxed portion in excess of certain limits as a preference item in the 15% add-on minimum tax (another roughly 7.5%); excluded capital gains could also "poison" the personal service income subject to the maximum tax of 50%. The combined effect could push the tax rate as high as 49% for a few taxpayers. The 1978 tax change increased the exclusion to 60%, which cut the regular top rate to 28%. The 1978 act also eliminated the additional taxes on capital gains.

¹² A time series study looks at the relationship between the aggregate amount of realizations and the associated average marginal tax rate on the gains, year by year, over some period of time. It has relatively few observations, and the averaging process divorces the tax on the gains from the other characteristics of the taxpayers that might influence the decision to take gains or not, and how much to take.

contain errors. It failed to adjust properly for the effect of inflation on GNP over the period of the study, and committed other errors of econometric technique.

The 1985 study included an attempt to measure the economic impact of the capital gains tax using an early version of the Treasury's general equilibrium tax model. It found slight positive effects, taking a very long time to develop. That early model involved a closed economy (no foreign capital flows), greatly limited the saving response by domestic savers, and did not measure, and was not driven by, the after-tax return on capital in a realistic manner. Real-world changes in the stock of capital following increases and decreases in the after-tax rate of return have occurred far more rapidly than the model allowed. The effort was well-intentioned, but inadequate. It illustrates the difficulty in getting the economic consequences evaluated when the theory of capital formation and other economic relationships are not properly incorporated into economic models. Some of these issues are discussed in the first IRET Capital Gains study.

In 1988, Treasury economists Michael Darby, Robert Gillingham, and John Greenlees reviewed the time series work in the 1985 Treasury Report, and produced an updated and corrected time series analysis.¹³ Their results from the revised time series study were largely in line with the findings of the earlier Treasury Report's cross-section study, and implied that the increase in the capital gains tax rate to 28% in the 1986 Tax Reform Act was costing revenue.

"When we extended the original Treasury regression through 1985, the results imply that the 1978 act produced large and continuing direct revenue gains. Extension of the sample and correction of a flaw in the Treasury report's measurement of inflationary GNP dramatically reduced the estimated losses from the 1981 changes. Finally, substitution of clearly superior regression specifications taken from the 1988 CBO study yields the conclusion that both acts were significantly revenue-raising."¹⁴

Three Treasury papers from the Office of Tax Analysis in 1989 confirmed earlier Treasury estimates of a significant taxpayer response to changes in the capital gains tax rate.¹⁵ A time series

¹³ Michael R. Darby, Robert Gillingham, and John S. Greenlees, Department of the Treasury, Office of the Assistant Secretary for Economic Policy, "The Direct Revenue Effects of Capital Gains Taxation: A Reconsideration of the Time Series Evidence," OEP Paper 8801, May 24, 1988.

¹⁴ *Ibid.*, p. 4.

¹⁵ Jonathan D. Jones, Office of Tax Analysis, Department of the Treasury, Office of Tax Analysis, "An Analysis of Aggregate Time Series Capital Gains Equations," OTA Paper #65, May 16, 1989; Robert Gillingham, John S. Greenlees, and Kimberley D. Zeischang, Department of the Treasury, Office of Tax Analysis, "New Estimates of Capital Gains Realization Behavior: Evidence from Pooled Cross-section Data," OTA Paper #66, May 16, 1989; Gerald E. Auten, Leonard E. Burman, and William C. Randolph, Department of the Treasury, Office of Tax Analysis, "Estimation and Interpretation of Capital Gains Realization Behavior: Evidence from Panel Data," OTA Paper #67, May 16, 1989.

paper estimated the short run elasticity to be -1.2 and the long term elasticity to be -0.9. A pooled cross-section study found that, for taxpayer who realized gains, the elasticity was -1.6, meaning that reductions in the tax rate from the then 28% top rate to something lower would be expected to raise revenue. A new panel study found a short run elasticity of -2.0 and a long-run elasticity of -1.6. This was the basis of the Treasury analysis of the Administration's plan to implement a 30% exclusion of long term gains, which would have reduced the top rate to 19.6%. (Referred to above in the comparison of Treasury, JCT and CBO studies.)

A paper by Lawrence Lindsey in 1988 concluded "that capital gains tax revenues are maximized at [a] 20 percent rate or lower, with a central estimate of 16 percent. Some of any gain in revenue may be temporary, but ... even in the long run about 5.4 percent more capital gains will be realized for every one percentage point reduction in the capital gains tax rate."¹⁶

A paper by Joel Slemrod and William Shobe concluded that short term responses to rate changes were larger than permanent effects, but also stated, "The estimated magnitude of the realization response is large enough to substantially mitigate the revenue loss that a tax reduction would otherwise cause and may, especially in the short run, be large enough to generate an increase in revenue."¹⁷ These results were estimated in 1990 when the prevailing tax rate was 28%.

A 1994 cross-section study by Burman and Randolph employed state income tax rates as well as federal to get a combined marginal tax rate on realized gains.¹⁸ Their sample and equations produced a higher estimate of the transitory response, and a lower estimate of the permanent response, than some earlier work. It is not clear that the state rates should cause a major difference in results, as at least one earlier Treasury study also allowed for state taxes.¹⁹

"The estimated permanent elasticity is -0.18 ... in 1983. However, the relatively large standard error implies that we cannot reject the hypothesis that permanent changes in capital gains tax rates have no long-run effect on capital gains realizations.

¹⁶ Lawrence B. Lindsey, "Capital Gains: Rates Realizations and Revenues," NBER Working Paper #1893, National Bureau of Economic Research, Cambridge, MA, April 1986, p. i.

¹⁷ Slemrod, Joel, and William Shobe, "The Tax Elasticity of Capital Gains Realizations: Evidence from a Panel of Taxpayers," NBER Working Paper #1893, National Bureau of Economic Research, Cambridge, MA, January 1990, p. i.

¹⁸ Leonard E. Burman and William C. Randolph, Department of the Treasury, Office of Tax Analysis, "Measuring Permanent Responses to Capital Gains Tax Changes in Panel Data," OTA Paper 68, August 1994; see also paper of same title in *American Economic Review*, vol. 84, no. 4 (September 1994), pp. 794-809.

¹⁹ Gillingham and Greenlees, OTA paper #66, *op. cit.*

The standard error is also large enough that long-run elasticities of 0.0 and -1.0 are both included in a 95-percent confidence interval."²⁰

The range of uncertainty of the estimates is not unusual, and demonstrates the difficulties inherent in this type of work when the panel data is of limited scope.²¹ Burman and Randolph continue:

"The estimated transitory elasticity is -6.42, which is larger in absolute value than most previous elasticity estimates from micro data. The high transitory elasticity suggests that the response to a temporary tax change would be extraordinary, with realizations expected to increase by more than six times the percentage change in the tax rate. This is consistent with the dramatic increase in realizations just after passage of the Tax Reform Act of 1986..."²²

Burman and Randolph maintain that their high short term elasticity is consistent with the spike in 1986 realizations in advance of the tax rate increase, and that their low long-term elasticity is consistent with a quick return of realizations to their levels before the tax rate increase in later years. Part of that contention is correct: there was indeed a spike in realizations in 1986. However, the Treasury table makes it quite clear that realizations over the next decade did **not** return anywhere close to pre-1986 levels (as a share of GNP) until the tax rate was lowered back to 20% in 1997. This is not consistent with such a low permanent elasticity.

The authors forthrightly note their focus on the realizations effect rather than the macro-economic effect of the rate change, and that there are other issues involved, saying "... our analysis ignores the effects of capital gains taxes on the cost of capital and the allocation of capital among kinds of investments, and it says nothing about arguments for taxing capital gains on equity grounds."²³

Some other researchers continue to believe that the timing effect is large, and the permanent effect is small. For a more skeptical review of the issue, see "The Economic Effects of Capital Gains Taxation" by Thomas L. Hungerford, Congressional Research Service, March 4, 2009. The results of different studies in the area vary according to the methodology selected, and give different results

²⁰ *Ibid.*, p. 14.

²¹ The standard error varies inversely with the square root of the same size. A sample of 100,000, as in some micro data studies, is about 2.36 times the number of observations, 42,600, in the Burman-Randolph panel study. One over the square root of 2.36 is about 0.65. A regression carried out with the larger sample will therefore generate a standard error about 65% as large as one using the smaller sample.

²² *Ibid.*

²³ *Ibid.*, p. 17.

for different years. Given the limitations of the tax return data (which do not include the economic and financial market conditions that may have influenced the taxpayers' actions as revealed on the tax forms), we shall never have a universally agreed upon, definitive answer concerning taxpayer behavior from this type of study.

Relevance to the Volcker panel

President Obama has asked former Federal Reserve Board Chairman Paul Volcker to head a panel on tax reform. One objective of the panel may be to raise more revenue while avoiding some of the economic damage that higher tax rates might otherwise generate. This is in contrast with the Bush Panel on Tax Reform and Economic Growth. A key goal of the Bush panel was to identify tax reforms that would boost growth while maintaining revenue neutrality. The distinction is important.

The Treasury, like the JCT, assumes a fixed economic and revenue baseline in preparing revenue estimates. The Bush Panel reported the economic growth consequences of the reforms being considered, based on very cautious macroeconomic models in use at the Treasury. The revenue implications of the added growth were not calculated, but the point was clear: tax reform that raises economic activity can and should be distinguished from tax reform that reduces economic activity.²⁴

One issue the Volcker panel will face is what should be the tax rate on dividends and capital gains after the Bush tax cuts expire. How much, if any, should they be increased? IRET Capital Gains studies 1 and 2 suggest that there would be no revenue gains from allowing the rates to rise, and much economic damage.

The Volcker panel is looking at the differential tax treatment of investment funded with debt rather than equity.²⁵ Businesses may deduct interest payments, but cannot deduct dividend payments, which are taxed a second time at the shareholder level. Retained earnings that raise the value of the company are also subject to a second layer of tax, the capital gains tax, when the shareholder sells the stock. Furthermore, the differential will become larger if the tax rates on dividends and capital gains are allowed to rise after the expiration of the Bush tax cuts. Press reports suggest that the Volcker panel is operating under the assumption that elimination of the tax differential would be good tax policy. The danger is that tax analysts often point to such differentials as an excuse to raise tax rates on the lower-taxed item. One rationale for the elimination of the differential treatment of capital gains in the Tax Reform Act of 1986 was to put the treatment of gains on a par with that of

²⁴ For the Panel's report, see President's Advisory Panel on Federal Tax Reform, *Simple, Fair, and Pro-Growth: Proposals to Fix America's Tax System*, November 2005, available on the Internet at www.taxreformpanel.gov.

²⁵ Jonathan Weisman and John D. McKinnon, "Corporate Tax Breaks Get Scrutiny," *Wall Street Journal*, October 21, 2009, page A4.

dividends. However, the double taxation of dividends and capital gains is part of a bigger bias in the tax system, the higher tax rates imposed on income used for saving and investment than on income used for consumption (except for saving in pensions and IRAs).

Nature of the tax on capital gains (and dividends)

Federal and state revenue systems tax income that is saved more heavily than income that is used for consumption. At the federal level there are at least four layers of possible tax on income that is saved.

1) Income is taxed when first earned (the initial layer of tax). If one uses the after-tax income to buy food, clothing, or a television, one can generally eat, stay warm, and enjoy the entertainment with no additional federal tax (except for a few federal excise taxes).

2) But if one buys a bond or stock or invest in a small business with that after-tax income there is another layer of personal income tax on the stream of interest, dividends, profits or capital gains received on the saving (which is a tax on the "enjoyment" that one "buys" when one saves). The added layer of tax on these purchased income streams is the *basic income tax bias against saving*.

3) If the saving is in corporate stock, there is also the corporate tax to be paid before any distribution to the shareholder, or any reinvestment of retained after-tax earnings to increase the value of the business. (Whether the after-tax corporate income is paid as a dividend, or reinvested to raise the value of the business and create a capital gain, corporate income is taxed twice — *the double taxation of corporate income*.)

4) If a modest amount is left at death (beyond an exempt amount that is barely enough to keep a couple in an assisted living facility for a decade), it is taxed again by *the estate and gift tax (the "death tax")*.

Note that the taxation of capital gains taxes the same income twice even if the asset is not corporate stock. The price of an asset is the present value of its expected future after-tax earnings. Expected future income, and hence the current price of the asset, may rise for several reasons. If there is reinvestment of after-tax income, raising the size, future earnings, and value of the business, then taxing the asset price increase is clearly a second tax on the retained earnings. If there is an improvement in future earnings from other sources, such as a shift in demand for the product, or a new invention, then the future earnings will be taxed as they are earned. To also tax the resulting asset price increase in the present is a double tax on the future earnings.

Eliminating the estate and gift tax and the corporate tax would remove two layers of bias. Granting all saving the same treatment as is given to pensions or IRAs, either by deferring tax on

saving until the money is withdrawn for consumption (as in a regular IRA), or by taxing income before it is saved and not taxing the subsequent returns (as in a Roth IRA), would remove the basic bias. Saving-deferred taxes, the Flat Tax, VATs and retail sales taxes are examples of saving-consumption neutral taxes.²⁶

Economic bias is worse than debt/equity differential

The Tax Reform Act of 1986 reduced the tax differential between capital gains and dividends (which also means, between retained corporate earnings and earnings paid out as dividends) by raising the tax rate on gains to equal that of dividends. Unfortunately, that worsened the economically more important bias against saving and investment. The result was a drop in realizations and revenues, and an inadequate level of investment and growth. The experiment was reversed in 1997. A better solution would have been to reduce the tax rate on dividends to match that of capital gains, thus offsetting some of the double taxation of corporate income, and reducing the broader tax bias against saving. That was the approach taken in the Jobs and Growth Tax Relief Reconciliation Act of 2003.

The Volcker panel would make a great mistake if it were simply to eliminate the business deduction for interest paid. Recipients of interest income are taxed (except in the case of tax-exempt investors such as charities, schools, and state and local governments, or holders of Roth IRAs.) In effect, the earnings of a machine or building funded with borrowed money are passed on to the lender to be taxed. This is much like the tax treatment of partnerships, which avoids the double tax imposed on corporate equity. (The business gets to deduct the cost of the machine, and the lender pays tax on the earnings: one deduction for the cost, one tax on the returns.)

In the case of equity financed investment, a corporation must pay tax on the earnings, which are then taxed again when the earnings are distributed to the owners either as dividends or as capital gains. (The business gets to deduct the cost of the machine, but there are two taxes on the earnings.) This is not neutral treatment of saving versus consumption, and it reduces capital formation, wages, and employment. The Bush Tax Panel addressed these neutrality issues.

Note also that depreciation deductions are stretched over time and are worth less than immediate expensing. In other words, depreciation understates the cost of the machine or building and overstates profits. Only immediate expensing fully reflects the cost. The Bush Panel favored expensing.

²⁶ For a further explanation of the biases against saving in the current income tax, see Stephen J. Entin, "Fixing the Saving Problem: How the Tax System Depresses Saving and What To Do About It," *IRET Policy Bulletin*, No. 85, August 6, 2001, p. 15 ff, available at <http://iret.org/pub/BLTN-85.PDF>. Also see David F. Bradford and the U.S. Treasury Tax Policy Staff, *Blueprints for Basic Tax Reform*, second edition, revised (Arlington, VA: Tax Analysts, 1985).

There are two ways to eliminate the business deduction for interest without increasing the tax bias against saving and investment. One way is to eliminate the interest deduction for borrowers but cease to tax lenders on interest they receive. This is the same treatment as in a Roth IRA or on a tax exempt bond. It would raise revenue insofar as interest is currently paid to tax exempt entities. Any such shift should incorporate expensing instead of depreciation. These two steps would approach a saving/consumption neutral tax base, as in a VAT or national retail sales tax. The business expenses the cost of investment and pays tax on the returns before distributing them to lenders or shareholders.

If the lenders are to be taxed as well, then they must be allowed a deduction for all their saving, as in a regular IRA or pension, and businesses must be allowed to expense investment (after taking borrowing into income). This would give us a cash-flow tax, with two taxes on returns and two deductions for saving and investment in the case of corporate share ownership. Either method is saving-consumption neutral and less anti-growth than the ordinary income tax treatment of saving.

Conclusion

The CBO, Joint Tax Committee, and Treasury revenue estimators ignore the macroeconomic effects of changes in the capital gains tax rate (and other taxes too) when they prepare revenue estimates for the Administration and the Congress. This practice does the government and the country a major disservice.

The estimators do adjust for taxpayers' microeconomic behavior, their short-term timing decisions concerning the realization of gains in the months before and after a change in the capital gains tax rate, but these have little effect on total revenues over time. The estimators acknowledge that there may be a longer term, more permanent realizations reaction to a tax rate change, but have generally underestimated the effect (more so at the CBO than the Treasury). The result is that they over-estimate the capital gains tax revenue increase from a rate hike, and over-estimate the revenue loss from a rate reduction.

The economic effects that are ignored are even larger than the realizations effects. Higher tax rates on capital gains depress capital formation, causing reductions in labor productivity, employment, and income. Revenues from all taxes are reduced as income is held down. The Volcker panel on tax reform would do well to consider the economic consequences of their recommendations, and not rely solely on the official revenue estimates in making their decisions.

Stephen J. Entin
President and Executive Director

Note: Nothing here is to be construed as necessarily reflecting the views of IRET or as an attempt to aid or hinder the passage of any bill before the Congress.