CAPITAL GAINS TAXES UNDER
THE TAX REFORM ACT OF 1986:
REVENUE ESTIMATES
UNDER VARIOUS ASSUMPTIONS

Lawrence Lindsey

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ABSTRACT

This paper examines the effect of the Tax Reform Act of 1986 on the level of capital gains realizations and tax revenue under a variety of behavioral assumptions. Independent investigations by Feldstein, Slemrod, and Yitzhaki, the Department of Treasury, Lindsey, Auten and Clotfelter, and Minarik, all point to a large, though highly variable, amount of response by taxpayers to changes in capital gains tax rates. The econometric results of each of these papers are reparameterized for use in the National Bureau of Economic Research TAXSIM model. A total of 13 sets of behavioral assumptions are modelled.

The results show that the capital gains tax rate increase in the new tax bill is unlikely to produce an increase in capital gains tax revenue. Of the 13 simulations run, 12 produce lower tax revenue over the period of 5 fiscal years being simulated. The final simulation suggests a virtually unchanged level of revenue. Two of the models predict extremely large levels of capital gains realizations in late 1986 in anticipation of the tax rate increases in the coming years. In none of the simulations is any significant increase in the permanent level of capital gains tax revenues predicted.

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The Tax Reform Act of 1986 enacted the largest capital gains tax rate increase in history. For the first time since 1922, the tax treatment of long term capital gains became the same as the tax treatment of ordinary income. During the intervening 65 years, capital gains were either taxed separately from ordinary income under an "alternative" tax or received a partial exclusion from tax under the regular rate schedule. The end of special treatment for long term capital gains means that the average tax rate faced by capital gains recipients will more than double from 9 percent under the old tax law to 21 percent under the new tax law.

Although it is clear that the tax rate on capital gains will rise substantially, there is controversy regarding the expected level of capital gains tax revenue. The realization and taxation of accrued capital gains occurs largely at the discretion of the taxpayer. Faced with higher tax rates, taxpayers may elect to realize gains less frequently than they, otherwise would have. This reduced rate of realization could

cause total capital gains taxes collected to be lower at higher tax rates than at lower tax rates.

Substantial econometric research has been done to estimate the responsiveness of capital gains realizations to tax rates. This paper considers the results of five of these studies and the implication of these findings for capital gains tax revenue under the Tax Reform Act of 1986. The new tax law and its resulting effect on taxpayer behavior is simulated for the period 1986-1991. The simulation results produce a range for the expected level of capital gains tax revenue given the scope of academic investigations of taxpayer behavior to date. This range of expected revenue is then contrasted with the official revenue estimates by the Department of Treasury and the Joint Committee on Taxation.

It is important to note that the capital gains tax rate increases in the Tax Reform Act of 1986 are outside the realm of historic experience. The research results of other authors used in this paper are based on far more modest capital gains tax rate variations than the one being simulated. The simulation results presented here should therefore not be interpreted as a test of the findings of earlier authors. Instead, the results presented here are an extrapolation of earlier findings to a larger and more general scale. The simulation results presented here show what would happen if taxpayers respond to major tax

changes in proportion to the way they have already responded to comparatively smaller tax rate variations.

The first section of this paper describes the effects of the Tax Reform Act of 1986 on capital gains marginal tax rates. The second section reviews the academic literature on the effect of captial gains taxes on capital gains realizations and tax revenue. The method used for adapting these research results to the simulations done in this paper is discussed. The final section presents the simulated effect of the new tax law on the level of capital gains realizations and the amount of capital gains tax revenue collected. These results show the effects of both permanent and transitory tax rate changes and are presented both in aggregate terms and by income class. The realizations and revenue are generally computed on a calendar year basis, but are converted to fiscal year basis for comparison with work done at the Department of Treasury and the Joint Committee on Taxation.

I. Tax Reform and the Marginal Tax Rate on Capital Gains

The Tax Reform Act of 1986 provided for the elimination of the distinction between long term capital gains and ordinary income. Under the previous tax law, 60 percent of capital gains on assets held at least six months were excluded from taxable income. Thus, the marginal tax rate on capital gains was only 40 percent of the marginal tax rate on other forms of income.

Two exceptions to this rule existed under the previous tax law. First, the 60 percent exclusion only applied to net long term capital gains in excess of any short term losses. The taxpayer netted long term gains and long term losses and separately netted short term gains and short term losses. Then, any short term losses were applied dollar for dollar against long term gains. The 60 percent exclusion applied only to any net long term gain in excess of any short term loss. The effect of this was to subject any taxpayer with short term losses in excess of long term gains to a long term capital gains tax rate equal to his ordinary tax rate. In addition, any taxpayer with large amounts of capital losses could realize long term capital gains with no current tax liability, and only a heavily discounted future tax liability. Poterba (1985) found these exceptions to be limited to a relatively small minority of capital gains recipients.

The second exception to the 60 percent exclusion rule involved the minimum tax. The excluded portion of capital gains was treated as a preference for income tax purposes. Tax preferences were added to the taxpayer's ordinary taxable income and a minimum tax was imposed on the resulting base at a rate of 20 percent. The effect of this was to subject minimum taxpayers to a tax rate of 20 percent on capital gains regardless of their ordinary tax rates.

The simulations in the present study are limited to taxpayers with net long term capital gains, thus eliminating the problems of netting long term gains and losses. The standard

rules regarding long term gains and short term losses are applied in determining the taxpayer's tax liability and the minimum tax provisions are carefully modelled and reflected in the taxpayer's behavior.

Under the new tax law, these distinctions were eliminated. Taxpayers would treat their capital gains income as other income. The only exception to this treatment occurs in 1987 when the tax rate on capital gains is limited to 28 percent. These changes dramatically raise the marginal tax rate on capital gains for all taxpayers.

Table 1 shows the effect of the tax reform act on capital gains tax rates by income class. The table shows that taxpayers with incomes under $30,000 will generally see a tripling of their capital gains tax rates. Taxpayers with incomes between $30,000 and $200,000 will see their marginal tax rates on capital gains double. Those taxpayers earning over $200,000 will see an increase in tax rates of about 75 percent. The average marginal tax rate faced by all recipients of long term capital gains will more than double under the new law from 9.2 percent to more than 21 percent. Taken as a whole, these changes represent the largest capital gains tax rate increase, since at least 1934, and probably since the advent of income taxation in 1913.

Various provisions of the new law are phased in over the period 1987-1991. The effect of these on the capital gains tax rate is also evident from Table 1. The tax rate schedule is changed between 1987 and 1988. The primary beneficiaries of

Table 1

Capital Gains Tax Rates by Income Class

Income Class	Old Law	New Law		
		1987	1988	1989-1991
under 10	1.4%	5.6%	6.0%	4.5%
10 - 20	4.7	14.6	14.8	14.3
20 - 30	6.9	18.2	17.5	17.3
30 - 50	9.3	22.4	21.4	20.7
50 - 75	12.2	27.2	27.6	27.4
75 - 100	14.3	27.7	29.8	29.0
100 - 200	15.1	27.8	32.0	32.1
over 200	16.1	27.1	27.8	28.4
All Capital Gains Taxpayers	9.2	20.5	21.1	21.5

this are taxpayers earning between $20,000 and $50,000 who benefit from an increase in the threshold for the 28 percent tax bracket. Taxpayers earning between $75,000 and $200,000 will generally see an increase in their capital gains tax rate because a new 33 percent rate bracket takes effect in that income range. Changes after 1988 generally make the tax code more progressive as passive losses are phased out and the personal exemption is raised.

It is useful to put these marginal tax rate increases into the perspective of recent tax rate changes. Lindsey (1986a) carefully measured the effective marginal tax rates for various income classes for the period 1965-1982. Experiments with the capital gains tax rate over that period were common with a change in the law occurring, on average, every other year. In the case of taxpayers earning under $50,000, who comprise a majority of capital gains recipients, the variation in tax rates was quite small. Over that 18 year period, the average marginal tax rate on capital gains for these taxpayers varied between a high of 13.8 percent in 1969 and a low of 10.6 percent in 1979. Thus, for the vast majority of capital gains recipients, tax rate changes of the magnitude imposed by the tax reform act are unobservable.

Taxpayers in higher income classes saw much more variation in their tax rates, although still less than that contemplated in the recent tax reform. The largest capital gains tax rate change for any income group in this 18 year period occurred between 1978 and 1979. The excluded portion of capital gains

was increased from 50 percent to 60 percent beginning in November, 1978, and various minimum tax and maximum tax provisions were changed which substantially lowered the marginal tax rate on capital gains for upper income taxpayers. Taxpayers with incomes over $1,000,000 saw their capital gains tax rate fall from an average 39.1 percent to 26.9 percent. Taxpayers earning between $100,000 and $1,000,000 saw a tax rate decline of roughly 10 percentage points. Thus, even the largest capital gains tax rate change in recent history is smaller than the tax rate change which will take effect under the new tax law.

The problems of estimating the effect of a tax change which is out of the realm of historic experience are great. There is no assurance that taxpayer response to a large tax change is of a magnitude proportional to the response of a much smaller tax change. Furthermore, the major variation in tax rates in the past occurred for upper income individuals. It is not certain that taxpayers in lower income brackets will respond to tax rate changes of large magnitudes the way upper income taxpayers responded to large tax changes in the past. In addition, the studies of the past were based on a tax regime which is substantially different from the one recently enacted. There is no guarantee that behavioral parameters estimated under a substantially different choice set for taxpayers can be extended to the new tax regime. The behavior of taxpayers in the past should therefore be taken only as a guide to the kinds of responses we might expect in the future.

II. Research on the Sensitivity of Capital Gains to Tax Rates

The sensitivity of capital gains realizations to tax rules can take many forms. The existence of a specific capital gains holding period, after which tax treatment changes, induces taxpayer distortions in the timing of asset sales around that period. Kaplan (1981) found this distortion to be significant enough to suggest that eliminating the holding period and taxing all capital gains at the lower long term tax rates would enhance capital gains tax revenue. Fredland, Gray, and Sunley (1968) also found that the length of the holding period had a signficant effect on the timing of asset sales.

Assets held until death or contributed to charity escape capital gains taxation under the income tax. In the case of deferral of capital gains for the life of the taxpayer, the value or basis of the property is stepped up to the fair market value at the time of death without incurring capital gains tax. David (1968) and Bailey (1969) have argued that eliminating these provisions would be an efficient means of reducing the lock-in effect by eliminating the possibility of escaping the capital gains tax by passing along the accrued capital gains to ones' heirs.

The present paper neglects these issues as substantial change was not made in the provisions which step up basis at death. However, the tax reform bill did enact provisions which might tend to limit the scope for capital gains tax avoidance. The appreciated portion of gifts of property to charitable organizations was made a preference under the minimum tax, thus

raising the cost of making contributions of property rather than selling the asset. A much toughened generation skipping provision was added to the inheritance tax which reduced the advantages of stepped up basis at death. While these changes will tend to enhance tax revenue, they are generally tangential to the major effect of capital gains taxes on asset sales and capital gains tax revenue.

The central issue of academic investigation on the effect of capital gains taxes has involved the so-called "lock-in" effect. 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 pre-tax rate of return because the capital gains tax on the asset sale makes the exchange of assets unprofitable. 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) in work done at the Department of Treasury. Feldstein and Yitzhaki (1978) found substantial evidence that the sale of corporate stock is very sensitive to individual differences in capital gains tax rates. The present paper examines five studies of this issue. Each study produced parameter estimates of the effect of tax rates on the realizations of capital gains. We consider them in descending order of the magnitude of the effect they reported.

Feldstein, Slemrod and Yitzhaki (1980) used the 1973 Individual Tax Model File compiled by the Internal Revenue

Service. This data base is a stratified random sample of roughly 100,000 tax returns with detailed information on the income and deductions of each taxpayer. All taxpayers with Adjusted Gross Incomes over $200,000 are included in the sample. The 1973 tax file contains additional information on capital gains not usually reported, including the purchase price, date acquired, sale price, date sold, and type of asset. Feldstein, Slemrod, and Yitzhaki limited their study to sales of corporate stock.

The authors selected the 27,832 tax returns from the file which reported receiving at least $3,000 of dividends in 1973, and which accounted for 79 percent of the dividends received that year. Dividends were used as an indicator of the value of each taxpayer's portfolio. As the dividend yield on the Standard and Poor's 500 was roughly 3 percent, a minimum portfolio of $100,000 was implied. The results of their analysis are expressed by equation 1:

$$(1) \quad LTG/DIV = 35.0 - 49.7\ TAX + 0.18\ AGE65 - 1.23\ LOG(DIV)$$
$$-0.50\ LOG(AGI)$$

The coefficient on the tax parameter implies that a 1 percentage point increase in the capital gains tax rate would lower the ratio of long term gains to dividends by 0.497. Taking the average gains to dividends ratio from the sample of 3.5, a 1 percentage point increase in the tax rate would reduce the ratio of gains to dividends to roughly 3.0, a decline of

about 14 percent. Extending this result to a much larger capital gains tax rate increase of 7 percentage points, implies that the average taxpayer would cease reporting any capital gains. Tax rate increases of more than 7 percentage points would place the taxpayer in the corner solution of zero net realizations.

This is not an implausible result at the individual level. Assume for the sake of argument that accrued capital gains represent one half of the value of the taxpayer's portfolio of common stock and that the dividend yield is 3 percent of the value of the portfolio. In that case, a ratio of realized gains to dividends of 3.5 implies that the taxpayer sells about 21 percent of his portfolio during the year. This hardly signifies an active trader of securities. An increase in the capital gains tax rate from 26.4 (the average reported) to 33.4 might easily induce the investor to sit and collect dividends rather than trade his securities.

In fact, a tax rate increase of 7 percentage points from 26.4 percent to 33.4 percent covered most of the range of capital gains taxation in the year studied. In the context of the 1973 tax law, a 26.4 percent capital gains tax rate was typical for someone earning $75,000 while a 33.4 percent rate was typical for someone with total income of $500,000. The problems of extrapolating the Feldstein, Slemrod, and Yitzhaki result therefore become apparent.

For purposes of simulating the effect of the Tax Reform Act, this parameterization can easily produce extreme results. The average tax rate increase of 12 percentage points in the new

bill exceeds the entire spectrum of capital gains tax rates for the Feldstein, Slemrod, and Yitzhaki sample. Applying these results as specified to the new bill suggests a decline in realizations of about 90 percent.

Instead, the result was reinterpretted in terms of an alternative specification of taxpayer behavior. This alternative specification is given by equation 2:

(2) LOG(LTG) = A + b LOG(1 - MTR)

In this specification, the taxpayer responds, with constant elasticity, to the proportion of the long term gain which he can keep after tax. MTR represents the taxpayer's marginal tax rate on capital gains. A one percent increase in the share which the taxpayer keeps after-tax will induce a "b" percent increase in long term gains realizations.

At the mean tax rate for the sample, 26.4 percent, the after tax share is 0.736. A one percent increase in the after-tax share would require a cut in the capital gains tax rate of 0.00736, or 0.736 percentage points. Such a change in the tax rate in the Feldstein, Slemrod and Yitzhaki model would cause the mean gains to dividend ratio to fall from 3.50 to 3.13, or by 10.5 percent. The Feldstein, Slemrod and Yitzhaki result can therefore be expressed in equation 2 with a value for "b" of 10.5.

A second study of the effect of capital gains taxes on the realization of capital gains was done by the Office of Tax

Analysis at the Department of Treasury. Treasury (1985) used a
panel of 17,000 taxpayers for the years 1971 - 1975. The
multi-year analysis permitted the Treasury to decompose taxpayer
response into permanent and transitory components. A number of
parametric specifications were performed. The one selected by
Treasury for simulation work is expressed by equation 3.

(3) LOG(LTG) = A + 14.216 TXP - 29.522 TXP0.5 - 26.289 TXT

In this case, TXP represents the "permanent" tax rate of the
taxpayer which is defined as the average of the current and
prior two year's tax rates. TXT is the "transitory" rate which
is defined as the difference between the current tax rate and
the permanent tax rate. The intercept term "A" reflects the
effect of other variables.

As in the case of the Feldstein study, the Treasury result
was estimated for a period when tax rate variations were far
smaller than that contemplated under current tax law. Direct
application of the parameters presented in the Treasury study
produces extreme changes in the amount of gains realized. For
example, a change in the permanent tax rate on capital gains
from 15 percent to 28 percent would imply a 90 percent reduction
in capital gains realizations.

The Treasury result is reparameterized in terms of the
functional form given by equation 2. The reparameterization is
computed assuming a weighted average marginal tax rate for 1986
under old law -- 14.7 percent. In this case, the elasticity

with respect to permanent after tax shares is 7.49.   The

elasticity with respect to the actual after tax share relative

to the permanent after tax share is 8.20.

The third study considered is Lindsey (1986a).   This study

used data from the <u>Statistics of Income</u> for the period 1965-1982

to carefully estimate the average marginal tax rate faced by

capital gains recipients.   Values were computed for six income

classes: under $50,000, $50,000 - $100,000, $100,000 - $200,000,

$200,000 - $500,000, $500,000 - $1,000,000, and over $1,000,000.

The wealth held by each of these income classes was calculated

for each year using the Federal Reserve Board's <u>Flow of Funds</u>

data and the income from different assets reported by each

income group on their tax returns.   Assets were divided into two

classes: tradeable and non-tradeable.   The former included

corporate equities, real estate, and equity in non-corporate

businesses.   The latter included other types of wealth which

generally are not sold to incur capital gains such as checking

accounts and pension wealth.

Lindsey also decomposed tax rate effects into permanent and

transitory components.   While a number of functional forms were

tried, the form expressed by equation 4 was selected for use in

this study:

(4) $\text{LOG(LTG)} = A - 5.391 \, \text{TAX} - 3.027 \, \text{DTAX}$

In this case, TAX is the marginal tax rate on capital gains

faced by the taxpayer group in the current year and DTAX is the

change in the tax rate from the preceding year.

The results are expressed in a semi-elasticity form. Again,
the variation in tax rates over the period studied was small
relative to the changes being contemplated in the Tax Reform Act
of 1986. A 13 percentage point rise in the capital gains tax
rate -- from 15 percent to 28 percent -- would cause a decline
in capital gains of more than two thirds. These results were
reparameterized in terms of equation 2 at the old law mean
marginal tax rate of 14.7 percent. The elasticity of gains with
respect to permanent after-tax shares was computed as 4.70 while
the elasticity of gains with respect to current relative to
permanent after-tax shares was computed as 2.61.

The fourth study evaluated in the present paper was Auten
and Clotfelter (1982). They used the U.S. Treasury Department's
Seven-Year Panel of Taxpayers, which consisted of tax returns
for a random sample of taxpayers between 1967 and 1973. This
data set permitted evaluation of the difference between
permanent and transitory effects in taxpayer realization
decisions. As in the Treasury study, the permanent marginal tax
rate was defined as the average of the current and prior two
years' marginal tax rates. The transitory component was the
difference between the actual and permanent tax rates. Four
specifications were reported. This paper used the specification
which produced a statistically significant tax parameter for the
realization of long term gains. It is presented in equation 5.

(5) LTG/INCOME = A - 1.81 MP - 4.11 MT

The regression was performed using a Tobit procedure in order to account for the large number of zero entries for gains in the sample. In this case, the derivative of the expected value of the dependent variable with respect to the tax rate is the Tobit coefficient times the predicted probability that the taxpayer had capital gains. That probability was 0.287. The mean value of the dependent variable was .123.

In order to be consistent with the other results, these variables were reparameterized in terms of equation 2. The results imply an elasticity with respect to permanent after-tax shares of 3.67 and an elasticity of the actual to permanent after-tax share of 8.55.

The final study considered is Minarik (1981). This study was primarily a reexamination of the Feldstein results using a different functional form and using a weighted least squares regression technique rather than an unweighted technique. The Minarik regressions involved a number of interaction terms involving the taxpayer's tax rate which makes a direct reparameterization of the regression result difficult without more data. However, the author reports an elasticity of long term gains with respect to the tax rate of -0.44. If this elasticity is evaluated at the weighted average marginal tax rate of 14.7 percent, the resulting elasticity of gains with respect to after-tax shares becomes 2.55. Stated differently, this result implies a sensitivity of gains to after tax shares of about one fourth that implied by Feldstein.

Table 2

Behavioral Assumptions and Revenue Maximizing Tax Rates

Econometric Investigation	Elasticity of Gains to After-Tax Share	Implied Rev. Max. Rate
Feldstein, Slemrod and Yitzhaki	10.50 perm.	9%
Treasury Report on 1978 Tax Cuts	7.49 perm.	12%
	8.20 trans.	
Lindsey	4.70 perm.	18%
	2.61 trans.	
Auten-Clotfelter	3.67 perm.	21%
	8.55 trans.	
Minarik	2.55 perm.	28%

Table 2 summarizes the results of the five studies. For each study the elasticity of capital gains with respect to after tax shares is reported. Where applicable, this elasticity is decomposed into permanent and transitory components. The table also reports an implied revenue maximizing capital gains tax rate. This rate is equal to $1/(1+b)$ where "b" is the elasticity with respect to permanent after-tax shares. This revenue maximizing capital gains tax rate should be interpreted subject to some qualifications. The revenue maximizing rate assumes that there are no interactions between the capital gains tax and the ordinary income tax and that all capital gains are taxed, without exclusion and without variation, at the revenue maximizing rate.

The wide variation in the results of these econometric investigations suggests that the response of taxpayers to changes in the capital gains tax rate is largely an unresolved question. Nonetheless, these results produce a range within which the true response of taxpayers to changes in tax rates might be expected to lie.

III. Simulated Effect of Tax Reform Act of 1986

The behavioral models discussed above estimated the response of taxpayers to changes in capital gains tax rates. In order to place these results in the context of the Tax Reform Act of 1986, detailed simulation work was required. The results presented here were developed using the National Bureau of

Economic Research TAXSIM[1] model. This computerized model, like the Tax Calculator at the Department of Treasury, is based on a detailed data base of actual tax returns. This paper relied on the 1983 Individual Tax Model File. This file contains the detailed tax records of more than 90,000 taxpayers for 1983. For cost reasons, a one in three random sample of the file was used for the simulation. Due to the large size of the original sample, the use of a one in three subsample has little effect on the accuracy of the simulation results.

The income levels in the 1983 file were extrapolated to later years based on actual and predicted economic conditions for those years.[2] The key variable to be extrapolated is the level of capital gains. The results of Lindsey (1986) suggest that, absent tax rate changes, capital gains realizations grow in proportion to tradeable household wealth. As noted earlier, this wealth is composed of household holdings of corporate equities, real estate, and non-corporate equity. The 1984 levels of these assets provided by the Flow of Funds was extrapolated to later years. Holdings of corporate equities were extrapolated using the rise in the Standard and Poor's 500 Stock Index through the first quarter of 1987, and expanded at 8 percent per annum thereafter. Non-corporate equity was extrapolated through 1986 using the rise in proprietary income in the National Income and Product Accounts, and at an 8 percent annual rate thereafter. Real estate holdings were extrapolated assuming an 8 percent annual rate of growth.

These extrapolated levels provide a baseline estimate of what capital gains realizations would have been if the tax law had remained unchanged since 1983. In fact, several changes in the tax law have occurred since then. The net effect of these changes has been quite small however. The weighted average capital gains tax rate in 1986 was less than 0.1 percentage point higher than the weighted average rate in 1983. The baseline extrapolation was therefore used as the projection of what capital gains tax revenues would have been under the old tax law.

The TAXSIM program computed the capital gains tax rate for each taxpayer under both old and new laws. These rates were used to assign a new level of capital gains to each taxpayer based on the behavioral assumptions discussed in the last section. Taxpayers who did not realize capital gains under the old law were assumed not to realize capital gains under the new law either. In the first set of simulations, taxpayers were assumed to respond as if any change in their tax rate were permanent. This is termed the "Steady State" level of realizations because it shows what taxpayers would do if the capital gains tax rate were held steady at the rate prevailing in the year of the simulation.

Table 3 presents the results of these simulations of the Steady State level of capital gains realizations. The first row shows the projected level of long term capital gains realizations under the old tax law, or alternatively, the level of capital gains realizations under the new law if taxpayers do

Table 3

Steady State Capital Gains Realizations

Behavioral Assumption	Calendar Year					
	1986	1987	1988	1989	1990	1991
Baseline	152.9	177.5	192.3	209.2	226.6	245.6
Feldstein, Slemrod, and Yitzhaki	"	37.4	37.6	39.9	43.1	46.4
Treasury	"	55.8	56.7	60.5	65.0	70.0
Lindsey	"	83.6	86.3	92.6	99.6	107.5
Auten - Clotfelter	"	97.8	101.8	109.6	117.9	127.4
Minarik	"	116.6	122.7	132.4	142.7	154.3

not respond to the change in their capital gains tax rates.
The level of capital gains realizations under the new tax law
given the assumptions of taxpayer behavior of the various
studies is provided in the rows following the baseline
extrapolation.

The simulation results all show substantial declines in the
level of capital gains realizations -- ranging from roughly one
third in the Minarik model to nearly four fifths in the
Feldstein, Slemrod, and Yitzhaki model. These changes are so
dramatic that it is useful to place them in an historical
context. The weighted average capital gains tax rate is rising
under the new law from roughly 15 percent to approximately 27
percent. This will be the largest tax rate change in history.
The most comparable change is from 1978 to 1979 when the
weighted average capital gains tax rate declined about 6
percentage points. Coinciding with that earlier rate change,
capital gains realizations rose from $48.6 billion to $70.5
billion, or 45 percent. If we assume symmetric taxpayer
behavior, a 6 percentage point rate increase would cut gains 30
percent. Two 6 percentage point rate increases would cut gains
roughly in half. That would imply a new level of capital gains
realizations in 1987 of about $89 billion and a 1988 level of
$96 billion. These estimates are roughly in the middle of the
capital gains estimates shown in Table 3.

The effect of these tax rate changes and the behavioral
response of taxpayers on capital gains tax revenue is presented
in Table 4. Again, taxpayer behavior is based on the assumption

Table 4

Steady State Capital Gains Tax Revenues

Behavioral Assumption	Calendar Year					
	1986	1987	1988	1989	1990	1991
Baseline Old Law	21.70	25.40	27.66	30.16	32.84	35.77
Baseline New Law		41.31	46.34	50.94	55.57	60.68
Feldstein, Slemrod, and Yitzhaki		7.27	7.37	7.92	8.60	9.36
Treasury		11.28	11.61	12.54	13.58	14.78
Lindsey		17.69	18.59	20.20	21.89	23.86
Auten - Clotfelter		21.14	22.45	24.47	26.52	28.93
Minarik		25.72	27.74	30.31	32.91	35.90

that the tax rate in a given year is permanent. Two baseline revenue estimates are presented, one for old law, one for new law. The old law baseline estimate is the expected level of capital gains tax revenue under pre-1986 tax law. The new law baseline estimate is the level of capital gains tax revenues which would be expected if taxpayers ignored the rate increases in making their realization decisions.

The figures show that under four of the five models capital gains tax revenues under the new law will be lower than under the old tax law. In the fifth model, based on Minarik's work, capital gains tax revenues are virtually unchanged between old law and new law. It is important to reiterate that these figures are based on the behavioral responses to permanent tax rate increases only. Thus, these results should be interpretted as predicting a permanently lower (or virtually unchanged, in the case of Minarik) level of capital gains tax revenue under the new tax law.

It is also important to consider the distributional ramifications of these tax rate changes. To illustrate this, table 5 contrasts old law tax revenue with the tax revenue collected under the two models which predict the highest level of revenue under the new law. As the table shows, the effect of the new tax law is to increase the share, and in some cases the level, of taxes paid by lower income groups while cutting both the share and the level of capital gains tax revenue paid by upper income groups.

Table 5

Capital Gains Tax Revenue by Income Class: Selected Models

Income Class	1988 Capital Gains Tax Revenue		
	Old Law	NewLaw Minarik	NewLaw Aut-Clot.
under 10	8	107	72
10 - 20	84	230	184
20 - 30	329	638	540
30 - 50	1007	1599	1295
50 - 75	1272	1541	1186
75 - 100	1136	1280	970
100 - 200	3748	3707	2786
Over 200	20080	18640	15420
Total	27663	27738	22453

Revenue figures in thousands.

The Temporary Effects of Tax Rate Changes

The simulations presented thus far show the effects of the behavioral response of taxpayers to steady state tax rate changes. That is, they assume that taxpayers act as if any tax rate they face will be permanent. Three of the econometric studies of capital gains taxes indicated that a distinction existed between taxpayer response to permanent tax rate changes and temporary tax rate changes. All three of these studies: Treasury, Lindsey, and Auten-Clotfelter, estimated the temporary effect retrospectively. That is, they assumed that the taxpayer compared his current tax rate with his tax rates in the recent past in deciding on the level of gains to realize.

This assumption of retrospective calculation of the transitory component of tax rate changes fits well with the theory of the "lock-in" effect. Under that theory, a sudden reduction in capital gains tax rates would induce the taxpayer to sell some assets which were not profitable to sell at the earlier high tax rate. Thus, this model would predict that a tax rate reduction would be accompanied by a sudden unlocking of gains causing a temporary rise in realizations. After these previously "locked-in" assets had been sold, realizations would decline to a more normal level.

The application of this retrospective model to the Tax Reform Act of 1986 would predict that capital gains realizations and capital gains tax revenue would fall further than the steady state model predicted. This is due to the rise of tax rates in 1987 and 1988. In both of these years the current tax rate is

well above the average of current and past tax rates inducing
taxpayers to lock up their capital gains more tightly. However,
it is not obvious that the temporary unlocking of capital gains
with a tax rate reduction has a reciprocal when tax rates
increase.

The rise in capital gains tax rates due to tax reform was
known well in advance of the effective date of the tax increase.
Taxpayers in late 1986 therefore had the opportunity to realize
gains in anticipation that such gains would be subject to higher
taxes in the near future. A prospective model of temporary tax
rate changes therefore seems more appropriate than the
retrospective model. We include such a prospective model, using
the same transitory parameters as the retrospective model, in
estimating the effects of the tax law change. In this case, the
permanent rate is assumed to be the average of the current and
two future years' marginal tax rates.

The application of this prospective model of transitory tax
effects causes capital gains realizations to bunch in 1986. In
addition, the modest increases in tax rates under the new law
over the modelling period causes capital gains realizations to
be accelerated in each year. In effect, capital gains which
would have been realized in later years are permanently moved
forward.

Careful interpretation of this prospective model is
required. It is, of course, impossible for taxpayers to realize
capital gains which have yet to occur. Rather, taxpayers who
know that their tax rates will be higher in the future will sell

assets now that they otherwise would have sold in a later year.
The accelerated realizations in the current year should
therefore be reflected in lower realizations in later years. In
this model we did not include the effect of lower future capital
gains realizations to offset higher current realizations.
Therefore, the resulting estimates of realizations and revenues
in this model should be considered an upper bound on what the
actual levels would be if taxpayers respond to prospective
increases in capital gains tax rates.

A hybrid of the prospective and retrospective models is also
considered. This model defines the permanent tax rate as an
average of the current, past year's and next year's rates. The
effects of temporary acceleration of gains in the current year
shows up as a partially offsetting reduction of realizations in
the next year.

Converting Calendar Year Revenue into Fiscal Years

The revenue collections for each of these models is
presented in a fiscal year format in table 6. Capital gains
taxes for individuals, like all income taxes, accrue on a
calendar year basis. However, government accounting of the flow
of revenue is done on a fiscal year basis. The conversion from
calendar year accrual to fiscal year payment is done in two
steps. First, steady state revenues are computed for each
fiscal year by combining three-fourths of the current calendar
year revenue with one-fourth of the prior year's accrued
revenue. Second, deviations from steady state caused by
transitory effects are modelled as occurring at year end in the

Table 6

Fiscal Year Tax Revenue

Behavioral Assumption	Fiscal Year				
	1987	1988	1989	1990	1991
Baseline Old Law	24.48	27.10	29.54	32.17	35.04
Feld,Slem,Yit. Steady State	10.88	7.34	7.78	8.43	9.17
Treasury Steady State	13.88	11.53	12.31	13.32	14.48
Treasury Prospective	16.00	11.63	12.35	13.32	14.48
Treasury Centered	14.85	11.17	12.32	13.32	14.48
Treasury Retrospective	13.12	11.08	12.30	13.32	14.48
Lindsey Steady State	18.69	18.36	19.80	21.47	23.37
Lindsey Prospective	33.74	19.12	20.01	21.58	23.37
Lindsey Retrospective	12.65	18.04	19.80	21.47	23.37
Auten-Clotfelter Steady State	21.28	22.12	23.96	26.01	28.33
Auten-Clotfelter Prospective	41.67	23.34	24.28	26.01	28.33
Auten-Clotfelter Centered	28.98	17.16	23.73	26.03	28.32
Auten-Clotfelter Retrospective	12.35	15.98	23.28	25.87	28.29
Minarik Steady State	24.72	27.24	29.67	32.26	35.15

prospective model and at the beginning of the year in the retrospective model. In effect, this assumes that the taxpayer sells in December in anticipation of a tax rate increase, or sells in January if a tax rate cut induces temporary unlocking.

The data in table 6 show the powerful effect that transitory responses to tax rate changes may have on tax revenue. This is particularly evident in the prospective models based on the Lindsey and Auten-Clotfelter studies. In the case of Lindsey's results, a prospective variant produces an additional $15 billion in fiscal 1987 due to added realizations in late 1986. The prospective variant of the Auten-Clotfelter model produces more than $20 billion more revenue in fiscal 1987 than does the steady state version of the same model. The prospective version of the Treasury model produces a much smaller $2.1 billion increment above the steady state model. The reason for this is that the elasticities with respect to permanent and transitory changes are virtually identical in the Treasury model.

Conversely, the effect of retrospective modelling of transitory effects shows the additional decline in revenue caused by tax rates being higher than they were in the recent past. The "Centered" models of the permanent and transitory tax rate effects show the net effects of the prospective and retrospective models.

The revenue implications for the 5 fiscal year period being simulated shows that the Minarik model is the only set of assumptions which will cause a revenue increase: a modest $0.7 billion. The next closest result is the prospective version of

the Auten-Clotfelter model which shows a 5 year revenue loss of a bit under $5 billion. Most of the models predict 5 year revenue losses in excess of $20 billion. As the table clearly shows, the reason that the 5 year revenue loss may be lower than this is the possibility of greatly increased realizations in fiscal 1987 (late 1986) in anticipation of future tax rate increases. For example, in the prospective version of the Auten-Clotfelter model, capital gains realizations in 1986 are assumed to be more than twice their baseline level.

It is also important to note that all of the models predict that the long run effect of the capital gains tax changes will be lower (or flat in the case of Minarik) capital gains tax revenue. Under none of the variants of any of the models could we expect the long run result of the tax change to produce substantially higher capital gains tax revenue.

In contrast, the revenue estimates released by the Department of Treasury and the Joint Committee on Taxation project large 5 year revenue increases. The Department of Treasury projected[3] a revenue increase of $12.5 billion in fiscal 1987, decreases of $1.5 billion and $0.1 billion in fiscal 1988 and fiscal 1989, an increase of $3.3 billion in fiscal 1990 and $7.4 billion in fiscal 1991. The Joint Committee on Taxation[4] estimated the cost of reducing the top marginal rate on capital gains to 20 percent under the Senate bill as costing $7.8 billion in fiscal 1987, raising $12.7 billion and $0.2 billion in fiscal 1988 and fiscal 1989, and losing $10.1 billion and $14.3 billion in fiscal 1990 and fiscal 1991.

Neither the Treasury Department nor the Joint Committee released the behavioral assumptions implicit in their models. However, a contrast of these results with the results of the other models indicates the kind of assumptions underlying the Treasury and Joint Committee models. First, both assume some prospective behavior on the part of taxpayers. This accounts for the large gains in revenue in fiscal 1987 when rates are increased and the large cuts in the JCT study of the effect of tax reductions. The magnitudes of these changes are roughly one third those estimated by the Lindsey and Auten-Clotfelter prospective models.

Second, both Treasury and Joint Committee assume that any tax rate effect is purely transitory in nature. This produces large revenue gains in 1990 and 1991 when transitory effects are likely to have worked themselves through the system. None of the academic models studied echo this conclusion. Even in the case of the Minarik model with its very modest elasticity, the permanent effect of the tax rate change produced virtually no additional tax revenue.

In conclusion, the prospects that the higher marginal tax rates on capital gains in the new tax law will produce more capital gains tax revenue seem remote. In all models, the response of gains to permanent tax rate changes produces a smaller amount of revenue in four of the five models and static revenue in the fifth. Higher capital gains tax revenue over the 5 fiscal year budget planning cycle will accrue only if very substantial capital gains realizations occurred in late 1986 in

anticipation of prospectively higher tax rates. Whether or not

that was the case is an empirical matter requiring further

academic investigation.

Footnotes

[1] The economists responsible for the development of the NBER
TAXSIM model are Daniel Feenberg, Martin Feldstein, Daniel
Frisch, Lawrence Lindsey, and Andrew Mitrusi.

[2] A detailed description of the extrapolation procedure used
by TAXSIM can be found in Lindsey, "The response of taxpayers to
changes in tax rates 1982-1984 with implications for the revenue
maximizing tax rate." NBER Working Paper No. 2069.

[3] These estimates were published in the Daily Economic Report,
January 29, 1987, pp.J1-J13.

[4] These estimates were provided in a letter from David
Brockway, Chief of Staff of the Joint Committee on Taxation to
Senator Alan Cranston, dated June 10,1986.

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