August, 1989

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Abstract—Others have measured the addition to deadweight loss from an increase in an effective capital income tax rate, but there is no single way to raise such a rate. In our general equilibrium model with multiple distortions in the allocation of real resources, we find that an increase in the statutory corporate income tax rate has the highest marginal excess burden, because it distorts intersectoral and interasset decisions as well as intertemporal decisions. An investment tax credit reduction has negative marginal excess burden because it raises revenue while reducing interasset distortions more than it increases intertemporal distortions.

A recent public finance literature has emphasized the concept of "marginal excess burden," the increment to total welfare cost associated with one dollar of additional revenue. This concept is important because the marginal benefits of a public project should cover all social costs, including the marginal dollar expenditure plus the marginal excess burden. Also, for a fixed level of expenditures, the efficiency of the tax system can be improved by relying less on taxes with high marginal excess burden and more on taxes with low marginal excess burden.

Browning (1976) estimates that the addition to excess burden from taxes on labor income ranges from 9 to 16 cents per marginal dollar of revenue. Stuart (1984) employs a fairly simple general equilibrium model to find that marginal excess burden from labor taxes centers around 21 cents. Other assumptions generate estimates as low as 7 cents or as high as 99 cents. Ballard, Shoven, and Whalley (BSW, 1985) employ a more complex model to compare taxes on labor, consumption, and capital income. Overall marginal excess burden centers around 33 cents but may vary between 17 and 56 cents. For most combinations of labor supply and saving elasticities, they find that capital taxes are more distorting than labor taxes. Output taxes and progressive income taxes are in between. Finally, Judd (1987) uses a stylized model with perfect foresight and infinitely lived individuals to find that a dollar raised by a permanent (a) tax on capital usually costs at least an extra 25 cents, (b) tax on labor usually costs less than 15 cents, and (c) reduction in the investment tax credit usually costs more than a dollar.

None of these studies considers specific ways to raise taxes on income from capital. The BSW model takes average effective tax rates, measured by capital taxes paid as a fraction of capital income for each industry, and assumes that these rates also apply to marginal investment. BSW then calculate marginal excess burden from increasing all industries' average effective tax rates, though this effective rate increase does not correspond to any specific policy. The model in this paper employs explicitly marginal effective tax rates—or, equivalently, user costs of capital. It thus captures distortions in the allocation of capital at the margin, and allows calculation of excess burden associated with higher statutory corporate tax rates, higher capital gains taxes, slower depreciation allowances, lower investment tax credits, or increased personal taxes on interest or dividend income. For comparison, we also compute marginal excess burden for labor taxes and for progressive personal income taxes. We find that the range of marginal excess burdens among the various capital tax instruments is larger than the difference found by BSW between labor taxes and capital taxes.

In our model, all taxes on new capital cause intertemporal distortions by raising the price of postponed consumption. However, capital taxes may differ in three other respects. First, some tax instruments apply differentially to investments in different assets. Depreciation allowances that differ from economic depreciation distort the choice among various types of equipment or structures, while the investment tax credit distorts the allocation between equipment and other types of capital. Reducing depreciation allowances or the investment tax credit would therefore reduce tax-

Received for publication November 30, 1987. Revision accepted for publication January 16, 1989.

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We received helpful suggestions from Larry Goulder, participants at a conference of the National Bureau of Economic Research, and anonymous referees. The research reported here is part of the NBER's research program in taxation. Any opinions expressed are those of the authors and not those of the National Bureau of Economic Research.

based interasset distortions, which are ignored by Judd (1987) and others discussed above. Our model includes distortions among 38 assets.

Second, some tax instruments apply differentially to different sectors of the economy. Capital income in the unincorporated business sector is subject to the personal income tax, while equity-financed capital in the corporate sector pays an additional corporate tax and the imputed net rents in the owner-occupied housing sector are tax-free. A policy of increasing the statutory corporate tax rate, for example, would exacerbate these existing intersectoral distortions, also ignored in studies discussed above.

Finally, tax instruments may differ in their impact on capital already in place. For example, increases in statutory rates effectively collect lump-sum revenue from old capital, whereas cutbacks in depreciation allowances or credits effectively confer a lump-sum benefit to old capital relative to new capital.

I. The Model

Our model consists of four major components. First, the household side and part of production are taken from the BSW model, fully described by Ballard, Fullerton, Shoven, and Whalley (1985). Second, the model of marginal effective tax rates for each asset in each sector is from Fullerton and Henderson (1984). Third, production functions allow endogenous choices among assets and sectors, from Fullerton and Henderson (1989). Finally, we allow the tax treatment of old capital to differ from that of new capital.

A. The Household Side

In our model, twelve income-differentiated households have initial endowments of labor and capital that can be sold for use in production. Each household maximizes a nested utility function first by allocating resources between present and future consumption in a constant elasticity of substitution (CES) form. This elasticity is set to be consistent with an exogenously specified aggregate estimate for η, the uncompensated saving elasticity with respect to the net rate of return. The total stock of capital is fixed in any one period, but it is fully mobile among assets, sectors, and industries. We simulate a sequence of equilibria in which the capital stock increases as a result of saving in the previous period based on myopic expectations. The model is closed to international capital flows.[1]

With present resources, a household can use some of its labor endowment for leisure. The constant elasticity of substitution between consumption and leisure is based on an exogenously specified aggregate estimate of ξ, the uncompensated labor supply elasticity with respect to the net-of-tax wage. Households face marginal income tax rates that range from 1% to 40%. Present consumption expenditures are then allocated among 15 consumer goods, each of which is a combination of outputs of the 18 industries.

B. Costs of Capital and Marginal Effective Tax Rates

Each sector of each industry faces a Hall-Jorgenson (1967) cost of capital for each asset type. The real social return in the corporate sector, gross of tax but net of depreciation, equals

$$\rho^c = \frac{(r - \pi + \delta)}{(1 - u)}(1 - k - uz) + w - \delta, \quad (1)$$

where r is the firm's nominal discount rate, π the expected rate of inflation, δ the exponential rate of depreciation, k the investment tax credit, u the statutory corporate tax rate, z the present value of depreciation allowances per dollar of acquisition, and w the rate of local property tax.[2] All assets in the corporate sector have the same values for r, π, and u, but each has a specific value for δ, k, z, and w. (If all assets were given economic allowances at replacement cost in determining z, then these social returns would not depend upon δ.) Replacing u and r in (1) by an entrepreneur's personal marginal tax rate and discount rate gives ρ^{nc}, the pretax return in the noncorporate sector. Finally, owner-occupied housing has an analogous

[1] Ballard and Goulder (1985) show how results depend on myopic expectations compared to perfect foresight. Summers (1981) shows how results can change with wealth effects and multiperiod planning in a life-cycle model. Also, Goulder, Shoven and Whalley (1983) and Goulder and Eichengreen (1988) show how international capital flows can alter the relative effects of different tax reforms. Auerbach and Kotlikoff (1987) and Goulder and Summers (1987) show the impact of adjustment costs for investment.

[2] We assume that the firm invests under conditions of certainty, and that it has sufficient tax liability to take associated credits and deductions. Alternatively, see Auerbach (1986) and Auerbach and Poterba (1987). We also assume that the firm does not resell ("churn") the asset. Churning is studied in Gordon, Hines, and Summers (1987).

expression that reflects its special tax treatment. To compute the rates of discount in each sector, we assume that individuals hold debt and equity issued by all three sectors, and that they arbitrage away any differences in s, the rate of return net of all taxes. The resulting discount rates are functions of the shares and tax rates for the separate sources of finance. The financial decision is exogenous.[3]

Although investment incentives are measured by the pretax returns ρ, we discuss our results in terms of marginal effective tax rates:

$$t = (\rho - s)/\rho. \qquad (2)$$

These effective rates show the portion of capital costs attributable to corporate, property, and personal taxes.

C. The Production Side

As in the BSW model, producers have fixed requirements of intermediate inputs and value added per unit of output, and they substitute between labor and capital in a CES value-added function. As in Fullerton and Henderson (1989), however, we add separate cost-of-capital expressions to determine the division among the corporate, noncorporate business, and owner-occupied housing sectors. Within each sector of each industry, individual cost-of-capital calculations are used to determine demand for up to 38 different asset types. These include 20 types of equipment, 15 types of structures, inventories, and two types of land.

Specifically, composite capital in the corporate sector of each industry, K_j^c, is a CES combination of the 38 assets:[4]

$$K_j^c = \left[\sum_{i=1}^{38} (\alpha_{ij}^c)^{\frac{1}{\epsilon}} (K_{ij}^c)^{\frac{\epsilon-1}{\epsilon}}\right]^{\frac{\epsilon}{\epsilon-1}}. \qquad (3)$$

The elasticity of substitution among assets, ϵ, is specified exogenously. Cost minimization of (3) based on individual asset costs yields a demand for each asset. It also yields a composite cost of capital:

$$\rho_j^c = \left[\sum_{i=1}^{38} \alpha_{ij}^c (\rho_i^c)^{1-\epsilon}\right]^{\frac{1}{1-\epsilon}}. \qquad (4)$$

The noncorporate sector has similar expressions in each industry. The owner-occupied housing sector uses only residential structures and land.

Capital in each industry is another CES function of K_j^c and K_j^{nc}, the composite capital stocks from each sector. (The real estate industry uses a composite of K_j^{nc} and K_j^h, the composite capital from owner-occupied housing.) The elasticity of substitution between corporate and noncorporate capital, σ, is also prespecified.[5] Finally, for each industry, cost minimization based on sectoral composite costs of capital (in equation (4)) yields a demand for composite capital in each sector, and it yields a composite cost of capital for the industry.

Each industry's mix of assets and sectors is determined endogenously. Different tax treatments imply that each use of capital has its own pre-tax rate of return, or marginal product. Capital is homogeneous and perfectly mobile, so the after-tax rate of return adjusts and is the same for all uses. At each iteration, the net rate of return is used to calculate firms' discount rates, capital costs, and asset demands. We then add all demands for capital. When the total demand for capital matches the fixed total supply for that period, we have equilibrium in the capital market. When total labor demand equals supply and government revenues equal expenditures as well, we have a general equilibrium.

The choices of ϵ and σ, as well as of η and ξ, have much bearing on the relative size of different distortions and therefore on the relative attractiveness of alternative sources of revenue. In our baseline, depreciation allowances and the investment tax credit cause preferential treatment for short-lived assets, so reducing these allowances would tend to equalize effective tax rates and shift

[3] See Fullerton and Henderson (1984). Marginal excess burden results could differ if highly-taxed assets use more tax-favored debt. Also, with endogenous financial decisions, corporate rate increases could reinforce the tax advantages of debt over equity and thus exacerbate financial distortions.

[4] Actually, this is an allocation only over the assets that the firm uses in the baseline data. Land is included because any given industry might use more or less land in a new equilibrium, even if land were in fixed total supply. Finally, we include inventories because some capital must be allocated to stocks of inputs or of output in order to provide the final product or service.

[5] Little is known about the incorporation decision of firms. The CES functional form is intended only as a representation of the possible responsiveness of capital allocation to tax differentials.

production toward a more efficient mix of assets. This shift and the efficiency gain are large if ϵ is high. If σ is high, then the sectoral allocation of capital would be more sensitive to changes in the relative tax treatment of corporations and noncorporate entities, such as through the statutory corporate rate. The choice of η, the saving elasticity, matters for aggregate capital accumulation. If η is high, then increased taxation of the return to capital would result in a larger saving response and therefore a higher marginal excess burden. The value of ξ affects measured distortions of labor supply.

D. The Possibility of Lump-Sum Revenue

In the steady state, the marginal effective tax rate on capital income should equal the ratio of taxes collected to income from capital. Accordingly, we use our estimated marginal effective tax rates to calculate steady-state revenues. In the short term, however, capital in place prior to the policy change will face different tax rates from those faced by newly installed capital; hence short-run revenues cannot simply be calculated by applying the same marginal effective tax rates to all capital. In the model, lump-sum revenue adjustments are made to account for these differences in tax rates.[6] These adjustments are important for the calculation of marginal excess burden because they affect revenue change in the denominator.[7]

For changes in the investment tax credit and depreciation allowances, our model first calculates revenue based on the new higher marginal effective tax rate, but it then calculates for owners of old capital the present value of the lump-sum subsidy they receive from government by not having to pay the new higher marginal effective tax rate. For an increase in corporate or noncorporate statutory rates, the marginal effective tax rate calculation incorrectly indicates revenue for depreciable assets. Since depreciation allowances enter only through uz in equation (1), those revenue calculations would be correct for any asset that received a deduction for a constant fraction of real income each year. But actual allowances tend to be accelerated. Thus, the marginal effective tax rate calculations understate deductions already received at the previous lower rate and overstate deductions at the new higher rate. Therefore, we calculate additional revenue following the rate change. Finally, for an increase in the personal taxation of dividends, we calculate the present value of lump-sum revenue. Corporate shares were issued and investments were put in place under the expectation of one rate of tax on future distributions, so a new permanently higher rate can be capitalized into the value of the shares. There is no lump-sum adjustment associated with changes in the personal taxation of interest or capital gains in this model.[8]

E. Other Model Specifications

Using national income and product accounts from the Commerce Department, we update to 1984 the general equilibrium data set used by BSW. The 1984 capital stock allocation is from our 1989 paper. For marginal effective capital tax rates, we use 1984 statutory specifications as summarized in Fullerton (1987). We use calibration procedures to ensure that our baseline data set represents an equilibrium solution to the model, and we specify a steady-state sequence of such equilibria.

Alternative sequences are generated by slight variations in 1984 tax parameters. In each experiment, 11 equilibria are calculated 5 years apart, so our total simulation interval is 50 years. For comparability with BSW, we assume that changes in revenues are used to increase government expenditures. Implicitly, public goods enter utility separably. The aggregate welfare change is measured by calculating the present value of equivalent variations. It is compared to the corresponding present value revenue change to calculate the excess burden per marginal dollar of revenue.

The "standard" parameters include $\epsilon = 1$ and $\sigma = 1$, the Cobb-Douglas case for assets and sectors in production. As in BSW, we also use $\eta = 0.4$ for the saving elasticity and $\xi = 0.15$ for the labor supply elasticity. As we stressed in our 1989 paper, there remains considerable uncertainty about

[6] For further examples of models that consider windfall redistributions caused by tax policy, see Summers (1985), Auerbach and Kotlikoff (1987), and Goulder and Summers (1987).

[7] Agents in our model are surprised by any change but then expect the new tax regime to remain in place forever. Tax changes could generate additional distortions if they increased subjective probabilities of subsequent tax changes.

[8] For the tax on interest income, the absence of a lump-sum effect means that all debt is short-term. For the capital gains tax, it means that all pre-existing gains are realized before the higher rate takes effect.

these parameter values, so we perform sensitivity experiments.

II. Results

A. *Effective Tax Rates in the Baseline*

In the baseline, the average marginal effective tax rate on capital income is 33.6%, with a standard deviation of 7.6 percentage points. The overall rate in the corporate sector is 37%, despite the combination of corporate and personal taxes, because of the effect of credits, allowances, and interest deductions. This rate is only slightly higher than the 35% overall rate in the noncorporate sector, because the noncorporate sector uses a higher proportion of highly taxed assets such as land and inventories. Also, the corporate sector receives a subsidy for debt finance, since interest payments are deducted by corporations at a 46% rate but taxed to individuals at lower rates. Owner-occupied housing has a 23% effective rate, largely comprised of local property taxes.

Within the corporate sector, effective rates for equipment are near zero, ranging from −4% (for office and computing machinery) to +3% (for railroad equipment). Effective taxation of structures is much higher, since these do not qualify for the investment tax credit and since depreciation allowances are less generous. These rates lie between 32% and 48%. Tax rates for public utility property are generally somewhat lower than those for other structures, since they receive an investment tax credit. Finally, tax rates for inventories and land are above 48%, since these assets do not receive special tax incentives. The noncorporate business sector exhibits similar interasset variations.

The average tax rate for industry use of labor in this model is 12.7%, with a standard deviation of 1.2 points. Following BSW, we treat these as pure taxes rather than netting out the associated transfer payments. The income-weighted average of households' personal income tax rates is 25.5%, with a comparatively high standard deviation of 9.8 points.[9]

[9] We do not repeat the BSW experiment of raising all tax rates simultaneously. In our model there is no single way to raise capital taxes by the same proportion as labor taxes. Moreover, in neither model is there a single way to define marginal excess burden for the whole tax system. For example, raising all rates proportionately is different from raising all sources of revenue proportionately.

TABLE 1.—MARGINAL EXCESS BURDENS OF RAISING EXTRA REVENUE FROM SPECIFIC PORTIONS OF THE TAX SYSTEM (STANDARD ELASTICITIES: $\xi = 0.15$, $\eta = 0.4$, $\epsilon = 1$, $\sigma = 1$)

I. Capital Tax Instruments	
A. Investment Tax Credit	−.376
B. Depreciation Allowances	
1. Lifetimes	−.188
2. Declining Balance Rates	.081
C. Corporate Income Tax Rate	.310
D. Corporate and Noncorporate Income Tax Rates	.252
E. Personal Income Tax Rates	
1. Capital Gains	.202
2. Dividends	.036
3. Interest Income	.028
II. Labor Tax Rates at Industry Level	.169
III. Personal Income Tax Rates	.247

Note: Ballard, Shoven, and Whalley (1985) obtained the following marginal excess burdens for $\xi = 0.15$ and $\eta = 0.4$: Capital Tax Rates at Industry Level, 0.463, Labor Tax Rates at Industry Level, 0.230, and Personal Income Tax Rates, 0.314

B. *General Equilibrium Simulations*

Table 1 presents marginal excess burdens using our standard set of elasticities. We compute for comparison the marginal excess burdens from raising payroll tax rates and personal income tax rates. These marginal excess burdens are 17 and 25 cents respectively, slightly below the standard estimates of BSW. Progressive personal taxes reach higher rates and are therefore more distorting than proportional labor taxes.

For capital taxes, marginal excess burden differs considerably across tax instruments. Increasing the corporate statutory rate has a relatively high excess burden, but policies of reducing allowances for capital cost recovery have negative excess burdens. None of the capital tax changes in our model has a marginal excess burden as high as the 46-cent figure found by BSW for capital taxation in general, because our marginal effective tax rates are lower and less variable than their average effective tax rates.

The most efficient policy change is reduction of the investment tax credit; under the standard parameters the marginal excess burden is a negative 38 cents. This result contrasts sharply with that of Judd (1987), but his infinite-life model emphasizes intertemporal effects and excludes interasset effects. Our negative marginal excess burden arises because the values for effective tax rates on equipment are the lowest in our baseline. The gain from lowering the dispersion of effective tax rates in this manner more than offsets the loss on the intertemporal margin. These results also capture the inefficiency of providing a lump-sum subsidy to old capital, but the marginal excess burden is affected only slightly by this adjustment. Equipment depreciates comparatively rapidly, so the amount of old equipment is significant only in the early equilibria.

The next simulations present two alternatives for tightening up on depreciation allowances: increasing all tax lifetimes or decreasing all declining balance rates for the various assets. These policies have comparatively low marginal excess burdens because they increase the taxes paid on depreciable assets relative to the more heavily-taxed nondepreciable assets. Of the two methods, the equiproportional increase in all tax lifetimes is more efficient because it causes a greater increase in the effective taxation of equipment, the lowest taxed asset.

The remaining simulations consider statutory rates. Raising the corporate tax rate results in a relatively high marginal excess burden of 31 cents because it widens the disparity between the effective taxation of the corporate sector and the unincorporated sectors, as well as increasing the distortions on the intertemporal and interasset margins. It increases the disparity in taxation across assets because it increases the value of depreciation deductions, thereby conferring a relative benefit to the already low-taxed assets. If we raise the statutory rate for owners of noncorporate businesses as well as for corporations, then the marginal excess burden is reduced to 25 cents because of the less unfavorable effect on intersectoral distortions. Still, this change increases the distortion between business capital and owner-occupied housing, relative to our baseline.

We also examine the impacts of changing personal tax rates on capital gains, dividends, and interest income. Since the source of finance is exogenous in our model, we do not capture efficiency effects on the choice among financial instruments. Also, we model the capital gains tax as an accrual tax, so we do not capture distortions in decisions to realize gains. Instead, these changes primarily affect the intersectoral and intertemporal margins. The marginal excess burden for the capital gains rate is 20 cents. It exacerbates intertemporal and intersectoral distortions but not interasset distortions.

The taxation of dividends enters the model in a way similar to the taxation of capital gains. However, an increase in the tax rate on dividend income has a large lump-sum component because it affects the full amount of equity that investors have amassed in corporations. This adds to the revenue collected without introducing economic distortions, so the marginal excess burden from another dollar of dividend taxes is only 4 cents.

For interest income, the marginal excess burden also is low. This change increases tax payments of those who hold debt in all three sectors, so we would expect it to be more neutral in its intersectoral effects than increased taxes on dividends or capital gains. In our model, this policy actually reduces intersectoral distortions because of the arbitrage assumption. Raising this tax rate raises the interest rate needed for a given after-tax rate of return. This increased interest rate is relatively advantageous to the corporate sector because interest is deducted at a statutory rate that exceeds those in the other two sectors. Therefore, the gap between the effective rate for corporate capital and other types of capital is reduced.

C. *Sensitivity Analysis*

Table 2 displays representative results from varying factor supply elasticities. As expected, increases in the labor supply elasticity raise the marginal excess burden from the labor tax and personal income tax experiments, while increases in the saving elasticity raise the excess burden from the corporate and personal income tax experiments. However, the permutations of labor supply elasticities between 0 and 0.3 and of saving elasticities between 0 and 0.8 do not greatly affect the relative rankings of our tax instruments. In almost all cases, increases in the statutory corporate rate are the most distorting, decreases in the investment credit are the least distorting, and increases in personal income and labor tax rates are in between.

Table 3 summarizes the results for variations between 0.3 and 3.0 for the asset substitution elasticity, ϵ, and the sector substitution elasticity, σ. A low ϵ *raises* the marginal excess burden from reducing the rate of investment tax credit or depreciation allowances, but it generally *lowers* the excess burden of raising statutory rates. A low σ reduces the marginal excess burden for most of

TABLE 2.—SENSITIVITY OF MARGINAL EXCESS BURDENS TO FACTOR SUPPLY ELASTICITIES

	Variation in Labor Supply Elasticity[a]		Variation in Saving Elasticity[b]	
	$\xi = 0$	$\xi = 0.3$	$\eta = 0$	$\eta = 0.8$
I. Capital Tax Instruments				
A. Investment Tax Credit	−.379	−.373	−.401	−.349
B. Corporate Income Tax Rate	.260	.359	.228	.395
II. Labor Tax Rates at Industry Level	.065	.287	.166	.172
III. Personal Income Tax Rates	.139	.368	.220	.273

[a] Standard value $\eta = 0.4$ for saving elasticity
[b] Standard value $\xi = 0.15$ for labor supply elasticity.

our simulated changes in capital tax instruments. Under extreme assumptions for these elasticity parameters, a reduction in declining balance rates may have an excess burden higher than that for personal income taxes. Under different extreme assumptions, an increase in the statutory corporate rate may have an excess burden lower than that for personal income taxes. The change in burden associated with reducing the investment tax credit or lengthening tax lives continues to compare favorably with those for other revenue sources. The highest estimated marginal excess burden is 71 cents, from increasing the corporate rate when both ϵ and σ equal 3.

III. Concluding Remarks

Under our central assumptions for elasticity parameters, and using the 1984 U.S. tax structure as a base, an extra dollar of public spending financed by higher statutory corporate income tax rates would have to produce marginal benefits of at least $1.31 in order to improve social welfare. By contrast, the required marginal benefit for a project financed by reduced investment tax credits would be only 62 cents. These values bound the results for other capital tax instruments, labor tax rates, and personal income tax rates.

Although our model extends previous work in various respects, the results are still dependent upon its structure. We assume perfect intratemporal mobility of capital, so desired reallocations are realized instantly. If we modeled adjustment costs, as in Goulder and Summers (1987) or Auerbach and Kotlikoff (1987), then marginal excess burdens would be somewhat smaller in absolute value. Reducing the investment tax credit would not be quite so efficient, and raising statutory rates would not be quite so inefficient. These outcomes are

TABLE 3.—MARGINAL EXCESS BURDENS UNDER ALTERNATIVE ASSET AND SECTOR SUBSTITUTION ELASTICITIES

	Low Capital Substitution Elasticities $\epsilon = 0.3, \sigma = 0.3$	High Capital Substitution Elasticities $\epsilon = 3.0, \sigma = 3.0$	Low Asset, High Sector Substitution Elasticities $\epsilon = 0.3, \sigma = 3.0$	High Asset, Low Sector Substitution Elasticities $\epsilon = 3.0, \sigma = 0.3$
I. Capital Tax Instruments				
A. Investment Tax Credit	−.112	−.676	−.099	−.676
B. Depreciation Allowances				
1. Lifetimes	.019	−.493	.096	−.510
2. Declining Balance Rates	.163	−.100	.325	−.178
C. Corporate Income Tax Rate	.210	.707	.347	.495
D. Corporate and Noncorporate Income Tax Rates	.169	.565	.260	.427
E. Personal Income Tax Rates				
1. Capital Gains	.196	.223	.325	.112
2. Dividends	.041	.025	.066	.002
3. Interest Income	.039	−.001	.028	010
II. Labor Tax Rates at Industry Level	.182	.137	.181	.139
III. Personal Income Tax Rates	.258	.222	.255	.225

similar to the effects in our model of smaller elasticities of substitution. We also assume a closed economy where total investment is determined by household saving. If we modeled international capital flows, as in Goulder and Eichengreen (1988), or wealth effects, as in Summers (1981), then total capital might be more responsive to the rate of return. All capital taxes would generate larger marginal excess burdens, similar to our simulations with a larger saving elasticity. On the other hand, Hall (1988) estimated virtually zero intertemporal substitution in consumption, which would support a low saving elasticity.

Aside from the specific values of marginal excess burden, however, our study has emphasized that the marginal effective tax rate on income from capital is inherently an amalgam of separate tax instruments. We have demonstrated the variation in the marginal excess burdens associated with these different instruments in a model that takes into account their effects on decisions about asset use and sectoral concentration, as well as effects on old capital relative to new capital.

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