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2 Dividends, Capital Gains, and the Corporate Veil: Evidence from Britain, Canada, and the United States

James M. Poterba

Whether households pierce the corporate veil is a fundamental issue for evaluating the radical changes in both tax policy and corporate financial behavior that have occurred in the United States during the 1980s. The share of pretax corporate earnings that are distributed to the owners of corporate capital—either as dividends, share repurchases, or interest—has increased significantly during this period. Reductions in dividend taxes coupled with increased tax burdens on capital gains have lowered the incentive to accumulate profits within the corporation and encouraged dividend payout. Tax changes have also affected optimal capital structure. Net equity issues by U.S. firms have been *negative* in each year since 1984, as firms have replaced equity with debt finance. This paper investigates the effects of increased cash payout, and of "forced realizations" of capital gains in corporate control transactions, on the level of aggregate consumption.

The standard neoclassical paradigm suggests that these changes should not affect consumption, except through their effects on the cost of capital facing firms. Since households base consumption on their net worth, the question of whether capital gains are realized and whether cash is paid out of the firm or retained and reflected in higher asset values should not affect spending decisions. Numerous empirical studies have failed to reject the null hypothesis that the division of corporate earnings between cash distributions and reten-

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tions does not affect consumption and, therefore, have concluded that there is no corporate veil.

An alternative view, supported as much by anecdotal evidence as by formal theoretical models, argues that households respond differently to different accretions to wealth. Malinvaud (1986) argues that "households must consider one franc of retained earnings as being less permanently gained than that same franc if it had been distributed as a dividend. In other words, even perfectly informed and rational households will not fully compensate by their consumption private corporate saving, not to speak of less well-informed or more careless shareholders" (119).

The corporate veil might also be due to investor reliance on rules of thumb or other behavioral principles. Shefrin and Statman (1985), for example, suggest that households often draw arbitrary distinctions between consuming out of principal and consuming out of income. Investors may be myopic, may fail to devote the necessary resources to monitor developments within firms, or may otherwise fail to completely pierce the corporate veil.[1] If such behavior is widespread, the division of corporate income between cash payout and retained earnings could affect spending decisions. It is nevertheless difficult to determine the importance of such investor behavior on a priori grounds. The transparency of the corporate veil is therefore an empirical issue.

Identifying the link between corporate cash flows and consumption is complicated by the fact that many factors that raise corporate profits and therefore corporate saving, such as technological shocks that increase the productivity of capital, also affect the opportunity set facing households. Finding that dividends raise consumption may simply indicate that positive news about future cash flows increases consumer spending. The central problem is, therefore, finding a source of variation in corporate cash flow that does not directly affect consumption. I argued (Poterba 1987a) that shifts in the relative tax burdens on corporate payouts and retentions alter corporate financial policy but are unlikely to have large direct effects on household behavior. My empirical results for the United States suggested that raising corporate payout by one dollar was associated with an increase of thirty cents or more in consumption spending.

This study extends my previous investigation in two directions. First, it exploits the tax policy variation in Britain and Canada, as well as the United States, to develop further tests of whether investors pierce the corporate veil. Second, it tests another link between cash flow and consumption by exploring whether forced capital gain realizations in takeover transactions affect consumer spending.

This study is divided into five sections. The first outlines previous work on the question of whether households pierce the corporate veil. Section 2.2 describes my consumption function specification and discusses econometric issues. Section 2.3 presents the aggregate data on the United States, Britain, and Canada that are used in estimation. Section 2.4 reports consumption func-

tions for each of the three countries and analyzes whether changes in dividend tax rates affect consumption. The results are not conclusive, but for each country they point toward the presence of a corporate veil. The fifth section examines how forced capital gain realizations affect consumption, in this case focusing exclusively on the United States. The findings suggest that such realizations may raise consumption by as much as 40 cents on the dollar, primarily by increasing outlays on durables. The final section suggests directions for future work.

2.1 Previous Evidence on Consumption and Corporate Cash Flow

The hypothesis that households pierce the corporate veil received initial empirical support from studies on the stylized pattern of U.S. saving rates through time. Denison's (1958) pioneering study observed that gross private saving was a remarkably stable fraction of GNP for the United States during the decade after World War II. David and Scadding (1974) confirmed this finding using a longer time series and generalized it by noting that the sum of the gross private saving rate and the government saving rate had varied very little over the previous century.

Most subsequent studies have tested for the presence of a corporate veil by estimating either consumption or saving functions on aggregate time-series data. Modigliani's (1970) study examined the cross-national correlation between corporate saving rates and total private saving rates. His point estimates generally suggested that higher retained earnings led to higher private saving rates, but the standard errors were too large to reject the null hypothesis of no effect. Feldstein (1973) studied U.S. consumption data for the period 1929–66, and found convincing evidence that households raise consumption in response to retained earnings. He rejected the strict Keynesian hypothesis that disposable income matters to the exclusion of retained profits, but his point estimates suggested that the propensity to consume dividends (approximately 76 cents per dollar) was larger than the comparable propensity to consume retained earnings (about 50 cents per dollar). In a parallel study for the United Kingdom, Feldstein and Fane (1973) found that a pound of dividend income raised consumption by 75 pence, while a pound of retained earnings had a 25-pence effect.

The same pattern—higher marginal propensities to spend from dividends than from retain earnings—emerges in other, more recent, studies. In some cases the differential was too small, or the standard errors were too large, to reject the null hypothesis of equal consumption effects. Howrey and Hymans (1978) conclude that a one dollar decrease in corporate saving caused by higher dividend payout would raise consumption by 25 cents.[2] However, von Furstenberg's (1981) estimates suggest a change of between 40 and 60 cents. Both studies conclude that households pierce the corporate veil, a finding which is true to a degree.

None of the studies that reject the corporate veil provide strong evidence that households *completely* pierce the corporate veil. In contrast, two studies by Bhatia (1979) and Hendershott and Peek (1989) claim to find evidence *for* a corporate veil. Bhatia (1979) followed Feldstein's (1973) methodology, adding several additional years of data and modifying some of the data series in minor ways. He found no evidence that retained earnings-induced capital gains on corporate stock affect consumption any more than other capital gains, which implies that an increase in dividends financed by reduced retentions would have a large positive effect on consumption. Hendershott and Peek (1989) adjust both personal and corporate saving for inflationary mismeasurement and conclude that previous evidence of a negative correlation between the two was primarily the result of opposite-signed inflationary biases.

None of the foregoing studies address the potential endogeneity of corporate saving in regression equations explaining aggregate consumption. If profit rates vary through time, changes in corporate saving may in part reflect shocks to the economic environment that could affect consumption even if households do not pierce the corporate veil. One could even develop models with transactions costs for selling shares and imperfect credit markets where shocks to consumption affect corporate saving through the demand for cash dividends.

The only studies that recognize the potential endogeneity of corporate saving are Poterba (1987a) and Auerbach and Hassett (in this volume). These studies employ U.S. data for 1929–86, and for the postwar period, respectively. The former study used changes in dividend taxation to identify exogenous shifts in the level of corporate saving and found weak support for the view that corporate saving affects total private saving. Auerbach and Hassett work in the Euler-equation framework (surveyed in Hall 1989) and test whether *forecastable* movements in dividends affect spending. If households were liquidity constrained, then even forecastable dividend changes would affect spending. Auerbach and Hassett's evidence that forecastable changes in dividends do not affect consumption is therefore strong evidence against the liquidity-constraints account for the corporate veil. It is weaker evidence against some of the alternative explanations based on myopia or other considerations.[3]

2.2 Consumption and Corporate Cash Flow

An extension of the Ando-Modigliani (1963) aggregate consumption function provides a useful shorthand to formalize the hypothesis that cash receipts affect consumption more than accruing capital gains. The standard life-cycle–permanent income formulation relates consumption to human wealth, the present discounted value of after-tax labor earnings, as well as financial and nonfinancial net assets. Demographic variables, such as the fraction of the population in their retirement years, may also alter the level of per capital

consumption. Generalizing this framework to allow for the possibility that dividends affect household expenditures, the consumption function may be written:

$$(1) \qquad C_t = \alpha_0 + \alpha_1 A_t + \alpha_2 HW_t + \alpha_3 SHR65_t + \alpha_4 DIV_t + \varepsilon_t.$$

In (1), C_t denotes real per capita consumption, A_t the household sector's beginning of period stock of nonhuman wealth, HW_t human wealth at the beginning of the period, SHR65 the fraction of the population aged 65 or greater, and DIV_t cash dividend receipts. If households pierce the corporate veil and dividends convey no information about future corporate profits that is not also reflected in share values, then α_4 should be zero.

It is critical to focus on variation in DIV_t that is uncorrelated with other news that may affect consumption. Variation in tax policy induces such movements in dividends and may be used to identify α_4. The tax treatment of dividends versus retained earnings can be summarized in a "tax discrimination variable," θ_t, defined as

$$(2) \qquad \theta_t = \Sigma w_{it}^* [(1-m_{it})/(1-z_{it})],$$

where m_{it} denotes the marginal dividend tax rate on investor i in period t, z_{it} the effective capital gains tax rate for this investor, and w_{it} the share of corporate equity held by this investor.[4] Provided dividend policy is determined by equating the marginal benefit of paying dividends, whether from reduced agency costs or improved signaling, to the tax cost of payout, θ_t should affect dividend distributions. This yields an equation for firm behavior:

$$(3) \qquad DIV_t = \beta_0 + \beta_1 \theta_t + Z_t \gamma + \mu_t,$$

where $Z_t\gamma$ includes corporate profits and other variables that may be correlated with the residuals in the consumption function. My identifying assumption is that θ_t has no direct effect on consumption but operates only through its influence on payout.[5] This implies that equation (1) can be estimated by instrumental variables, using θ_t as an instrument for DIV_t.

Equation (1) is exactly identified. One could therefore test for the presence of a corporate veil by estimating (1) by instrumental variables, using θ_t as an instrument for DIV_t. A more direct (but equivalent) test for the presence of the corporate veil is to include θ_t in the consumption equation and test for the significance of this variable:[6]

$$(4) \qquad C_t = \alpha_0 + \alpha_1 A_t + \alpha_2 HW_t + \alpha_3 SHR65_t + \alpha_5 \theta_t + \varepsilon_t.$$

This approach avoids the need to specify a detail model of corporate payout, an important virtue since no such model is generally accepted.[7]

Two empirical difficulties arise in estimating (4). First, human wealth is unobservable. Hayashi (1981) addresses this problem by quasi differencing (4) and focusing on consumption responses to the unanticipated change in labor income (and its associated forecast power for human wealth). Since α_2

is only an incidental parameter in this study, I adopt the simpler approach of assuming that human wealth is a constant multiple of current after-tax labor income:

$$HW_t = YL_t/\rho. \tag{5}$$

The HW_t in equation (4) can thus be replaced with YL_t, with the resulting coefficient reinterpreted accordingly.[8]

The second econometric difficulty is that real per capita consumption and some of the nontax explanatory variables in (4) are nearly nonstationary time series.[9] Differencing (4) to achieve stationarity may eliminate much of the useful low-frequency variation in the tax discrimination variable, raising its noise-to-signal ratio and biasing the estimated coefficient toward zero. I therefore estimate (4) both in levels and differences. I present levels estimates with and without a time trend, and differenced estimates with and without an intercept, since these are parallel specifications. The estimated standard errors in the level equation are corrected for serial correlation using the Newey-West (1987) algorithm allowing for correlation at one lag.

A similar approach can be used to study whether other forms of cash income from capital investments affect consumption. One particularly interesting cash flow, in light of the recent growth in corporate share repurchases and takeover transactions, is the stream of realized capital gains that result from "involuntary" stock sales when firms are taken over or go private. Bagwell and Shoven (1989) report that, in 1986, when cash dividend payments were $77.1 billion, share repurchases by U.S. corporations totaled $41.5 billion, and merger and acquisition expenditures were $74.5 billion.

There are many reasons for expecting a positive effect of involuntary realizations on consumption. In models with costly trading or other frictions in portfolio adjustment, for example, a forced realization may catalyze consumption spending. Evidence that realized gains are correlated with consumption outlays is not informative on the general issue of whether forced realizations spur consumption, since most gain realizations are voluntary. The same factors that impinge on consumption decisions may therefore affect realizations. Asset sales in many corporate control transactions, however, are involuntary. Households who own shares in firms that are purchased for cash (as opposed to with securities swaps) receive cash for their shares, even if they had planned to hold their shares for a long period.

Equation (4) can be augmented to test whether the value of cash payouts in control transactions, $CASHMERG_t$, affects consumption:

$$C_t = \alpha_0 + \alpha_1 A_t + \alpha_2 HW_t + \alpha_3 SHR65_t + \alpha_5 \theta_t + \alpha_6 CASHMERG_t + \varepsilon_t. \tag{6}$$

The contemporaneous level of corporate takeovers may be correlated with the error in (6) because it may lead to asset revaluations as investors decide that other stocks are "in play." I therefore modify (6) in some cases, replacing A_t

with A_{t+1}. The total value of assets dated *after* the news about control transactions should avoid the revaluation problem, although it raises other difficulties.[10]

2.3 Data Issues

Two criteria restrict the set of countries for which the aggregate consumption equations could be estimated. First, the countries need significant variation in the relative tax burdens on dividends and capital gains. Second, the tests require regularly available information on household net worth. The latter is a binding constraint for most countries. Three countries that satisfy these conditions and for which data are readily available are Canada, the United States, and the United Kingdom.[11] Since the principal novelty in my estimation is the tax variable θ_t, I begin by discussing it and then briefly mention the other data series.

2.3.1 Tax Discrimination Variables

For each country, the aggregate dividend tax preference variable is calculated as the weighted average of $(1-m_i)/(1-z_i)$ with weights based on equity ownership. In Britain the tax discrimination variable also allows for changes through time in the relative corporate tax burdens on retained versus distributed profits; these variables are described in more detail in Poterba and Summers (1985) and King (1977).

Table 2.1 presents time series for θ_t for each country. In the United States θ_t has increased over time. The increasing fraction of corporate shares held by nontaxable investors, the decline in personal marginal tax rates on dividends, and the recent increase in capital gains taxes have raised θ_t from approximately .60 in the early 1950s to roughly .85 in the late 1980s.

The United Kingdom both raised and lowered dividend taxes during the sample period. Adoption of a two-tiered rate of corporate taxation in 1958, with a higher rate on retained than on distributed profits, encouraged payout. This policy was changed in 1965 to a classical corporate income tax system of the type used in the United States, with the net effect of lowering θ_t and discouraging dividend payments. Another policy reversal in 1972, with the adoption of an integrated corporate income tax, made dividend payout more attractive.[12] The substantial increase in θ_t during the late 1970s reflects declining marginal tax burdens on individual investors, due to systematic reductions in tax rates at high income levels.

Data on the marginal tax burdens for Canadian shareholders were only available for 1963–86. The increase in the tax incentive for dividend payout beginning in 1972 results from introduction of a capital gains tax with a statutory rate of 27%. The discrete increase in payout incentives in 1978 is due to a change in the dividend tax credit scheme, which made dividend credits so generous that the tax system was "over-integrated." Beginning in 1982, and,

Table 2.1: Dividend Tax Preference Variables

Year	United States	United Kingdom	Canada
1950	.650	.585	. . .
1951	.620	.519	. . .
1952	.607	.532	. . .
1953	.627	.539	. . .
1954	.635	.543	. . .
1955	.629	.532	. . .
1956	.632	.500	. . .
1957	.641	.535	. . .
1958	.644	.677	. . .
1959	.646	.725	. . .
1960	.656	.715	. . .
1961	.649	.709	. . .
1962	.658	.702	. . .
1963	.657	.678	.850
1964	.688	.602	.830
1965	.701	.544	.830
1966	.698	.430	.820
1967	.690	.427	.810
1968	.677	.432	.800
1969	.699	.444	.780
1970	.703	.434	.780
1971	.714	.456	.790
1972	.714	.486	.955
1973	.721	.705	.943
1974	.718	.615	.943
1975	.721	.640	.908
1976	.714	.655	.908
1977	.709	.605	.932
1978	.713	.748	1.068
1979	.691	.858	1.056
1980	.695	.855	1.033
1981	.699	.828	1.022
1982	.752	.796	.978
1983	.768	.832	1.024
1984	.780	.910	1.012
1985	.784	.900	.915
1986	.783	.885	.915
1987	.830	. .	. . .

Note: Each entry shows the ratio of after-tax income from one dollar of earnings paid out as dividends to one dollar of retained earnings. The data series for the United States is drawn from Poterba (1987a), that for Britain was furnished by Mervyn King, and the Canadian series was supplied by Jack Mintz.

more important, at the end of the sample, the dividend credit provisions were modified to eliminate the extraordinary incentives for dividend distribution, Jenkins (1986) discusses the various policy changes in some detail.

The most difficult part of estimating the tax discrimination variable is measuring the capital gains tax burden. Since gains are taxed only on realization,

the effective tax burden depends on investor behavior. If gains are realized soon after they accrue, the tax burden will be higher than if gains are held for long periods. Estimates of z typically assume relatively simple rules for investor behavior; for example, that investors sell a fixed fraction of their assets each period. Since the capital gains tax rate is therefore measured with much greater error than the dividend tax rates, some of my empirical work explores the consequences of using *only* the dividend tax rate to measure relative tax burdens.[13]

2.3.2 Other Data Series

The remaining data series used in my analysis require less comment. Annual consumption in constant prices is drawn from the OECD National Income Accounts, and I estimate equations using both total consumption outlays and expenditures exclusive of durables. I focus on the postwar period for comparability across sample countries. Pretax labor income was defined as wages and salaries plus other labor income (employer contributions for pension plans and other benefits). An average tax burden on labor income was calculated as income tax payments divided by the sum of pretax labor income, property and entrepreneurial income, and the operating surplus of unincorporated enterprises. The results are relatively insensitive to the choice of tax rates and did not change when pretax rather than posttax labor income was used to measure YL_t in equation (4). When conversion from current to constant prices was needed, I used the price deflator for nondurable consumption.

Data on net worth of the household sector are drawn from national balance sheets. These data begin in 1948 for the United States, 1957 for Britain, and 1962 for Canada. For the United States and the United Kingdom, tangible assets such as residences and some financial assets, particularly equities, are measured at market value. Other financial assets, notably corporate and government bonds, are reported at book value. The Canadian data do not include any market value estimates; they are simply book-value estimates of asset holdings, and as such they are much less useful than the data for the other two nations. The net worth series are reported in appendix table 2A.1. Data were deflated to per capita terms using population data drawn from the U.K. *Annual Abstract of Statistics*, the *Historical Statistics of Canada*, and the *Statistical Abstract* for the United States. The fraction of the population aged 65 or older was also drawn from these sources and interpolated to create an annual series where necessary.

The final variable of interest is $CASHMERG_t$, the value of cash payouts in corporate control transactions. This variable was constructed for the United States using the W. T. Grimm & Company data series for cash merger and acquisition activity.[14] This data series is presented in appendix table 2A.2, and shows cash transactions doubling between 1977 and 1981 and doubling again by 1985. For the United Kingdom, a data series on total cash merger activity is published by the Department of Trade and Industry for the period since 1969. Data on total merger activity for earlier years was combined with infor-

mation from Franks, Harris, and Mayer (1988) on the allocation of merger finance between cash and other securities to estimate the value of cash distributions. This data series, which displays a rapid increase in the mid-1980s, is also shown in the appendix table.

2.4 Estimation Results: Dividend Taxation and Consumption

This section presents the results of estimating equation (4) for the United States, Britain, and Canada. In table 2.2, parts A and B present the findings for the United States, using total consumption and total consumption excluding durables as the dependent variables, respectively. The coefficients on income and net worth are broadly consistent with the findings in earlier studies, although some equations evidence small net worth coefficients (around .01). In both the level and difference specifications the dividend preference variable, θ_t, has a positive effect on consumption. This is the direction predicted by the corporate veil hypothesis, since higher values of θ_t correspond to lower dividend tax burdens and higher levels of corporate payout. Only two of the specifications I present (one for levels, one for differences) yield coefficients on θ_t that are statistically significant at the conventional 95% confidence level. In all of the equations the estimated coefficients are positive, however, with *t*-statistics above 1.3.

The point estimates of the dividend tax effects vary substantially across specifications. They suggest that a ten percentage point increase in the dividend tax rate would reduce per capita consumption (in 1982 dollars) by between $100 and $400. More than half of this effect is on durable expenditures, as comparison between the estimates for total consumption (table 2.2, part A) and consumption excluding durables (table 2.2, part B) demonstrates. If one takes the view that expenditure on durables is essentially a form of saving, then the evidence is more favorable to the hypothesis that households pierce the corporate veil. In any case, it is clear that changes in the dividend tax rate affect the *allocation* of saving, shifting resources from business investment to household durables.[15]

Two other features of the results warrant comment. First, the estimated coefficients on θ_t usually decline when the equation includes a time trend (or an intercept when the equation is estimated in differences). Second, while the variable measuring the fraction of the population over age 65 does not significantly affect the other coefficients, its own coefficient is implausibly large. The coefficient in the last column suggests that a 10 percent increase in the share of the population over 65 would increase per capita consumption by $4,860 (in 1982 dollars). These unusual findings may be due to the short sample period and the trend in this variable, which may allow it to proxy for many time-varying effects. This is confirmed by the estimates in columns 2–3 of table 2.2, part A, where introducing the demographic variable induces a large change in the estimated coefficient on the trend variable.

Table 2.2 **Aggregate Consumption and Dividend Tax Preference, United States, 1950–87**

Explanatory Variable	A. Total Consumption Spending					
Constant	−2.558	−.559	−10.381	.054	. . .	. . .
	(.988)	(1.537)	(1.117)	(.018)		
Per capita after-tax labor income	1.010	.718	1.252	.828	1.021	.854
	(.131)	(.201)	(.067)	(.128)	(.125)	(.114)
Per capita net worth	.059	.019	−.006	.014	.019	.012
	(.025)	(.029)	(.013)	(.014)	(.015)	(.013)
Dividend tax preference (θ_t)	3.467	2.942	3.980	1.050	1.662	1.103
	(2.248)	(2.187)	(1.092)	(.801)	(.865)	(.749)
Time trend	. . .	.056	−.096	. . .	. . .	. . .
		(.028)	(.015)			
Percentage of population 65 or older	. . .	. . .	105.380	. . .	. . .	48.594
			(9.334)			(12.720)
Specification	Levels	Levels	Levels	Diffs	Diffs	Diffs
SEE	.216	.202	.092	.079	.088	.074
D-W	.260	.187	1.351	1.570	1.678	1.735
	B. Nondurable and Service Consumption					
Constant	−1.002	1.138	−4.627	.062	. . .	. . .
	(.697)	(.929)	(.858)	(.010)		
Per capita after-tax labor income	.846	.529	.823	.499	.721	.555
	(.091)	(.122)	(.067)	(.076)	(.094)	(.071)
Per capita net worth	.053	.009	−.005	.008	.014	.008
	(.020)	(.016)	(.009)	(.008)	(.011)	(.008)
Dividend tax preference (θ_t)	1.559	.988	1.562	.573	1.276	.720
	(1.644)	(1.414)	(.837)	(.476)	(.650)	(.464)
Time trend	. . .	.061	−.023	. . .	. . .	. . .
		(.016)	(.013)			
Percentage of population 65 or older	. . .	. . .	58.166	. . .	. . .	48.244
			(6.974)			(7.890)
Specification	Levels	Levels	Levels	Diffs	Diffs	Diffs
SEE	.148	.119	.065	.047	.066	.046
D-W	.471	.165	1.007	1.712	1.642	1.876

Note. Estimates are based on annual data, 1950–87. Standard errors are shown in parentheses; for the level specification they are corrected for the presence of first-order serial correlation using the Newey-West (1987) procedure.

To explore the sensitivity of these results to tax variation during the 1980s, I reestimated each equation for the sample period ending in 1980. The estimated coefficients on θ_t in the level specifications declined substantially, but the estimates from differenced models were virtually unchanged. The standard errors for all for the estimated coefficients increase and the null hypothe-

sis that households completely pierce the corporate veil is no longer rejected, even at quite low confidence levels. Including a dummy variable for the period after 1980 has the same effect on an equation estimated for the full sample period, causing a substantial decline in the coefficient on the tax discrimination variable.

Table 2.3 reports estimates of equation (4) for the United Kingdom. In the level specification for both total and nondurable consumption, the no-veil hypothesis is rejected at standard confidence levels. These results are stronger than the comparable findings for the United States. When the equation is estimated in differenced form, however, the estimated coefficient on the dividend tax burden is again statistically insignificant, though it remains positive and suggests that lower dividend tax rates raise consumer spending. The importance of durable expenditures is also confirmed by these results: the estimated coefficients on total consumption are roughly twice as large as those on nondurable spending.

The final set of estimates, for Canada, are reported in table 2.4. Once again the estimated coefficients on net worth and after-tax labor income seem broadly plausible, while the large coefficients on the demographic variable seem implausible. The results on dividend taxation for Canada are different from those in the United States and the United Kingdom: in the level equations, the estimate of α_5 is *negative*. The differenced equations yield small and statistically insignificant positive coefficients. I explored the findings from the level equations somewhat further by separating the Canadian θ_t series into one component related to the marginal tax burden on dividends, and another arising from the tax burden on capital gains. When I assume that the capital gains tax rate is zero, estimates of α_5 in levels are positive and lead to rejection of the "no veil" null hypothesis at confidence levels similar to those at which the null hypothesis was rejected for the United States.[16]

A brief summary of the empirical import of these results is provided in table 2.5. Using 1986 as a benchmark, it reports the change in per capita consumption that representative estimates for each of the three sample countries would predict following a five percentage point increase in θ. This corresponds to a five percentage point reduction in the marginal dividend tax rate only when the capital gains tax rate is zero. The requisite change in the dividend tax rate is slightly smaller with positive capital gains rates. The estimated changes in total consumer spending from such a change vary from less than one-fifth of 1 percent in the United Kingdom, to one-half of 1 percent in Canada, to three-quarters of 1 percent in the United States. These changes are relatively large when compared with personal saving, which is typically between 5 and 10 percent of consumption. In the United States, for example, an .81 percentage point increase in consumption would correspond to a reduction of one-sixth in personal saving ($124 billion). A five percentage point increase in θ is of the order of magnitude of the changes due to each of the 1981 and 1986 tax reforms.[17]

Table 2.3 **Aggregate Consumption and Dividend Tax Preference, United Kingdom, 1958–86**

	Consumption							
Explanatory Variable	Total				Nondurable and Service			
Constant	−1.182	1.602	.067	. . .	−.702	1.665	.051	. . .
	(.106)	(1.424)	(.039)		(.083)	(.893)	(.025)	
Per capita after-tax labor income	.329	.334	.530	.588	.345	.342	.441	.485
	(.060)	(.051)	(.157)	(.160)	(.044)	(.035)	(.099)	(.103)
Per capita net worth	.048	.037	.024	.028	.033	.024	.017	.021
	(.008)	(.004)	(.010)	(.010)	(.006)	(.003)	(.006)	(.006)
Dividend tax preference (θ_t)	.188	.217	.149	.096	.094	.118	.082	.043
	(.053)	(.054)	(.136)	(.139)	(.036)	(.035)	(.086)	(.090)
Percentage of population 65 or older	20.651	−8.043	−22.734	22.170	16.940	−7.47	−15.553	18.214
	(1.605)	(14.77)	(26.440)	(6.378)	(1.274)	(9.31)	(16.820)	(4.125)
Time trend	. . .	.046	. . .	. . .	. . .	.039	. . .	. . .
		(.022)				(.014)		
Specification	Levels	Levels	Differences	Differences	Levels	Levels	Differences	Differences
SEE	.040	.036	.039	.041	.027	.024	.025	.026
D-W	1.266	1.363	1.735	1.640	1.111	1.281	1.598	1.511

Note. Estimates are based on annual data, 1958–86. Standard errors are shown in parentheses; for the level specification they are corrected for the presence of first-order serial correlation using the Newey-West (1987) procedure.

Table 2.4 **Aggregate Consumption and Dividend Tax Preference, Canada, 1963–86**

	Consumption					
Explanatory Variable	Total			Nondurable and Service		
Constant	−.643	−1.030	.022	−2.268	−2.571	.062
	(.538)	(.502)	(.046)	(.314)	(.298)	(.030)
Per capita after-tax labor income	.770	.734	.661	.643	.621	.343
	(.065)	(.074)	(.145)	(.062)	(.051)	(.097)
Per capita net worth	.055	.061	.045	−.003	.001	.006
	(.023)	(.021)	(.017)	(.019)	(.015)	(.011)
Dividend tax preference (θ_i)	−.387	. . .	.148	−.263	. . .	.094
	(.374)		(.302)	(.229)		(.200)
Dividend tax preference (no capital gains tax)	. . .	.731	. . .	. . .	.626	. . .
		(.496)			(.347)	
Percentage of population 65 or older	25.570	24.737	28.046	46.426	45.886	20.652
	(9.438)	(8.640)	(26.310)	(6.004)	(5.129)	(17.501)
Specification	Levels	Levels	Differences	Levels	Levels	Differences
SEE	.093	.093	.074	.062	.059	.049
DW	.740	.804	1.162	1.038	1.200	1.833

Note. Estimates are based on annual data, 1963–86. Standard errors are shown in parentheses; for the level specification they are corrected for the presence of first-order serial correlation using the Newey-West (1987) procedure. Equations in levels do not include time-trend variables; these were estimated but always proved unimportant and did not affect the other coefficients.

Table 2.5 **Estimated Consumption Effects from Changes in Dividend Tax**

	Canada	United Kingdom	United States
Per capita consumption in 1986	11,475	4,171	11,611
Estimated consumption shift from five percentage point decline in dividend tax burden (θ)	+53	+7	+95
	(34)	(7)	(49)
Percentage change in consumption	+.46%	+.18%	+.81%

Source: Author's calculations based on estimated coefficients in tables 2.2–2.4. Point estimate assumptions are from table 2.2, part A, col. 5 for the United States, from table 2.3, col. 3 for the United Kingdom, and table 2.4, col. 2 for Canada. Prediction standard errors are shown in parentheses.

The results in this section provide substantial support for the view that changes in corporate financial policy between retained and distributed profits affect the private saving rate. Higher dividend payouts induced by lower dividend tax rates are likely to translate into higher consumption levels. These results suggest a substantively important, yet relatively neglected, channel through which changes in capital income taxes affect saving decisions.

2.4 Consumption and Realized Capital Gains[18]

This section undertakes the limited task of evaluating the statistical link between forced realizations and consumption.[19] The results of estimating (6) for the United States are shown in table 2.6. All of the equations are estimated in differenced form, with the measure of net worth in the first and third columns corresponding to beginning-of-period asset values while that in the second and fourth columns is the end-of-period value. The hypothesis that $\alpha_6 = 0$ is rejected at standard levels in the equation for total consumption outlays where wealth is measured at the beginning of the year. The point estimates suggest that one dollar of realized gains raises spending by roughly 60 cents. More than half of this is spending on durables, since the coefficient falls to .21 (a 21 cent per dollar increase) when the dependent variable is nondurable and service consumption. When the wealth variable is measured at the end of the period the coefficient also declines, falling to .34 for total consumption and virtually zero for nondurables and services. The hypothesis that cash payouts have no effect on consumption cannot be rejected at standard levels in these equations, but the point estimates continue to suggest a substantively important link between cash payout and consumption.[20] The dividend tax variable does not change very much with this modification of the equation, however, which suggests that my findings are not due to a correlation between tax rates and wealth.[21]

The remaining coefficients in the consumption function change somewhat when realized gains are included in the specification. The coefficient on θ in

Table 2.6 **Aggregate Consumption and Involuntary Capital Gains Realizations**

	Consumption			
Explanatory Variable	Total		Nondurable and Service	
Per capita cash takeover transactions	.586 (.265)	.337 (.266)	.213 (.172)	.007 (.161)
Per capita after-tax labor income	.792 (.112)	.881 (.089)	.532 (.073)	.590 (.054)
Per capita net worth	.013 (.012)	.027 (.011)	.008 (.008)	.023 (.007)
Dividend tax preference (θ_t)	1.563 (.739)	1.873 (.695)	.887 (.480)	1.130 (.421)
Percentage of population 65 or older	47.923 (12.050)	34.169 (12.820)	48.000 (7.832)	36.011 (7.775)
SEE	.071	.066	.046	.040
DW	1.838	1.868	1.872	1.811

Note: Estimates are based on annual data, 1951–86. Standard errors are shown in parentheses. The net worth measure in cols. 1 and 3 is the beginning-of-period value of household net worth, while in cols. 2 and 4 it is the end-of-period value, which is dated after all news about takeovers has been revealed. Equations are estimated in differences.

the total consumption equation increase, although it is still within the bounds of the earlier estimates.

Since the data on cash takeovers show a sharp rise during the 1980s, there is a danger that the results are simply capturing the increase in consumption relative to income and wealth during the 1980s. To assess this possibility I reestimated the equations in table 2.6 for the sample period finishing in 1980. The coefficient on $CASHMERG_t$ declined and the estimated standard error rose sharply. It thus appears that pre-1980 data do not provide strong evidence on the link between realizations and consumption.

A second method of validating the findings is to estimate a similar equation for other countries. An analogue to the CASHMERG series was available for the United Kingdom since 1964, and the estimation results are remarkably similar to the findings for the United States:

$$\begin{aligned} C_t = {} & .145 + .016{*}A_t + .627{*}YL_t - 74.893{*}SHR65_t \\ & (.054)\ (.010)\quad (.166)\qquad (36.560) \\ & + .117{*}\theta_t + .569{*}CASHMERG_t \\ & (.151)\qquad (.452) \end{aligned}$$

$$R^2 = .719, \quad DW = 2.38, \quad SEE = .038, \quad 1964\text{–}86$$

Although the hypothesis that cash takeover expenditures do not affect consumption can not be rejected at conventional confidence levels, the point estimate implies that each pound of cash spending on takeovers raises consumption by approximately 50 pence.[22] The relatively short sample for this equation makes strong inferences difficult, but the similarity of the findings between the United States and the United Kingdom supports the view that forced realizations raise consumption.

The results in this section are suggestive, though hardly conclusive. They call attention to possible saving effects of the financial restructuring of U.S. industry during the 1980s. Even small effects operating through this channel could have potentially large effects on measured private saving. Assuming 80 cents of each dollar of cash outlays for takeovers is reinvested (the estimates above point toward values closer to 60 cents), the level of such spending in the mid-1980s could have depressed personal saving by approximately $15 billion per year. This effect is roughly half the size of the estimated effect of higher dividend payout in the last section.

2.5 Conclusion

The results presented here support, but are not definitive evidence for, the proposition that investors respond differently to cash receipts from firms and to accruing capital gains. Consistent but weak evidence for the United States, Great Britain, and Canada suggests that higher dividend tax rates lower consumption, an effect that I interpret as operating through reduced corporate

dividend payout. Time series evidence from the United States and the United Kingdom suggests that forced realizations of capital gains in takeovers may also spur consumption.

These results point toward a host of interesting questions concerning the influence of fiscal policy on consumption. If investor behavior deviates from the neoclassical paradigm in ways that render corporate financial policy important for saving decisions, then tax distortions in financing acquire a new dimension and may play an important role in affecting personal saving.

The limited time-series data in each nation restricts the statistical power of single-country tests for a corporate veil. Future work should attempt to enlarge the sample of available data by confirming or refuting the patterns observed here with data from other countries. Searching for patterns across countries in the size of the dividend tax effect and the composition of the investor population, for example, could provide further insights on the link between corporate financing and consumption.

(Appendix follows on pages 66–67.)

Appendix

Table 2A.1 **Household Net Worth, the United States, Canada, and the United Kingdom, 1950–87**

Year	United States	Canada	United Kingdom
1948	820.6	. . .	. . .
1949	854.8	. . .	. . .
1950	955.9	. . .	. . .
1951	1,048.0	. . .	. . .
1952	1,102.2	. . .	. . .
1953	1,129.0	. . .	. . .
1954	1,239.1	. . .	. . .
1955	1,348.7	. . .	. . .
1956	1,441.0	. . .	. . .
1957	1,451.5	. . .	54.1
1958	1,615.4	. . .	61.0
1959	1,696.6	. . .	70.1
1960	1,742.9	. . .	71.2
1961	1,900.2	. . .	76.3
1962	1,889.9	112.8	84.7
1963	2,025.4	121.7	91.8
1964	2,164.6	131.3	93.9
1965	2,328.0	145.5	101.5
1966	2,401.9	162.8	104.9
1967	2,674.6	176.4	117.8
1968	2,995.3	188.7	138.9
1969	3,031.6	203.2	145.6
1970	3,161.8	216.3	157.9
1971	3,487.5	236.7	192.3
1972	3,853.3	263.1	277.8
1973	4,015.0	311.5	239.0
1974	4,195.4	370.8	249.8
1975	4,745.8	416.9	303.2
1976	5,364.9	469.2	335.7
1977	5,920.8	528.2	399.0
1978	6,755.5	606.3	480.1
1979	7,769.9	697.9	603.0
1980	8,931.1	811.8	689.8
1981	9,678.8	810.4	722.3
1982	10,139.8	974.3	812.6
1983	11,028.0	1,053.0	937.5
1984	11,587.3	1,135.8	1,046.4
1985	12,608.9	1,221.8	1,165.0
1986	13,592.2	1,336.9	. . .
1987	14,373.0	1,464.4	. . .

Note: Entries are measured in current prices, billions of units of local currency. Data for the United States are drawn from the *Balance Sheets of the U.S. Economy* (Board of Governors of Federal Reserve 1988), those for Britain from Bryant (1987) and Revell and Roe (1971), with interpolation by author between 1966–69 and 1970–72; those for Canada were provided by Patrick O'Hagen of Statistics Canada.

Table 2A.2 **Cash Merger and Acquisition Activity, the United States and the United Kingdom, 1950–86**

Year	United States	United Kingdom
1950	0.2	. . .
1951	0.2	. . .
1952	0.3	. . .
1953	0.6	. . .
1954	1.1	. . .
1955	1.7	. . .
1956	1.4	. . .
1957	0.9	. . .
1958	0.8	. . .
1959	1.0	. . .
1960	2.6	. . .
1961	3.3	. . .
1962	3.7	. . .
1963	4.1	. . .
1964	3.7	.71
1965	8.3	1.32
1966	8.3	1.23
1967	20.0	1.97
1968	37.2	4.45
1969	21.7	1.52
1970	14.1	1.22
1971	11.4	1.28
1972	14.7	2.08
1973	16.2	2.69
1974	12.8	1.15
1975	11.9	.46
1976	19.8	.74
1977	20.7	1.03
1978	27.5	1.21
1979	35.0	1.52
1980	29.4	1.06
1981	46.7	.97
1982	28.8	1.48
1983	34.1	1.13
1984	65.6	3.10
1985	103.1	2.85
1986	83.3	3.66

Note: Entries are measured in billions of 1982 dollars for the United States and billions of 1985 pounds for the United Kingdom. Data are drawn from W. T. Grimm *Mergerstat Review* with earlier data based on FTC tabulations for the United States and from the Department of Trade and Industry *Business Monitor* for the United Kingdom.

Notes

1. One traditional explanation of how cash flow may affect consumption, the presence of liquidity constraints, is unlikely to explain the corporate veil. Avery and Elliehausen (1986) report that 43 percent of publicly traded common stock is owned by households in the top one half of 1 percent, and 85 percent by those in the top 10 percent of the income distribution. Borrowing constraints are unlikely to be important for these investors, especially since they have a ready stock of equities to use as collateral.

2. Their subsample estimates in some cases suggest smaller consumption effects, in some cases even an implausible decrease in consumption.

3. The differences in results for the postwar period between the Auerbach-Hassett study (in this volume) and the present paper are largely due to differences in specification. My results suggest that much of the link between dividend payout and consumption operates through expenditures on durables, while their analysis focuses exclusively on nondurable and service consumption. In addition, my specification includes a number of demographic and other variables that they omit, and I omit variables (such as the rate of return) that they include. Although Auerbach and Hassett conclude there is no corporate veil, I show below that their point estimates of how changes in dividend payout would affect consumption are on the same order of magnitude as those in the current study.

4. The tax discrimination variable can also be affected by differential *corporate* taxation of retained and distributed profits as existed in the United Kingdom for part of our sample.

5. This assumption is open to question since much of the variation in the relative tax burden on dividends, especially in the United States, is due to systematic tax reforms that also affect the tax burdens on other types of capital income. Evidence from Hall (1988) and other studies, however, suggests that changes in after-tax asset returns are virtually uncorrelated with time-series movements in consumption growth. The identifying assumption is therefore unlikely to be seriously violated.

6. Auerbach and Hassett (in this volume) emphasize that it is essential to control for wealth in this equation since otherwise shocks to θ_t that affect wealth may provide spurious evidence of a corporate veil. Most of the equations in the present paper include household wealth at the *beginning* of the calendar year as an explanatory variable. This does not completely control for changes in share values that may be related to dividend tax changes. Several equations in sec. 2.4 include end-of-period wealth as an explanatory variable; this should avoid the problem of θ_t-induced changes in asset values.

7. I am grateful to Robert Hall, who discussed my earlier paper on this topic, for persuading me to adopt this approach. My decision was unrelated to his assignment as the discussant of the present paper.

8. I use the contemporaneous value of YL_t even though HW_t is the beginning of period value of human wealth; the results are not affected by use of the once-lagged value. The substitution based on (5) is valid only when the growth rate and discount rates applied to labor income are constant through time. I tried interacting after-tax labor income with various proxies for real interest rates, but the basic findings reported below were unaffected. The interest rate-YL interaction term usually had a negative but statistically insignificant coefficient.

9. Numerous studies including Campbell and Mankiw (1987) and Campbell and Deaton (1987) have investigated the stochastic properties of these data series.

10. End-of-period asset values are clearly affected by within-period shocks to consumption, so A_{t+1} and ϵ_t may be correlated.

11. Balance sheet data on household net worth are available for Japan since 1969, but that time series seemed too short to warrant study.

12. The U.K. tax rate on shareholders refers only to the tax burdens on individual investors, not a weighted average across all investor classes. Since most of the variation in θ_t arises from changes in either the corporate tax code or the tax rules affecting individuals, this data series is likely to track the "correct" θ_t series reasonably well.

13. More detailed discussion of the behavior of investors facing realization-based capital gains tax schemes can be found in McCarten (1988) for Canada and in Poterba (1987b) for the United States.

14. The Grimm series is extrapolated to the early years of the sample using information from the Federal Trade Commission and tabulations on form of payment in mergers from Franks, Harris, and Mayer (1988).

15. An issue that deserves further study is the extent to which corporate payouts affect the *timing*, rather than the level, of consumption. Dividend payouts and capital gain realizations may induce households to purchase durables they would otherwise have purchased at some future date.

16. The results for the United States and Britain were insensitive to setting the effective capital gains tax rate to zero. This is because there is more variation in m relative to z, and in the corporate-level tax discrimination variable, in these countries than in Canada.

17. Estimates in Poterba (1987a) suggest that a change in θ_t by .05, which is a 6.4 percent change, would lead to increased dividend payout of approximately 11 percent or $8.3 billion per year. Thus the consumption change is on the same order of magnitude as the change in dividend payout, and, if anything, the present point estimates suggesting that consumption changes by more than the change in dividends are implausibly large. In contrast, the Auerbach-Hassett (in this volume) findings imply this dividend change would raise nondurable and service consumption by .24 percent, or $6.7 billion. My results in table 2.2, part B (using the coefficient in col. 5) imply nondurable and service consumption rises by $17.6 billion. Thus although the papers reach quite different conclusions, the point estimates imply consumption changes of the same order of magnitude.

18. This section was stimulated by joint work with George Hatsopoulos and Paul Krugman.

19. Earlier studies have examined the influence of *accruing* capital gains on household saving. Hendershott and Peek (1989), for example, find a two cent decline in saving for each one dollar increase in corporate equity values.

20. This effect is somewhat stronger when the equations are estimated in levels rather than differences. Since the differenced specification is, however, less prone to spurious conclusions based on trending series, I focus on those results.

21. Auerbach and Hassett (in this volume) observe that one cannot rule out the possibility that wealth and θ_t are correlated, so my estimated tax effects may just be mislabeled wealth effects. This seems unlikely, not just because the results are insensitive to the dating of wealth, but also because they are too large. A 5 percent change in the dividend tax rate would cause a 6.8 percent increase in share values if the capitalized value of dividend taxes was exactly measured by my θ_t series and if dividend taxes were fully capitalized into prices. Using the 1986 stock market value of $2.2 trillion held by households, the wealth-induced rise in consumption would be $2.8 billion (.019*.068*2200, where .019 is the wealth coefficient in the consumption equation). This is far less than my estimated direct consumption effect from θ_t.

22. I examined the impact of using end-of-period wealth in these equations and, as in the United States, the estimated merger coefficient dropped substantially.

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Comment

Robert E. Hall

Two facts drive Poterba's interesting paper: First, in all three countries he studies, there has been a general decline in the bias of the tax system against dividends. The upward trend of the dividend tax preference index as shown in table 2.1 has diminished the disincentive to corporate dividend payout over the past four decades. Second, in the United States and Britain, consumption has risen in relation to the Ando-Modigliani life-cycle consumption function. Consumers spend more for given levels of wealth and earnings than they did earlier.

Poterba's conclusion is that the upward trend in consumption is the result of higher dividend payout, stimulated by the diminished tax disincentive. In the model he has in mind, consumers pay attention to cash receipts rather than just the present discounted value of corporate earnings as revealed in the stock market. When the tax bias changes and corporations switch to greater payout, consumption rises in that model. By contrast, in the standard Ando-Modigliani model, stock market valuation is all that consumers care about. Poterba's evidence adds to the growing literature that tries to make the case that consumers are more sensitive to current cash flows than they would be in the pure life-cycle model.

Though I do not think that Poterba's evidence can be dismissed, I find it a little fragile. First, much of the effect is in durables, a form of saving. The life-cycle model does not predict that consumers will respond to higher dividend payout by accumulating durables; rather, the extra cash flow should go into financial assets. But this failure of the life-cycle model should not be equated with simple excess consumption. Second, the standard errors of the effects are large. Even taken completely at face value, the results could have

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arisen from purely random variation. Make only a modest allowance for topic selection (it was the coincident trends that led Poterba to run the regressions in the first place) and specification search, and the findings become statistically unconvincing. Third, the failure to find the relation in one of the three countries, Canada, weakens the case. There has been almost as much variation in the payout disincentive in Canada, but no variation in consumption around the Ando-Modigliani model resulting from those movements. Why are Canadian consumers not sensitive to cash flow in the same way that U.S. and British consumers are?

As Poterba notes, the fragility of the results is due in part to the slow-moving character of the changes in the dividend bias. Different combinations of other slow-moving right-hand variables, such as a time trend or the percentage of the population aged 65 and over, make large differences in the coefficient of the dividend bias variable. Further, putting a much lower weight on low frequencies, by using first differences, drastically reduces the coefficient of the dividend bias.

In view of the importance of slow-moving influences on consumption, further research on this topic needs to look at other well-known factors. These include, first, the dramatic increase in real asset returns in the 1980s. In principle, this increase should have had wealth and substitution effects on consumption. The omission means that the dividend bias coefficient is biased to the extent that changes in the tax system occurred at the same time that real returns rose, even if there is no casual link. Second, in the United States, the 1980s saw a dramatic increase in the likely volume of deferred taxation. Consumers were bombarded with news stories to the effect that current taxes were too low to pay for the government, so tax rates would have to rise in the future. This is another slow-moving omitted influence in Poterba's equation.

The paper assumes, without showing or citing evidence, that the dividend bias variable actually corresponds to changes in dividend payouts. It is possible (but, I believe, untrue), that consumption rises when the bias variable moves in the direction of higher payouts, but that payouts do not actually change. Such a finding would be paradoxical. It would be nice if Poterba would reassure us that payouts actually track changes in payout incentives. In this respect, his footnote 17 is an overreaction.

In the 1980s, corporations finally awakened to the folly of returning value to shareholders through dividends and began to return value predominantly through repurchase of shares. Poterba argues that repurchases that occur as part of changes in corporate control are exogenous to the consumer. Hence forced realizations from merger and related activity is another way to test the invariance of consumption to events that do not affect true wealth. Poterba moves rather quickly over the topic of how wealth is affected by cash buyouts. If the wealth variable in the consumption function measures the change in wealth associated with buyouts correctly, then the coefficient on the actual buyout proceeds should be zero, his null hypothesis. Even when the buyout

occurs at a large premium to immediate past market value, consumption should respond only to the resulting increase in total wealth. However, in an economy where corporations are valued persistently far below their breakup values, there is room for a difference between shareholders' valuations and market value. Waves of buyouts, stimulated by changes in laws and regulations, could well enter the Ando-Modigliani consumption function because they raise shareholders' valuations in relation to current market value. Hence Poterba's null hypothesis is not obviously a correct characterization of rational consumer behavior.

In any case, the empirical findings on buyouts are at least as fragile as those for dividends. There is essentially no case that buyout cash stimulates nondurable and services consumption. There is a hint that the cash goes into consumer durables, contrary to Poterba's null hypothesis, which requires that the cash go entirely into replacement financial assets.

Given the imprecision of the findings for buyouts, it would be interesting to see if microdata on the behavior of actual recipients of buyout cash could give sharper results.

As a general matter, Poterba's results do not compel the rejection of the life-cycle consumption model. There are some hints that some of the failings of the model, especially at low frequencies, may be associated with changes in the dividend bias of the tax system and with rising buyout activity. But these hints are not strong enough to displace the life-cycle model from its dominant position in consumption economics.

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