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5 Tax Reform and the Slope of the Playing Field

Patric H. Hendershott

One goal of tax policy is the efficient allocation of resources. From the perspective of real capital, efficiency translates into the familiar “level playing field” on which different forms of capital investment would compete on equal terms. A relevant question then is, would the changes in tax rates and tax incentives embodied in the Treasury, administration, and House (HR 3838) reform plans and, most importantly, the Tax Reform Act of 1986 render the field more level? Because the slope of the playing field under pre-1986 law also depends on the level of inflation, a related question is, would this slope’s sensitivity to inflation be dampened or exaggerated by the reforms? Providing answers to these questions is the purpose of this paper. Along the way, I also take a brief look backward at the impact of early 1980 tax changes.

Only the administration plan would create a more level playing field (a full version of this analysis is contained in Hendershott 1987). The Treasury plan, the House bill, and the 1986 Act all would tilt the existing field toward owner-occupied housing, the investment that is already most tax favored. In effect, we would return to the pre-1981 world. The administration plan and 1986 Act, and the House bill to a lesser extent, would also significantly reduce the sensitivity of the playing field to inflation. The Treasury plan, in contrast, would increase this sensitivity, in spite of its professed intent to do otherwise.

5.1 The Annual Rental Cost and the Efficient Allocation of Capital

A key determinant of investment in any type of capital good is its annual rental cost. If the gross return from investment promises to

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exceed this cost, then investment will occur. Because additional investment drives down the gross return, an equilibrium eventually will be reached where the gross return from new investment equals the rental cost. Moreover, the higher the rental cost for any capital good, the higher the required gross return will be and thus the less investment there will be in the good in equilibrium.

In a world devoid of taxes and tax incentives, the annual rental cost or investment hurdle rate is simply the real interest rate, including the risk premium relevant to the asset, plus economic depreciation. The higher the risk premium an asset must promise and the greater its anticipated rate of depreciation, the higher the hurdle rate and thus the required gross return. But this is only appropriate: assets that are riskier and wear out faster should promise greater returns to compensate for their greater risk and more rapid deterioration. The zero-tax and no-tax-incentive world would yield a level playing field, that is, one in which the risk-adjusted net (of depreciation) rental costs for all investments are equal.

But our world has numerous taxes and tax incentives. The “effective tax rates” for alternative investments, plus differences in the financing and riskiness of the investments, tilt the playing field in various directions. The tilts, in turn, cause overinvestment in some capital goods and underinvestment in others. The result is a lower average return on capital than would exist with the optimal allocation of capital and a reduction in the national standard of living. This reduction is labeled an efficiency loss.

5.2 The Playing Field under Pre-1986 Law

Table 5.1 lists the risk-adjusted net rental costs for seven capital classes and five tax regimes: pre-1986 law; the November 1984 Treasury plan; the May 1985 administration plan; HR 3838, passed in December 1985; and the Tax Reform Act of 1986, enacted in the fall of 1986. There are four corporate asset classes (inventories, equipment, public utility structures, and industrial structures) and three noncorporate real estate assets (depreciable rental and commercial structures, owner-occupied housing of households with adjusted gross incomes under \$50,000 in 1985 dollars, and owner-occupied housing of households with incomes over \$50,000). The calculations for pre-1986 law assume a 5% inflation rate and a 10% debt rate and have been adjusted to the presumed risk of owner-occupied housing. Other important assumptions will be noted.

As is shown, the adjusted net rental costs, or investment hurdle rates, vary widely across corporate assets under pre-1986 law. Inventories have the highest costs; utilities and, especially, equipment have the lowest. The differences are explained easily. Inventories are subject to

Table 5.1 Risk-adjusted Net Rental Costs: 5% Inflation

	Pre-1986 Law	Treasury Plan	Administration Plan	House Bill	Tax Reform Act of 1986
Corporate investments					
Inventories	.109	.074	.086	.083	.085
Equipment	.036	.068	.051	.063	.061
Public utilities	.060	.072	.048	.072	.070
Structures	.075	.073	.064	.070	.073
Depreciable real estate	.041	.041	.036	.040	.039
Owner-occupied housing					
Under \$50,000 AGI	.035	.020	.035	.026	.025
Over \$50,000 AGI	.016	.012	.023	.010	.014
Level of interest rates	.100	.074	.094	.087	.086

Source: Except for the calculations for the Tax Reform Act of 1986, these numbers are based on Hendershott (1987).

a special inflation tax because of FIFO (first-in, first-out) accounting; utilities and equipment benefit from a special tax break, the investment tax credit. Because a given percentage credit is more beneficial as the life of the asset is shorter, the credit lowers the cost for equipment more than the cost for utilities.

The hurdle rate for depreciable real estate structures is far less than that for corporate industrial structures. In addition to the double taxation of corporate income, discrimination in the current system against riskier, more equity-financed investments and the lower risk and greater debt associated with real estate investments cause this difference.¹ More specifically, the calculations are based on a one-third debt-to-value ratio and a 5% risk premium for corporate investments, versus a two-thirds debt-to-value ratio and 2.5% risk premium for depreciable real estate.

The hurdle rates for owner-occupied housing are the lowest, reflecting the absence of taxation on the returns from this asset. (These calculations are independent of the assumed risk premium and, under

1. These calculations are somewhat controversial because the impacts of double taxation and the riskiness of investments on relative hurdle rates are uncertain. If the personal tax rate on share returns is taken to be a 40/60 weighted average of the tax rates on dividends and capital gains, the 40 reflecting the percentage of real corporate earnings that historically have been paid out, then double taxation causes a large wedge in hurdle rates. In contrast, if a 10/90 weighted average is employed, reflecting the proportion of equity capital raised by new share issues rather than retained earnings, the wedge is much smaller (Auerbach 1983, 918–26). Similarly, if one accepts the analysis of Bulow and Summers (1984), risk creates a large wedge, but this is not true under the framework of Gordon and Wilson (1986). An intermediate wedge, based upon a 10/90 dividend/capital gains tax assumption and the Bulow-Summers analysis, is built into the estimates in table 5.1.

pre-1986 law, are largely independent of the assumed loan-to-value ratio.) The advantage of nontaxation is, of course, greater as the tax bracket of the homeowner rises. For simplicity, owners have been divided into only two classes, those with incomes above \$50,000 and those below \$50,000. The hurdle rates for these classes are rough weighted averages of owners within each of these classes; the weights depend on the relative quantities of housing that the owners demand.

A comparison of the risk-adjusted net costs under pre-1986 law suggests two ways to produce a more level playing field. First, the general advantage of real estate, especially owner-occupied housing of higher-income households, can be lessened. (While a plausible case can be made for tax incentives to encourage homeownership, a persuasive case for subsidizing owners to occupy larger houses has not been made.) Second, the disparity of costs across corporate assets can be reduced. The latter suggestion mostly requires lowering the costs of other corporate assets to that of equipment; the often-noted bias in favor of equipment under pre-1986 law, while large relative to other corporate investments, is small relative to capital investments in general.

5.3 The Treasury, Administration, and House Tax Reforms

Proposed tax reforms generally treat capital income less favorably than did pre-1986 law: the investment tax credit is dropped in all proposals, depreciation allowances are less generous in most cases, and the tax rate at which real estate expenses are deductible would decline under every reform. As a result, aggregate investment demand would fall if the existing level of interest rates continued. I have constructed a model in which the interest rate declines just enough to maintain the demand for aggregate investment. This interest rate level is shown at the bottom of table 5.1, and the adjusted net rental costs listed in the table for the various reforms are based on the new lower level. This procedure makes the general level of adjusted net costs in any column comparable to that in any other column. If the costs were computed with the initial 10% level of interest rates, then all the numbers in each column would be increased. The further 10% is above the interest rate in the bottom row, the larger would be the increase. However, the relationship among the numbers in any column—the slope of the playing field—would change little for the administration and House reforms, and the differences across the numbers for the Treasury plan would be even greater.

The Treasury plan attempts to neutralize the tax system for inflation by indexing everything. Only real capital gains, including those on inventories, would be taxed; depreciation would be on a replacement, rather than historic, cost basis; and only the “real” part of interest expense would be taxed and could be deducted (except all mortgage

interest on one's principal residence would remain deductible). The Treasury plan also attempts to tax all assets and business forms (except owner-occupied housing) equally. To this end, tax depreciation for each depreciable asset would equal the Treasury's best estimate of true economic depreciation. The investment tax credit would be dropped. Real capital gains would be taxed at the regular income tax rate, and half of corporate dividends would be deductible at the corporate level. As the data in table 5.1 show, the indexation of inventory gains, the removal of the tax credit, and the proposed treatment of tax depreciation would vastly narrow the risk-adjusted net costs across corporate assets. Also, the partial dividend exclusion would reduce the double taxation of corporate investments.

While the Treasury plan scores high in reducing the disparities across corporate investments—and in reducing the disparities across industries within the corporate sector, although that point is not illustrated here—the plan fails to reduce the advantages of real estate. In fact, the relative advantage of owner-occupied housing rises by nearly 25%. Under pre-1986 law, the difference between the average net costs for corporate and owner-housing capital is about four percentage points (0.067–0.026); with the Treasury plan, the difference rises to 5.25 percentage points (0.069–0.016). Because owner-occupied housing is currently the most tax-favored asset, the added efficiency loss from enlarging this bias swamps the efficiency gain from better allocation across corporate assets.²

The administration plan retreats from the general principles of the Treasury plan in significant respects: all interest would continue to be deductible; investors in nondepreciable assets would have the option of paying taxes on nominal capital gains at half of the regular income tax rate; tax depreciation would exceed economic depreciation; only one-tenth of dividends would be deductible; and, in order to make the plan revenue neutral, inventory gains would continue to be nonindexed. Tax depreciation would be especially generous for equipment that continues to be classified as three or five years and for public utility struc-

2. These conclusions regarding the Treasury plan differ from those of Fullerton and Henderson (1987), who find that the relative advantage to owner-occupied housing would rise only half as much. The differences in the two studies are largely attributable to different assumptions about home mortgage financing. Because mortgage interest expense would be fully deductible but mortgage (bond) interest income would be only partially taxed, I have assumed that households would raise their loan-to-value ratios from 67% to 85%. The gain from this pure tax arbitrage—issuing mortgage debt and investing in GNMA securities—is an effective reduction in the rental cost of owner housing, whose collateral is needed for the arbitrage. Fullerton and Henderson assume a base case loan-to-value ratio of only 33% and no increase in response to the Treasury plan. (When I analyze the Treasury plan with full interest indexation—home mortgage interest, too, is only partially deductible—the relative advantage to owner-occupied housing increases by only one-third percentage point.)

tures; allowable depreciation would exceed that under pre-1986 law even at zero inflation. However, most five-year equipment would be reclassified as six-, seven-, and even ten-year equipment. As a result, biases against inventories and in favor of equipment would remain, although at much reduced levels. Moreover, the administration plan would reduce the general bias against corporate investments and in favor of owner-occupied housing, especially of higher-income households. Overall, the result would be a more level playing field and more efficient allocation of capital.

The House bill removes the investment tax credit and substantially lengthens depreciation schedules for structures. The resulting impact on adjusted net rental costs would be remarkably similar to that of the Treasury plan. Moreover, because far less base broadening would occur than under the Treasury and administration plans (most important, state and local taxes would continue to be fully deductible), marginal tax rates for most homeowners with incomes between \$40,000 and \$90,000 would not decline relative to current law (Hendershott and Ling 1986); thus, neither would the absolute advantage of owner-occupied housing. The disparity among corporate net rental costs would narrow sharply, but these costs would be at a high level, while costs for owner-occupied housing would decline from their already low levels. Again, a generally less level field and less efficient allocation of capital would result.

5.4 The Tax Reform Act of 1986

The capital provisions of the enacted legislation are quite similar to those of the House bill: the investment tax credit is removed and the tax depreciation schedules for structures are substantially lengthened. The main differences between the House bill and the 1986 Tax Act are base broadening on the personal side (lost sales tax and consumer interest deductions, lost capital gains exclusion, limited exclusions for IRA and SRA (401k) contributions, etc.) and lower marginal tax rates, especially for high income households.

Given the basic similarities between the House and the enacted bills, the adjusted net rental costs are quite comparable. The only noteworthy difference is a nearly half percentage point higher rental cost for owner-occupied housing of high income households under the Tax Reform Act of 1986. Their higher cost stems from their lower marginal tax. Because this capital category is the most tax-favored, a higher cost leads to a more efficient allocation of capital. Still, the playing field will be less level than under pre-1986 law and thus capital allocation will be less efficient.

5.5 What ERTA/TEFRA Wrought

The Economic Recovery Tax Act of 1981 (ERTA) roughly halved depreciation tax lives. Together with the existing investment tax credit, this created negative effective tax rates on equipment. However, the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), which reduced the depreciable base for equipment by one-half the investment tax credit (and reneged on the more accelerated depreciation methods promised in 1985), got the tax rates back into the positive zone. Because ERTA/TEFRA were so maligned for the biased (toward equipment) playing field they created (see, e.g., Gravelle 1982), it is perhaps useful to revisit the impact of the early 1980 tax changes.

Table 5.2 shows risk-adjusted net rental costs both before and after ERTA/TEFRA. The expected long-run inflation rate at the time of enactment is presumed to have been 8%, and the level of interest rates associated with that is taken to be 13%. Comparing the pre- and post-ERTA/TEFRA numbers, we do see a marked reduction in the hurdle rate for equipment relative to other corporate investments: 3.5 percentage points vis-à-vis inventories, two percentage points relative to public utilities, and one percentage point more than structures. On the other hand, what had been a large bias in favor of owner-occupied housing was sharply reduced. The “average” gap between hurdle rates on corporate capital and owner-occupied housing was lowered from roughly six percentage points (0.07 less 0.01) to about 3.5 percentage points (0.06 less 0.025).

Therefore, ERTA/TEFRA reduced the efficiency of the allocation within the corporate sector but increased the efficiency of allocation between owner-occupied housing and the corporate sector. Given the large bias toward owner-occupied housing prior to ERTA/TEFRA, overall capital would likely be allocated more efficiently post- than pre-

Table 5.2 Risk-adjusted Net Rental Costs: 5% Inflation Rate

	Pre-ERTA	Post-ERTA/TEFRA
Corporate investments		
Inventories	.100	.110
Equipment	.054	.030
Public utilities	.063	.057
Structures	.079	.066
Depreciable real estate	.039	.039
Owner-occupied housing		
Under \$50,000 AGI	.025	.036
Over \$50,000 AGI	.001	.013
Level of Interest Rates	.130	.141

ERTA/TEFRA. The principal deficiency of the Treasury plan, the House bill, and the enacted legislation, from the capital efficiency perspective, is their tendency to reestablish the large bias in favor of owner-occupied housing (compare the net adjusted hurdle rate for owner-occupied housing in tables 5.1 and 5.2).

5.6 Inflation Neutrality

The inflation neutrality of the various tax regimes is calculated by computing the changes in the adjusted net rental costs that would occur as inflation rises from zero to 10%. The change in the level of interest rates accompanying the 0.10 rise in inflation is listed in the last row of table 5.3. Under pre-1986 law (and the administration and House reforms), interest rates rise by about 1.4 times the increase in inflation because nominal, rather than real, interest is taxed and deducted. With the 1.4 increase, the general level of rental costs that evolves maintains aggregate investment. With perfect interest indexation (the taxation and deduction of real interest only), interest rates would rise one-for-one with the increase in inflation. The rate increase is 1.15-for-one under the Treasury plan because two flaws in its indexation feature would continue to allow deduction of part of the inflation premium in interest rates. First, the indexation presumes a 6% real interest rate, a level that is probably too high even under pre-1986 tax law and would certainly be far too high after interest rates declined in response to the adoption of indexation. Second, mortgage interest expense on one's principal residence would continue to be fully deductible under the Treasury plan.

Table 5.3 Change in Risk-adjusted Net Rental Costs as Inflation Rises from 0% to 10%

	Pre-1986 Law	Treasury Plan	Administration Plan	House Bill
Corporate investments				
Inventories	.017	.018	.030	.023
Equipment	.016	.017	.003	.014
Public utilities	.011	.018	.003	.009
Structures	.005	.018	.003	.007
Depreciable real estate	-.015	.004	-.011	-.007
Owner-occupied housing				
Under \$50,000 AGI	.012	-.005	.013	.008
Over \$50,000 AGI	-.015	-.021	-.005	-.013
Change in level of interest rates	.146	.115	.145	.139

Two sources of bias in pre-1986 tax law, the advantage of debt and the double-taxation disadvantage of corporate ownership, are aggravated by inflation. Thus, inflation favors depreciable real estate and high-income owner-occupied housing, both of which are heavily debt financed and not corporate owned, and disfavors corporate investments that are heavily equity financed. Lower-income owner housing is also disfavored because the owners deduct interest at a low tax rate and do not have an advantage from debt financing. With a marginal tax rate of 0.2, the real after-tax rate rises from 2.5% at a zero inflation rate to 4% at a 10% rate. In contrast, with a 0.4 tax rate, the real after-tax rate would decline from 1.75% to 0.5%.

Full interest indexation and integration of corporate and personal taxes would eliminate the disadvantages to both equity finance and corporate ownership. Because exaggeration of these biases is the source of inflation non-neutrality under pre-1986 law, one would expect the Treasury plan to be more inflation neutral than pre-1986 law. Unfortunately, imperfections in the Treasury plan, particularly the exclusion of home mortgage interest expense from the indexation provision, render the plan more sensitive to inflation. While the large advantage to depreciable real estate is removed, the advantage to owner-occupied housing is increased. With the much smaller increase in nominal interest rates and the continued full deductibility of interest payments, the real after-tax mortgage rate declines as inflation accelerates, even for owners in the 0.2 tax bracket. The other side of the coin is higher costs for corporate investments. However, the different types of corporate investment are affected equally (badly) by inflation.

The administration plan, in contrast, would be more inflation neutral than pre-1986 law. The two inflation-favored investments under pre-1986 law, depreciable real estate and owner-occupied housing of high-income households, would be less favored. This follows from the reduction in tax rates that lowers the advantage of debt. With the exception of inventories, which would still be subject to the inflation tax, corporate costs would be insensitive to inflation. (This would also be true of inventory costs if revenue neutrality had not caused the inflation tax to be maintained.)

The House bill, too, would reduce the inflation biases existing in pre-1986 law, although by less than the administration plan. Again, the two most inflation favored investments under pre-1986 law would be less favored, but the increase in the cost for high-income owner-occupied housing is limited. The small increase relative to the administration plan follows from differences in the marginal tax rate at which owners in the \$50,000–\$100,000 income range would deduct mortgage interest. Under the House bill, this tax rate would rise by two percentage points,

tending to lower the after-tax mortgage rate; in contrast, this tax rate would decline by 6.5 percentage points under the administration plan.

The 1986 Tax Act, which has not been formally analyzed, would be slightly less neutral than the administration plan but more neutral than the House bill and pre-1986 law.

5.7 Conclusion

Possible benefits of tax reform include faster economic growth and greater equity. A part of economic growth is the channeling of saving into the most productive real investments. The ability of various tax regimes to channel saving efficiently and independently of the inflation rate has been the focus of this paper.

On the basis of this single criterion, the May 1985 administration proposal is superior to pre-1986 law, the Treasury proposal of November 1984, HR 3838 passed by the U.S. House of Representatives in December 1985, and the Tax Reform Act of 1986. Efficient capital investment requires that the risk-adjusted net (of depreciation) rental costs of all capital goods be equal. The administration plan would reduce both the disparity of these costs across corporate investments and the gap between the average costs for corporate investments and owner-occupied housing. While the Treasury plan, the House bill, and the enacted 1986 law would all narrow the differences in rental costs across corporate assets even more than the administration plan would, these reforms would greatly increase the bias in favor of owner-occupied housing. In fact, this bias is likely to be as great as it was prior to ERTA. As a result, saving would be allocated even less efficiently under these plans than under pre-1986 law.

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