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ABSTRACT

This paper uses a general equilibrium model to simulate both the effects of a preferential capital-gains tax rate on total income tax revenues and the effects of a revenue-neutral substitution between a capital gains preference and marginal income tax rates on economic efficiency and the distribution of income. In the simulations, a capital gains preference increases efficiency by reducing tax distortions between untaxed assets (household and state and local capital) and taxable business sector assets and between realized and unrealized capital gains (the "lock-in" effect), but reduces efficiency by increasing tax distortions between corporate dividends and retained earnings and between financial assets that produce capital gain income and those that produce ordinary income. Because the model treats aggregate factor supplies as fixed, however, the simulations do not capture the efficiency gain from reducing the tax distortion between current and future consumption or the loss from increasing the tax distortion between current consumption and leisure (or untaxed labor).

The net estimated welfare effects depend on two parameters: the elasticity of capital gains realizations with respect to a change in the capital gains tax rate and the elasticity of the dividend-payout ratio with respect to a change in the tax cost of dividends relative to retentions. With no payout response, the net welfare effect from a 15% maximum rate on capital gains is positive for a wide range of realizations elasticities. With a high payout elasticity, the net welfare effect is slightly positive for high estimates of the realizations elasticity and slightly negative for low estimates of the realizations elasticity. The welfare changes, both positive and negative, mainly affect taxpayers with income of $50,000 and over.

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Under the U.S. income tax, as in most OECD countries, capital income that people accrue in the form of increases in asset values (capital gains) is taxed only when the gain is realized by sale or exchange. The taxation of capital gains upon realization instead of accrual produces two sources of efficiency loss. First, because tax liability is triggered by realizations, the capital gains tax in its current form encourages taxpayers to hold onto assets with accrued gains, instead of disposing of them by sale or exchange, in order to compound income tax-free until realization. Further, under U.S. law, the step-up in basis at death allows gains transferred by bequest to escape income tax entirely. The result is a "lock-in" effect in which many households hold suboptimal portfolios (in terms of higher risk or lower productivity of assets to the household than to other households) to reduce tax liability.[1] One can usefully interpret the utility loss from lock-in to a suboptimal portfolio as an implicit tax -- a tax paid by the household but not received by the tax collector.

Second, the ability of households to defer tax until realization results in a lower effective tax rate on assets that produce capital gain than on assets that produce ordinary income. This distorts the choice among assets, leading to overinvestment in gains-producing assets, and induces investors to incur transactions costs to convert ordinary income to capital gain.

One important source of conversion of income to capital gain is the substitution of corporate retained earnings for dividend payouts. Households may prefer dividends to retained earnings because such payouts convey useful information and increase shareholder control of the firm.[2] The higher effective tax rate on dividends than on retained earnings, however, reduces the desired payout rate. The optimal payout rate is one at which the information (and other) benefits of an extra dollar of dividends to shareholders exactly equals the marginal net tax costs of payouts to the weighted average shareholder.[3] Again, tax avoidance, through reduced corporate payouts, has its cost in the form of an implicit tax.

A reduction in the tax rate on realized capital gains would lessen one excess burden on households, by unlocking them from suboptimal portfolios, but would increase another excess burden, by discouraging corporate payouts (and, more generally, by encouraging taxpayers to incur costs to substitute capital gains for ordinary income). The impact of a capital-gains tax rate cut on these excess burdens, as well as on the Federal budget, the efficiency of allocation of real capital, the level and allocation of risk in the economy and the distribution of income, should be taken into account when considering the wisdom of a capital-gains tax rate cut. Moreover, measurement of all these impacts should allow for household portfolio responses, capital stock reallocations, changes in the corporate debt-equity ratio, and changes in the interest rate on Federal debt (Cook and O'Hare, 1987).

In this paper we calculate the impact of capital-gains tax rate cuts on both the Federal budget and economic welfare by income class. The vehicle for this calculation is an enhanced version of the Hendershott and Won extension (1989b) of the Galper-Lucke-Toder general equilibrium model (1988). The enhancement entails introducing utility-maximizing realization and payout responses.[4] The enhanced model incorporates all of the above noted behavioral responses and is parameterized to reflect alternative recent empirical estimates of these responses to capital gains tax rates.[5]

Although the model incorporates many behavioral responses heretofore not considered explicitly in analyses of the effects of capital gains taxes, some important responses are not incorporated. In particular, the model we use assumes fixed factor supplies. This means that changes in aggregate saving, economic growth, and labor supply that may result from substitution of labor income for capital income taxes are not considered. Nor do we consider efficiency gains from less distortion of intertemporal consumption or efficiency losses from more distortion of the choice between taxable and untaxed work effort (home production and market production compensated via tax-free fringe benefits). Thus, it is important to stress that the model cannot assess the net welfare effect of changing the overall tax mix between income and consumption taxes or between capital income taxes and wage taxes.

The model is appropriate for analyzing the combination of capital gains tax cuts and general income tax rate increases (or decreases if the capital gains cuts gain revenue) if one assumes either that aggregate factor supply responses are negligible or that the welfare changes they cause cancel each other out. If aggregate factor supply responses matter, then the more appropriate use of the model is to assess the relative welfare effects of alternative ways of lowering capital income taxes. For example, the model can be used to assess the relative welfare effects of reducing the capital gains tax or increasing allowable contributions to tax-free individual retirement accounts.

The paper is divided into four sections. The first briefly describes the underlying general equilibrium model. Section II discusses the incorporation of capital-gains-realization and corporate-payout responses into the model. The model simulations are reported in Section III, and the paper is summarized in Section IV. Appendices are included on estimation of the payout equation and parameterization of the model.

I. The Modified Extended GEMDAT Model

GEMDAT (General Equilibrium Model of Differential Asset Taxation) captures the interaction between differential tax treatments among assets and differences in marginal tax rates among taxpayers. The particular assets each household holds in its portfolio will reflect the pretax yields on and tax treatment accorded alternative assets, the riskiness of these assets, and the household's own tax status and aversion to risk. At the same time, household portfolio choices will influence market yields that in turn determine the costs of capital to sectors issuing assets. These costs determine tangible capital allocations and assets supplied to households. Thus, the structure of GEMDAT emphasizes the simultaneous interaction among household portfolio choices, business financing and real investment in tangible capital.

The capital using sectors in the model are the corporate and noncorporate business sectors (both of which produce marketable goods and services), state and local governments, and 147 separate household "sectors" that produce in-kind services from owner-occupied homes and from consumer durables. Each of these sectors finances the capital it employs in production by issuing financial assets that are absorbed in household portfolios. The financial assets that households can acquire are: taxable bonds (1), corporate equities (2), shares of noncorporate business divided between rental housing (3) and other noncorporate (4), and tax-exempt bonds (5). Capital is also used directly by households to produce services from owner-occupied houses and consumer durables.

The supply of financial assets issued to households depends on both the demand for capital services in each sector and the way in which the capital stock of that sector is financed. The sectoral demands for capital services, including those used directly in the household sector, are unit elastic functions of the real costs of capital. The particular financial assets issued to households vary by capital-using sector. Corporations issue corporate equity, taxable bonds, and to a limited degree, tax-exempt bonds. The corporate debt-equity ratio is determined by an optimizing equation in which corporations balance the net tax benefits of debt finance against leverage costs that vary directly with the share of capital that is debt-financed; the corporate payout ratio comes from the balancing of the information or other benefits from payouts against the extra taxes on payouts versus retained earnings. Noncorporate enterprises issue shares in unincorporated business, and state and local governments issue tax-exempt bonds. In addition, the Federal government issues a fixed amount of taxable bonds to finance cumulated deficits.

These financial assets are held by the 147 sample households, weighted to represent the entire taxpaying population and disaggregated by labor income (7 classes), capital income (7 classes), and tax filing status (single, married or other). Households, solving a problem of portfolio choice under uncertainty, decide whether to own or rent their housing and allocate their fixed wealth among financial assets and household sector capital (including owner-occupied houses and consumer durables).[6] Demands for risky assets vary directly with their after-tax expected return and inversely with their after-tax variance, and demands for consumer durables vary inversely with their opportunity cost (in most cases, the after-tax interest rate).

The model contains a fairly detailed representation of the tax law. Each sample household confronts the actual rate schedule for joint, single or other returns, as applicable; tax liabilities are computed directly based on gross income flows, exclusions, excess itemized deductions (if positive), and personal exemptions. Taxable income includes all the income from wages and taxable bonds, but excludes a portion of income from corporate equity and noncorporate capital and all the income from tax-exempt bonds, owner-occupied houses, and consumer durables. The fractions of corporate equity income and noncorporate capital income included in the personal income tax base depend on tax law and household realization behavior (introduced below). The separate corporate level tax is also represented in the model and affects the relationship between the rate of return on corporate capital before all taxes and rates of return to individuals who hold debt and equity of corporations. The corporate income tax is described by two parameters--the statutory corporate tax rate and the percentage of corporate economic income included in the corporate tax base.

The net amount of each asset demanded by households is equal to the amount supplied by capital-using sectors and the federal government. The model solves simultaneously for the value of physical capital in each productive sector, the share of corporate capital that is debt-financed (debt-capital ratio), the corporate payout ratio, the fraction of each household cell that owns instead of rents housing, the composition of each household's portfolio of financial and physical assets, rates of return on all assets, and after-tax income and taxes paid by each household (including each household's allocated share of any corporate income taxes).

When the parameters that represent the tax law are changed, the model solves for a new configuration of total capital stocks, household portfolio holdings, and interest rates. (Aggregate supplies of capital/wealth and labor are assumed to be fixed.) In the new equilibrium, financial asset holdings and rates of return are again consistent with a single set of real capital stocks and costs of capital in each capital-using sector. The solution to a simulation also implies, for each household in the model, new values of pretax income, taxes paid, after-tax income, and income adjusted for the riskiness of the household's portfolio.

II. Modelling Capital Gain Realizations and Corporate Payouts

This section discusses incorporation of capital-gains-realization and corporate-payout responses into GEMDAT. Adding this behavior to the model involves two steps: 1) specifying equations relating realizations and the corporate payout rate to tax rates and 2) recovering from the realizations and payout equations both the explicit tax rates and total tax burdens on various assets. The latter includes explicit taxes and implicit taxes in the form of welfare losses from tax-induced reductions in both gains realizations and dividend payouts. The total tax burden is used in equations explaining the portfolio demands for assets, while only the explicit tax rates are used in calculating government revenue from taxation of capital income. The realization equation relates the ratio of realizations to accruals to the marginal tax rate on capital gains; the corporate payout equation relates the fraction of earnings paid out to the difference between the effective marginal tax rates on dividends and retained earnings.

Realizations Equation

The realizations equation relates the ratio of realizations to accruals (rr) to the marginal tax rate on realized capital gains (g). The specific functional form assumed is

$$\text{(1)} \qquad \ln(rr) = k_0 + k_1 g \qquad (k_1 < 0),$$

where k_0 and k_1 are constants. The semi-log form has been used in econometric work on capital gains realizations by Lindsey (1987), the Congressional Budget Office (1988), Darby, Gillingham and Greenlees (1988), and Auerbach (1989). This form has several appealing properties.[7] First, the (absolute value of the) elasticity of rr with respect to g increases with increases in g, which conforms to prior beliefs about behavior.

Second, as a result of the increasing elasticity, it is possible to calculate a tax rate that maximizes revenue from realized capital gains. This tax rate (g times rr) is $g' = -1/k_1$. We use g' as our index of the responsiveness of realizations to capital gains tax rates; smaller values of g' imply a larger realization response. Third, in contrast to a linear form, the equation does not imply that rr goes to zero at moderately high marginal tax rates; rr is always positive. For high absolute values of k_1, however, rr can become very small. Fourth, in contrast to a log-log form, the equation is defined at $g = 0$.

The one disadvantage of the semi-log form is that it can imply values of rr greater than 1, which would happen if there is a sufficiently high calibrated base case value of rr at a given g and if the absolute value of k_1 is large. The parameter values have been chosen to make sure that this does not happen; i.e., values are chosen such that k_0 is negative and thus rr is less than 1.0 when $g = 0$ (see Appendix B).

Substituting $-1/g'$ for k_1 and taking logs,

$$(1') \qquad rr = \exp(k_0 - g/g') \qquad (k_0<0).$$

The negative relation between rr and g is shown in Figure 1. In general, g' will be assumed to be equal for all assets and all households; k_0 will vary across assets but not households. Of course, rr for a given asset will vary across households because g varies.

Effective Tax Rates

To the extent that the investor is induced to lower realizations in response to high values of g, the tax burden imposed on him is greater than the actual tax paid. The total tax burden per dollar of accrued gains equals the taxes paid, grr, plus the excess burden resulting from a sub-optimal level of realizations. This total tax burden will affect the demand for capital-gains producing assets.

We denote the total tax burden per dollar of accrued gains as grr* and calculate it as the area under the rr demand curve between 0 and g, or:

$$(2) \qquad grr^* = \int_0^g \exp(k_0 - g/g')dg.$$

The solution of the integral evaluated between g and 0 is

$$(2') \qquad grr^* = g'\exp(k_0)[1 - \exp(-g/g')]$$

$$= grr[\exp(g/g') - 1](g'/g).$$

The total tax burden per dollar of accrued assets is shown in Figure 1 as the sum of explicit taxes, area OrrBg (I), and implicit taxes or excess burden, rrAB (II).

Given values of g' and k_0, rr and rr* can be calculated from equations (1') and (2') for any household given its value of g; g can vary across different assets for a given household, and g for the same asset varies across households that face different individual marginal tax rates on ordinary income. When the tax law changes, new values of rr and rr* are calculated based on the new g values. Because grr* affects demands for capital-gains producing assets, changes in rr* can move households along their marginal tax rate schedule to different values of g. That is, g and rr* are simultaneously determined. We now turn to the relationship between demands for capital gains producing assets and grr*.

<u>Respecification of Asset Demand Equations</u>

In the extended GEMDAT model, three risky taxed assets exist: corporate stocks, rental housing and equity in noncorporate nonhousing businesses. With zero covariances between returns, the utility-maximizing share of a specific household's wealth in the kth risky asset can be derived as the ratio of the difference between the expected after-tax rates of return on that asset and the risk-free asset to the product of a risk aversion parameter and the variance of the after-tax return on the risky asset. The share in risky asset k is thus

$$(3) \qquad s_k = \frac{(1-a_k t)i_k - (1-t)i_{tx}}{R\sigma_k^2(1-a_k^* t)^2},$$

where i_k is the expected pretax return, a_k is the share of the return subject to tax (see below), t is the household's marginal tax rate, i_{tx} the yield on taxable risk-free bonds, σ_k^2 the expected pretax variance, a_k^* the share of variance included in the tax base, and R is the product of the household's degree of risk aversion, its utility per dollar of expected income and its wealth.[8]

In GEMDAT, the taxes paid on a marginal dollar of income from the kth asset are measured as

$$(4) \qquad a_k t = p_k t + (1-p_k)g_k rr_k,$$

where p_k is the fraction of economic income on the kth asset that accrues as annual taxable income to households and $1-p_k$ is the fraction that is taxed only when realized by sale, exchange or other taxable disposition. In the original version of GEMDAT, the $a_k t$ term was used in the portfolio demand equation (3), and rr_k was a constant.

For equity in noncorporate business, all recorded noninflationary earnings are paid out by definition. However, inflationary gains are deferred and not all noninflationary earnings are necessarily recorded concurrently, but rather are deferred owing either to the generally favorable taxation of business activity (e.g., investment tax credits, accelerated tax depreciation) or simply to the fundamental delayed nature of their cash flows before someday showing up as capital gains. To illustrate, p for rental housing, where the only tax advantage is accelerated depreciation, is

$$p_{rh} = [i_{rh} - \pi - (d^*_{rh} - d_{rh})]/i_{rh}, \quad (5)$$

where i_{rh} is the nominal total return on rental housing, $i_{rh} - \pi$ is the noninflationary return, and $d^*_{rh} - d_{rh}$ is the excess of the geometric-equivalent tax depreciation rate (at replacement cost) over the economic depreciation rate. That is, both inflation gains and earnings shielded by excess tax depreciation are not recorded and thus not paid out.

For corporate stock, p_c is not the reported payout ratio because reported earnings in the denominator of this calculation do not include inflationary gains (earnings have been corrected for the inventory and capital consumption adjustments, IVA and CCA). The relevant payout measure is the reported payout ratio multiplied by the ratio of real to nominal returns to shareholders. The p_c variable can thus be expressed as

$$p_c = p^*_c[i_c(1-f) - \pi]/i_c(1-f), \quad (6)$$

where p^* is the reported dividend payout ratio, i_c is the return to shareholders (before personal taxes -- the i_k in equation 3), and f is the debt-to-assets ratio for corporations. This relationship is simpler than equation (5) because the corporate tax advantages (such as accelerated depreciation) are already incorporated in i_c.

In this revision of the model, realizations are endogenous, and the $a_k t$ terms that affect portfolio demands include all factors that reduce the individual's perceived benefit from holding the asset, i.e., both explicit taxes and the excess burden from reduced realizations to avoid the taxation of realized capital gains. This excess burden is an implicit tax on returns and reduces the value of the return to the investor even though it does not generate revenue for the government. To incorporate implicit taxes, we rewrite (4) as

$$(4a) \qquad a'_k t = p_k t + (1-p_k) g_k r r^*_k,$$

where a'_k is labelled the income inclusion rate for asset demands and is used in equation (3) in place of a_k.

The Payout Equation

A single payout equation is specified for the corporate sector, just as a single corporate debt-equity equation was specified in GEMDAT.[9] This is necessary, even though corporations clearly have different payout ratios, because different types of shares with different dividend rates have not been imputed to the various households in GEMDAT. A disadvantage of this approach is that most investors are out of equilibrium in the sense that, given their tax rates, they would prefer to hold shares with higher or lower payout rates than those available to them.

The single equation approach enables us to apply Poterba's (1987) single dividend payout equation. Poterba estimates a long-run elasticity of dividends with respect to the ratio of after-tax income per dollar of dividends to after-tax income per dollar of retained earnings, where the tax rate on retained earnings is grr. Empirically, the ratios are weighted averages for all equity investors (individuals and pensions in our model) in the economy.

We have reestimated Poterba's equation with two changes (see Appendix A). First, we have expanded the tax rate on retained earnings to include the excess burden or implicit taxes from delayed realizations, i.e., we define the tax rate on retained earnings as grr*. Second, we have replaced Poterba's ratio of after-tax incomes per dollars of dividends and retained earnings with the difference between the marginal tax rate on dividends and our marginal tax rate on retained earnings. This difference is a direct measure of the cost of dividends and facilitates the computation of the utility loss from investors receiving fewer dividends than are desired.

The dividend payout ratio is expressed as

$$\ln p^* = c_0 + c_1 DIVCOST \qquad (c_1<0), \tag{6}$$

where $DIVCOST = \bar{t} - \overline{grr^*}$, $\bar{t}$ being the average tax rate on dividends and $\overline{grr^*}$ the average tax rate on retained earnings, and c_1 comes from the estimation of the payout function and depends on the tax rate that maximizes revenue from realized capital gains. Given a base line $DIVCOST = DIVCOST_0$ and $p^* = p_0^*$, c_0 can be parameterized. A value of $c_0 < 0$ insures that the payout ratio would never exceed unity.

Utility Losses from Suboptimal Payouts and the Demand for Corporate Equity

Investors experience a loss in utility to the extent that the dividend payout ratio is less than the ratio that would result if DIVCOST were equal to zero. We assume that all investors have the same demand schedule for dividends, although desired dividends will be greater for those with lower marginal tax rates. There is only one dividend payout ratio for the corporate sector, however. Therefore, for any single investor, the dividend payout ratio will not necessarily be the optimum ratio at which the marginal reduction in utility loss from an additional dollar of dividends equals DIVCOST, the marginal tax cost of an additional dollar of dividends.

The utility loss from reduced dividends is illustrated in Figure 2 as the area pAB (I) between the payout demand schedule and the actual payout ratio. This is the total amount of utility gain taxpayers would receive from incremental dividends if DIVCOST were lowered to zero. Therefore, it also approximately equals the total utility loss from the reduction in dividends from the payout ratio associated with the excess tax on dividends vis-a-vis retained earnings.

The utility loss can be expressed as the area under the payout curve between 0 and DIVCOST. Thus,

$$(7) \quad UL = \int_{0}^{DIVCOST} \exp(c_0)\exp(c_1 DIVCOST)dDIVCOST - DIVCOSTp^*.$$

Evaluating this integral, we obtain:

$$(8) \quad UL = -(\exp(c_0)/c_1)[1-\exp(c_1 DIVCOST)] - DIVCOSTp^*.$$

These losses raise the effective tax rate on corporate equities and thus lower the demand for corporate stocks. The inclusion rate for corporate stocks, a_c', is changed from equation (4a) to

$$(4b) \quad a_c't = p_c t + (1-p_c)g_c rr_c^* + UL.$$

For pensions and other zero-bracket investors, $a_c't$ is simply UL.

III. Simulation Results

The extended GEMDAT model is parameterized based upon 1985 asset holdings, capital stocks and tax law. Thus the first step in the analysis is to simulate the impact of the 1986 Tax Act. These results are then taken as the base from which the capital gains tax-rate reduction is presumed to affect the economy. These results also provide the basis upon which our 294 sample households (147 owners and renters) are combined in the tables to present the portfolio responses in a meaningful fashion.

Households have been divided into seven classes based on their marginal tax bracket after adjustment to the 1986 Tax Act. Under the 1986 Act, the marginal tax rate rises as taxable income increases to 0.15, 0.28, 0.33, and then falls to 0.28. Taxpayers with marginal tax rates of zero, 0.33 and the highest 0.28 form three classes, while the 0.15 and lower 0.28 classes are divided roughly in half to form the other four classes: 0.15L, 0.15H, 0.28L and 0.28H. The 0.15L bracket includes taxpayers with a marginal tax rate of 0.15 and income under $19,000 (single) or $38,000 (joint); the 0.28L bracket includes taxpayers with a tax rate of 0.28 and income under $38,000 (single) or $76,000 (joint). Income is the GLT concept: before-tax nominal economic income, including before-tax profits of corporations allocated by share ownership of households, but excluding imputed rent on homes and consumer durables.

Table 1 contains background information on the presumed starting point for the capital gains tax cut simulation in the moderate realization response (g'=0.29) case (without a payout response). That is, it shows how wealth and its components are distributed across our seven tax bracket classes after all adjustments to the 1986 Tax Act are completed (the eighth line is the total for the economy). Part A gives the raw data; Part B shows the percentage distribution of wealth for each tax-bracket class across the seven assets and within pensions; Part C shows the percentage distribution of each asset among taxpayers in the seven tax classes; Part D, which converts the tax bracket classes to income classes, shows in which income range the tax bracket classes fall (those with single, including other, and joint tax returns are considered separately). Part E gives the percentage distributions of wealth for joint and single filers by income class.

The simulations of capital gain rate cuts are performed for two alternative corporate payout responses and three household capital gains realization responses. The two payout responses are zero and the reestimated Poterba response (see Appendix A). The three realization responses, reflecting different realization elasticity assumptions, are:

high ($g' = 0.18$): based on Lindsey (1987),

medium ($g' = 0.29$): based on the Congressional Budget Office's (1988) result that this rate is between 26 and 32 percent, and

low ($g' = 0.41$): based on Auerbach's (1989) recent study.

Thus six sets of results are reported below.

Two alternative assumptions are made regarding the financing of the gains rate cut. The first presumes that the gains rate cut is matched by a cut in federal government spending (or an increase if the gains cut increases government revenues). In this analysis the static and dynamic impacts on the federal budget (changes in tax revenues and the interest on a constant federal debt) are reported. The second assumption presumes that the entire personal and corporate tax rate schedules are raised (or lowered) slightly so as to maintain the federal budget at a constant level. The extent of this change and the change in household welfare (risk-adjusted after-all-tax income, including implicit taxes on realizations and payouts) are reported.

The precise tax cut analyzed is a cut in the maximum tax rate on realized gains to 15 percent. That is, a capital gains exclusion (x) is reintroduced where the exclusion rate for the jth household is $x^j = 1 - .15/t^j$. There are two advantages to analyzing the reduction to a maximum rate rather than analyzing a flat exclusion. First, the stimulus to portfolio responses are clear. Households in the 0.28 and 0.33 tax brackets get the cuts while households in the 0.0 and 0.15 brackets don't. Second, the cut <u>directly</u> raises the welfare of only higher income households.

The realizations, payout, portfolio, revenue and welfare impacts all refer to the new long-run steady state. That is, they reflect a long-run steady-state increase in the ratio of realizations to accruals, not a short-run unlocking effect.

A. Revenue Implications of a Gains Cut

Table 2-1 describes the tax law parameters for the gains cut (gains rate lowered to 15 percent) in the moderate realization response case with a fixed payout rate. For both 1986 tax law and "New law" (1986 law including the gains rate cut), parameters given for corporate equity, rental housing and other noncorporate capital includes the following for households in the zero, 0.15, 0.28 and 0.33 percent tax brackets: the values of g, rr, rr*, a_k for revenue (equation 4), a'_k for demand (equation 4a), and a^*_k, the inclusion rate on the variance of capital income (equation 3).

Table 2-2 shows the impact of the gains cut on pretax yields, capital stocks, and the corporate debt-capital ratio assuming the moderate realizations response and no payout response. The corporate equity rate falls by 18 basis points, the noncorporate rates decline by seven basis points, and the taxable and tax-exempt debt rates rise by six and two basis points, respectively. As a result, there is a noticeable shift from household capital ($48.7 billion) to business capital (mostly, $39.2 billion, corporate), but the shift is only one percent of the respective capital stocks.[10]

Table 2-3 contains the long-run impacts of the gains cut on the Federal budget by tax bracket class. Column 1 shows a $5.75 billion static tax revenue loss; column 2 indicates that this loss is cut to $1.88 billion when a gains realization response is incorporated, but no interest rate, capital stock, or portfolio responses are allowed. The remaining columns indicate the results when all model responses are incorporated. Columns 5 and 6 show a $0.86 billion rise in corporate tax receipts due to the reduction in the corporate debt-capital ratio and the increase in the corporate capital stock, but a $2.39 billion decline in personal tax receipts for a net decline of $1.53 billion. The next two columns indicate a $5.15 billion drop in implicit taxes on realizations and no change (by assumption) in implicit taxes on payouts. The last column shows that the higher taxable bond rate increases federal interest payments by $786 million. Thus the combination of higher Federal interest payments and lower tax revenues would cause a budget shortfall (change in explicit taxes and interest payments) of $2.32 billion.

Table 2-4 reports the portfolio shifts of the tax-bracket class investors, both in dollars and in percentage points of wealth. High income (tax bracket) investors increase their holdings of corporate equities by one to two percentage points and of noncorporate equities by about a quarter point, the shifts coming largely from taxable bonds. Lower income (tax bracket) households engage in a reverse 0.8 to 1.6 percentage point shift into taxable bonds, the shift coming roughly 50/50 from household capital and equities. The gains tax cut explains -- triggers -- the shifts of the high tax bracket households, and the resulting changes in pretax interest rates explain the shifts of the low tax bracket households. This portfolio shift, with higher bracket households more specialized in tax-preferred assets, explains the induced decline in individual income tax revenues.

Tables 3-1 to 3-4 give the same results for the moderate realization response case with endogenous payouts (p*). Table 3-2 indicates a slightly smaller 14 basis point decline in the yield on corporate equity, and thus $7 billion smaller rise in corporate capital, and a sharp decline in the payout rate from 0.75 to 0.69. The modified static revenue loss (including only realization and payout responses) shown in Table 3-3 is a billion dollars greater than the result with no payout response, and the dynamic budget shortfall (decline in tax receipts plus increase in interest payments) is increased by $1.5 billion to $3.89 billion.

The impacts on federal revenues, the taxable bond rate and the distribution of the real capital stock with high and low realization responses (with and without endogenous corporate payouts) are summarized in Table 4. The greater is the realization response (the lower is g'), the smaller is the revenue loss and the greater is the increase in corporate capital. Two portfolio responses tend to offset each other, causing the dynamic revenue loss to be approximately equal to the static loss. First, the increase in taxed business capital at the expense of zero-taxed household capital tends to raise tax revenues. Second, the portfolio shifts among households cause a net revenue loss because the shift of high income households out of fully taxable bonds and into both corporate and noncorporate equities tends to lower tax revenue by more than the reverse shift by low income households raises revenue.[10] With no payout response, it would appear that the tax cut would gain revenues only if the tax rate that maximizes revenue from realized capital gains were under 0.2. With an endogenous payout response, the revenue losses are larger.

B. Welfare Implications

In GEMDAT, each household is assumed to maximize a utility function of the form

$$(9) \qquad U = m_0(1-e^{-m_1 V}), \ m_0, \ m_1 > 0$$

where V is a Cobb-Douglas function of outputs consumed, m_0 is a constant, and m_1 is a parameter that represents the household's degree of risk aversion. It can be shown that maximizing this function is equivalent to maximizing

$$(10) \qquad Y - TAXEX - TAXIM - m_1 m_2 \sigma_y^2/2,$$

where Y is pretax income, TAXEX is explicit taxes, TAXIM is implicit taxes, m_2 is an index of utility per dollar of expected consumption (and varies with changes in relative prices) and σ_y^2 is the variance of the after-tax income of the household.

Note that government spending does not appear in this function. Thus welfare calculations cannot be performed in the model when government spending changes. In order to provide such calculations, we finance the gains tax rate cut (when the cut loses revenue) by increasing the .34 corporate and .28 and .33 personal tax rates proportionately (because households in the .15 tax bracket do not get a capital gains rate cut, we do not increase this rate). We do not mean to imply that this is the preferred way to finance revenue shortfalls, but choose this method because it is the standard differential incidence analysis of changes in the tax structure and is what the model was designed to analyze.

Tables 5-1 to 5-5 are again for the moderate realization response case with fixed corporate payouts, where federal budget neutrality is maintained via a 0.95 percent increase in both personal and corporate income tax schedules. The differences in interest rate and capital stock changes relative to the case of no offsetting change in regular income tax rates (Tables 2-1 to 2-4) are minor.

Table 5-5 indicates changes in welfare by both tax bracket and income class. Referring to equation (10), the change in welfare can be attributed to changes in pretax income (Y), in explicit corporate and personal taxes (TAXEX), in implicit taxes on realizations and payouts (TAXIM), in relative prices (m_2) and in utility loss from risk ($m_1\sigma_y^2$). The utility loss from risk tends to increase in the simulations because risky business capital increases relative to less risky household capital and because risk-bearing is allocated less efficiently among households (high bracket investors are induced by tax preferences to hold too large a share of risky assets and thus bear too great a share of the risk from the uncertain returns to the capital stock).

The impacts for the other realization and corporate payout response cases are summarized in Table 6. A number of points stand out. First, when payouts are exogenous, a cut in the capital gains tax rate to a 15 percent maximum increases welfare by 2.4 to 4.5 billion dollars. While these gains are not large, neither were the revenue losses (before compensating tax rate changes) that were needed to generate them. For example, with g' = 0.29, the dynamic revenue loss (Table 4) was $2.3 billion, compared to a net welfare gain of $2.8 billion (after accounting for the disutility associated with higher marginal tax rates). Second, the source of the welfare increase is the reduction in implicit taxes on realizations. The welfare increase from this source more than offsets losses from increased misallocation of risk-bearing and changes in relative prices.

When payouts are variable, the impact on welfare is effectively zero (ranges from $1.4 billion to -$1.2 billion). The increase in the implicit taxes on payouts owing to the decline in the payout ratio offsets 35 to 75 percent of the decrease in the implicit taxes on realizations. This, along with the increase in explicit taxes and risk (there is more risky business capital and less tax-free household capital) is sufficient to lead to a decline in total welfare when the tax rate that maximizes revenue from realized capital gains is above about 25 percent. However, even at g' = 0.41, the annual welfare loss is only $1.16.

Table 7 examines the changes in total welfare by tax bracket and income class. With no payout response, the gains go predominately to higher income households (94 percent to those with incomes over $50,000) if the gains realization response is high. But if the realizations response is low, the gains are distributed evenly across income classes (those with incomes over $50,000 receive only 39 percent of the gains). In spite of paying higher (slightly) corporate taxes (via their stock holdings), households in the 15 percent tax bracket experience increases in welfare owing to increases in the taxable bond rate and reduced risk taking (these households shift from equities to risk-free fully taxable bonds). With our payment response, higher income households receive the welfare gains, if there are any, or suffer the welfare losses.

IV. Summary

The simulations reported in this paper use a revised version of the GEMDAT model to assess the revenue and welfare effects of reducing the taxation of capital gains. We modify the GEMDAT model by introducing capital gains realizations and corporate payout responses. Households select the ratio of realized gains to accrued gains to equalize the marginal benefit of increased portfolio flexibility with the marginal cost of higher taxes on realized capital gains. Corporations select a single payout ratio that equalizes the weighted-average shareholder's marginal benefit of payouts and marginal cost of additional dividend taxes (the explicit tax on dividends less implicit and explicit taxes on accrued capital gains). The equations for capital gains realizations and the dividend-payout ratio that are consistent with such optimizing behavior are specified in accordance with recent empirical estimates reported in the literature.

We simulate the effects of reducing capital gains taxes using six combinations of realizations and payout responses. For realizations, we use three recent estimates from econometric studies of capital gains realizations that imply that revenue from realized gains is maximized at marginal tax rates (g') ranging from 18 percent to 41 percent. For payouts, we use a reestimated equation from a recent study by James Poterba in some simulations and assume no dividend-payout response in other simulations.

In "modified static" simulations with no payout response and no capital allocation or portfolio responses, the implied long-run budgetary effects from a cut in the maximum capital gains tax rate to 15 percent range from a $1.2 billion annual reduction in the deficit, when g' = 18 percent, to a $3.8 billion annual increase in the deficit, when g' = 41 percent. The estimated effect on the deficit from a full simulation of GEMDAT (that includes portfolio responses and capital allocation effects) is slightly less favorable than in the "modified static" case. The difference between the full model simulation and "modified static" estimates results from two offsetting responses. First, the gains cut reallocates tangible capital from household to business use, which increases tax revenue. Second, higher tax bracket households shift their portfolios from fully-taxed bonds to partially-taxed equities, while lower bracket households and pension funds do the reverse. On balance, these portfolio shifts lower tax revenue.

A capital gains tax cut may decrease the corporate dividend-payout ratio by raising the tax penalty associated with substitution of a dollar of dividends for a dollar of retained earnings. In simulations with the payout response estimate based on Poterba (1987), lowering the capital gains tax rate to 15 percent increases the budget deficit for all realizations response and reduces annual revenue in the full model simulations by about $1.5 billion.

The revenue estimates are not strictly comparable to official revenue estimates of either the Treasury or the Joint Tax Committee. This is because the baseline data we use is for tax year 1985, modified by a simulation of the Tax Reform Act of 1986, and does not incorporate all features of government data bases. Our estimates also do not take account of the effects of different effective dates and the timing of response in the first few years after the tax change. What is relevant from our estimates is the comparisons among the static, "modified static", and full model simulation results. These results show the extent to which different behavioral responses either offset, or magnify, the long-run annual static revenue loss from lowering the tax rate on capital gains.

The results reported in this paper are also dependent on the specific form of the capital gains cut we simulate. A reduction in the marginal tax rate on realized gains to 20 percent would have a more favorable effect on the deficit than a cut to 15 percent. On the other hand, an across-the-board exclusion rate on capital gains for all households (including those in the 15 percent bracket) would increase the deficit more than a reduction to a maximum flat rate.

We simulate the effects of reducing the capital gains tax on economic efficiency in a budget-neutral context. Budget neutrality is maintained in the simulations by adjusting statutory marginal tax rate on ordinary income in the 28 percent and 33 percent brackets by a constant proportion.

The effects on net economic welfare of reducing the capital gains tax are more likely to be positive than are the effects on revenue because the reduction of the economic distortion due to lock-in is significant even in cases where tax cuts reduce the revenue from capital gains taxes. The net welfare effect we estimate is sensitive to the specification of the corporate payout response. In cases where we assume no payout response, lowering the capital gains tax results in an annual welfare gain for all three realization response assumptions. The gain ranges from \$2.4 billion (for $g' = 41$ percent) to \$4.5 billion (for $g' = 18$ percent). In contrast, in simulations with a payout response, the results are mixed. The net welfare effect ranges from a gain of \$1.4 billion (for $g' = 18$ percent) to a loss of \$1.2 billion (for $g' = 41$ percent).

The estimates of economic efficiency effects are incomplete because they do not account for all possible behavioral responses that may result from changes in the structure of the income tax. We must emphasize in particular that GEMDAT assumes fixed aggregate factor supplies (although factors are highly mobile between sectors). This means that the model cannot be used to assess the net efficiency consequences of shifting the tax burden from capital income to labor income. Aside from intertemporal consumption and labor supply effects, however, the results of the simulations provide useful insights on the intersectoral efficiency gains and losses from reducing capital income taxes in the form of a capital gains differential.

Appendix: Parameterization of the Model

The Constant Terms (k_0) in the Realization Equations:

The return on an asset consists of two parts -- an immediately taxable return (dividends, in the case of corporate shares; taxable income in the case of noncorporate business) and a tax-deferred return (retained earnings in the case of corporate shares). The entire pretax return is either retained or reinvested in the asset every year; the basis is increased every year by the sum of reinvested earnings (dividends plus realized capital gains). Each portfolio of assets is divided into two parts -- assets with a positive annual realizations rate (traded portfolios) and assets with a realizations rate of zero that are simply held to death (not traded portfolios). The stock of accrued gains on the traded portfolio is the difference between the total value of the portfolio and the cost basis. Every year the taxpayer sells a constant percentage of his traded portfolio and realizes a constant percentage of accrued gains. At the end of 40 years, the basis is stepped up to the market value, but the difference between the market value and the cost basis at the end of the year is not taxed (except for the normal realized gain).

We calculate the ratio of the present value of the sum of realized gains to the present value of the sum of accrued gains over 40 years for the traded portfolio. (For the nontraded portfolio, this ratio is zero.) The ratio for traded assets multiplied by the share of assets that are traded is the inclusion rate (a_k) in equation (3). Note that the step-up in basis at death lowers the inclusion rate both directly and indirectly. The direct effect is that the inclusion rate on assets held until death is zero. The indirect effect occurs because, at the end of 40 years, the basis on traded assets rises to the market value and the stock of accrued gains falls to zero. This means that the ratio of annual realized gains to annual accrued income at the beginning of the 40-year period is lower than its long-run steady state value, thereby resulting in a lower present value of the ratio of the sum of realizations to the sum of accruals for traded assets over the entire period.

For traded corporate equities, we assume a seven-year holding period (1/7 of the traded portfolio is sold each year). We also assume that 75 percent of assets are in the traded portfolio, and we use a discount rate of 0.1128. The resulting long-run ratio of the present value of realizations to accruals (rr_0) is 0.4156, which we round off to 0.4. For rental housing, we raise the percentage of assets in the traded portfolio to 80 percent and the discount rate to 0.1443, and we calculate an rr_0 of 0.4163, which we also round off to 0.4. We consider nonhousing noncorporate assets to consist of two equal parts: commercial real estate and expensed assets, both with discount rates of 0.1780. The holding period and fraction of assets traded for commercial is the same as rental; for expensed capital, we assume a ten-year holding period and 60 percent of assets in the traded portfolio. The resulting rr_0 is 0.3848 for commercial real estate and 0.2318 for expensed assets, giving an average for nonhousing noncorporate capital of 0.3083, which we round off to 0.3.

To calculate the k_0's we need tax rates to go with these rr_0 values. For the regular marginal income tax rate, we use the weighted average tax rates under 1985 tax law for GEMDAT investors in corporate equities, rental housing and nonhousing noncorporate. These are 0.395 for corporate equities, 0.387 for rental housing and 0.307 for nonhousing noncorporate. The relationships between the capital gains tax rates and the regular tax rates are described below. With these relationships, the k_0's for $g' = 0.18$ are -0.0374 for corporate equities, -0.0287 for rental housing and -0.5414 for other noncorporate. For $g' = 0.29$, the respective k_0's are

-0.3708, -0.3654, and -0.7927; for $g' = 0.41$, the k_0's are -0.5309, -0.5267, and -0.9131.

Noncorporate Payout Ratios and Capital Gains Tax Rates:

As noted in the text, the payout ratio for noncorporate investments is given by $p = [i_k - (d^*-d) - \pi]/i_k$, where $d^* = (i_k-\pi+d) \sum_{j=1}^{N} TAXD_j/(1+i_k)^j$, TAXD is tax depreciation per dollar of assets and N is the tax life of the assets. For rental housing, $d^* - d = 0.0305$ under 1985 law and 0.0073 under 1989 law. For commercial real estate, $d^* - d = 0.0232$ and 0.0034. With expensed assets, $\Sigma TAXD_j/(1+i_k)^j = 1$, which implies that $p = 0$. Using these values and the assumed i_k's, p for rental housing rose from 0.5462 under 1985 tax law to 0.7067 under the 1986 law. For nonhousing noncorporate (an average for the commercial and expensed assets), the increase was from 0.3364 to 0.3921.

For corporate equities and expensed capital, the capital gains tax rate, g, is simply $(1-x)t$, where x is the exclusion rate. Further, under a tax law lowering the gains rate to a maximum level, such as that analyzed in this paper, $x = 1 - t_{max}/t$, where t_{max} is the maximum level.

Depreciable real estate is different for two reasons. First, trading before the end of the tax life can generate recapture of accelerated depreciation as ordinary income. Second, trading allows establishment of a higher basis upon which depreciation can again be taken. The former increases the effective tax rate and the latter lowers it. For depreciable real estate, we compute the gains tax rate as

$$g = [1-x(1-Recap) - z]t,$$

where recap is the ratio of the recapture of accelerated depreciation upon sale assuming a seven-year holding period to the taxable gain upon sale and z is the ratio of the present value of the net additional tax depreciation created by the sale to the taxable gain. The 1985 values for rental housing are recap = 0.2370 and z = 0.1290. For 1986 law, recap = 0.0 and z = 0.0129. Under both laws, recap is zero for commercial real estate. For 1985 law, z = 0.0233; for 1986 law, z = 0.0052. The z values for nonhousing noncorporate are half of those for commercial real estate.

<u>The Corporate Payout Ratio:</u>

Poterba (1987) estimates an equation of the form:

$$\text{(A1)}\quad \ln (D_t/D_{t-1}) = d_0 + d_1\ln(Y_t/Y_{t-1}) + d_2\ln(\theta_t/\theta_{t-1}) + d_3\ln(D_{t-1}) + d_4\ln(Y_{t-1}) + d_5\ln(\theta_{t-1}) + d_6 DIVCON,$$

where D = dividends, Y = corporate accounting earnings adjusted for CCA and IVA, θ = the ratio of after-tax income per dollar of dividends to after-tax income per dollar of retained earnings, DIVCON is a dummy variable that is 1 in years when there were dividend payment controls (1972-74) and 0 in other years, d_0 ... d_6 are constants, and the subscripts t and t-1 refer to current period and one-year lagged values, respectively.

The θ variable is a weighted average of θ^j for all individuals j, which are computed as

$$\text{(A2)}\qquad \theta^j = (1\text{-}MTRDIV^j)/(1\text{-}MTRAGNS^j),$$

where $MTRDIV^j$ = the marginal tax rate on dividends and $MTRAGNS^j$ = the marginal tax rate on accrued capital gains. It is assumed implicitly that a dollar of retained earnings results in an additional dollar of expected accrued capital gains. Poterba defines $MTRAGNS^j$ as $g^j rr$, with rr = 0.25.

We use $g^j rr*^j$ (equ. 2' in the text), with rr^j endogenous (equ. 1' in the text).

The long-run elasticity of D with respect to θ derived from the estimated coefficients of equation (A1) does not tell us directly how much a given change in the "cost" of dividends affects the dividend payout ratio because the cost of dividends is directly measured by the difference between the marginal tax rate on dividends and the marginal tax rate on retained earnings (DIVCOST), not by the ratio of after-tax returns on dividends and retained earnings (θ). While DIVCOST and θ are correlated with each other over time, there is not a one-to-one correspondence between them. The same value of θ can be associated with different values of DIVCOST if it results from different combinations of the taxpayer's marginal tax rate on ordinary income and percentage of accrued capital gains excluded from taxable income.

DIVCOST is a weighted average of $DIVCOST^j$ among all taxpayers where

$$DIVCOST^j = MTRDIV^j - MTRAGNS^j. \quad \text{(A3)}$$

We recalculated DIVCOST for individual investors using a weighted average of the marginal tax rates on dividends and accrued gains for individual taxpayers. DIVCOST for all investors is then equal to DIVCOST for individual investors multiplied by the share of corporate equity held by individuals because DIVCOST = 0 for pension funds (in contrast, $\theta = 1$ for pension funds).

When we estimate equation (A1) with DIVCOST substituted for θ, the long-run estimate of the percentage change in the dividend payout ratio per unit change in the price of dividends (DIVCOST) is equal to -4.77 for the high realizations response case, -4.66 for the medium response, -4.60 with a low response and -4.53 in the case of no realizations response.

These responses are the c_1's in equation (6). To parameterize c_0 we need to set base case values for p* and DIVCOST. We set p* equal to 0.56, the average value of the payout ratio for 1984-86, and use the weighted average marginal tax rate and marginal gains tax rate under 1985 tax law for GEMDAT investors (including pensions) in corporate equities to compute DIVCOST. The marginal tax rates depend on the assumed realizations rate for capital gains. In the medium response case, the average tax rates are 0.294 and 0.066, respectively, giving DIVCOST = 0.230. Substituting these numbers in equation (6), $c_0 = 0.49$, which implies a payout ratio of 1.6 when DIVCOST = 0.

To avoid a payout ratio in excess of unity, we set $c_0 = 0$ and solve equation (6) for c_1, when DIVCOST = 0.230. The result is $c_1 = -2.52$, or only about half the estimated value. With the high realization response case, DIVCOST = 0.214 and $c_1 = -2.71$; with the low realization response case, DIVCOST = 0.237 and $c_1 = -2.45$. Using these values of c_1 implies payout responses to the capital gains tax cut that are more in line with the estimated relationship of the payout rate to θ than to DIVCOST.

Footnotes

[1]Auerbach (1989) notes that optimal tax planning might lead households to time realizations of losses and gains to avoid gains taxes costlessly. He also reports evidence that households do not do this in a major way and thus that the efficiency losses owing to "lock-ins" are important. Also, see Poterba (1987b).

[2]See Poterba (1987a, p. 471) and references cited therein. While none of the explanations of dividend behavior are fully satisfactory from a theoretical point of view, we follow Poterba in assuming that there is something about dividends that makes shareholders want them in spite of their taxation.

[3]The marginal net tax cost of payouts is the difference between the marginal tax rate on dividends and the marginal tax rate on retained earnings, where the latter includes both the explicit tax on realized gains and the implicit tax from lock-in.

[4]See Hendershott and Won (1989a) for a first attempt at estimating the revenue implications of capital gains tax rate cuts using the original GLT model.

[5]Lindsey (1987), the Congressional Budget Office (1988), Auerbach (1989) and others successfully relate capital gains realizations to capital gains tax rates, although the estimated responses vary widely (see the discussion in the text). Poterba (1987a) estimates a significant link between corporate payouts and the ratio of after-tax income per dollar of dividends to after-tax income per dollar of retained earnings.

[6]In order to simplify the calculations, tenure choice is held constant in the simulations reported below. Given the nature of the tax change analyzed, the impact on tenure would be miniscule.

[7]A minor technical disadvantage of the logarithmic form is that the time series estimates of the aggregate response do not translate into exactly the same response for individual taxpayers because logarithmic changes are not additive. That is, the total realizations response calculated by adding up individual responses to changes in marginal tax rates will not add up exactly to the predicted total response from applying the same coefficient estimate to the average change in marginal tax rates among taxpayers. This bias in applying aggregate time series estimates to a microsimulation has been noted in Darby, Gillingham, and Greenlees (1988). CBO (1989) simulated both the Tax Reform Act of 1986 and the 15 percent capital gains tax rate proposal and found that the quantitative magnitude of this bias is insignificant. CBO computed aggregation error from applying the coefficient estimate for the entire sample to compute the response for each taxpayer reporting capital gains in a sample of 80,000 individual income returns. The predicted capital gains realizations from summing among individuals was within 1 percent of realizations predicted by the aggregate equation for both simulations.

[8]This is a simplified version of the share equations. The most important omission is a term that captures the impact of the variance in government tax revenues owing to the variance in revenues from the asset (see Hendershott and Won, 1989b, for the precise form of the asset share equations).

[9]Corporate share repurchases are not included in the model.

[10]While household capital declines here, in a growth context the one percent decline would translate into a less than one-tenth of a percentage point slower annual growth in household capital over several decades.

[11]Only the reallocation effect occurred in simulations with the original Galper-Lucke-Toder model with three risky assets, and thus the dynamic revenue losses were significantly less than the static losses (Hendershott and Won, 1989a).

References

Auerbach, Alan J., "Capital Gains Taxation and Tax Reform," National Tax Journal, Vol. XLII, No. 3, September 1989.

Congressional Budget Office, How Capital Gains Tax Rates Affect Revenues: the Historical Evidence, March 1988.

__________, "Simulating the Revenue Effects of Changes in the Taxation of Capital Gains," Staff Working Paper, March 1989.

Cook, Eric W. and John F. O'Hare, "Issues Relating to the Taxation of Capital Gains," National Tax Journal, Vol XL, No. 3, September 1987.

Darby, Michael R., Robert Gillingham, and John S. Greenlees, "The Direct Revenue Effects of Capital Gains Taxation: A Reconsideration of the Time Series Evidence," Treasury Bulletin, June 1988.

Galper, Harvey, Robert Lucke and Eric Toder, "A General Equilibrium Analysis of Tax Reform," in Aaron, Galper and Pechman (eds.), Uneasy Compromise, The Brookings Institution, Washington, D.C., 1988.

Hendershott, Patric H. and Yunhi Won, "The Long-Run Impact on Federal Tax Revenues and Capital Allocation of a Cut in the Capital Gains Tax," NBER Working Paper 2962, May 1989a.

__________, "Introducing Risky Housing and Endogenous Tenure Choice into Portfolio-Based General Equilibrium Models," NBER Working Paper 3114, September 1989b.

Lindsey, Lawrence B., "Capital Gains Rates, Realizations, and Revenues," in Martin Feldstein, ed., The Effects of Taxation on Capital Accummulation, Chicago, University of Chicago Press, 1987.

Poterba, James M., "Tax Policy and Corporate Saving," Brookings Papers on Economic Activity, 2, 1987a.

__________, "How Burdensome Are Capital Gains Taxes?," Journal of Public Economics, July 1987b.

TABLE 1: POST1986 TAX ACT DISTRIBUTION OF WEALTH AND ITS COMPONENTS (FIXED PAYOUT AND MODERATE REALIZATIONS)

A. DOLLAR DISTRIBUTION OF WEALTH AND ITS COMPONENTS(BILLION $)

TAX RATE	WEALTH	TAXABLE BOND	PENSION	CORP. STOCK	RENTAL HOUSING	OTHER NONCORP.	TAX EXEMPTS	OWNER HOUSING	CONSUMER DURABLES
0.0	803.4	-433.4	162.5	13.9	35.6	135.7	0.1	770.6	118.4
0.15L	1711.5	-144.5	383.6	84.3	113.3	257.3	6.7	705.1	305.6
0.15H	1747.7	286.7	257.3	251.6	112.0	195.9	17.9	432.0	194.4
0.28L	1236.0	-293.5	347.9	50.2	103.7	93.6	41.1	576.6	316.3
0.28H	2225.8	506.8	299.0	413.5	166.9	167.6	37.3	418.4	216.3
0.33	2749.3	427.0	355.1	575.8	270.2	205.0	133.5	546.5	236.2
0.28	1412.5	283.8	70.4	399.5	245.8	180.3	121.5	74.1	36.9
TOTAL	11886.2	632.9	1875.8	1788.9	1047.6	1235.4	358.2	3523.3	1424.0

B. PERCENTAGE DISTRIBUTION OF TOTAL WEALTH AND ITS COMPONENTS ACROSS ASSET TYPES

TAX RATE	WEALTH	TAXABLE BOND	PENSION	CORP. STOCK	RENTAL HOUSING	OTHER NONCORP.	TAX EXEMPTS	OWNER HOUSING	CONSUMER DURABLES
0.0	100.00	-53.95	20.23	1.73	4.43	16.89	0.02	95.91	14.73
0.15L	100.00	-8.44	22.41	4.93	6.62	15.03	0.39	41.20	17.86
0.15H	100.00	16.41	14.72	14.39	6.41	11.21	1.03	24.72	11.12
0.28L	100.00	-23.75	28.15	4.06	8.39	7.57	3.33	46.65	25.59
0.28H	100.00	22.77	13.43	18.58	7.50	7.53	1.68	18.80	9.72
0.33	100.00	15.53	12.92	20.94	9.83	7.46	4.85	19.88	8.59
0.28	100.00	20.09	4.99	28.29	17.40	12.77	8.60	5.24	2.62
TOTAL	100.00	5.32	15.78	15.05	8.81	10.39	3.01	29.64	11.98

C. PERCENTAGE DISTRIBUTION OF TOTAL WEALTH AND ITS COMPONENTS ACROSS HOUSEHOLD CLASSES

TAX RATE	WEALTH	TAXABLE BOND	PENSION	CORP. STOCK	RENTAL HOUSING	OTHER NONCORP.	TAX EXEMPTS	OWNER HOUSING	CONSUMER DURABLES
0.0	6.76	-68.49	8.66	0.78	3.40	10.99	0.04	21.87	8.31
0.15L	14.40	-22.83	20.45	4.71	10.82	20.83	1.87	20.01	21.46
0.15H	14.70	45.31	13.72	14.06	10.69	15.86	5.01	12.26	13.65
0.28L	10.40	-46.38	18.55	2.81	9.90	7.58	11.48	16.37	22.21
0.28H	18.73	80.08	15.94	23.12	15.93	13.56	10.42	11.88	15.19
0.33	23.13	67.47	18.93	32.19	25.79	16.60	37.25	15.51	16.59
0.28	11.88	44.85	3.76	22.33	23.47	14.60	33.92	2.10	2.59
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

D. DISTRIBUTION OF HOUSEHOLDS BY INCOME AND TAX BRACKET

INCOME*	0% S	0% J	15% S	15% J	28% S	28% J	33% S	33% J	28%	TOTAL
< 10	12581.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12581.0
10 - 20	0.0	6927.0	14912.4	0.0	0.0	0.0	0.0	0.0	0.0	21839.5
20 - 30	2.6	3227.5	8302.3	8133.5	1158.4	0.0	0.0	0.0	0.0	20824.3
30 - 50	0.3	0.0	966.1	8060.2	8280.1	2772.1	0.0	0.0	0.0	20078.7
50 -100	0.0	0.0	16.2	1235.0	1870.3	5574.2	4520.9	0.0	0.0	13216.6
100-200	0.0	0.0	0.0	0.0	0.9	263.1	1847.5	0.0	0.0	2111.6
> 200	0.0	0.0	0.0	0.0	0.1	0.0	103.1	131.7	478.9	713.8
TOTAL	12583.8	10154.5	24197.0	17428.7	11309.8	8609.4	6471.4	131.7	478.9	91365.2

*PRETAX NOMINAL INCOME EXCLUDING IMPUTED INCOME FROM OWNER-OCCUPIED HOUSING AND CONSUMER DURABLES

E. PERCENTAGE DISTRIBUTION OF TOTAL WEALTH AND ITS COMPONENTS ACROSS ASSET TYPES

(JOINT FILER)

INCOME BRACKET	WEALTH	TAXABLE BOND	PENSION	CORP. STOCK	RENTAL HOUSING	OTHER NONCORP.	TAX EXEMPTS	OWNER HOUSING	CONSUMER DURABLES
< 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 - 20	100.00	-48.94	33.61	1.76	2.90	16.65	0.00	71.24	22.78
20 - 30	100.00	-18.09	21.49	5.00	8.82	26.23	0.46	41.12	14.97
30 - 50	100.00	-17.26	25.74	5.61	7.00	8.97	1.50	46.57	21.88
50 -100	100.00	17.04	16.88	13.87	8.18	9.08	1.95	22.31	10.70
100-200	100.00	21.75	8.89	24.57	9.23	9.84	7.17	12.73	5.81
> 200	100.00	21.31	5.65	28.57	14.20	11.75	9.55	6.13	2.84
TOTAL	100.00	4.54	16.64	14.65	9.19	12.62	3.65	26.98	11.73

(SINGLE AND OTHER FILERS)

INCOME BRACKET	WEALTH	TAXABLE BOND	PENSION	CORP. STOCK	RENTAL HOUSING	OTHER NONCORP.	TAX EXEMPTS	OWNER HOUSING	CONSUMER DURABLES
< 10	100.00	-96.31	15.09	0.89	1.26	2.39	0.05	159.65	16.98
10 - 20	100.00	12.15	15.64	5.19	3.97	9.04	0.09	41.20	12.72
20 - 30	100.00	-2.77	19.85	10.93	6.46	11.53	1.95	32.94	19.11
30 - 50	100.00	6.80	17.31	13.25	6.38	6.75	1.43	31.08	16.98
50 -100	100.00	12.55	16.87	16.82	7.75	6.42	1.20	25.59	12.78
100-200	100.00	22.47	10.18	24.20	10.62	8.14	4.67	15.54	4.18
> 200	100.00	17.46	5.16	26.59	21.47	12.54	7.70	6.22	2.86
TOTAL	100.00	6.16	14.88	15.47	8.41	8.04	2.34	32.46	12.24

TABLE 2-1: PARAMETERS, REALIZATION RATES, AND INCLUSION FACTORS (G'= 0.29)

	1986 LAW CORPORATE EQUITY	1986 LAW RENTAL HOUSING	1986 LAW OTHER NONCOR.	NEW LAW CORPORATE EQUITY	NEW LAW RENTAL HOUSING	NEW LAW OTHER NONCOR.
MTR = 0.0						
MTRCG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RR	0.6899	0.6936	0.4523	0.6899	0.6936	0.4523
RR*	0.6899	0.6936	0.4523	0.6899	0.6936	0.4523
A FOR REVENUE	0.8097	0.9075	0.6663	0.8097	0.9075	0.6663
A FOR DEMAND	0.8097	0.9075	0.6663	0.8097	0.9075	0.6663
A* FOR DEMAND	0.7099	0.9075	0.6663	0.7099	0.9075	0.6663
MTR = 0.15						
MTRCG	0.1500	0.1481	0.1496	0.1500	0.1481	0.1496
RR	0.4113	0.4163	0.2700	0.4113	0.4163	0.2700
RR*	0.5386	0.5432	0.3533	0.5386	0.5432	0.3533
A FOR REVENUE	0.6387	0.8272	0.5558	0.6387	0.8272	0.5558
A FOR DEMAND	0.7168	0.8640	0.6063	0.7168	0.8640	0.6063
A* FOR DEMAND	0.4492	0.8272	0.5558	0.4492	0.8272	0.5558
MTR = 0.28						
MTRCG	0.2800	0.2764	0.2793	0.1500	0.1464	0.1493
RR	0.2627	0.2674	0.1727	0.4113	0.4187	0.2703
RR*	0.4424	0.4472	0.2904	0.5386	0.5446	0.3535
A FOR REVENUE	0.5475	0.7841	0.4968	0.5215	0.7709	0.4797
A FOR DEMAND	0.6578	0.8362	0.5682	0.5633	0.7902	0.5067
A* FOR DEMAND	0.3102	0.7841	0.4968	0.2705	0.7709	0.4797
MTR = 0.33						
MTRCG	0.3300	0.3257	0.3291	0.1500	0.1457	0.1491
RR	0.2211	0.2256	0.1454	0.4113	0.4196	0.2704
RR*	0.4120	0.4167	0.2704	0.5386	0.5452	0.3536
A FOR REVENUE	0.5219	0.7720	0.4802	0.5010	0.7611	0.4664
A FOR DEMAND	0.6391	0.8273	0.5561	0.5365	0.7773	0.4892
A* FOR DEMAND	0.2712	0.7720	0.4802	0.2393	0.7611	0.4664

TABLE 2-2: PRETAX INTEREST RATES, PAYOUT RATE, DEBT RATIO AND CAPITAL STOCK RESPONSES (G'= 0.29)

INTEREST RATES AND DEBT AND PAYOUT RATIOS	NEW	OLD	DIF
FULLY TAXABLE RATE	7.118	7.063	0.055
PAR TAXABLE RATE	10.324	10.502	-0.178
TAX EXEMPT RATE	6.582	6.559	0.023
RH RATE	14.401	14.468	-0.067
NN RATE	17.683	17.748	-0.065
CORPORATE RC RATE	13.729	13.869	-0.139
PAYOUT RATIO	56.000	56.000	0.000
DEBT-CAPITAL RATIO	26.395	27.328	-0.932
PEN PARTIAL SHARE	43.834	45.841	-2.007

REAL ASSETS(BILLION $)	NEW	OLD	DIF
CORPORATE	2916.6	2877.4	39.2
CAPRH	1054.6	1048.1	6.4
CAPNN	1241.2	1235.5	5.7
STATE AND LOCAL	358.7	361.4	-2.7
DURABLES	1389.9	1420.7	-30.8
HOUSES	3500.8	3518.8	-17.9
WEALTH	11886.0	11886.0	0.0

TABLE 2-3: IMPACT ON INCOME AND TAXES, DIFFERENCES FROM 1986 IN MILLION $
(G'= 0.29, PAYOUT= 0.56)

TAX RATE	STATIC POST TAX Y PURE	STATIC POST TAX Y MODIFIED	DYNAMIC POST TAX Y	DYNAMIC PRETAX Y	DYNAMIC CORP TAXES	DYNAMIC INDIV TAXES	DYNAMIC RR TAXES	DYNAMIC PAY TAXES	DYNAMIC FEDERAL INTEREST
0.0	0	0	-524	-1037	-367	-146	0	0	
0.15L	0	0	-1017	-2225	-960	-248	-20	0	
0.15H	0	0	-620	-1297	-585	-92	-12	0	
0.28L	470	165	616	866	349	-100	-403	0	
0.28H	1425	501	974	987	506	-493	-1170	0	
0.33	2296	662	2146	3076	1588	-658	-2259	0	
0.28	1561	549	765	444	326	-647	-1287	0	
TOTAL	5752	1877	2340	814*	858	-2385	-5151	0	786*

*IN THE ABSENSE OF ROUNDING ERRORS, THE IMPACTS ON PRETAX Y AND FEDERAL INTEREST WOULD BE EQUAL.

TABLE 2-4: PORTFOLIO SHIFTS IN RESPONSE TO GAINS TAX CUT, BILLIONS OF DOLLARS AND PERCENTAGE POINTS(G'= 0.29, PAYOUT= 0.56)

DOLLAR PORTFOLIO SHIFTS (BILLION $)

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	12.8	-4.2	-3.0	0.0	-5.6
0.15L	27.7	-11.4	-6.8	0.1	-9.5
0.15H	13.9	-3.3	-3.4	-0.4	-6.8
0.28L	-9.2	16.5	3.3	-0.6	-9.9
0.28H	-19.8	24.1	4.3	-0.7	-8.0
0.33	-51.7	51.8	11.7	-2.7	-9.2
0.28	-20.5	14.5	6.2	-0.4	0.3
TOTAL	-46.9	87.9	12.4	-4.7	-48.7

PERCENTAGE POINT PORTFOLIO SHIFTS ACROSS ASSET TYPES

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	1.60	-0.53	-0.37	0.00	-0.70
0.15L	1.62	-0.67	-0.40	0.01	-0.55
0.15H	0.80	-0.19	-0.19	-0.02	-0.39
0.28L	-0.75	1.33	0.27	-0.05	-0.80
0.28H	-0.89	1.08	0.19	-0.03	-0.36
0.33	-1.88	1.89	0.43	-0.10	-0.34
0.28	-1.45	1.02	0.44	-0.03	0.02
TOTAL	-0.39	0.74	0.10	-0.04	-0.41

PERCENTAGE POINT PORTFOLIO SHIFTS ACROSS HOUSEHOLD CLASSES

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	-3.29	-0.27	-0.17	0.01	0.06
0.15L	2.84	-0.83	-0.39	0.05	0.01
0.15H	5.96	-0.83	-0.22	-0.03	-0.01
0.28L	-5.20	0.74	0.10	-0.02	-0.02
0.28H	2.91	0.21	0.11	-0.06	-0.03
0.33	-3.31	1.26	0.40	-0.27	-0.03
0.28	0.10	-0.27	0.17	0.33	0.03
TOTAL	0.00	0.00	0.00	0.00	0.00

TABLE 3-1: PARAMETERS, REALIZATION RATES, AND INCLUSION FACTORS (G'= 0.29)

	1986 LAW CORPORATE EQUITY	1986 LAW RENTAL HOUSING	1986 LAW OTHER NONCOR.	NEW LAW CORPORATE EQUITY	NEW LAW RENTAL HOUSING	NEW LAW OTHER NONCOR.
MTR = 0.0						
MTRCG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RR	0.6900	0.6936	0.4523	0.6900	0.6936	0.4523
RR*	0.6900	0.6936	0.4523	0.6900	0.6936	0.4523
A FOR REVENUE	0.8165	0.9075	0.6663	0.8047	0.9075	0.6663
A FOR DEMAND	0.8165	0.9075	0.6663	0.8047	0.9075	0.6663
A* FOR DEMAND	0.7111	0.9075	0.6663	0.7091	0.9075	0.6663
MTR = 0.15						
MTRCG	0.1500	0.1481	0.1496	0.1500	0.1481	0.1496
RR	0.4113	0.4163	0.2700	0.4113	0.4163	0.2700
RR*	0.5387	0.5432	0.3533	0.5387	0.5432	0.3533
A FOR REVENUE	0.6516	0.8272	0.5558	0.6291	0.8272	0.5558
A FOR DEMAND	0.8106	0.8640	0.6063	0.8517	0.8640	0.6063
A* FOR DEMAND	0.4514	0.8272	0.5558	0.4476	0.8272	0.5558
MTR = 0.28						
MTRCG	0.2800	0.2764	0.2793	0.1500	0.1464	0.1493
RR	0.2627	0.2674	0.1727	0.4113	0.4187	0.2703
RR*	0.4425	0.4472	0.2904	0.5387	0.5446	0.3535
A FOR REVENUE	0.5636	0.7841	0.4968	0.5088	0.7709	0.4797
A FOR DEMAND	0.7149	0.8362	0.5682	0.6280	0.7902	0.5067
A* FOR DEMAND	0.3129	0.7841	0.4968	0.2684	0.7709	0.4797
MTR = 0.33						
MTRCG	0.3300	0.3257	0.3291	0.1500	0.1457	0.1491
RR	0.2211	0.2256	0.1454	0.4113	0.4196	0.2704
RR*	0.4120	0.4167	0.2704	0.5387	0.5452	0.3536
A FOR REVENUE	0.5390	0.7720	0.4802	0.4878	0.7611	0.4664
A FOR DEMAND	0.6900	0.8273	0.5561	0.5889	0.7773	0.4892
A* FOR DEMAND	0.2741	0.7720	0.4802	0.2371	0.7611	0.4664

TABLE 3-2: PRETAX INTEREST RATES, PAYOUT RATE, DEBT RATIO AND CAPITAL STOCK RESPONSES (G'= 0.29)

INTEREST RATES AND DEBT AND PAYOUT RATIOS	NEW	OLD	DIF
FULLY TAXABLE RATE	7.170	7.120	0.050
PAR TAXABLE RATE	10.071	10.215	-0.144
TAX EXEMPT RATE	6.602	6.580	0.023
RH RATE	14.438	14.507	-0.069
NN RATE	17.718	17.788	-0.070
CORPORATE RC RATE	13.542	13.652	-0.111
PAYOUT RATIO	69.033	75.904	-6.872
DEBT-CAPITAL RATIO	25.088	25.971	-0.883
PEN PARTIAL SHARE	38.047	41.025	-2.978

REAL ASSETS(BILLION $)	NEW	OLD	DIF
CORPORATE	2971.1	2938.7	32.4
CAPRH	1051.0	1044.4	6.6
CAPNN	1238.2	1232.1	6.0
STATE AND LOCAL	356.4	359.0	-2.6
DURABLES	1367.3	1389.3	-22.0
HOUSES	3478.6	3498.4	-19.8
WEALTH	11886.0	11886.0	0.0

TABLE 3-3: IMPACT ON INCOME AND TAXES, DIFFERENCES FROM 1986 IN MILLION $
(G'= 0.29, PAYOUT= END)

TAX RATE	STATIC POST TAX Y: PURE	STATIC POST TAX Y: MODIFIED	DYNAMIC: POST TAX Y	DYNAMIC: PRETAX Y	DYNAMIC: CORP TAXES	DYNAMIC: INDIV TAXES	DYNAMIC: RR TAXES	DYNAMIC: PAY TAXES	DYNAMIC: FEDERAL INTEREST
0.0	0	1	-543	-1154	-464	-146	0	5	
0.15L	0	23	-1172	-2827	-1382	-273	-6	58	
0.15H	0	77	-632	-1651	-837	-182	25	220	
0.28L	536	229	731	1092	507	-147	-406	119	
0.28H	1434	760	1228	777	479	-930	-861	441	
0.33	2296	1096	3011	3724	2054	-1342	-1673	671	
0.28	1535	782	1198	678	457	-978	-971	395	
TOTAL	5800	2968	3822	639*	814	-3997	-3892	1909	707*

*IN THE ABSENSE OF ROUNDING ERRORS, THE IMPACTS ON PRETAX Y AND FEDERAL INTEREST WOULD BE EQUAL.

TABLE 3-4: PORTFOLIO SHIFTS IN RESPONSE TO GAINS TAX CUT, BILLIONS OF DOLLARS AND PERCENTAGE POINTS(G'= 0.29, PAYOUT= END)

DOLLAR PORTFOLIO SHIFTS (BILLION $)

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	13.3	-5.4	-2.9	0.0	-5.0
0.15L	33.5	-18.7	-6.6	0.2	-8.4
0.15H	17.5	-7.9	-3.3	-0.3	-5.9
0.28L	-17.6	23.1	3.7	-0.5	-8.7
0.28H	-19.4	25.4	2.7	-2.1	-6.6
0.33	-66.5	64.9	12.1	-2.4	-8.1
0.28	-25.6	17.4	7.0	0.3	1.0
TOTAL	-64.8	98.7	12.6	-4.7	-41.8

PERCENTAGE POINT PORTFOLIO SHIFTS ACROSS ASSET TYPES

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	1.66	-0.68	-0.36	0.00	-0.62
0.15L	1.96	-1.09	-0.39	0.01	-0.49
0.15H	1.03	-0.47	-0.20	-0.01	-0.35
0.28L	-1.37	1.80	0.29	-0.04	-0.68
0.28H	-0.87	1.14	0.12	-0.09	-0.30
0.33	-2.42	2.36	0.44	-0.09	-0.29
0.28	-1.81	1.23	0.50	0.02	0.07
TOTAL	-0.55	0.83	0.11	-0.04	-0.35

PERCENTAGE POINT PORTFOLIO SHIFTS ACROSS HOUSEHOLD CLASSES

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	-8.23	-0.31	-0.17	0.01	0.05
0.15L	2.93	-1.19	-0.38	0.07	0.00
0.15H	10.11	-1.06	-0.22	-0.01	-0.01
0.28L	-10.94	0.93	0.11	0.01	-0.02
0.28H	8.13	0.14	0.04	-0.45	-0.03
0.33	-3.67	1.65	0.41	-0.19	-0.03
0.28	1.66	-0.17	0.20	0.55	0.04
TOTAL	0.00	0.00	0.00	0.00	0.00

Table 4:
Impact of Capital Gains Cut on Federal Deficit, the Taxable Bond Rate and Capital Stocks
(bil. of $ and basis points)

	No Payout Response			Payout Response		
	g'=0.18	g'=0.29	g'=0.41	g'=0.18	g'=0.29	g'=0.41
Federal Deficit						
Pure Static	4.2	5.8	6.8	4.2	5.8	6.8
Modified Static	-1.2	1.9	3.8	-0.2	3.0	5.0
Dynamic	-0.3	2.3	3.9	1.2	3.8	5.5
Taxable Bond Rate	7	6	5	7	5	4
Capital						
Corporate	46	39	34	36	32	28
Noncorporate	12	12	12	12	13	12
Household	-55	-49	-43	-45	-42	-37
State and Local	-3	-3	-4	-3	-3	-3

TABLE 5-1: PARAMETERS, REALIZATION RATES, AND INCLUSION FACTORS (G'= 0.29)

	1986 LAW CORPORATE EQUITY	1986 LAW RENTAL HOUSING	1986 LAW OTHER NONCOR.	NEW LAW CORPORATE EQUITY	NEW LAW RENTAL HOUSING	NEW LAW OTHER NONCOR.
MTR = 0.0						
MTRCG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RR	0.6899	0.6936	0.4523	0.6899	0.6936	0.4523
RR*	0.6899	0.6936	0.4523	0.6899	0.6936	0.4523
A FOR REVENUE	0.8097	0.9075	0.6663	0.8097	0.9075	0.6663
A FOR DEMAND	0.8097	0.9075	0.6663	0.8097	0.9075	0.6663
A* FOR DEMAND	0.7099	0.9075	0.6663	0.7099	0.9075	0.6663
MTR = 0.15						
MTRCG	0.1524	0.1505	0.1520	0.1524	0.1505	0.1520
RR	0.4078	0.4128	0.2677	0.4078	0.4128	0.2677
RR*	0.5366	0.5411	0.3520	0.5366	0.5411	0.3520
A FOR REVENUE	0.6366	0.8262	0.5544	0.6366	0.8262	0.5544
A FOR DEMAND	0.7156	0.8634	0.6055	0.7156	0.8634	0.6055
A* FOR DEMAND	0.4460	0.8262	0.5544	0.4460	0.8262	0.5544
MTR = 0.28						
MTRCG	0.2846	0.2809	0.2838	0.1539	0.1502	0.1532
RR	0.2586	0.2633	0.1700	0.4058	0.4132	0.2667
RR*	0.4395	0.4443	0.2885	0.5353	0.5414	0.3514
A FOR REVENUE	0.5450	0.7829	0.4952	0.5197	0.7701	0.4785
A FOR DEMAND	0.6560	0.8353	0.5670	0.5623	0.7897	0.5060
A* FOR DEMAND	0.3063	0.7829	0.4952	0.2678	0.7701	0.4785
MTR = 0.33						
MTRCG	0.3354	0.3311	0.3345	0.1539	0.1495	0.1530
RR	0.2170	0.2215	0.1427	0.4058	0.4142	0.2668
RR*	0.4089	0.4136	0.2684	0.5353	0.5419	0.3514
A FOR REVENUE	0.5194	0.7708	0.4786	0.4994	0.7604	0.4654
A FOR DEMAND	0.6372	0.8264	0.5548	0.5356	0.7769	0.4887
A* FOR DEMAND	0.2674	0.7708	0.4786	0.2370	0.7604	0.4654

TABLE 5-2: PRETAX INTEREST RATES, PAYOUT RATIO DEBT RATIO AND CAPITAL STOCK RESPONSES (G'= 0.29)

INTEREST RATES AND DEBT AND PAYOUT RATIOS

	NEW	OLD	DIF
FULLY TAXABLE RATE	7.138	7.082	0.056
PAR TAXABLE RATE	10.266	10.470	-0.204
TAX EXEMPT RATE	6.559	6.547	0.012
RH RATE	14.405	14.474	-0.069
NN RATE	17.680	17.750	-0.069
CORPORATE RC RATE	13.770	13.900	-0.129
PAYOUT RATIO	56.000	56.000	0.000
DEBT-CAPITAL RATIO	26.595	27.464	-0.868
PEN PARTIAL SHARE	43.408	45.559	-2.151

REAL ASSETS(BILLION $)

	NEW	OLD	DIF
CORPORATE	2904.9	2868.8	36.1
CAPRH	1054.2	1047.5	6.7
CAPNN	1241.5	1235.4	6.0
STATE AND LOCAL	361.4	362.8	-1.4
DURABLES	1393.0	1424.0	-31.1
HOUSES	3507.2	3523.3	-16.1
WEALTH	11886.0	11886.0	0.0

TABLE 5-3: IMPACT ON INCOME AND TAXES, DIFFERENCES FROM 1986 IN MILLION $ (G'= 0.29, PAYOUT= 0.56)

TAX RATE	STATIC POST TAX Y		DYNAMIC						
	PURE	MODIFIED	POST TAX Y	PRETAX Y	CORP TAXES	INDIV TAXES	RR TAXES	PAY TAXES	FEDERAL INTEREST
0.0	-25	-25	-607	-1135	-394	-135	0	0	
0.15L	-73	-73	-922	-2090	-999	-169	-24	0	
0.15H	-108	-108	-763	-1386	-517	-105	-13	0	
0.28L	220	-90	248	641	384	10	-405	0	
0.28H	887	-60	485	927	572	-129	-1183	0	
0.33	1208	-470	1166	3216	1975	75	-2281	0	
0.28	1075	37	430	653	543	-321	-1299	0	
TOTAL	3185	-789	37*	828*	1564	-773	-5205	0	803*

*IN THE ABSENSE OF ROUNDING ERRORS, THE IMPACTS ON PRETAX Y AND FEDERAL INTEREST WOULD BE EQUAL AND THE CHANGE IN POST TAX Y WOULD BE ZERO.

TABLE 5-4: PORTFOLIO SHIFTS IN RESPONSE TO GAINS TAX CUT, BILLIONS OF DOLLARS AND PERCENTAGE POINTS(G'= 0.29, PAYOUT= 0.56)

DOLLAR PORTFOLIO SHIFTS (BILLION $)

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	14.2	-5.1	-3.4	0.0	-5.7
0.15L	39.6	-13.2	-7.7	-0.2	-18.6
0.15H	13.5	-3.9	-3.7	-0.5	-5.4
0.28L	-13.4	16.0	3.2	-0.4	-5.3
0.28H	-15.0	21.7	3.7	-0.8	-9.7
0.33	-62.1	54.4	13.1	-1.8	-3.6
0.28	-24.9	15.8	7.6	0.3	1.2
TOTAL	-48.1	85.6	12.9	-3.3	-47.1

PERCENTAGE POINT PORTFOLIO SHIFTS ACROSS ASSET TYPES

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	1.76	-0.64	-0.42	0.00	-0.71
0.15L	2.32	-0.77	-0.45	-0.01	-1.08
0.15H	0.77	-0.23	-0.21	-0.03	-0.31
0.28L	-1.08	1.29	0.26	-0.03	-0.43
0.28H	-0.67	0.98	0.17	-0.03	-0.44
0.33	-2.26	1.98	0.48	-0.07	-0.13
0.28	-1.76	1.12	0.54	0.02	0.08
TOTAL	-0.40	0.72	0.11	-0.03	-0.40

PERCENTAGE POINT PORTFOLIO SHIFTS ACROSS HOUSEHOLD CLASSES

TAX RATE	TAXABLE BOND	CORP. STOCK	TOTAL NONCORP.	TAX EXEMPTS	HOUSEHOLD CAPITAL
0.0	-3.21	-0.31	-0.19	0.00	0.06
0.15L	4.90	-0.92	-0.43	-0.03	-0.18
0.15H	6.04	-0.85	-0.24	-0.09	0.01
0.28L	-6.11	0.72	0.09	-0.01	0.06
0.28H	4.02	0.10	0.08	-0.11	-0.08
0.33	-5.07	1.43	0.46	-0.17	0.08
0.28	-0.57	-0.18	0.23	0.41	0.05
TOTAL	0.00	0.00	0.00	0.00	0.00

TABLE 5-5: WELFARE CHANGES BY TAX AND INCOME CLASSES
(G'= 0.29, PAYOUT= 0.56, TAXADJ= 1.0095)

TAX CLASSES

TAX RATE	PRETAX Y	INDIV TAXES(-)	CORP TAXES(-)	IMPLICIT TAXES(-)	RISK (-)	PRICE (-)	TOTAL WELFARE	% CHANGE IN TOTAL
0.0	-1135.4	135.4	393.7	0.0	633.2	-5.8	21.7	0.01
0.15L	-2089.7	169.1	999.2	23.5	1317.4	-30.7	390.8	0.07
0.15H	-1385.5	104.9	516.9	13.4	733.5	-40.0	-54.7	-0.02
0.28L	641.2	-9.9	-383.6	404.6	-520.3	-43.6	88.0	0.02
0.28H	927.4	128.8	-571.5	1183.4	-777.0	-29.9	859.8	0.25
0.33	3215.9	-75.0	-1975.0	2281.1	-2505.5	-82.3	856.4	0.20
0.28	652.9	320.5	-543.4	1299.3	-1010.7	-54.6	661.2	0.68
TOTAL	828.0	773.4	-1563.7	5205.2	-2129.5	-286.9	2823.2	0.11

INCOME CLASSES: JOINT FILER

INC. BRACKET	PRETAX Y	INDIV TAXES(-)	CORP TAXES(-)	IMPLICIT TAXES(-)	RISK (-)	PRICE (-)	TOTAL WELFARE	% CHANGE IN TOTAL
< 10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
10 - 20	-305.1	23.7	131.5	0.0	166.3	-4.3	12.3	0.01
20 - 30	-1299.5	65.7	520.9	9.7	877.8	-15.0	160.7	0.06
30 - 50	-914.4	112.5	365.6	97.5	501.6	-29.6	133.7	0.03
50 -100	191.5	120.3	-263.8	673.1	-338.6	-50.8	331.1	0.10
100-200	676.1	103.8	-445.8	658.2	-587.7	-19.8	383.8	0.57
> 200	836.3	271.6	-591.6	1091.7	-981.2	-44.7	579.4	0.74
TOTAL	-815.0	697.6	-283.2	2530.2	-361.9	-164.3	1601.2	0.13

INCOME CLASSES: SINGLE AND OTHER FILERS

INC. BRACKET	PRETAX Y	INDIV TAXES(-)	CORP TAXES(-)	IMPLICIT TAXES(-)	RISK (-)	PRICE (-)	TOTAL WELFARE	% CHANGE IN TOTAL
< 10	-241.1	47.9	72.7	0.0	165.4	-0.5	44.4	0.03
10 - 20	-730.9	118.1	382.7	8.3	361.2	-4.7	135.1	0.08
20 - 30	-490.2	33.1	181.2	12.7	242.7	-21.7	-41.4	-0.02
30 - 50	412.7	-52.8	-281.4	351.1	-381.4	-29.6	18.5	0.01
50 -100	1493.0	-167.8	-803.5	928.0	-986.7	-20.9	440.8	0.14
100-200	1016.8	11.8	-644.6	821.7	-825.9	-25.8	352.7	0.34
> 200	183.2	86.1	-187.7	553.3	-343.0	-19.4	271.9	0.61
TOTAL	1643.0	76.4	-1280.7	2675.0	-1767.6	-122.6	1222.0	0.10

Table 6:
Impact of Capital Gains Tax Cut on the Taxable Bond Rate, Business Capital and Welfare (Risk-adjusted After-all-taxes Income)
(basis points and bil. of $)

	No Payout Response			Payout Response		
	g'=0.18	g'=0.29	g'=0.41	g'=0.18	g'=0.29	g'=0.41
Percentage Increase in Tax Rates to Maintain Tax Revenues	-0.32	0.95	2.46	0.60	1.91	2.73
Taxable Bond Rate	6	6	7	8	7	7
Corporate Capital	49	36	28	34	24	14
Noncorporate Capital	13	13	10	12	13	12
Household Capital	-59	-47	-37	-44	-36	-26
State & Local Capital	-3	-1	-2	-2	-1	-1
Change in Welfare Owing to Changes in:						
Pretax Income	0.76	0.83	0.93	1.07	0.98	0.93
Explicit Taxes	-0.81	-0.79	-0.90	-1.07	-1.05	-1.02
Implicit Taxes on Realiz.	7.17	5.21	4.02	5.18	3.88	3.00
Implicit Taxes on Payouts	0	0	0	-1.85	-2.17	-2.32
Risk	-2.29	-2.13	-1.46	-1.72	-1.87	-1.61
Relative Prices	-0.35	-0.29	-0.21	-0.22	-0.20	-0.13
Total*	4.46	2.82	2.36	1.39	-0.43	-1.16

*Components do not sum to total because of interaction terms and rounding.

Table 7:
Welfare Changes by Tax Bracket and Income Class
(billions of $)

	Households (millions)	No Payout Response g'=0.18	g'=0.29	g'=0.41	Payout Response g'=0.18	g'=0.29	g'=0.41
Tax Bracket							
0.0	22.7	0.04	0.02	0.13	0.15	0.06	0.10
0.15	41.6	-0.15	0.34	1.24	-0.32	0.14	0.34
0.28	19.9	1.43	0.95	1.10	0.52	-0.11	-0.27
0.33	6.6	2.14	0.86	-0.29	0.62	-0.56	-1.16
0.28	0.5	1.01	0.66	0.18	0.43	0.04	-0.18
Total	91.4	4.46	2.82	2.36	1.39	-0.43	-1.16
Income							
<10	12.6	0.01	0.04	0.09	0.03	0.06	0.08
10-20	21.8	0.09	0.15	0.30	0.20	0.21	0.26
20-30	20.8	-0.13	0.12	0.38	-0.26	-0.14	-0.06
30-50	20.1	0.30	0.15	0.65	-0.13	-0.22	-0.27
50-100	13.2	1.46	0.77	0.32	0.42	-0.40	-0.88
100-200	2.1	1.28	0.74	0.34	0.49	-0.01	-0.11
>200	0.7	1.46	0.85	0.27	0.64	0.08	-0.18
Total	91.4	4.46	2.82	2.36	1.39	-0.43	-1.16

Figure 1: Capital Gains Realization Function and Efficiency Loss

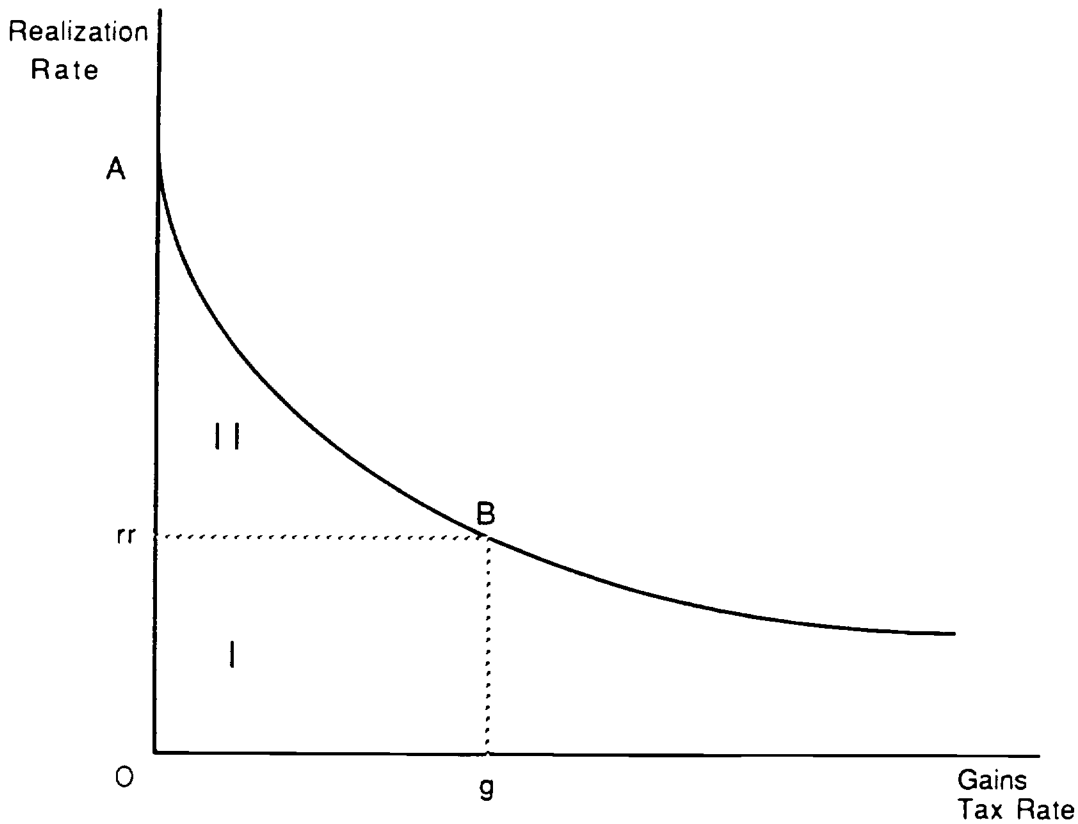

Figure 2: Corporate Payout Function and Efficiency Loss