Inflation, Taxes, and the Durability of Capital

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Abstract

Auerbach (1979, 1981) has demonstrated that inflation can lead to large inter-asset distortions, with the negative effects of higher inflation unambiguously declining with asset life. We show that this is true only if depreciation is treated as geometric for tax purposes. When depreciation is straightline, higher inflation can have the opposite effect, discouraging investment in long-lived assets. Since our current system can be thought of as a mixture of straightline and geometric, the sign of the inter-asset distortion is indeterminate. We show that under current U.S. tax rules, the “straightline” and “geometric” effects approximately cancel for equipment, causing almost no inter-asset distortions. For structures, inflation clearly causes substitution into long-lived assets.

I. Introduction

With much recent discussion about the merits of achieving price stability in the United States, it is appropriate to consider the effects of fully anticipated price inflation on real economic decisions, a topic of intensive study during the high inflation period of the late 1970s and early 1980s. Recent papers by Abel (1996) and Feldstein (1996) have returned to this issue. They primarily examine the distortions to the intertemporal allocation of lifetime consumption arising from the interaction of inflation and the tax system and find that reducing the annual inflation rate from 2 percent to zero can generate permanent welfare gains on the order of 1 percent of GDP per year in perpetuity. In a complementary study, Cohen, Hassett, and Hubbard (1997) focus on the effects of inflation on the user cost of capital and business investment; they show that, under current tax law, an increase in inflation continues to boost significantly the aggregate user cost even when the level of inflation is relatively low.

Auerbach (1979, 1981) has highlighted a key additional cost of inflation, namely that it leads to potentially large inter-asset distortions. Indeed, he shows that the inflation sensitivity of the user cost unambiguously declines with asset durability. Put another way, higher inflation has a larger adverse effect on the user cost of short-lived assets than on the user cost of long-lived assets and, thus, encourages the substitution of long-lived for short-lived capital goods. In this paper, we show that this result, while correct, is sensitive to the system of tax depreciation in effect; in particular, for assets subject to straight-line depreciation on a historical cost basis, we show that the inflation sensitivity of the user cost can increase with asset durability. This distinction is important because the depreciation system currently in effect in the United States is a combination of accelerated and straight-line depreciation schemes in the case of personal property and is the straight-line method in the case of real property.

In the next section, we show that the present value of depreciation allowances per dollar invested under both the declining balance and straight-line methods of tax depreciation varies inversely with the rate of inflation. In section III, we establish that, under straight-line depreciation, the inflation sensitivity of the user cost of capital may increase with asset durability. In section IV, we calculate the inter-asset distortions caused by inflation both within and across equipment and structures classes under current law. Section V offers some brief concluding thoughts.

II. Tax Depreciation

Auerbach (1979, 1981) assumes that the services of capital decline exponentially, with constant rate of decay, δ. That is, the service flow per dollar invested is given by $S_t = \delta e^{-\delta t}$ which implies that $-S'/S = \delta$ or that the service flow declines at the constant percentage rate, δ, each period. Thus a lower value of δ corresponds to a more durable piece of capital. In addition, Auerbach assumes that depreciation allowances for tax purposes are equal to economic depreciation with no inflation; however, depreciation for tax purposes is done on a historical cost basis even if the replacement cost of the asset is rising over time at rate π, the rate of price increase of all goods. If ρ denotes the real after-tax cost of funds (debt plus equity) and $\rho + \pi$ the nominal discount rate, then the present value of nominal depreciation allowances per dollar invested (assuming that the capital good is held forever) is:

$$z_{DB} = \int_0^\infty e^{-(\rho+\pi)t}\, \delta e^{-\delta t}\, dt = \delta/(\delta + \rho + \pi) \qquad (1)$$

Note that this present value varies inversely with inflation (given ρ and δ). Also note that this characterization of depreciation allowances only approximates the declining balance method used for personal property in the United States. It differs for three reasons: first, personal property is written off over a finite period of time--the service life, T (which is seven years for most personal property); second, it is subject to a half-year convention in the first year that depreciation is taken (which, in effect, converts exponentially declining depreciation into straight-line depreciation in the first year); third, switching from the declining balance to straight-line method when optimal is allowed (this occurs, for example, in the fifth year for an asset with a seven-year service life).

In addition to the declining balance method, current U.S. tax law allows straight-line depreciation of real property, such as commercial structures and residential real estate. With straight-line depreciation, the historical cost of a capital asset is written off in equal installments over the tax service life. Further, the tax service life can differ from the true underlying service life. The present value of depreciation allowances per dollar invested, under the straight-line method (in continuous time), is given by:

$$z_{SL} = \int_0^T (1/T)e^{-(\rho+\pi)t}\,dt = (1 - e^{-(\rho+\pi)T})/\,T(\rho + \pi) \qquad (2)$$

Differentiation of this expression confirms that the present value of straight-line depreciation allowances varies inversely with the rate of inflation; that is, if $\beta = \rho + \pi$, then

$$(\partial z_{SL}/\partial\pi)_{\rho} = (\beta T)^{-2}\,[e^{-\beta T}(\beta T^2 + T) - T] < 0$$

because $\ln[1 + (\rho+\pi)T] < (\rho+\pi)T$.

III. The User Cost and Durability of Capital: Analytic Results

As shown by Hall and Jorgenson (1967), the tax treatment of depreciation is only a part of the overall user cost of capital to firms. In fact, maximization of the present discounted value of after-corporate-tax cash flow over an infinite horizon, under the assumptions of no investment tax credit, no adjustment or installation costs for new capital, and no change in the relative price of capital goods, q, implies that the pre-tax marginal product of capital today equals today's user cost, C, where:

$$C = q(\rho + \delta)(1 - \tau z)/(1 - \tau) \qquad (3)$$

In this formula, τ denotes the corporate tax rate.

It follows that for a given real after-tax cost of funds, ρ, and a given durability of capital, δ, the user cost per dollar invested, C/q, varies directly with the rate of inflation, because, as discussed above, the present value of depreciation allowances varies inversely with inflation whether depreciation is subject to the declining balance or straight-line methods.

Our focus of attention, however, is on how the durability of capital affects the inflation sensitivity of the user cost for a given cost of funds. Auerbach shows that the inflation sensitivity varies inversely with durability in the case where tax depreciation coincides with exponential (economic) depreciation--approximately the declining balance method. This is seen by substituting equation 1 into equation 3 and differentiating the resulting expression for C/q first with respect to π, holding ρ constant, to get:

$$\partial(C/q)/\partial\pi = -[\tau/(1-\tau)](\rho + \delta)(\partial z_{DB}/\partial\pi)_{\rho} \qquad (4)$$

Now differentiate this expression with respect to δ to get:

$$\partial[\partial(C/q)/\partial\pi]/\partial\delta = [\tau/(1-\tau)](\rho+\pi+\delta)^{-3}[\rho(\rho+\pi+\delta)+2\pi\delta] > 0 \qquad (5)$$

i.e., the inflation sensitivity of the user cost rises with the depreciation rate or falls with durability.

This implies that a disinflation creates an incentive for a firm to substitute less-durable for more-durable capital goods. The same points can be made in terms of the effective corporate tax rate, defined as $(C-\delta-\rho)/(C-\delta)$. Inflation raises the effective rate by reducing the real value of the stream of tax savings from depreciation deductions. Moreover, the resulting "inflation tax" declines with asset durability, and in this sense, inflation unambiguously weighs less heavily on long-lived than short-lived assets.

This result does not necessarily carry over to the case of straight-line depreciation, as seen by the following proposition.

Proposition: For a given real after-tax cost of funds, ρ, and an assumed inverse relationship between economic depreciation rates and tax service lives (i.e., $\partial T/\partial\delta < 0$), the inflation sensitivity of the user cost under straight-line depreciation falls with the depreciation rate [i.e., $\partial[\partial(C/q)/\partial\pi]/\partial\delta < 0$] only if $(\rho + \pi)T < 1.8$.

To establish this result, substitute equation 2 into equation 3 and let $z'_{SL} = (\partial z_{SL}/\partial\pi)_{\rho}$ and $\beta = \rho + \pi$. Differentiation of the resulting expression yields:

$$\partial[\partial(C/q)/\partial\pi]_{\rho}/\partial\delta = -[\tau/(1-\tau)]\{z'_{SL} + (\rho+\delta)(\partial z'_{SL}/\partial T)_{\rho}(\partial T/\partial\delta)\} \qquad (6)$$

Assume that capital goods with higher rates of economic depreciation have shorter tax service lives, i.e., $\partial T/\partial\delta < 0$. This condition should hold under any rational tax policy even though it is not uncommon for changes in tax law to modify the tax service life of a depreciable capital good whose true economic durability, as measured by δ, has not changed. Also, differentiation of z'_{SL} establishes that:

$$(\partial z'_{SL}/\partial T)_{\rho} = (T\beta)^{-2} \{1 - e^{-\beta T} - (\beta T)e^{-\beta T} - (\beta T)^2 e^{-\beta T}\} \qquad (7)$$

Thus, the right hand side of expression 6 is negative--reversing the Auerbach result--only if the right hand side of expression 7 is negative. That is, the Auerbach result can be reversed only when an increase in service life reduces the inflation sensitivity of z. This condition is nonlinear in βT; numerical approximation reveals that the condition is satisfied for all values of ρ, π, and T such that $(\rho+\pi)T < 1.8$. This completes the proof of the proposition.

To illustrate the key condition of the proposition, suppose that the inflation rate is zero and that the real after-tax cost of funds is 5 percent per year. The condition, $(\rho + \pi)T < 1.8$, then holds for all depreciable capital goods with services lives less than 36 years. This maximum service life declines, of course, when higher values of the inflation rate or cost of funds are used in the calculation. In any case, it is useful to note that $(\rho + \pi)T < 1.8$ is a necessary condition; for inflation to encourage the substitution of short-lived for long-lived capital, $\partial T/\partial \delta$ must be sufficiently large in absolute value as well.

This result can be extended in a number of directions. For example, the proposition assumes that the real after-tax cost of funds, ρ, is constant. However, as discussed in detail in the next section, ρ varies with inflation because of the tax treatment of nominal interest payments in the case of debt finance and the taxation of nominal capital gains in the case of equity finance. When ρ depends on inflation, the term, $\Psi = -[\tau/(1-\tau)][\partial\rho/\partial\pi][\partial T/\partial\delta]\{(\partial z/\partial T) + (\rho+\delta)[\partial(\partial z/\partial\rho)/\partial T]\}$, is added to the right hand side of expression 6. This term is negative when inflation raises the real cost of funds ($\partial\rho/\partial\pi > 0$); under this benchmark condition (described below), the term reinforces the basic result of the proposition.[1] However, this need not always be the case. For example, inflation can reduce the real cost of funds in the case of debt finance.

Further, for a hybrid depreciation system like that applying to machinery and equipment currently in the United States, the nature of the distortionary bias resulting from inflation is not unambiguous *a priori*, because the "straight-line" and "accelerated" portions of depreciation pull in opposite directions. The next section examines this issue.

IV. The User cost and Durability of Capital: Empirical Results

In this section, we examine the inflation sensitivity of the user cost under the depreciation rules in effect in the United States in the mid-1990s. These rules were summarized above in section II; a formal presentation can be found in Cohen, Hassett, and Hubbard (1997). In addition, this section also gives a more complete treatment of the cost of debt and equity funds, because,

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[1] Ψ is negative in the benchmark case because a *ceteris paribus* increase in the tax service life reduces the present value of depreciation allowances (i.e., $\partial z/\partial T < 0$) and because the sensitivity of the present value of depreciation allowances to the real discount rate declines with service life.

in general, each depends on the rate of inflation. We follow the approach in Cohen, Hassett, and Hubbard (1997), and start with a brief discussion of the cost of debt capital.

Because corporations can deduct nominal interest expenses, the real after-corporate-tax borrowing rate, ρ_d , is given by $\rho_d = R(1 - \tau) - \pi$, where R denotes the market rate of interest. Moreover, because savers are taxed on nominal interest income, the real after-tax rate of return to savers, r, is given by: $r = R(1 - \tau_p) - \pi$, where τ_p denotes the marginal personal income tax rate. Combining these expressions gives the real after-tax borrowing cost from the perspective of the ultimate supplier of debt capital: $\rho_d = [r(1 - \tau) + \pi(\tau_p - \tau)] (1 - \tau_p)^{-1}$, which also can be written as $\rho_d = (R - \pi)(1 - \tau) - \tau\pi$. In our benchmark case, we assume that the real after-tax return to savers, r, is invariant to changes in the rate of inflation. In this case, (which assumes that the Fisher effect holds in tax-adjusted terms) inflation has very little effect on the real cost of debt capital if the marginal personal and corporate tax rates are close to each other, as can be seen from the first expression for ρ_d. We also discuss the case in which the real before-tax rate, $(R - \pi)$, is invariant to inflation (or that the Fisher effect holds in before-tax terms, i.e., that the nominal rate moves point-for-point with inflation); in this case, higher inflation reduces the real after-tax cost of debt, as can be seen from the second expression for ρ_d. We now turn to a discussion of the cost of equity finance.

The real cost of equity, ρ_e , to a firm is $\rho_e = D + E - \pi$, where D denotes dividends per dollar invested, and E denotes investors' required ex-dividend nominal rate of return per dollar invested. This expression reflects the fact that businesses cannot deduct dividends and retained earnings from taxable income. Also, we adopt the tax capitalization or "new" view of equity taxation (see Auerbach, 1979), which suggests that the relevant equity tax rate is the effective capital gains tax rate, regardless of dividend policy. This view is premised on the assumption that equity funds come primarily from retained earnings (i.e., lower dividends paid out of current earnings) rather than from new share issues, and implies that taxes on dividend distributions are capitalized into the value of the equity rather than imposing a burden on the returns to new investment.

Under the new view, Auerbach (1983) shows that the value of new investment per dollar, q , equals $(1-\tau_d)/(1-c)$, where τ_d denotes the individual tax rate on dividends and c denotes the accrual equivalent tax rate on capital gains. Further, capital market equilibrium requires that the after-tax rate of return on the firm's investment equals the investor's required rate of return, ρ_i. Following Auerbach (1983), for a constant value of q, $\rho_i = (1-\tau_d)D/q + (1-c)E - \pi$. Combining expressions establishes that the firm's real cost of equity financing under the new view is: $\rho_e = \rho_i/(1-c) + c\pi/(1-c)$. Thus, for a given ρ_i, inflation increases the real cost of equity because of the taxation of capital gains.

Combining the previous discussions of the costs of debt and equity finance, the total real cost of funds, ρ, is given by: $\rho = w_d \rho_d + w_e \rho_e$, where w_d and w_e denote the shares of debt and equity in total finance, respectively. These weights will be treated as empirical constants.

We now present the main empirical calculations of our paper. They are summarized in tables 1-4, which show the user cost of capital per dollar invested (see equation 3) at inflation rates ranging from zero to 10 percent per annum and under different assumptions about tax and economic service lives. The key parameter values used in the benchmark calculations are: r = .02; ρ_i = .06; τ = 0.35; τ_p = 0.45; w_d = 0.4; w_e = 0.6.[2]

The tables provide support for the basic points of this paper. First, they implicitly reveal the possibility that $(\partial z'/\partial T) < 0$, where $z' = \partial z/\partial \pi$ and z is the present discounted value of depreciation allowances on one dollar invested in personal property under current U.S. tax law. For example, the second column of table 1 shows that the user cost of equipment capital with a 5-year economic and tax service life rises from 26.6 percent to 31.1 percent--a 4.5 percentage point rise--as inflation increases from zero to 10 percent. The final column

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[2] We also assume that output is produced and held as finished goods inventories for one year; we allow for inflation's impact on inventory profits to increase the corporate tax rate by $\eta\tau\pi$, where η is the fraction of inventories subject to FIFO accounting. However, values of η between 0 and 30 percent have virtually no effect on our results and, so, for simplicity, calculations in tables 1-4 are based on η = 0.

shows that over the same range of inflation rates the user cost of equipment with the same 5-year economic life, but a 7-year tax service life, rises 4.9 percentage points. And, an increase in the inflation sensitivity of the user cost as the tax life rises, for a given δ and ρ, can only occur if the inflation sensitivity of z declines with service life.[3] The same result also holds in table 2.

By contrast, in tables 3 and 4, the inflation sensitivity of the user cost of structures declines as service life rises from 27 and 39 years (the two service lives currently available for structures under U.S. tax law). This implies that the inflation sensitivity of depreciation allowances necessarily increases with service life (i.e., $\partial z'/\partial T > 0$) even though structures are subject to straight-line depreciation. Evidently, for our benchmark parameter values, there is not a small enough positive value of inflation for which the condition, $(\rho + \pi)T < 1.8$, holds in the case of assets with 39-year tax service lives. However, for property placed in service prior to May 1993, the service life is 31 years; in this case (not shown in tables) the condition does hold, but only at very low inflation rates (less

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[3] Algebraically, this follows by differentiation of equation 2, holding δ and ρ constant, i.e., $\partial[\partial(C/q)/\partial\pi]/\partial T = -[\tau/(1-\tau)][(\rho+\delta)(\partial z'/\partial T)]$. However, in table 1, there is a relatively small increase in ρ from roughly 5 percent to 6 percent per annum as inflation varies over its entire range. A large ρ adds a bit to the value of the above expression (that is, $-[\tau/(1-\tau)][(\partial\rho/\partial\pi)(\partial z/\partial T)]$ is added to the above expression, noting that a *ceteris paribus* increase in the tax service life reduces the present value of depreciation allowances). Also note that, in the example of table 1, $(\rho + \pi)T$ is less than 1.8, the critical value derived in the previous section.

than 1 percent per annum).

The foregoing discussion thus strongly suggests that the basic proposition of the last section--which, strictly speaking, applies to assets subject to straight-line depreciation--can be illustrated only by a comparison of tables 1 and 2, which are applicable to producers' durable equipment. Indeed, comparison of the benchmark values in the third column of table 1 with those in the second column of table 2 shows that the inflation sensitivity of the user cost of assets with a 5-year economic life and 7-year tax life is greater (just) than the corresponding inflation sensitivity of assets with a 3-year economic and tax life over the full range of included inflation rates. In this case, inflation encourages the substitution of short-lived for long-lived equipment.

A key factor underlying this result is that the tax service life changes by more than the economic life (both expressed in years). This implies that the inflation sensitivity of the user cost of capital with a 3-year economic and tax service life is less than the corresponding sensitivity of capital with a 7-year tax life and any economic life between 3 and 5 years (not shown in tables).

Conversely, inflation does not encourage the substitution of short-lived for long-lived equipment when the tax and economic lives increase by the same amount, as seen by comparing the benchmark figures in the third columns of tables 1 and 2. This is true also in the special case of $\delta = 1/T$. This can be seen, for example, by comparing the second columns of tables 1 and 2: inflation raises the user cost of equipment with a 3-year economic and tax life more than it raises the user cost of equipment with a 5-year economic and tax life.

Because economic and tax service lives can differ in our setup, we also can explore the effects of changes in the rate of economic depreciation (δ), holding the tax service life fixed. Results, in the case of equipment with a 5-year tax life, can be seen by comparing the benchmark figures in column 2 of table 1 to those in column 3 of table 2. The inflation sensitivity of the user cost is greater for the equipment with a 3-year economic life than for that with a 5-year life. The user cost of less economically durable structures also is more sensitive to inflation, as seen by comparing the second columns of tables 3 and 4.

We also have considered the effects of different values for the personal income tax rate, τ_p. Because of the difficulty in identifying the marginal investor in debt instruments, the value chosen for τ_p is controversial. As an alternative to the (combined federal and state) benchmark value of 0.45, we also consider a value of 0.21, based on an update of the average marginal tax rate in Prakken, Varvares, and Meyer (1991). The effects of inflation (not shown) on the user cost are uniformly smaller than those reported in Tables 1-4. However the basic inter-asset distortions are qualitatively the same.

Finally, we also have explored the effects of changes in the composition of financing of investments. In particular, we consider the case in which all investment is financed with debt on the margin. In addition, we assume that the Fisher effect holds so that the real before-tax rate of interest is invariant to changes in the inflation rate. In this case, the real cost of funds simplifies to ρ_d, which as shown above, is inversely related to inflation when the Fisher effect holds. For example, if the market interest rate on debt (R) is 5 percent per year when inflation is zero, then the real cost of funds declines from roughly 3 percent when inflation is zero to about zero when inflation is 10 percent. Indeed, the reduction in the real cost of funds more than offsets the reduction in the present discounted value of nominal depreciation allowances as inflation rises.

Thus, as shown in tables 1-4 by the figures in parentheses, higher inflation reduces the user cost of capital. Moreover, as revealed by tables 1 and 2, higher inflation reduces the user cost of equipment with relatively long economic life more than it reduces the user cost of equipment with relatively short economic life in all the cases examined. Thus, higher inflation, in the all debt-finance case, encourages the substitution of long-lived for short-lived capital equipment. Similar results hold in the case of structures, as shown in tables 3 and 4. Clearly, the question of which Fisher effect holds, which has received relatively little attention in public finance circles, is of fundamental importance.

V. Conclusion

The conventional wisdom is that inflation--in the presence of a nominal based tax depreciation structure--biases the choice of asset durability in favor of relatively long-lived capital goods. We have established that the crucial assumptions underlying this result are that depreciation allowances accorded assets reflect actual economic depreciation in the absence of inflation and that capital services decay exponentially. Indeed, we show analytically that when tax depreciation is less accelerated (relative to straight-line) than economic depreciation, higher inflation may well, although not necessarily, encourage the substitution of short-lived for long-lived capital assets. Finally, under current U.S. tax law, we demonstrate that higher inflation--in line with the conventional wisdom--favors relatively long-lived structures. By contrast, we also show that higher inflation favors relatively short-lived equipment in many cases, but only minimally.

References

Abel, Andrew B. "Comment on Feldstein." Mimeograph, Wharton School, January 1996.

Auerbach, Alan J. "Inflation and the Choice of Asset Life." *Journal of Political Economy* 87 (1979a): 621-638.

Auerbach, Alan J. "Inflation and the Tax Treatment of Firm Behavior." *American Economic Review* 71 (May 1981): 419-423.

Auerbach, Alan J. "Share Valuation and Corporate Equity Policy," *Journal of Public Economics* 11 (June 1979b): 291-305.

Auerbach, Alan J. "Taxation, Corporate Financial Policy, and the Cost of Capital," *Journal of Economic Literature* 21 (September 1983): 905-940.

Cohen, Darrel, Kevin Hassett, and R. Glenn Hubbard. "Inflation and the User Cost of Capital: Does Inflation Still Matter?" Working Paper No. 6046, National Bureau of Economic Research, May 1997.

Feldstein, Martin. "The Costs and Benefits of Going from Low Inflation to Price Stability." Working Paper No. 5469, National Bureau of Economic Research, February 1996.

Hall, Robert E., and Dale W. Jorgenson. "Tax Policy and Investment Behavior." *American Economic Review* 57 (June 1967): 391-414.

Prakken, Joel L., Chris P. Varvares, and Laurence H. Meyer. "Tax Reform and Potential Output: A Retrospective Analysis of the Tax Reform Act of 1986," *Carnegie-Rochester Conference Series on Public Policy 35 (1991): 113-180.*

TABLE 1
USER COST
5-year economic life (δ = 1/5)

inflation rate	5-year tax life	7-year tax life
0	.266 (.252)	.271 (.256)
.02	.276 (.248)	.282 (.253)
.04	.285 (.244)	.292 (.249)
.06	.294 (.240)	.302 (.245)
.08	.302 (.235)	.311 (.241)
.10	.311 (.230)	.321 (.236)

TABLE 2
USER COST
3-year economic life (δ = 1/3)

inflation rate	3-year tax life	5-year tax life
0	.401 (.387)	.409 (.393)
.02	.412 (.384)	.422 (.391)
.04	.422 (.381)	.434 (.389)
.06	.432 (.377)	.446 (.387)
.08	.441 (.373)	.457 (.384)
.10	.450 (.369)	.468 (.380)

Notes to Tables 1 and 2: Key parameter values are τ =.35; τ_p = .45; c = .10; w_d = .4; w_e = .6. Also, the real after-tax rate of return on debt, r, is assumed invariant to inflation; r = .02.

Also, figures in parentheses correspond to the case in which all investment is financed by debt on the margin (w_d = 1) and the Fisher effect holds in before-tax terms ($dR/d\pi$ = 1).

TABLE 3
USER COST
27-year economic life (δ = 1/27)

inflation rate	27-year tax life	39-year tax life
0	.102 (.092)	.106 (.096)
.02	.111 (.087)	.115 (.091)
.04	.119 (.079)	.123 (.084)
.06	.127 (.071)	.130 (.076)
.08	.133 (.061)	.136 (.067)
.10	.139 (.050)	.141 (.058)

TABLE 4
USER COST
19-year economic life (δ = 1/19)

inflation rate	27-year tax life	39-year tax life
0	.121 (.111)	.126 (.116)
.02	.132 (.106)	.137 (.111)
.04	.141 (.100)	.145 (.105)
.06	.149 (.092)	.152 (.097)
.08	.156 (.082)	.158 (.089)
.10	.161 (.072)	.164 (.080)

Notes to Tables 3 and 4: Key parameter values are τ =.35; τ_p = .45; c = .10; w_d = .4; w_e = .6. Also, the real after-tax rate of return on debt, r, is assumed invariant to inflation; r = .02.

Also, figures in parentheses correspond to the case in which all investment is financed by debt on the margin (w_d = 1) and the Fisher effect holds in before-tax terms ($dR/d\pi$ = 1).