EFFECTIVE TAX RATES AND REAL COSTS OF CAPITAL UNDER CURRENT LAW AND UNDER THE PRESIDENT'S PROPOSED TAX REFORM

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The President's proposed tax reform would drastically alter the taxation of income earned in the corporate sector. Among the changes contemplated in the reform are an elimination of the investment tax credit, a comprehensive overhaul of the current depreciation system, and a reduction in the maximum corporate statutory tax rate from 46 percent to 33 percent. Although the President also proposes many other changes in the taxation of income earned by corporations, these three are the most significant and would have a widespread effect on all firms in the corporate sector.

This staff working paper focuses on the effect that the major provisions of the reform would have on effective corporate tax rates, required real pretax returns, and real user costs of capital across assets and industries.1/ These factors are important determinants of the allocation of investment in the economy. And to the extent that they are altered by the President's proposal, the composition of investment would also change. That is, investment would shift away from those assets and industries that are favored under current law, but less favored under the proposed changes, and vice versa.

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1. The provisions analyzed here are the repeal of the investment tax credit, the replacement of the depreciation system, and the reduction in the top corporate tax rate, as presented in The President's Tax Proposals to the Congress for Fairness, Simplicity and Growth.

The effective tax rate, pretax return, and real user cost estimates presented in the following tables were calculated under alternative assumptions as to expected future inflation (4 percent and 6 percent) and as to assumed real after-tax returns required by corporations (4 percent and 6 percent). The estimates are also based on the assumptions that firms are able to use all deductions and credits on a current basis and that all assets are financed fully by equity.2/ Assets are assumed to depreciate in a declining-balance manner at constant depreciation rates.3/ In order to make comparisons between the alternative tax systems, it is assumed that the after-tax discount rate is the same for both systems. Estimates of effective tax rates and user costs are quite sensitive to these assumptions overall, though less so with regard to the relative positions of the various assets and industries.

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2. These assumptions are made in order to allow comparisons on a consistent basis across different types of assets and industries. Differences between assets and industries therefore only reflect different depreciation rules, the investment tax credit, and the top corporate tax rate. Other factors that affect the taxation of income in the corporate sector, such as debt finance or personal taxation of dividends or retained earnings, are not included in the calculations presented here.

3. The depreciation rates used here are those estimated by Charles R. Hulten and Frank C. Wykoff in "The Measurement of Economic Depreciation," in Charles R. Hulten, ed., Depreciation, Inflation, and the Taxation of Income From Capital, (Washington D.C.: Urban Institute, 1981) p. 95.

SUMMARY TABLES

Tables 1, 2, and 3 present summary estimates of effective tax rates, required pretax returns, and user costs of capital under current law and under the President's tax proposal.4/ The calculations are shown for all machinery and equipment, all buildings and structures, and for all depreciable capital together. The tables also present separate estimates for three other classes of assets: inventories, land, and working capital. These assets are not included in the overall calculations for depreciable capital.

Each estimate is made for four different combinations of inflation and real required returns: 4 percent inflation and a 4 percent real return; 6 percent inflation and a 4 percent real return; 4 percent inflation and a 6 percent real return; and 6 percent inflation and a 6 percent real return. Tables 5 through 20 (appended to the end of the text) provide detail by assets and industries based on the four alternative sets of inflation and real return assumptions.

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4. The estimated tax rates presented here are consistent with those reported in Congressional Budget Office, Revising the Corporate Income Tax (May 1985), Tables 7 and 8.

TABLE 1. SUMMARY TABLE OF EFFECTIVE TAX RATES (In percents)

	Inflation= 4 Percent; Real Return= 4 Percent	Inflation= 6 Percent; Real Return= 4 Percent	Inflation= 4 Percent; Real Return= 6 Percent	Inflation= 6 Percent; Real Return= 6 Percent
		Tax Rates Under Current Law		
Machinery and Equipment	-14.0	-2.1	-1.4	5.3
Buildings and Structures	28.2	31.9	28.7	31.4
All Depreciable Capital	13.8	19.9	17.7	21.7
Inventories	46.0	46.0	46.0	46.0
Land	46.0	46.0	46.0	46.0
Working Capital	63.0	68.0	66.2	70.1
		Tax Rates Under the President's Tax Proposals		
Machinery and Equipment	15.5	15.3	16.4	16.1
Buildings and Structures	19.4	19.2	21.4	21.2
All Depreciable Capital	17.7	17.5	19.2	19.0
Inventories	33.0	33.0	33.0	33.0
Land	33.0	33.0	33.0	33.0
Working Capital	49.6	55.2	45.1	49.6

SOURCE: Congressional Budget Office.

NOTE: The tax rates on inventories and land assume that the real return is taxed in full and that the inflationary component is not subject to tax. This is consistent with LIFO accounting for inventories and infinite deferral of nominal appreciation (capital gains) for land. For working capital, the real and nominal returns are assumed to be taxed in full.

TABLE 2. SUMMARY TABLE OF REAL PRETAX RETURNS (In percents)

	Inflation= 4 Percent; Real Return= 4 percent	Inflation= 6 Percent; Real Return= 4 percent	Inflation= 4 Percent; Real Return= 6 percent	Inflation= 6 Percent; Real Return= 6 percent
	Real Pretax Returns Under Current Law			
Machinery and Equipment	3.5	3.9	5.9	6.3
Buildings and Structures	5.6	5.9	8.4	8.8
All Depreciable Capital	4.6	5.0	7.3	7.7
Inventories	7.4	7.4	11.1	11.1
Land	7.4	7.4	11.1	11.1
Working Capital	10.8	12.5	14.5	16.2
	Real Pretax Returns Under the President's Tax Proposals			
Machinery and Equipment	4.7	4.7	7.2	7.2
Buildings and Structures	5.0	5.0	7.6	7.6
All Depreciable Capital	4.9	4.9	7.4	7.4
Inventories	6.0	6.0	9.0	9.0
Land	6.0	6.0	9.0	9.0
Working Capital	7.9	8.9	10.9	11.9

SOURCE: Congressional Budget Office.

NOTE: The real pretax returns of inventories and land are based on the assumptions that the real return is taxed in full and that the inflationary component is not subject to tax. This is consistent with LIFO accounting for inventories and infinite deferral of nominal appreciation (capital gains) for land. For working capital, the real and nominal returns are assumed to be taxed in full.

TABLE 3. SUMMARY TABLE OF REAL USER COSTS PER UNIT OF CAPITAL
(In percents)

	Inflation= 4 Percent; Real Return= 4 percent	Inflation= 6 Percent; Real Return= 4 percent	Inflation= 4 Percent; Real Return= 6 percent	Inflation= 6 Percent; Real Return= 6 percent
	Real User Costs Under Current Law			
Machinery and Equipment	17.9	18.4	20.4	20.8
Buildings and Structures	8.6	8.9	11.4	11.8
All Depreciable Capital	12.8	13.2	15.5	15.8
Inventories	7.4	7.4	11.1	11.1
Land	7.4	7.4	11.1	11.1
Working Capital	10.8	12.5	14.5	16.2
	Real User Costs Under the President's Tax Proposals			
Machinery and Equipment	19.2	19.2	21.6	21.6
Buildings and Structures	8.0	8.0	10.7	10.6
All Depreciable Capital	13.0	13.0	15.6	15.6
Inventories	6.0	6.0	9.0	9.0
Land	6.0	6.0	9.0	9.0
Working Capital	7.9	8.9	10.9	11.9

SOURCE: Congressional Budget Office.

NOTE: The user costs of inventories and land are based on the assumptions that the real return is taxed in full and that the inflationary component is not subject to tax. This is consistent with LIFO accounting for inventories and infinite deferral of nominal appreciation (capital gains) for land. For working capital, the real and nominal returns are assumed to be taxed in full.

Effective Tax Rates

Table 1 presents estimates of effective tax rates. This table indicates that under any set of assumptions used here, the tax rate rises for machinery and equipment under the President's plan, but declines for buildings and structures.5/ For example, at 4 percent inflation and a 4 percent real return, the tax rate on machinery and equipment rises from -14.0 percent to 15.5 percent, and the rate on buildings and structures declines from 28.2 percent to 19.4 percent. At 6 percent inflation and a 6 percent real return, the tax rate rises on machinery and equipment from 5.3 percent to 16.1 percent, and decreases on buildings and structures from 31.4 percent to 21.2 percent. The tax increase for machinery and equipment is largely attributable to the repeal of the investment tax credit. The tax decrease for buildings and structures occurs because of the indexing of depreciation allowances and the reduction in the top statutory tax rate.

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5. In order to make comparisons between current law and the President's plan it must be assumed that the real required return does not change because of the plan's adoption. In fact, this may not be the case since the real return is likely to rise or fall depending on how the equilibrium interest rate in the economy changes as a result of the plan's adoption.

The overall tax rate on corporate depreciable capital is higher under the President's proposal than under current law at a 4 percent inflation rate, but lower at a 6 percent inflation rate.6/ This is true for both the 4 percent and 6 percent required real return cases. The reason that current law is more generous than the Administration proposal at lower rates of inflation, but less generous at higher inflation rates, is that current law depreciation is not indexed for inflation. Under the President's proposal, which indexes depreciation for inflation, the effective tax rate remains nearly invariant to changes in the inflation rate.

The effective tax rates on inventories, land, and working capital decline substantially under the President's plan. The reductions are directly the result of the cut in marginal tax rates; the depreciation and investment credit tax rules do not apply to these forms of assets. As a result, the overall tax rate on all corporate capital (not just depreciable capital) is likely to decline under the President's tax proposals.

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6. The overall tax rate on all depreciable capital is based on a weighted average of individual asset tax rates. The weights are the shares of the corporate capital stock that each asset is estimated to represent.

These tables, and the subsequent detailed asset and industry tables, show that the proposed changes are likely to result in a much more neutral tax system as effective tax rates on equipment and machinery are increased, and those on buildings and structures decreased. The differences in tax rates between these two groups of assets are likely to be much smaller than those that prevail under current law. For example, at 4 percent inflation and a 4 percent real return, the difference is narrowed from 42 percentage points (-14.0 percent versus 28.2 percent) to 4 percentage points (15.5 percent versus 19.4 percent). This shift is likely to encourage investment in new plant and factories relative to new machinery and equipment. All else being equal, this would result in fewer distortions in the use of different assets and enhance the efficiency of the economy.

Real Pretax Returns

Table 2 shows the real pretax returns that are required to earn the assumed after-tax return in each case. In the calculation of the pretax return, it has been assumed that the after-tax return remains fixed and the pretax return adjusts to reflect the tax imposed on each type of asset. The percentage difference

between the real pretax return and the after-tax return is the effective tax rate as shown in Table 1.

Real User Costs of Capital

Table 3 shows estimates of the user costs of capital. The results mirror those shown in Tables 1 and 2: the cost is likely to rise for machinery and equipment under the President's plan, but fall for buildings and structures. The overall corporate user cost of capital may rise or fall depending on the inflation rate assumption used: it would rise at the 4 percent assumed inflation rate, but fall at the 6 percent assumed rate. In any event, the differences in the overall cost of capital between current law and the proposed plan are very small, assuming constant inflation and real returns across tax regimes. This indicates that the proposed changes in depreciation, the investment tax credit, and the corporate tax rate result in quite similar overall treatment of depreciable capital between the two tax systems.

OTHER EFFECTIVE TAX RATE STUDIES

Several other studies of effective tax rates have also concluded that the President's proposals would reduce the corpor-

ate tax rate on buildings and structures, and on inventories, but increase the rate on machinery and equipment. The Treasury Department reports a reduction in the effective tax rate on buildings and structures from 39 percent to 24 percent; a reduction on inventories from 46 percent to 32 percent; and an increase on machinery and equipment from -4 percent to 17 percent. Overall, the Treasury estimates the marginal corporate tax rate on corporate capital would decline from 35 percent to 25 percent.7/

The Treasury also reports tax rate estimates that include the individual income tax, as well as the corporate tax. The combined tax on buildings and structures is estimated to decline from 54 percent to 40 percent; the tax rate on inventories is estimated to decline from 59 percent to 46 percent; the rate on machinery and equipment is estimated to rise from 21 percent to 35 percent. The overall combined effective tax rate on capital used in the corporate sector shows a decline from 51 percent to 41 percent.

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7. These calculations are based on 5 percent inflation, a real required return of 4 percent, and 100 percent equity finance. The Treasury estimates also take into account the 10 percent dividend deduction included in the President's proposal. The tax rates are reported in The President's Tax Proposals to the Congress for Fairness, Simplicity and Growth, pp. 158-59.

Jane Gravelle reports a rise in the effective corporate tax rate on machinery and equipment, and reductions in the tax rate on buildings and structures, and inventories.8/ For example, the tax rate on general industrial equipment is estimated to rise from 7 percent to 19 percent; the rate on commercial buildings is estimated to decline from 37 percent to 25 percent. She does not report aggregate effective corporate tax rates for all "machinery and equipment" nor for all "buildings and structures."

In the same report, Jane Gravelle provides tax rate estimates that combine the individual income and corporate income taxes. The combined tax on buildings and structures is estimated to fall from 39 percent to 27 percent; the tax rate on inventories is estimated to decline from 60 percent to 37 percent; the rate on machinery and equipment is estimated to rise from 14 percent to 25 percent. The overall combined effective tax rate on capital used in the corporate sector shows a decline from 41 percent to 29 percent.

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8. Jane G. Gravelle, Effects of Business Tax Provisions in the Administration's Tax Proposal: Updated Tables, Congressional Research Service report #85-783 E, June 6, 1985. Her assumptions include a 5 percent inflation rate and a 5 percent real corporate discount rate; the discount rate is computed as a combination of equity (two-thirds) and debt (one-third) finance.

In contrast, to the above results, Don Fullerton reports that adoption of the President's proposals may actually increase the overall tax rate on corporate capital.9/ Fullerton's overall tax rate calculations include property, individual income, and corporate income taxes. By varying certain assumptions as to the corporate discount rate, interest rates, and debt finance, Fullerton shows that the overall effective tax rate may increase or decrease. His conclusions point out the difficulties of modeling comprehensively the effect of tax reform on tax rates on various forms of capital income, and the sensitivity of tax rate calculations to different assumptions.

USER COSTS, TAX RATES, AND TAX SYSTEM EFFICIENCY

Like all taxes, a tax on capital income involves some cost to the economy in terms of reduced efficiency. This inefficiency arises because investors receive a lower return (after tax) on their investments than the pretax return. To the extent that this disparity alters saving and investment behavior, the economy suffers an economic loss. The current income tax may also impose

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9. Don Fullerton, The Indexation of Interest, Depreciation, and Capital Gains: A Model of Investment Incentives (Washington, D.C.: University of Virginia and American Enterprise Institute, June 1985).

an additional cost on the economy because it taxes some forms of investment differently than others. As a result, there may be too much investment in assets that are relatively favored by the tax system, and too little investment in assets that are relatively penalized. Given that capital income is to be subject to some average level of taxation, equal tax rates across all assets and industries would presumably minimize the efficiency costs to the economy from distorted investment decisions.10/

The User Cost of Capital

The tax system affects the demand by businesses for different kinds of assets by changing the relative user costs of forms of capital. The user cost of capital is generally defined as the cost to a firm of employing a unit of capital for one period. It is equivalent to what a firm would have to pay to lease the same

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10. In theory, it may be possible to design a system of capital taxation levying different tax rates on different assets or industries that would be more efficient than one levying uniform rates. Such a system, however, would have to take into account the relative demand elasticities for the outputs produced by different types of assets. Tax rates would be highest on those assets used to produce goods whose demand is least sensitive to changes in prices. (For example, see William J. Baumol and David F. Bradford, "Optimal Departures From Marginal Cost Pricing," American Economic Review, vol. 60 (June 1970), pp. 265-283.) The obstacles to obtaining valid estimates of these elasticities, however, make designing such a system impractical.

unit, assuming perfectly competitive markets. Hence, the terms "user cost" and "rental cost" are often used interchangeably. In equilibrium, the user cost of an asset will also equal the marginal revenue it produces, since otherwise firms would have an incentive to shift the level or composition of their capital stock. The user cost includes three factors: the amount of capital consumed (or economic depreciation), taxes, and a net after-tax return paid to investors.

In the absence of taxes, the real user cost of capital (C) equals the sum of economic depreciation (d) and the competitive rate of return (r) multiplied by the asset's acquisition cost (q).11/ That is:

$$C = q(r + d)$$

where q = asset acquisition cost
r = real rate of return
d = rate of depreciation of output

Note that depreciation in this case is the exact amount that the firm needs to recover in order to leave its total capital intact. This equation is based on an asset whose productivity declines at

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11. See Jane G. Gravelle, "Effects of the 1981 Depreciation Revisions on the Taxation of Income From Business Capital," National Tax Journal (March 1982), pp. 1-20, for a derivation of the user cost of capital and effective tax rate equations.

a constant rate over time. By setting the cost of the asset (q) equal to one, the user cost of capital, per unit of capital, is equal to the sum of the real return and economic depreciation. That is, $C = r + d$.

When taxes are imposed on the income from capital, the cost of capital rises to cover the taxes, as well as to cover the return to investors and depreciation.12/ Under the assumption that investors require a fixed real rate of return after tax of r^*, the user cost of capital (per unit of capital) is equal to:

$$C = (r^* + d)(1 - uZ - K)/(1 - u)$$

where
- r^* = required real after-tax rate of return (real discount rate)
- Z = present value of depreciation allowances (discounted at the nominal post-tax interest rate)
- K = investment tax credit rate
- u = corporate tax rate

In this equation, the present value of depreciation allowances (Z) refers to those allowed by the tax code. From this equation, it is apparent that the user cost of capital is lowered by increases

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12. If instead it is assumed that pretax returns remained fixed, and the after-tax return declined in response to the imposition of the tax, the user cost of capital would remain unchanged. In this case, the suppliers of capital (savers) would bear the full cost of the tax through a reduced after-tax rate of return. (This assumes that the supply of capital is perfectly inelastic.)

in the present value of depreciation allowances or the investment tax credit rate (K). Also, the user cost rises if the tax rate (u) is increased. (For purposes of this analysis, the only tax considered is the corporate income tax. In other words, r^* reflects the return that investors require after the corporate tax, but before individual income taxes.)

Suppose the tax law allows firms to deduct actual (or economic) depreciation indexed for inflation. This would allow firms to keep their real capital intact, without providing any investment subsidy. Also assume that no investment credit is allowed. In this case, the user cost per unit of capital is simply:

$$C = (r^*/(1 - u)) + d$$

The user cost is equal to the pretax rate of return plus depreciation. Note that the pretax rate of return $(r^*/(1 - u))$ equals the required after-tax rate of return (r^*) increased by the amount of income taxes.

Effective Marginal Tax Rates

In general, the effective marginal tax rate for an asset is calculated by the ratio:

$$TR = (r - r^*)/r$$

where TR = asset tax rate
r = pretax rate of return
r^* = required after-tax rate of return

It is the difference between the pretax and after-tax rates of return, divided by the pretax rate of return. The required after-tax rate of return is the return that the corporation must earn over the life of the asset in order to undertake the investment. (This assumes that the corporation has other investment opportunities from which it can earn as much as r^*.) In equilibrium, r is the pretax rate of return that yields r^* after tax. It should be stressed that the effective tax rate derived by this method is the theoretical tax rate that would result under a certain set of assumptions; these include assumptions as to depreciation, inflation, and interest rates, as well as full use of all deductions and credits on a current basis. This same

general mathematical formulation has been used in several studies to estimate effective marginal corporate tax rates.13/

The rate of return r that yields r* after tax is defined by:

$$r = \frac{(r^* + d)(1 - K - uZ)}{(1 - u)} - d$$

where
- r = Pretax rate of return
- r* = Required after-tax rate of return
- d = Economic depreciation rate
- K = Investment tax credit rate
- u = Statutory tax rate
- Z = Present value of tax depreciation deductions (discounted at the nominal after-tax interest rate)

Using this formula yields a theoretical effective tax rate equal to the statutory tax rate when economic depreciation (indexed for inflation) is allowed (and the investment credit is disallowed). As either the investment credit or the present value of depreciation allowances rises, the effective tax rate will fall. This is

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13. See Alan J. Auerbach, "Corporate Taxation in the United States," Brookings Papers on Economic Activity 1983: 2 (Washington, D.C.: The Brookings Institution, 1984), pp. 451-514; Jane G. Gravelle, "Effects of the 1981 Depreciation Revisions on the Taxation of Income From Business Capital," National Tax Journal (March 1982), pp. 1-20; Charles R. Hulten and James W. Robertson, Corporate Tax Policy and Economic Growth: An Analysis of the 1981 and 1982 Tax Acts, Urban Institute Discussion Paper (December 1982): and Mervyn A. King and Don Fullerton, The Taxation of Income From Capital: A Comparative Study of the United States, United Kingdom, Sweden, and West Germany (Chicago: University of Chicago Press, 1984).

important because the more accelerated depreciation allowances are allowed for tax purposes,the lower will be the effective tax rate.

Tax System Neutrality

The user cost of capital is the price businesses use to determine whether a particular asset is worth acquiring. If a particular asset is expected to generate revenue (net of all operating costs) in excess of its user cost, it will provide a profit to the firm. In equilibrium, businesses will invest in assets up to a point where the extra revenue from an asset matches its cost; otherwise the firm would have an incentive to acquire more assets if revenue exceeded the user cost, and vice versa. This reasoning suggests that investment decisions made by firms are directly related to the relative user costs of capital assets.

An example will show how the user cost of capital varies across assets, and how it changes when tax rates are raised or lowered. In this example, it is assumed that firms are allowed full economic depreciation (indexed for inflation) but no investment tax credit. Three assets with different depreciation rates are considered: the first asset is a truck with an assumed annual

depreciation rate of 25 percent, the second is a turbine with a depreciation rate of 8 percent, and the third is a building with a depreciation rate of 3 percent.14/ The constant annual depreciation rate for short-lived assets is much higher than for longer-lived assets. The calculation of the annual user costs for each of the assets is shown in Table 4 for three different corporate tax rates: 0 percent, 46 percent, and 41 percent. In each case it is assumed that investors always receive a 10 percent post-tax nominal rate of return.15/ Also, because firms are allowed full economic depreciation, each asset's taxable income equals its economic income.

In the case with a tax rate of zero, the user cost (per dollar of investment) of a truck equals 35 percent (user cost of $1,750 divided by investment of $5,000): 25 percent in depreciation

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14. These depreciation rates are similar to those estimated by Hulten and Wycoff in "The Measurement of Economic Depreciation."

15. This assumption implies that savers always require an after-tax return of 10 percent, regardless of the tax system that is in force (assuming the supply of savings is perfectly elastic). In general, a corporate tax would probably reduce the normal return to investors, as well as increase the pretax return. That is, the pretax return would not rise by the full amount of the tax because the tax would reduce the after-tax return received by suppliers of capital.

TABLE 4. COMPARISON OF TAX EFFECTS ON USER COSTS FOR DIFFERENT ASSETS UNDER VARIOUS CORPORATE TAX RATES (INITIAL YEAR)

	Asset		
	Truck	Turbine	Building
Depreciation Rate (percent)	25	8	3
Normal Return (percent)	10	10	10
Corporate Tax = 0 Percent			
Acquisition Cost	$5,000	$20,000	$100,000
Normal Return (10 percent)	500	2,000	10,000
Depreciation	1,250	1,600	3,000
User Cost	1,750	3,600	13,000
User Cost per Unit of Capital	.35	.18	.13
Corporate Tax = 46 Percent			
Acquisition Cost	5,000	20,000	100,000
Gross Return	926	3,704	18,519
Tax	426	1,704	8,519
After-Tax Return (10 percent)	500	2,000	10,000
Depreciation	1,250	1,600	3,000
User Cost (Gross Return plus Depreciation)	2,176	5,304	21,519
User Cost per Unit of Capital	.44	.27	.22
Percentage Change in User Cost from 0 Percent Tax	+24.3	+47.3	+65.5
Corporate Tax = 41 Percent			
Acquisition Cost	5,000	20,000	100,000
Gross Return	847	3,390	16,949
Tax	347	1,390	6,949
After-Tax Return (10 percent)	500	2,000	10,000
Depreciation	1,250	1,600	3,000
User Cost (Gross Return Plus Depreciation	2,097	4,990	19,949
User Cost per Unit of Capital	.42	.25	.20
Percentage Change in Use Cost from 46 Percent Tax	-3.6	-5.9	-7.3

tion plus the 10 percent return to the asset owner. The user cost per dollar of capital for the turbine is 18 percent, and for the building 13 percent. These are the gross returns that the assets must earn in the market, otherwise they would not be purchased. Although user costs vary by asset life, these differences are solely attributable to differences in depreciation rates. In equilibrium, each asset earns an expected normal return on the margin and, therefore, there is no incentive to shift the allocation of investment, all else being equal. In other words, the differences in user costs are efficient in that they directly reflect the differences in economic costs--that is, capital consumption--that are associated with each asset.

In the second part of Table 4, it is assumed that a corporate tax of 46 percent is imposed. The gross return from each asset must rise to cover both the tax and the firm's normal return (assumed to remain 10 percent). The user cost for each asset is now the gross return plus depreciation; note that the net return (10 percent) is the same as in the zero tax case. The imposition of the tax raises the user cost of the truck from 35 percent to 44 percent, a 24.3 percent increase. The user cost of the turbine rises by 47.3 percent; the user cost of the building rises by 65.5 percent. Even though after-tax returns remain 10 percent

across all assets, the changes in user costs are dramatically different. As the user cost of long-term assets increases relative to short-term assets, the new equilibrium capital stock reflects a smaller share of long-lived assets.16/

Under the alternative assumption that savers absorb the full increase in the tax rate, the user costs of the assets would remain the same as in the no tax case, but after-tax returns would fall on all assets from 10 percent to 5.4 percent. In this case there would be no incentive to alter the capital stock as user costs (in both a relative and absolute sense) would remain unchanged. Furthermore, since savers could not increase their after-tax return by switching to alternative assets, the allocation of capital would remain the same as in the zero tax case.17/ Thus, the actual change in the user cost of capital resulting from a change in the tax system depends critically on how savers respond to changed after-tax returns.18/

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16. This assumes that a change in the relative user costs of assets will result in firms acquiring relatively more of the comparatively inexpensive assets and less of the expensive assets.

17. Clearly, if the lower after-tax return resulted in savers saving less, there would be effects on the pretax return to capital as the pool of available savings diminished.

18. Although the statistical evidence seems to indicate that the supply of domestic saving is not very sensitive to changes in the after-tax rate of return, the relevant supply of savings

The bottom panel of Table 4 shows the effects of a five percentage-point reduction in the corporate tax. Again, the changes in user costs vary across assets, even though the after-tax return remains the same. The decline in the user cost for the truck is 3.6 percent; for the turbine, 5.9 percent; and for the building, 7.3 percent. The tax reduction (from 46 percent to 41 percent) would affect the allocation of capital because user costs would change disproportionately, resulting in a relative shift in investment toward long-lived assets and away from short-lived assets.

The reason for the results shown above is that different assets wear out or are "used up" at different rates. For short-term assets, economic depreciation is a much larger proportion of the user cost than it is for long-lived assets. Any proportional change in an asset's return (net of depreciation) will therefore

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for this analysis includes that provided by foreigners. To the extent that capital inflows (and outflows) are presumed to be quite sensitive to changes in after-tax rates of return earned in a particular country, the overall supply of savings is probably much more elastic than domestic savings alone. This line of argument tends to favor the fixed after-tax return assumption as opposed to the fixed pretax return assumption. It is likely that the correct assumption is somewhere between these opposing viewpoints. That is, savers probably bear part of the tax in the form of a reduced after-tax return, but some of the tax is shifted forward through higher pretax returns (and user costs).

have a disproportionate effect on the user costs for assets with different durabilities. The changes in the relative user costs of various assets affects the composition of the capital stock; the new reallocation of investment, however, is an efficient market response to a tax on capital. Thus, a capital income tax with a single rate can cause a shift in the allocation of capital from long-term to short-term assets. This indicates that the capital stock is influenced by the user cost of capital, and that even neutral capital taxation is likely to have allocative effects among types of output. In effect, capital taxes have relatively greater effects on those assets that are long-lived compared to those that are more similar to consumption goods (short-lived assets). The new post-tax capital stock, however, is optimal in the sense that each dollar of savings earns the same pre-tax return; the net national product cannot be increased by reallocating savings among types of assets.

By contrast, a non-neutral capital tax that left relative user costs unchanged might not affect the allocation of the capital stock. Such a tax would offset the general reallocations that would occur as the result of the tax, thereby leaving the distribution of the capital stock unchanged, That is, a neutral capital income tax would tend to shift investment toward short-

lived assets; this effect could be prevented by a non-neutral tax that left relative user costs unchanged. Such a tax would be designed so that the income from shorter-lived assets would be taxed more heavily than that from longer-lived assets. This would mean, however, that shorter-lived assets would have to earn a higher pretax net marginal revenue product (marginal revenue product less capital consumption) than earned by longer-lived assets in equilibrium. This result is inefficient, as total (social) net product could be increased by shifting one unit of investment from long-lived to short-lived assets. Where pretax rates of return are equalized across all assets, this situation does not arise. This implies that the optimal tax on capital alters rates of return proportionately, but not user costs.

The above conclusion does not depend on what is assumed about the sensitivity of overall saving to the after-tax rate of return. Regardless of how the overall pretax return responds to a change in the tax rate, the least distorting capital income tax is likely to be one that imposes the same effective rate on all assets.19/

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19. By contrast, in order to maintain relative user costs under a system of capital income taxation, the correct set of legislated tax rates would depend on exactly how saving (and pretax returns) was expected to respond to changes in tax rates. That is, the set of rates that would maintain relative user costs if the after-tax return remained constant would not maintain relative user costs if the after-tax return declined upon imposition of the new tax system.

TABLE 5. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY ASSET, UNDER CURRENT LAW (4 PERCENT REQUIRED REAL RETURN, 4 PERCENT EXPECTED INFLATION) (In percents)

Asset	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Equipment	17.9	3.5	-14.0
Furniture and fixtures	14.5	3.5	-15.8
Fabricated metal products	13.2	4.1	1.8
Engines and turbines	12.5	4.7	14.7
Tractors	19.6	3.3	-22.0
Agricultural machinery	13.2	3.5	-14.2
Construction machinery	20.5	3.2	-23.6
Mining and oilfield machinery	19.8	3.3	-22.8
Metalworking machinery	15.7	3.4	-16.8
Special industrial machinery	13.8	3.5	-14.8
Special tools	41.1	2.7	-45.8
General industrial equipment	15.9	3.7	-9.1
Office computing and accounting machinery	30.2	2.9	-39.6
Service industry machinery	19.8	3.3	-20.7
Electrical transmission and distribution equipment	16.1	4.3	8.0
Communication equipment	15.3	3.5	-15.3
Other electrical equipment	15.4	3.6	-10.9
Trucks, buses, and trailers	28.3	3.0	-34.6
Automobiles	36.2	2.9	-38.0
Aircraft	21.5	3.2	-25.4
Ships and boats	11.1	3.6	-11.7
Railroad equipment	10.2	3.6	-10.6
Instruments	18.8	3.8	-6.3
Buildings and Structures	8.6	5.6	28.2
Industrial buildings	10.1	6.5	38.3
Commercial buildings	8.6	6.1	34.6
Railroad structures	7.6	5.9	32.0
Telephone and telegraph facilities	8.6	4.6	13.8
Electric light and power	4.9	4.6	12.4
Gas facilities	4.9	4.6	13.3
Petroleum pipelines	8.9	4.4	9.6

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 6. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY INDUSTRY, UNDER CURRENT LAW (4 PERCENT REQUIRED REAL RETURN, 4 PERCENT EXPECTED INFLATION) (In percents)

Industry	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Manufacturing			
Food and kindred products	13.4	4.9	18.4
Tobacco manufactures	13.3	4.9	18.0
Textile mill products	12.7	4.7	14.8
Apparel and other fabricated textile products	12.9	4.8	16.8
Paper and allied products	13.5	4.3	6.8
Printing, publishing, and allied industries	12.8	5.0	20.5
Chemical and allied products	13.3	4.5	11.9
Petroleum and coal products	11.9	5.5	27.4
Rubber and miscellaneous plastic products	14.5	4.5	11.4
Leather and leather products	12.3	5.1	22.0
Lumber and wood products, except furniture	14.9	4.6	13.8
Furniture and fixtures	12.9	5.2	22.8
Stone, clay, and glass products	14.5	4.7	15.5
Primary metal industries	13.0	4.9	17.6
Fabricated metal industries	16.3	4.9	17.6
Machinery, except electrical	13.6	4.7	14.4
Electrical machinery, equipment, and supplies	13.8	4.7	14.6
Transportation equipment, except motor vehicles and ordnance	12.7	5.2	22.6
Motor vehicles and motor vehicle equipment	18.2	4.4	8.8
Instruments	13.3	4.8	17.4
Construction	16.4	4.4	8.1
Transportation	12.2	4.4	8.0
Communication	11.5	4.1	1.5
Public Utilities	10.2	4.7	15.0
Wholesale and Retail Trade	14.0	5.0	19.4
Services	14.5	4.6	13.3
All Industries	12.8	4.6	13.8

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 7. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY ASSET, UNDER CURRENT LAW (4 PERCENT REQUIRED REAL RETURN, 6 PERCENT EXPECTED INFLATION) (In percents)

Asset	Real Use Cost of Capital	Required Pretax Return	Effective Tax Rate
Equipment	18.4	3.9	-2.1
Furniture and fixtures	14.8	3.8	-5.6
Fabricated metal products	13.6	4.4	10.0
Engines and turbines	13.0	5.1	21.7
Tractors	20.1	3.7	-7.2
Agricultural machinery	13.5	3.8	-5.1
Construction machinery	20.9	3.7	-7.9
Mining and oilfield machinery	20.2	3.7	-7.8
Metalworking machinery	16.0	3.8	-5.6
Special industrial machinery	14.1	3.8	-5.2
Special tools	41.6	3.3	-21.9
General industrial equipment	16.3	4.1	1.6
Office computing and accounting machinery	30.8	3.6	-12.4
Service industry machinery	20.3	3.8	-5.9
Electrical transmission and distribution equipment	16.6	4.8	17.1
Communication equipment	15.6	3.8	-4.6
Other electrical equipment	15.8	4.0	-0.5
Trucks, buses, and trailers	28.9	3.5	-13.0
Automobiles	36.7	3.4	-19.0
Aircraft	22.0	3.7	-8.6
Ships and boats	11.3	3.8	-4.2
Railroad equipment	10.5	3.9	-3.9
Instruments	19.2	4.2	5.8
Buildings and Structures	8.9	5.9	31.9
Industrial buildings	10.5	6.8	41.6
Commercial buildings	8.9	6.4	37.7
Railroad structures	7.9	6.2	35.0
Telephone and telegraph facilities	8.3	4.9	18.8
Electric light and power	5.1	4.8	17.3
Gas facilities	5.2	4.9	18.2
Petroleum pipelines	9.2	4.7	14.5

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 8. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY INDUSTRY, UNDER CURRENT LAW (4 PERCENT REQUIRED REAL RETURN, 6 PERCENT EXPECTED INFLATION) (In percents)

Industry	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Manufacturing			
Food and kindred products	13.7	5.3	24.0
Tobacco manufactures	13.7	5.3	23.7
Textile mill products	13.0	5.0	20.6
Apparel and other fabricated textile products	13.2	5.2	22.4
Paper and allied products	13.9	4.6	13.8
Printing, publishing, and allied industries	13.1	5.4	25.8
Chemical and allied products	13.7	4.9	18.3
Petroleum and coal products	12.3	5.9	31.9
Rubber and miscellaneous plastic products	14.9	4.9	18.0
Leather and leather products	12.7	5.5	27.0
Lumber and wood products, except furniture	15.3	5.0	20.3
Furniture and fixtures	13.2	5.6	27.9
Stone, clay, and glass products	14.8	5.1	21.7
Primary metal industries	13.4	5.2	23.3
Fabricated metal industries	16.7	5.2	23.7
Machinery, except electrical	14.0	5.0	20.6
Electrical machinery, equipment, and supplies	14.2	5.1	20.9
Transportation equipment, except motor vehicles and ordnance	13.1	5.5	27.8
Motor vehicles and motor vehicle equipment	18.5	4.8	16.3
Instruments	13.7	5.2	23.2
Construction	16.8	4.8	16.1
Transportation	12.6	4.7	14.3
Communication	11.8	4.4	8.6
Public Utilities	10.6	5.1	20.9
Wholesale and Retail Trade	14.3	5.3	24.9
Services	14.9	5.0	19.8
All Industries	13.2	5.0	19.9

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 9. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY ASSET, UNDER CURRENT LAW (6 PERCENT REQUIRED REAL RETURN, 4 PERCENT EXPECTED INFLATION) (In percents)

Asset	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Equipment	20.4	5.9	-1.4
Furniture and fixtures	16.8	5.8	-4.2
Fabricated metal products	15.7	6.5	7.8
Engines and turbines	15.2	7.3	17.8
Tractors	22.0	5.7	-5.2
Agricultural machinery	15.5	5.8	-3.8
Construction machinery	22.9	5.7	-5.6
Mining and oilfield machinery	22.2	5.7	-5.6
Metalworking machinery	18.0	5.8	-4.1
Special industrial machinery	16.1	5.8	-3.9
Special tools	43.6	5.2	-14.4
General industrial equipment	18.3	6.1	1.2
Office computing and accounting machinery	32.8	5.5	-8.5
Service industry machinery	22.3	5.8	-4.2
Electrical transmission and distribution equipment	18.7	6.9	13.4
Communication equipment	17.6	5.8	-3.4
Other electrical equipment	17.8	6.0	-0.4
Trucks, buses, and trailers	30.9	5.5	-8.9
Automobiles	38.7	5.3	-12.6
Aircraft	24.0	5.7	-6.1
Ships and Boats	13.3	5.8	-3.3
Railroad Equipment	12.4	5.8	-3.1
Instruments	21.3	6.3	4.4
Buildings and Structures	11.4	8.4	28.7
Industrial buildings	13.2	9.6	37.5
Commercial buildings	11.6	9.2	34.6
Railroad structures	10.7	8.9	32.6
Telephone and telegraph facilities	10.5	7.2	16.5
Electric light and power	7.4	7.1	15.2
Gas facilities	7.4	7.1	16.0
Petroleum pipelines	11.4	6.9	12.7

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 10. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY INDUSTRY, UNDER CURRENT LAW (6 PERCENT REQUIRED REAL RETURN, 4 PERCENT EXPECTED INFLATION) (In percents)

Industry	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Manufacturing			
Food and kindred products	16.1	7.6	21.3
Tobacco manufactures	16.0	7.6	21.1
Textile mill products	15.3	7.3	18.2
Apparel and other fabricated textile products	15.6	7.5	19.9
Paper and allied products	16.0	6.8	12.2
Printing, publishing, and allied industries	15.5	7.8	22.8
Chemical and allied products	15.9	7.2	16.1
Petroleum and coal products	14.8	8.4	28.4
Rubber and miscellaneous plastic products	17.1	7.1	15.9
Leather and leather products	15.1	7.9	24.1
Lumber and wood products, except furniture	17.6	7.3	18.0
Furniture and fixtures	15.7	8.0	24.8
Stone, clay, and glass products	17.2	7.4	19.2
Primary metal industries	15.7	7.6	20.5
Fabricated metal industries	19.0	7.6	21.1
Machinery, except electrical	16.3	7.3	18.2
Electrical machinery, equipment, and supplies	16.5	7.4	18.5
Transportation equipment, except motor vehicles and ordnance	15.5	8.0	24.6
Motor vehicles and motor vehicle equipment	20.8	7.0	14.7
Instruments	16.1	7.6	20.5
Construction	19.1	7.0	14.7
Transportation	14.8	6.9	13.2
Communication	14.0	6.5	7.7
Public Utilities.	12.8	7.3	17.8
Wholesale and Retail Trade	16.8	7.8	22.7
Services	17.2	7.3	17.9
All Industries	15.5	7.3	17.7

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 11. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY ASSET, UNDER CURRENT LAW (6 PERCENT REQUIRED REAL RETURN, 6 PERCENT EXPECTED INFLATION) (In percents)

Asset	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Equipment	20.8	6.3	5.3
Furniture and fixtures	17.1	6.1	1.8
Fabricated metal products	16.1	6.9	13.0
Engines and turbines	15.6	7.7	2.4
Tractors	22.5	6.2	2.7
Agricultural machinery	15.8	6.1	1.7
Construction machinery	23.4	6.2	2.6
Mining and oilfield machinery	22.6	6.1	2.4
Metalworking machinery	18.4	6.1	2.3
Special industrial machinery	16.4	6.1	1.8
Special tools	44.1	5.8	-3.8
General industrial equipment	18.7	6.5	7.4
Office computing and accounting machinery	33.5	6.2	3.5
Service industry machinery	22.7	6.2	3.7
Electrical transmission and distribution equipment	19.2	7.4	19.1
Communication equipment	18.0	6.2	2.9
Other electrical equipment	18.2	6.4	5.8
Trucks, buses, and trailers	31.5	6.1	1.3
Automobiles	39.1	5.8	-3.5
Aircraft	24.5	6.2	2.6
Ships and boats	13.6	6.1	1.5
Railroad equipment	12.7	6.1	1.4
Instruments	21.8	6.8	11.3
Buildings and Structures	11.8	8.8	31.4
Industrial buildings	13.6	10.0	39.9
Commercial buildings	12.0	9.5	36.9
Railroad structures	11.0	9.2	34.9
Telephone and telegraph facilities	10.8	7.5	20.0
Electric light and power	7.7	7.4	18.7
Gas facilities	7.7	7.4	19.5
Petroleum pipelines	11.7	7.2	16.3

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 12. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY INDUSTRY, UNDER CURRENT LAW (6 PERCENT REQUIRED REAL RETURN, 6 PERCENT EXPECTED INFLATION) (In percents)

Industry	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Manufacturing			
Food and kindred products	16.5	8.0	25.0
Tobacco manufactures	16.4	8.0	24.9
Textile mill products	15.7	7.7	22.1
Apparel and other fabricated textile products	15.9	7.9	23.6
Paper and allied products	16.4	7.2	16.6
Printing, publishing, and allied industries	15.9	8.2	26.4
Chemical and allied products	16.3	7.5	20.2
Petroleum and coal products	15.2	8.8	31.5
Rubber and miscellaneous plastic products	17.5	7.5	20.2
Leather and leather products	15.5	8.3	27.5
Lumber and wood products, except furniture	18.0	7.7	22.2
Furniture and fixtures	16.0	8.4	28.2
Stone, clay, and glass products	17.6	7.8	23.3
Primary metal industries	16.1	7.9	24.3
Fabricated metal industries	19.4	8.0	25.1
Machinery, except electrical	16.7	7.7	22.3
Electrical machinery, equipment, and supplies	16.9	7.8	22.5
Transportation equipment, except motor vehicles and ordnance	15.9	8.4	28.1
Motor vehicles and motor vehicle equipment	21.2	7.4	19.4
Instruments	16.4	7.9	24.4
Construction	19.5	7.5	19.6
Transportation	15.2	7.3	17.3
Communication	14.3	6.8	12.3
Public Utilities	13.2	7.7	21.8
Wholesale and Retail Trade	17.2	8.2	26.3
Services	17.6	7.7	22.2
All Industries	15.8	7.7	21.7

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 13. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY ASSET, UNDER THE PRESIDENT'S TAX PROPOSALS (4 PERCENT REQUIRED REAL RETURN, 4 PERCENT EXPECTED INFLATION)
(In percents)

Asset	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Equipment	19.2	4.7	15.5
Furniture and fixtures	15.7	4.7	15.6
Fabricated metal products	13.8	4.6	14.0
Engines and turbines	12.6	4.8	16.5
Tractors	21.0	4.7	15.0
Agricultural machinery	14.4	4.7	14.5
Construction machinery	22.0	4.7	15.6
Mining and oilfield machinery	21.2	4.7	15.1
Metalworking machinery	17.1	4.8	16.7
Special industrial machinery	15.0	4.7	15.0
Special tools	43.2	4.9	18.9
General industrial equipment	17.1	4.8	16.7
Office computing and accounting machinery	32.1	4.8	16.7
Service industry machinery	21.2	4.7	15.1
Electrical transmission and distribution equipment	16.6	4.8	16.3
Communication equipment	16.6	4.8	16.3
Other electrical equipment	16.6	4.8	16.3
Trucks, buses, and trailers	30.1	4.8	15.9
Automobiles	38.1	4.8	16.8
Aircraft	23.1	4.8	16.3
Ships and boats	12.3	4.8	16.0
Railroad equipment	11.1	4.5	11.6
Instruments	19.7	4.7	14.2
Buildings and Structures	8.0	5.0	19.4
Industrial buildings	9.0	5.4	26.2
Commercial buildings	7.7	5.2	23.2
Railroad structures	6.8	5.1	21.2
Telephone and telegraph facilities	7.8	4.5	10.9
Electric light and power	4.8	4.5	10.4
Gas facilities	4.8	4.5	10.4
Petroleum pipelines	9.0	4.5	10.4

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 14. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY INDUSTRY, UNDER THE PRESIDENT'S TAX PROPOSALS (4 PERCENT REQUIRED REAL RETURN, 4 PERCENT EXPECTED INFLATION)
(In percents)

Industry	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Manufacturing			
Food and kindred products	13.5	5.1	20.9
Tobacco manufactures	13.5	5.1	20.8
Textile mill products	13.0	5.0	20.0
Apparel and other fabricated textile products	13.1	5.0	20.6
Paper and allied products	14.1	4.9	18.6
Printing, publishing, and allied industries	12.8	5.1	21.3
Chemical and allied products	13.8	5.0	19.5
Petroleum and coal products	11.6	5.2	23.0
Rubber and miscellaneous plastic products	15.0	5.0	20.0
Leather and leather products	12.3	5.1	21.7
Lumber and wood products, except furniture	15.3	5.0	20.3
Furniture and fixtures	12.8	5.1	22.1
Stone, clay, and glass products	14.8	5.0	20.7
Primary metal industries	13.3	5.1	21.1
Fabricated metal industries	16.5	5.1	21.7
Machinery, except electrical	14.0	5.0	20.6
Electrical machinery, equipment, and supplies	14.2	5.0	20.7
Transportation equipment, except motor vehicles and ordnance	12.7	5.1	22.1
Motor vehicles and motor vehicle equipment	18.8	5.0	20.6
Instruments	13.6	5.1	21.1
Construction	17.0	4.9	19.0
Transportation	12.7	4.8	16.4
Communication	12.1	4.6	13.6
Public Utilities	10.1	4.6	12.3
Wholesale and Retail Trade	14.0	5.0	20.4
Services	14.8	4.9	18.4
All Industries	13.0	4.9	17.7

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 15. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY ASSET, UNDER THE PRESIDENT'S TAX PROPOSALS (4 PERCENT REQUIRED REAL RETURN, 6 PERCENT EXPECTED INFLATION) (In percents)

Asset	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Equipment	19.2	4.7	15.3
Furniture and fixtures	15.7	4.7	15.4
Fabricated metal products	13.8	4.6	13.8
Engines and turbines	12.6	4.8	16.2
Tractors	21.0	4.7	14.8
Agricultural machinery	14.4	4.7	14.2
Construction machinery	21.9	4.7	15.4
Mining and oilfield machinery	21.2	4.7	14.9
Metalworking machinery	17.0	4.8	16.4
Special industrial machinery	15.0	4.7	14.8
Special tools	43.2	4.9	18.6
General industrial equipment	17.0	4.8	16.4
Office computing and accounting machinery	32.1	4.8	16.5
Service industry machinery	21.2	4.7	14.9
Electrical transmission and distribution equipment	16.6	4.8	16.1
Communication equipment	16.6	4.8	16.1
Other electrical equipment	16.6	4.8	16.1
Trucks, buses, and trailers	30.1	4.7	15.7
Automobiles	38.1	4.8	16.6
Aircraft	23.1	4.8	16.0
Ships and boats	12.3	4.8	15.8
Railroad equipment	11.1	4.5	11.4
Instruments	19.7	4.7	14.0
Buildings and Structures	8.0	5.0	19.2
Industrial buildings	9.0	5.4	26.0
Commercial buildings	7.7	5.2	23.0
Railroad structures	6.8	5.1	21.0
Telephone and telegraph facilities	7.8	4.5	10.7
Electric light and power	4.8	4.5	10.3
Gas facilities	4.8	4.5	10.3
Petroleum pipelines	9.0	4.5	10.3

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 16. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY INDUSTRY, UNDER THE PRESIDENT'S TAX PROPOSALS (4 PERCENT REQUIRED REAL RETURN, 6 PERCENT EXPECTED INFLATION) (In percents)

Industry	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Manufacturing			
Food and kindred products	13.5	5.0	20.6
Tobacco manufactures	13.5	5.0	20.5
Textile mill products	13.0	5.0	19.7
Apparel and other fabricated textile products	13.1	5.0	20.4
Paper and allied products	14.1	4.9	18.4
Printing, publishing, and allied industries	12.8	5.1	21.1
Chemical and allied products	13.7	5.0	19.3
Petroleum and coal products	11.6	5.2	22.8
Rubber and miscellaneous plastic products	15.0	5.0	19.8
Leather and leather products	12.3	5.1	21.4
Lumber and wood products, except furniture	15.2	5.0	20.0
Furniture and fixtures	12.8	5.1	21.9
Stone, clay, and glass products	14.8	5.0	20.4
Primary metal industries	13.2	5.1	20.9
Fabricated metal industries	16.5	5.1	21.5
Machinery, except electrical	14.0	5.0	20.4
Electrical machinery, equipment, and supplies	14.2	5.0	20.4
Transportation equipment, except motor vehicles and ordnance	12.7	5.1	21.9
Motor vehicles and motor vehicle equipment	18.8	5.0	20.4
Instruments	13.6	5.1	20.9
Construction	17.0	4.9	18.8
Transportation	12.7	4.8	16.2
Communication	12.1	4.6	13.4
Public Utilities	10.1	4.6	12.1
Wholesale and Retail Trade	14.0	5.0	20.2
Services	14.8	4.9	18.2
All Industries	13.0	4.9	17.5

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 17. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY ASSET, UNDER THE PRESIDENT'S TAX PROPOSALS (6 PERCENT REQUIRED REAL RETURN, 4 PERCENT EXPECTED INFLATION) (In percents)

Asset	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Equipment	21.6	7.2	16.4
Furniture and fixtures	18.2	7.2	16.6
Fabricated metal products	16.2	7.1	15.1
Engines and turbines	15.2	7.3	17.8
Tractors	23.5	7.1	15.7
Agricultural machinery	16.8	7.1	15.5
Construction machinery	24.4	7.2	16.3
Mining and oilfield machinery	23.6	7.1	15.8
Metalworking machinery	19.5	7.3	17.6
Special industrial machinery	17.5	7.1	16.0
Special tools	45.7	7.4	18.5
General industrial equipment	19.5	7.3	17.6
Office computing and accounting machinery	34.5	7.2	17.1
Service industry machinery	23.6	7.1	15.8
Electrical transmission and distribution equipment	19.0	7.2	17.2
Communication equipment	19.0	7.2	17.2
Other electrical equipment	19.0	7.2	17.2
Trucks, buses, and trailers	32.5	7.2	16.2
Automobiles	40.5	7.2	16.6
Aircraft	25.6	7.2	16.9
Ships and boats	14.8	7.3	17.4
Railroad equipment	13.5	6.9	12.9
Instruments	22.1	7.1	15.0
Buildings and Structures	10.7	7.6	21.4
Industrial buildings	11.9	8.3	27.8
Commercial buildings	10.5	8.0	25.4
Railroad structures	9.6	7.9	23.7
Telephone and telegraph facilities	10.2	6.9	12.7
Electric light and power	7.1	6.8	12.3
Gas facilities	7.1	6.8	12.3
Petroleum pipelines	11.3	6.8	12.3

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 18. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY INDUSTRY, UNDER THE PRESIDENT'S TAX PROPOSALS (6 PERCENT REQUIRED REAL RETURN, 4 PERCENT EXPECTED INFLATION) (In percents)

Industry	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Manufacturing			
Food and kindred products	16.2	7.7	22.2
Tobacco manufactures	16.1	7.7	22.1
Textile mill products	15.6	7.6	21.3
Apparel and other fabricated textile products	15.8	7.7	22.0
Paper and allied products	16.7	7.5	19.9
Printing, publishing and allied industries	15.5	7.8	22.7
Chemical and allied products	16.4	7.6	20.8
Petroleum and coal products	14.4	7.9	24.5
Rubber and miscellaneous plastic products	17.6	7.6	21.2
Leather and leather products	15.0	7.8	23.2
Lumber and wood products, except furniture	17.9	7.6	21.5
Furniture and fixtures	15.5	7.9	23.5
Stone, clay, and glass products	17.4	7.7	21.9
Primary metal industries	15.9	7.7	22.4
Fabricated metal industries	19.2	7.8	22.9
Machinery, except electrical	16.7	7.7	21.9
Electrical machinery, equipment, and supplies	16.8	7.7	21.9
Transportation equipment, except motor vehicles and ordnance	15.4	7.9	23.6
Motor vehicles and motor vehicle equipment	21.4	7.7	21.7
Instruments	16.2	7.7	22.4
Construction	19.6	7.5	20.2
Transportation	15.2	7.3	18.0
Communication	14.5	7.1	15.0
Public Utilities	12.5	7.0	14.0
Wholesale and Retail Trade	16.7	7.7	22.0
Services	17.4	7.5	19.9
All Industries	15.6	7.4	19.2

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 19. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY ASSET, UNDER THE PRESIDENT'S TAX PROPOSALS (6 PERCENT REQUIRED REAL RETURN, 6 PERCENT EXPECTED INFLATION) (In percents)

Asset	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Equipment	21.6	7.2	16.1
Furniture and fixtures	18.2	7.2	16.4
Fabricated metal products	16.2	7.0	14.9
Engines and turbines	15.1	7.3	17.6
Tractors	23.4	7.1	15.5
Agricultural machinery	16.8	7.1	15.3
Construction machinery	24.4	7.1	16.0
Mining and oilfield machinery	23.6	7.1	15.6
Metalworking machinery	19.5	7.3	17.4
Special industrial machinery	17.4	7.1	15.8
Special tools	45.7	7.3	18.3
General industrial equipment	19.5	7.3	17.4
Office computing and accounting machinery	34.5	7.2	16.9
Service industry machinery	23.6	7.1	15.6
Electrical transmission and distribution equipment	19.0	7.2	17.0
Communication equipment	19.0	7.2	17.0
Other electrical equipment	19.0	7.2	17.0
Trucks, buses, and trailers	32.5	7.1	15.9
Automobiles	40.5	7.2	16.3
Aircraft	25.5	7.2	16.7
Ships and boats	14.7	7.2	17.2
Railroad equipment	13.5	6.9	12.7
Instruments	22.0	7.0	14.7
Buildings and Structures	10.6	7.6	21.2
Industrial buildings	11.9	8.3	27.6
Commercial buildings	10.5	8.0	25.2
Railroad structures	9.6	7.8	23.5
Telephone and telegraph facilities	10.2	6.9	12.6
Electric light and power	7.1	6.8	12.2
Gas facilities	7.1	6.8	12.2
Petroleum pipelines	11.3	6.8	12.2

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.

TABLE 20. USER COSTS, REQUIRED PRETAX RATES OF RETURN, AND EFFECTIVE TAX RATES, BY INDUSTRY, UNDER THE PRESIDENT'S TAX PROPOSALS (6 PERCENT REQUIRED REAL RETURN, 6 PERCENT EXPECTED INFLATION) (In percents)

Industry	Real User Cost of Capital	Required Pretax Return	Effective Tax Rate
Manufacturing			
Food and kindred products	16.2	7.7	22.0
Tobacco manufactures	16.1	7.7	21.9
Textile mill products	15.6	7.6	21.1
Apparel and other fabricated textile products	15.7	7.7	21.7
Paper and allied products	16.7	7.5	19.6
Printing, publishing, and allied industries	15.5	7.7	22.5
Chemical and allied products	16.3	7.6	20.6
Petroleum and coal products	14.3	7.9	24.3
Rubber and miscellaneous plastic products	17.6	7.6	21.0
Leather and leather products	15.0	7.8	22.9
Lumber and wood products, except furniture	17.9	7.6	21.3
Furniture and fixtures	15.5	7.8	23.3
Stone, clay, and glass products	17.4	7.7	21.7
Primary metal industries	15.9	7.7	22.2
Fabricated metal industries	19.2	7.8	22.7
Machinery, except electrical	16.6	7.7	21.7
Electrical machinery, equipment, and supplies	16.8	7.7	21.7
Transportation equipment, except motor vehicles and ordnance	15.4	7.8	23.3
Motor vehicles and motor vehicle equipment	21.4	7.6	21.4
Instruments	16.2	7.7	22.2
Construction	19.5	7.5	20.0
Transportation	15.2	7.3	17.8
Communication	14.5	7.0	14.8
Public Utilities	12.5	7.0	13.8
Wholesale and Retail Trade	16.7	7.7	21.8
Services	17.4	7.5	19.7
All Industries	15.6	7.4	19.0

SOURCE: Congressional Budget Office.

NOTE: Tax rates are computed under the assumptions that financing is 100 percent equity and all deductions and credits can be taken on a current basis. The taxpayer is a corporation with a marginal tax rate of 46 percent. Taxes paid by individual shareholders on dividends and on capital gains are not counted in the calculation. The tax rate is the corporate income tax rate only.