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STATE AND LOCAL TAXES AND THE RATE OF RETURN ON NONFINANCIAL CORPORATE CAPITAL

Martin Feldstein

James Poterba

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1050 Massachusetts Avenue
Cambridge MA 02138

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ABSTRACT

Although states and localities collect a substantial amount of revenue from corporate profits taxes and property taxes on corporate capital, these taxes have been inadequately reflected in previous calculations of the effective corporate tax rate and the pretax rate of return to corporate capital. The present study focuses on non-financial corporations and begins by estimating the profits taxes and property taxes which these corporations pay to state and local governments. These estimates are then used to calculate the pretax rate of return on non-financial corporate capital; the results suggest that the conventional omission of state-local property taxes leads to an understatement of this rate of return by about one percentage point. The effective tax rate on non-financial corporate profits is also computed, taking account of state-local taxes. These taxes amount to approximately sixteen percent of the pretax profits of non-financial corporations. The total effective tax rate on these corporations is shown to have risen substantially during the past two decades; it averaged more than seventy percent in the most recent five-year period.

The series for the rate of return and effective tax rate are used to compute the real after-tax rate of return on non-financial corporate capital. The calculations show that this number has declined recently, reaching 2.3 percent in 1979. This is to be contrasted with after-tax returns of over five percent which prevailed during the mid-1960s.

Martin Feldstein
James Poterba
National Bureau of Economic Research
1050 Massachusetts Avenue
Cambridge, Massachusetts 02138
(617) 868-3905

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Martin Feldstein*

James Poterba*

In measuring corporate profits, the national income and product accounts treat state and local property taxes very differently from the profits taxes levied by all levels of government. Pretax profits are defined as profits before corporate income taxes but after all of the state and local property taxes paid by corporations.[1] We believe that this method is conceptually incorrect and that it significantly distorts the measurement of the national rate of return on additions to the stock of corporate capital.

Although all of the taxes paid by corporations are costs from the private viewpoint of the shareholders, these taxes do not represent social costs. From a national or social viewpoint, the marginal product of capital is the total addition to national output and not the addition net of the taxes levied on capital or capital income.[2] A correct measure of capital productivity therefore requires adding the state and local property taxes to the national

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[1] An earlier version of this paper incorrectly stated that the national income accounts measured pretax profits after state and local corporate profits taxes as well as property taxes. We are grateful to John Gorman of the Bureau of Economic Analysis for pointing out this error. Since property taxes are much larger than profits taxes, the error did not lead to any incorrect qualitative conclusions.

[2] Similarly, the marginal product of labor equals the wage paid to labor plus any employer taxes based on payroll or employment.

income account measure of pretax income.[1] The present paper presents alternative estimates of the state and local property taxes paid by nonfinancial corporations and the implied total pretax profits.

In 1979, state and local governments collected more than $33 billion in taxes on the capital or capital income of nonfinancial corporations. This includes the state personal income taxes on the dividends of shareholders as well as the state and local taxes on corporate property and profits. State and local taxes on the capital income of nonfinancial corporations now exceed 16 percent of real pretax capital income and 60 percent of that income net of all federal, state and local taxes. It is clear from these figures alone that recognizing state and local taxes is important for calculating the total effective tax rate on capital income as well as for assessing the pretax rate of return on corporate capital.

Section one of the present paper presents annual estimates of the state and local taxes paid by nonfinancial corporations for the years 1948 through 1979. Because of the difficulty of calculating the property tax paid by nonfinancial corporations, three alternative estimates are presented. Section two uses these tax estimates to calculate expanded profits and the implied rate of return on nonfinancial corporate capital. The third section then calculates the effective tax rate on the capital income of the nonfinancial corporate sector. This effective tax rate reflects the federal, state and local taxes paid by corporations, shareholders and creditors. There is a brief concluding section.

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[1] This expanded pretax profits differs from the social product of capital if there are externalities, economic rents, nonconstant returns to scale, or monopoly power. This distinction will be ignored in the current paper.

1. State and Local Taxes Paid by Nonfinancial Corporations

Nonfinancial corporations pay two basic types of state and local taxes that are based on capital or capital income: corporate profits taxes and property taxes. There are no official estimates of either type of tax paid by nonfinancial corporations. This section presents our own estimates of the annual values of both taxes for the period since 1948.

The total corporate profits tax accruals of state and local governments for all types of corporations is calculated by the Department of Commerce and published in the National Income and Product Accounts.[1] The preliminary value for 1979 is $14.3 billion. We divide this amount between nonfinancial and financial corporations in the same ratio as the federal corporate income tax accruals are divided between these two types of corporations. In 1979, for example, nonfinancial corporations accounted for 81 percent of total federal corporate tax liabilities.[2] On the basis of this information, we estimate that the state and local corporate tax liability for nonfinancial corporations was $11.6 billion. Similar values for other years since 1948 are shown in column 1 of Table 1. Note that the tax rose from only $1.0 billion in 1960 to $2.9 billion in 1970 and $11.6 billion in 1979.

The total value of state and local property tax collections appears

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[1] Table 3.4 of the NIPA contains a detailed breakdown of state and local government receipts.

[2] The total corporate profits tax liability is reported in Table B-19 of the 1980 Economic Report while the corresponding figure for nonfinancial corporations is reported in Table B-11. The 1979 figures are preliminary. The Department of Commerce follows the same procedure, based on the NFC's share of federal profits, for allocating state and local profits taxes. Therefore, the profits tax liabilities data reported, which include federal, state and local taxes, reflect the share of NFC federal profit taxes in total profit taxes.

in the national income and product accounts[1] but no distinction is made between the taxes levied on the property of nonfinancial corporations and the taxes levied on the property of households, unincorporated business and financial corporations. The total state and local property tax receipts for 1979 were $63.9 billion. Because calculating the share of property taxes levied on nonfinacial corporations is difficult, we present three different estimates based on three different assumptions. All three estimates are based on the Department of Commerce series of the replacement value of stocks of reproducible physical assets and the Federal Reserve estimates of the current market value of land holding.[2]

More specifically, the total value of property that is subject to state and local property tax is calculated as the sum of plant and equipment, land, and residential structures minus the amounts of those types of assets owned by nonprofit institutions.[3] The total value of taxable property estimated for 1979 was $5,516 billion. Within this total, nonfinancial corporate business

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[1] See Table 3.4 of the National Income and Product Accounts.

[2] These estimates are presented in "Balance Sheets for the U.S. Economy," a periodical document of the Division of Research and Statistics of the Board of Governors of the Federal Reserve System. The figures used in the calculation presented in this paper are from the version dated February, 1980.

[3] Data on land and reproducible fixed assets are presented in the table "Tangible Asset Allocations"of the document cited in the previous footnote. For 1979, the total value (including that held by tax-exempt non-profit institutions) was $5683 billion. State and local jurisdictions differ in their treatment of inventories; to be conservative, we exclude inventories from the tax base and thereby reduce the fraction of property taxes assigned to nonfinancial corporations.

TABLE 1

State and Local Taxes on Nonfinancial Corporations

		Property Subject to State and Local Property Tax		State and Local Property Tax Collections			
					Nonfinancial Corporations*		
	Corporate Profits Taxes	Total	Nonfinancial Corporations	Total	Equal Rate	3 to 1 Rate	1 to 3 Rate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1948	0.7	497.7	154.8	5.9	1.847	3.415	0.777
1949	0.5	534.4	167.6	6.6	2.083	3.841	0.878
1950	0.8	579.8	180.1	7.1	2.218	4.105	0.933
1951	0.8	640.3	197.2	7.7	2.370	4.400	0.994
1952	0.7	688.2	213.0	8.4	2.595	4.808	1.090
1953	0.7	721.7	225.1	9.1	2.837	5.241	1.194
1954	0.7	756.1	236.3	9.7	3.023	5.580	1.273
1955	0.9	808.7	252.5	10.4	3.263	6.025	1.374
1956	0.9	879.0	278.3	11.5	3.626	6.661	1.532
1957	0.9	946.9	304.7	12.6	4.057	7.405	1.722
1958	0.9	1,007.8	322.0	13.8	4.397	8.049	1.863
1959	1.1	1,071.9	335.2	14.8	4.633	8.550	1.951
1960	1.0	1,123.8	348.1	16.2	5.029	9.316	2.113
1961	1.1	1,165.1	359.2	17.6	5.421	10.059	2.274
1962	1.3	1,213.8	372.2	19.0	5.814	10.811	2.436
1963	1.5	1,266.7	384.7	20.2	6.149	11.475	2.570
1964	1.5	1,325.9	399.0	21.7	6.526	12.222	2.721
1965	1.8	1,399.9	424.1	23.2	7.024	13.122	2.934
1966	1.9	1,484.2	459.6	24.5	7.598	14.076	3.192
1967	2.1	1,586.6	499.6	27.0	8.491	15.630	3.583
1968	2.6	1,731.0	541.7	29.9	9.345	17.243	3.936
1969	2.9	1,894.8	593.0	32.7	10.230	18.875	4.309
1970	2.9	2,035.7	649.9	36.5	11.668	21.363	4.941
1971	3.3	2,156.5	699.3	40.3	13.055	23.757	5.552
1972	4.0	2,336.1	754.5	43.0	13.880	25.299	5.896
1973	4.6	2,652.2	844.9	46.0	14.665	26.873	6.207
1974	5.3	3,054.6	980.0	48.7	15.635	28.572	6.629
1975	5.8	3,432.1	1,116.1	52.8	17.158	31.189	7.303
1976	7.7	3,804.6	1,225.2	57.9	18.654	34.039	7.918
1977	8.6	4,250.4	1,240.1	62.4	18.192	34.465	7.528
1978	10.0	4,821.3	1,483.0	63.2	19.436	36.100	8.150
1979	11.6	5,515.7	1,670.0	63.9	19.347	36.150	8.080

All figures are in billions of dollars.

*See text for definition of alternative rate assumptions.

accounted for $1,670 billion or 30 percent of the total taxable capital stock.[1] Columns 2 and 3 of Table 1 present the two series of taxable capital stocks.

If all jurisdictions taxed all property at the same effective tax rate, it would be appropriate to assign state and local property taxes in the same ratio as the value of the property itself. In fact, however, effective tax rates differ substantially among jurisdictions and among property classes within jurisdictions. Within jurisdictions, business property tends to be taxed more heavily than residential property or agricultural land[2]; this implies that nonfinancial corporations bear more than a proportionate share of the total property tax. The variation in effective tax rates among jurisdictions could either strengthen this tendency or reverse it. Because of this uncertainty, we present three separate calculations. The first assigns property taxes in the same ratio as the value of the property; if the variation in tax rates among jurisdictions is uncorrelated with the mix of property types, this "equal tax" assignment is a conservative understatement of the property tax paid by nonfinancial corporations. The second and third calculations are almost certain to bound the true value. The second method assumes that the effective tax rate on nonfinancial corporate property is three times the effective tax rate on other

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[1] Including inventories would raise the total taxable capital stock by $635 billion to $6151 billion; for nonfinancial corporations, the increase would be $522 billion to $2192 billion. This expanded definition would raise the share of nonfinancial corporate property from 0.30 to 0.36.

[2] The effective tax rate has two components: the assessment-price ratio and the tax rate on assessed value. The 1977 Census of Governments Taxable Property Values and Assessment-Sales Price Ratios reports the assessment price ratio on commercial and industrial property to be higher than that on any other class of property. Netzer's (1973) comments based on his analysis of the evidence indicate that the equal-effective-tax-rate assumption is probably conservative.

property.[1] The third method assumes the opposite imbalance: the effective tax rate on other property is three times the rate on the property of nonfinancial corporations. For 1979, these two assumptions imply that nonfinancial corporations may pay as much as 56.7 percent of the total state and local property tax or as little as 12.7 percent.

Column 4 of Table 1 reports the total state and local property tax collections[2] while columns 5, 6 and 7 report the property taxes assigned to nonfinancial corporations by the three assumptions. Note that the basic assumption of method 1 (i.e. the assumption that nonfinancial corporations pay the same effective tax rate as other property owners) implies that NFCs paid $19.3 billion in property taxes during 1979.

2. Expanded Profits and the Rate of Return on Capital

Several recent studies have estimated the total pretax return to capital with appropriate adjustment for the effects of inflation on the traditional accounting measures of corporate income.[3] The common procedure in all of these studies is to define total capital income as the sum of (1) corporate interest payments and (2) corporate profits with a capital consumption adjustment and inventory valuation adjustment.[4] The rate of profit is then calculated as the ratio of this measure of total capital income to the

[1] This implies that, for 1979, nonfinancial corporations paid 56.7 percent of the property tax even though they only had 30.3 percent of taxable property.

[2] This series is taken from NIPA table 3.4, line 13.

[3] See Nordhaus (1974), Feldstein and Summers (1977) and Holland and Myers (1979).

[4] There is no need to adjust for changes in the real value of corporate debt (due to inflation or interest rate changes) since any gain by the equity owners represents an equal loss to the creditors and leaves total capital income unchanged.

replacement value of the corporate capital stock defined to include fixed capital, inventories and land.[1]

These estimates rely on the work by the Department of Commerce during the past decade that led to their publication of estimates of economic depreciation and of the replacement cost of fixed business capital.[2] The Federal Reserve Board's "Balance Sheets for the U.S. Economy" incorporate these Commerce Department estimates and also provide unpublished Commerce Department estimates of the market value of inventories and their own estimates of the market value of land. The capital stock is defined on a "net" basis [3] and capital income is defined in the corresponding way.

Columns 1 and 2 of Table 2 present this conventional measure of total corporate income and the implied net rate of return.[4] Column 3 expands the measure of total corporate income by including the estimate of the state and local property taxes paid by nonfinancial corporations on the assumption of equal effective rates of property tax on all types of property, i.e., column 3

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[1] Land is, of course, included at an estimated market value. Lovell (1978) presents estimated profit rates that include only plant and equipment in the capital stock; since inventories and land represent about 35 percent of the total NFC capital stock, this measure is very seriously incorrect.

[2] These data are more fully described in the April, 1976 issue of the Survey of Current Business.

[3] The capital stock is measured net of depreciation in contrast to a gross capital stock from which scrapping is deducted. All of the estimates in the present paper are therefore comparable to the "net" profitability series in Feldstein and Summers (1977) and not to the "gross" profitability series.

[4] These figures differ from the r_N series in Feldstein and Summers (1977) only because of data revisions. Data revisions affect the earlier years in the series because of the new estimates of the values of land and inventories.

is the sum of column 1 of Table 2 plus column 5 of Table 1. The corresponding rate of return, calculated by dividing column 3 by the same capital stock series that is used to go from column 1 to column 2, is presented in column 4.

For the 30 year period from 1948 through 1979, the total pretax rate of return (column 4) averages 11.4 percent. By contrast, the conventional return based on capital income after state and local property tax payments is only 10.2 percent. The failure to add state and local property taxes back into the total return to capital caused previous estimates to understate the rate of return by about 1.2 percentage points or nearly 11 percent. The estimates for overlapping decades (also shown in Table 2) indicate that this difference has remained fairly constant over the post-war period with some tendency for a larger gap in the second half of the period than in the first half.

Columns 5 and 6 present alternative estimates of the net rate of return based on the two extreme assumptions about the property tax rates on nonfinancial corporations and other types of property. The assumption that the nonfinancial corporations pay a property tax rate equal to three times the rate paid on other property yields the series shown in column 5 and implies that the conventional estimate of the rate of return understates the true value by about 2.1 percentage points. Conversely, the extreme assumption of 'undertaxation' of nonfinacial corporate property implies that the conventional estimate understates the true rate of return by about 0.5 percentage points (column 6). It seems safe to conclude that the truth lies somewhere between these extremes and that the conventional estimate of the rate of return has been too low by between one and two percentage points, implying that the true value exceeds the conventional estimate by between 10 and 20 percent.

TABLE 2

Rate of Return on Nonfinancial Corporate Capital

Year	NIPA Corporate Income (1)	NIPA Rate of Return (2)	Total Corporate Income (3)	Total Rate of Return* Equal Rate (4)	3 to 1 Rate (5)	1 to 3 Rate (6)
1948	26.6	12.8	28.5	13.7	14.5	13.2
1949	24.0	10.9	26.1	11.9	12.7	11.3
1950	30.5	12.9	32.7	13.9	14.7	13.3
1951	34.6	13.1	36.9	14.0	14.8	13.5
1952	31.7	11.1	34.3	12.1	12.8	11.5
1953	31.2	10.4	34.0	11.4	12.2	10.9
1954	30.2	9.8	33.2	10.7	11.6	10.2
1955	40.0	12.2	43.2	13.2	14.0	12.6
1956	37.8	10.4	41.4	11.4	12.3	10.9
1957	37.0	9.4	41.1	10.5	11.3	9.9
1958	32.7	8.0	37.0	9.0	9.9	8.4
1959	42.8	10.1	47.4	11.2	12.1	10.5
1960	41.0	9.3	46.0	10.4	11.4	9.8
1961	41.4	9.1	46.8	10.3	11.3	9.6
1962	49.4	10.5	55.2	11.7	12.7	11.0
1963	54.8	11.2	60.9	12.4	13.5	11.7
1964	62.0	12.1	68.5	13.4	14.5	12.6
1965	72.2	13.2	79.2	14.5	15.6	13.8
1966	78.5	13.2	86.1	14.5	15.6	13.7
1967	76.0	11.7	84.5	13.0	14.1	12.3
1968	82.1	11.7	91.5	13.0	14.1	12.2
1969	79.5	10.3	89.7	11.7	12.8	10.9
1970	68.6	8.2	80.3	9.6	10.7	8.8
1971	76.6	8.5	89.6	10.0	11.2	9.1
1972	91.0	9.4	104.9	10.8	12.0	10.0
1973	99.0	9.1	113.7	10.5	11.6	9.7
1974	89.4	7.0	105.0	8.2	9.2	7.5
1975	107.8	7.4	124.9	8.6	9.6	7.9
1976	131.3	8.3	149.9	9.5	10.5	8.8
1977	149.9	8.7	168.1	9.7	10.7	9.1
1978	168.0	8.7	187.4	9.7	10.6	9.1
1979	180.0	8.2	199.3	9.1	9.9	8.6
1950-59	-	10.7	-	11.7	12.6	11.2
1955-64	-	10.2	-	11.3	12.3	10.7
1960-69	-	11.2	-	12.5	13.6	11.8
1965-74	-	10.2	-	11.6	12.7	10.8
1970-79	-	8.4	-	9.6	10.6	8.7
1948-79	-	10.2	-	11.4	12.3	10.7

The amounts in columns 1 and 3 are in billions of current dollars.

*See text for definition of alternative rate assumptions.

3. Effective Tax Rates

The effective tax rate on the capital income of nonfinancial corporations depends on the federal, state and local taxes that are paid by the corporation itself and by the corporation's shareholders and creditors. These include the corporate income taxes, the property tax, the personal tax on dividends and capital gains, and the personal and corporate taxes on the interest income received by the creditors of the nonfinancial corporations.[1]

In an earlier paper, Feldstein and Summers (1979) calculated the effective tax rate on the capital income of nonfinancial corporations. In contrast to previous studies that were limited to the corporate rate, the Feldstein-Summers analysis included also the federal taxes on dividends, capital gains and interest. They defined the effective tax rate as the ratio of the combined tax liability to the real pretax capital income. The present study redefines this tax rate in two fundamental ways. The total tax burden is expanded to include the state and local taxes discussed in Section 2 as well as the state and local taxes paid by shareholders and creditors. The real capital income of the nonfinancial corporations is also expanded by including the state and local property taxes. Since the effective tax ratio is less than one, adding

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[1] The logic of this calculation implies that it would also be appropriate to include sales taxes to the extent that they represent a tax on the consumption financed by the dividends, interest and capital gains of nonfinancial corporations, i.e., to the extent that these sales taxes are a substitute for personal income taxes. It would not be appropriate to include the sales taxes paid by nonfinancial corporation as such or the tax that they pay based on their payroll. This classification of taxes is equivalent to basing the effective tax rate on the taxes that would be borne by corporate capital if there were no change in the capital-labor ratio or the allocation of capital in response to the taxes themselves.

equal amounts to the numerator and denominator would raise the ratio. In fact, the numerator is increased by more than the denominator so the effective tax ratio rises even more. In addition to this fundamental change in the definition of the effective tax rate, we also take this opportunity to make several smaller improvements in the previous Feldstein -Summers procedure.

Table 3 presents each of the components of the total effective tax rate. The effective tax rate is expressed as a percentage of what we shall call the "adjusted real capital income" of the nonfinancial corporations. This adjusted income is the total pretax capital income of the nonfinancial corporations adjusted for the corporation's losses on non-interest bearing financial assets (cash, demand deposits and net trade credit). These losses are calculated as the product of the percentage change in the personal consumption deflator and the total value of these non-interest bearing assets.[1] We adjust these for inflation because they represent a real loss to the corporation without being a real gain to any explicit provider of corporate capital; i.e., the loss on net trade credit is similar to a price reduction, the loss on cash is a gain to the government, and the loss on demand deposits is a gain to commercial banks.

The adjusted real capital income series presented in the first column of Table 3 is based on the assumption of equal effective property tax rates. This series therefore differs from the figures in column 3 of Table 2 only

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1 Annual series for these assets, calculated from the Federal Reserve "Balance Sheets", are presented in columns 1 and 2 of Appendix table A-1. The inflation rate for each year is computed as the January-to-January change in the personal consumption expenditure deflator.

TABLE 3

Components of the Total Effective Tax Rate on Nonfinancial Corporate Capital Income

Contributions to Total Effective Tax Rate

Year	Adjusted Real Capital Income	Federal Corporate Tax	State and Local Corporate Tax	State and Local Property Tax	Tax on Dividends	Tax on Real Capital Gains	Tax on Nominal Capital Gains	Tax on Interest	Total Effective Tax Rate
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1953	33.6	52.9	2.2	8.4	9.3	0.6	0.1	1.0	74.5
1954	33.1	45.0	2.1	9.1	9.6	0.7	0.8	1.2	68.7
1955	42.7	45.2	2.2	7.6	8.6	1.1	0.9	1.0	66.5
1956	40.2	47.7	2.3	9.0	9.8	1.0	1.5	1.1	72.4
1957	39.9	45.6	2.2	10.2	10.0	1.0	1.2	1.5	71.7
1958	36.4	42.2	2.3	12.1	10.7	0.7	0.8	2.0	70.7
1959	46.3	42.4	2.3	10.0	8.8	1.1	1.0	1.8	67.3
1960	45.2	40.2	2.2	11.1	9.3	0.9	0.7	2.1	66.5
1961	46.5	39.5	2.4	11.7	9.4	0.7	0.4	2.3	66.4
1962	54.3	35.6	2.4	10.7	8.6	1.2	0.8	2.2	61.5
1963	60.1	35.5	2.5	10.2	8.6	1.2	0.5	2.1	60.6
1964	67.9	33.0	2.3	9.6	7.5	1.3	0.5	2.0	56.2
1965	78.1	32.6	2.3	9.0	7.0	1.5	0.8	1.9	55.1
1966	84.3	32.7	2.3	9.0	7.0	1.6	1.2	2.3	56.0
1967	83.0	30.8	2.6	10.2	7.5	1.4	1.1	2.8	56.4
1968	88.9	34.8	3.0	10.5	7.9	1.4	1.7	3.3	62.6
1969	86.7	35.1	3.3	11.8	7.9	1.9	2.9	4.4	67.3
1970	77.2	31.5	3.8	15.1	8.4	1.5	3.4	6.7	70.5
1971	86.8	30.6	3.8	15.0	7.5	1.6	3.0	6.2	67.7
1972	102.5	28.7	3.9	13.5	6.7	1.8	2.4	5.4	62.5
1973	107.8	32.4	4.3	13.6	6.8	2.4	4.4	6.3	70.1
1974	95.8	38.9	5.5	16.2	8.5	2.9	8.4	9.6	90.1
1975	117.8	29.5	4.9	14.5	7.6	2.1	5.5	8.3	72.4
1976	144.0	31.0	5.4	12.9	7.4	1.8	3.1	6.5	68.1
1977	160.6	31.7	5.4	11.3	7.8	2.0	4.0	6.3	68.3
1978	176.8	33.2	5.6	11.0	8.0	2.4	5.2	6.9	72.2
1979	184.1	34.5	6.3	10.5	8.9	2.0	4.3	8.1	74.5

Column 1 is in billions of current dollars. All other columns are percentage rates.

because of the inflation adjustment. A comparison of these two series shows that the adjustment reduces the measure of real corporate income by about seven percent.

Column 2 presents the NFC federal corporate income tax payments as a percentage of this adjusted real capital income. The corresponding state and local corporate tax payments are shown in column 3. It is noteworthy that the state and local payments were only about five percent of the federal payment in the 1950's but have recently risen to eighteen percent of the federal tax. Column 4 presents the state and local property tax payments (based on the equal effective rate assumption). The series shows a general upward trend but appears to have peaked in the early seventies and to be in decline since then. These three taxes have been grouped together because they are all collected directly from the corporation. The combined tax rate for these three types of taxes has dropped from 58.3 percent of adjusted real capital income in the first five years of this sample[1] (1953 through 1957) to 49.5 percent in the five years ending in 1979.

The effective tax rate on dividends depends on the distribution of dividends among different classes of investors (households, pension funds, life insurance companies, etc.) and the average effective tax rate for each class of investor. The present study uses the Flow of Funds data on equity ownership to distribute dividends among classes of investors for each year

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[1] Data limitations on the marginal tax rate series used later in the calculation precluded extension of the effective tax rate series to the years before 1953.

since 1953[1]. Brinner and Brooks (1979) have calculated the tax rate on dividends received by individuals, including the state and local taxes; this rate averaged 43.2 percent for the years 1953 through 1979 and was 49 percent for 1979.[2] Individuals account for approximately 93 percent of the equity that the Flow of Funds sector statements of assets and liabilities classify as belonging to "households"; the remaining "household" equity is owned by nonprofit organizations (foundations, universities, etc.) and trusts.[3] We make the conservative assumption that the dividends received by these "other household institutions" are untaxed. For the remaining dividend recipients, we follow the procedure of Feldstein and Summers (1979) and assume that insurance companies and banks pay a tax rate equal to fifteen percent of the corporate tax

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[1] This represents an improvement over Feldstein and Summers (1979) which used the 1976 pattern of ownership to assign dividends in all years of the sample period. This assignment assumes that equity in nonfinancial corporations is distributed in the same way as total equity and that dividends are distributed in proportion to total equity.

[2] To compute the federal tax on dividends, Brinner and Brooks constructed a weighted average of individual taxrates, using the fraction of dividends received by each taxable income class each year and the corresponding statutory marginal rates. State dividend taxes are estimated by assuming that the marginal rate on dividends is 1.5 times the average state personal tax rate, which can be computed from NIPA aggregates. Columns 3 and 4 of Appendix table A-1 provide the separate series for the federal and state taxes, which were kindly provided by Brinner and Brooks.

[3] The 93 percent refers to 1975 and is based on a calculation in Feldstein and Summers (1979); see Securities and Exchange Commission (1977), p. 11. Our calculation assumes 93 percent for all years.

rate[1] (i.e., 0.069 for 1979) and that pension funds, foreign equity owners, and other miscellaneous investors pay no tax. The relevant weighted average of these tax rates implies an overall tax rate on dividend income in 1979 of 34.9 percent.[2] Since the ratio of dividends to "adjusted real capital income" was 25.5 percent in 1979, the taxes on dividends added 8.9 percentage points (0.349 x 0.255 = 0.089) to the total tax as a percentage of adjusted real capital income. The series for all years is presented in column 5 of Table 3. The relative stability of this tax component reflects the underlying stability of the dividend-income ratio and the effective tax rate on dividends.[3]

The appropriate effective rate of capital gains tax reflects the distribution of equity ownership among different classes of investors and the fact that the capital gains tax is payable only when the asset is sold. The distribution of equity ownership has already been described in the previous paragraph. For the sample years before 1969, individual capital gains were taxed at half the individual's statutory rate on dividends, but subject to an "alternative" maximum rate of 25 percent. However, gains are taxed only if realized and the effective tax rate is reduced by the postponement of

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[1] In calculating their taxable income, corporations are allowed to exclude 85 percent of the dividends received from other corporations.

[2] The complete series of dividend tax rates is presented in column 5 of Appendix table A-1.

[3] There is, of course, some decrease in the series after the tax cuts of 1963 and 1964 but the difference is quite small.

realization.[1] For the period between 1969 and 1978, the effective tax rate on capital gains was raised in a number of ways: the use of the alternative tax was limited, the value of the loss offset was reduced, the "untaxed" portion of capital gains was subject to a minimum tax, and the amount of income qualifying for the maximum tax on personal services income was reduced. There is no way to provide an accurate evaluation of the weighted average capital gains tax rate for each year in our series. Instead, we shall make what we regard as the quite conservative assumption that households paid an effective rate of tax of only 5 percent on accruing capital gains except during the years 1969 through 1978 when the rate was 7.5 percent. Insurance companies and banks are taxed at a 30 percent statutory rate on capital gains realizations. We assume an effective rate of 15 percent on accruing gains because of the effect of deferral. Finally, we assume that pensions, foreign shareholders, and other "miscellaneous" investors pay no tax on capital gains. The overall effective tax rate on capital gains implied by these values was .047 in 1979 and .066 in 1978 (before the tax change).[2]

The capital gains tax rate must be applied to two kinds of capital gains: the rise in the real value that results from retained earnings and the

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[1] A gain can permanently escape being "realized" for tax purposes if the asset is bequeathed since the new owner is permitted to "step us" his basis for future tax liabilities to the market value at the time that the asset is received.

[2] A complete series of capital gains tax rates is shown in column 6 of Appendix table A-1.

rise in the nominal value that results from the general increase in the price level. The national income account estimate of retained earnings is deficient because it ignores the real gain that the equity owners make at the expense of the creditors. For example at the beginning of 1979 the net debt of nonfinancial corporations[1] was $738.2 billion. The 9.9 percent rise in the personal consumption expenditure deflator implied a gain to the equity owners of $73.1 and an equal loss to the creditors.[2] The gain on outstanding debt must be added to real retained earnings[3] for each year to calculate the real increase in equity value.[4] Multiplying this real increase in equity values by the capital gains tax rate and dividing the product by adjusted real capital income gives the additional tax component shown in column 6 of Table 3. This source of tax is responsible for only between one percentage point and two percentage points of the total effective tax rate.

An additional capital gains tax liability results from the nominal increase in the value of corporate assets that accompanies a general rise in the price level. We abstract from the year-to year stock market fluctuations

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[1] Computed from the Flow of Funds tables published by the Federal Reserve Board.

[2] Of course, the equity owners "paid for" some of this gain in the form of higher interest rates and, to that extent, national income account profits are lower. The issue here is clarifying the real allocation of the income between debt and equity and identifying the way in which this extra component of real income is taxed.

[3] The real retained earnings are, of course, after the inventory valuation and capital consumption allowance adjustments.

[4] This real increase in equity value is presented in column 7 of Appendix table A-1. We assume that an extra dollar of real retained earnings raises the market value of equities by one dollar. This abstracts from year-to-year fluctuations in stock market valuation. It also ignores the arguments of Auerbach (1978), Bradford (1979) and King (1977) that the capitalization of future tax liabilities may cause a dollar of retained earnings to raise share prices by less than one dollar.

and calculate the nominal rise in the value of the capital stock as the product of the capital stock at the beginning of the year and the rise in the GNP deflator during the year.[1] Multiplying this nominal increase in equity values by the capital gains tax rate and dividing the product by the adjusted real capital income gives the additional tax component shown in column 7 of Table 3. This source of tax was responsible for less than 1.5 percentage points of effective tax rate until the late 1960's but the rise in inflation since then has made this a more significant factor. In the five years ending in 1979, the accrued capital gains tax on this nominal increase was equivalent to an average tax on total income of 4.4 percent.

The final component of the total effective tax rate is the tax borne by the creditors of the nonfinancial corporations. Although there are federal, state, and in some cases, local taxes on interest income, we follow the very conservative procedure of including only the federal tax.[2] Feldstein and Summers (1979) used the Flow-of-Funds accounts for 1976 to estimate the distribution of the net liabilities of nonfinancial corporations among households, pensions, commercial banks, savings banks, life insurance companies, government accounts, and a number of smaller categories. We use the relative

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[1] The GNP deflator is too broad an index while the fixed nonresidential investment deflator is too narrow (because it excludes inventories and land); however both indices rose almost exactly the same amount over the 27 year period and behaved quite similarly from year to year. Note that the equity owners receive the nominal gain on the entire capital stock and not just on the equity fraction. The value of the beginning-of-year capital stock for each year, found in the "Balance Sheets" document, is presented in column 8 of Appendix table A-1. The calculation abstracts from the depressing effect on share prices of unanticipated changes in inflation; see Feldstein (1980) and the other research cited therein.

[2] We do this because of the difficulty of calculating the state and local taxes in interest income, especially the taxes paid by financial corporations.

weights implied by this analysis and also follow Feldstein-Summers in setting the household tax rate on this interest income at 35 percent, the mutual savings bank rate at 24 percent, and the rate for private pensions, government accounts, and "miscellaneous" creditors at zero. Life insurance companies are taxed under a special set of tax rules that make their effective rate depend essentially on the yield on their portfolio as well as the statutory corporate tax rate. We apply these rules to calculate a different tax rate for every year based on the prevailing Baa bond rate.[1] For commercial banks, nonlife insurance companies, and finance companies, we make the conservative assumption that one-third of their interest income is completely sheltered from all corporate taxes.[2] The combined tax rate on interest income[3] multiplied by the annual interest payments of nonfinancial corporations and the product divided by their adjusted real capital income gives the interest component of the total effective tax rate that is presented in column 8 of Table 3. This component contributed less than two percentage points to the total effective tax rate until 1966 but the rising interest rates since then raised this component to more than seven percentage points in 1979.

The combined total effective tax rate on the capital income of the

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[1] These rules (known as the Menge formula) imply that there is one marginal tax rate on the increase in income that occurs when interest rates rise and a different and lower marginal tax rate on the increase in income from an increase in the size of the portfolio. Because of their focus on the effect of inflation, Feldstein and Summers calculated the former; we calculate the latter.

[2] This is equivalent to assuming that a larger portion is converted to capital gains or just postponed. The untaxed income is, of course, subject to further tax as the dividends and retained earnings of these financial corporations. We assume the same dividend-payout ratio, .461, as Feldstein and Summers.

[3] This rate is presented in Column 9 of Appendix Table A-1.

nonfinancial corporate sector - i.e., the sum of federal, state, and local taxes on capital and capital income divided by the adjusted real capital income - is shown in column 9. This tax rate reached 74.5 percent in 1979; taxes took nearly three-fourths of the total pretax income. Since 1973, the rate has exceeded 65 percent every year. By comparison, the rate was as low as 55percent in the mid-1960's. The effective tax rates in the period from 1975 to 1979 were back to the same high level that prevailed in the early 1950's before accelerated depreciation, the investment tax credit, rate reductions, etc. This increase in effective tax rates occurred because of the interaction of inflation with existing tax rules and despite several statutory changes that, in themselves, would reduce the effective tax rate.[1]

Table 4 compares alternative effective tax rates and the implied net rate of return. Column 1 represents the combined effective tax rate from column 9 of Table 3. The real net rate of return on nonfinancial corporate capital is equal to the product of the pretax rate of return on capital (presented in column 4 of Table 2) and one minus the effective tax rate. This return is shown in column 2 of Table 4. The real net rate of return for 1979 was only 2.3 percent. For the most recent five years, it averaged only 2.7 percent. The contrast with the mid-1960's is striking; in the five years from 1963 through 1967, the real net return averaged 5.9 percent. Columns 3 and 4 show the effective tax rates corresponding to the two alternative assumptions about state and local property taxes.[2] If the property of nonfinancial corporations

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[1] The nature of the interaction between inflation and effective tax rates is discussed in Feldstein (1979) and Feldstein and Summers (1979).

[2] These alternative assumptions require changes in both the numerator, for taxes paid, and the denominator, for pre-tax income, of the effective tax rate ratios.

is taxed more heavily then other property (column 3), the estimated effective tax rate rises by about two percentage points. Conversely, if nonfinancial corporations are taxed more lightly than other property (column 4), the effective tax rate falls by about one and one-half percentage points.[1]

The last column of Table 4 ignores state and local taxes completely and reports the effective federal tax rate defined as the ratio of the total federal tax to the real capital income net of the state and local taxes paid by the corporations.[2] This effective federal rate shows the same general movement over time as the effective total rate. In the five years ending in 1979, the rate averaged 61 percent - twelve percentage points higher than in the years 1963 through 1967.

4. Conclusion

This paper has reported new estimates of four important time series. The first is the amount of state and local taxes levied on the capital or capital income of nonfinancial corporations. The principal estimate showed that these taxes now represent about sixteen percent of the total before tax returns to capital of nonfinancial corporations and that this percentage has been generally increasing over the past 30 years.

Adding an estimate of the state and local property taxes paid by nonfinancial corporations to the national income account estimates of corporate interest payments and real corporate profits before income taxes provides a

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[1] Note that the real net rate of return of column 2 is independent of the assumption about the effective property tax rate.

[2] This is an updated version of the effective tax rate series reported in Feldstein and Summers (1979), Table 5, with state and local profit taxes subtracted.

TABLE 4

Effective Tax Rates

Alternative Effective Tax Rates

Year	Total Effective Tax Rate	Real Net Rate of Return	3 to 1 Property Tax Rate Assumpiton	1 to 3 Property Tax Rate Assumption	Federal Effective Tax Rate
	(1)	(2)	(3)	(4)	(5)
1953	74.5	2.9	76.2	73.2	69.7
1954	68.7	3.4	70.9	67.0	63.1
1955	66.5	4.4	68.5	65.0	61.3
1956	72.4	3.2	74.3	70.9	67.1
1957	71.7	3.0	73.8	69.9	65.9
1958	70.7	2.6	73.3	68.6	63.9
1959	67.3	3.6	69.8	65.4	61.1
1960	66.5	3.5	69.4	64.3	59.6
1961	66.4	3.5	69.4	64.0	59.1
1962	61.5	4.5	64.7	59.0	54.0
1963	60.6	4.9	63.8	58.2	53.2
1964	56.2	5.9	59.5	53.7	48.8
1965	55.1	6.5	58.3	52.6	47.9
1966	56.0	6.4	59.1	53.6	48.8
1967	56.4	5.7	59.7	53.7	48.2
1968	62.6	4.9	65.5	60.2	54.6
1969	67.3	3.8	70.2	65.0	58.9
1970	70.5	2.8	73.6	67.8	60.6
1971	67.7	3.2	71.1	64.8	57.3
1972	62.5	4.1	66.1	59.4	51.7
1973	70.1	3.1	73.0	67.7	60.4
1974	90.1	0.8	91.2	89.2	82.3
1975	72.4	2.4	75.2	70.0	62.0
1976	68.1	3.0	71.0	65.7	57.2
1977	68.3	3.1	71.1	66.2	58.2
1978	72.2	2.7	74.5	70.5	62.6
1979	74.5	2.3	76.5	73.0	64.8

measure of the total return to capital in the nonfinancial corporate sector. Since 1948, the total return has averaged 11.4 percent of the real capital stock of these nonfinancial corporations (including land and inventories as well as plant and equipment).

The effective tax rate on nonfinancial corporate capital is the ratio of the total taxes - federal, state and local paid by corporations, shareholders and creditors - to the total real pretax income of capital. For the period from 1953 through 1979, this effective tax rate averaged 67.1 percent. In the five years ending in 1979, the rate was an unusually high 71.1 percent, primarily a reflection of the impact of inflation with existing tax rules.

Finally, the effective tax rate and the pretax real return can be combined to obtain a real after-tax return on the capital of nonfinancial corporations. This is the total real net return earned by the providers of capital, both creditors and shareholders, and including retained earnings as well as dividends. This total real net return averaged 3.3 percent for the period from 1953 through 1959, 4.9 percent from 1960 through 1969, and only 2.7 percent from 1970 through 1979.

Cambridge, Massachusetts
May 1980, Revised October 1980

APPENDIX TABLE A-1

	Nonfinancial Corporate Assets		Individual Dividend Tax Rates		Total Dividend Tax Rate	Capital Gains Tax Rate	Real Increase in Equity Value	Value of Capital Stock in Current Dollars	Tax Rate on Interest Income
	Cash & Demand Deposits	Net Trade Credit	Federal	State/Local					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1953	26.6	9.9	43.7	1.8	38.8	4.8	4.1	291.3	25.6
1954	26.6	9.3	43.6	1.9	38.9	4.8	4.9	303.7	25.3
1955	28.3	10.3	44.4	2.0	39.5	4.8	9.6	318.8	25.4
1956	29.3	11.1	44.1	2.2	39.2	4.8	8.2	345.0	25.8
1957	29.0	12.6	43.1	2.3	38.2	4.8	8.0	377.4	26.8
1958	29.0	12.5	42.8	2.4	38.0	4.7	5.3	401.6	26.8
1959	30.1	15.2	42.5	2.6	37.7	4.7	10.7	377.4	27.2
1960	29.2	15.4	41.5	2.7	36.7	4.7	8.6	433.1	27.2
1961	28.2	17.2	42.4	2.9	37.4	4.7	7.2	448.5	27.1
1962	31.7	19.4	41.5	3.0	36.5	4.7	13.9	464.0	27.0
1963	34.6	20.5	41.7	3.1	36.5	4.7	15.7	481.8	26.7
1964	33.4	19.1	38.0	3.3	33.4	4.6	19.1	501.8	25.7
1965	32.7	20.4	36.4	3.3	31.9	4.6	25.2	529.0	25.0
1966	33.1	21.3	36.9	3.6	32.4	4.6	29.7	570.1	26.1
1967	32.4	22.9	37.8	3.8	32.9	4.5	26.2	621.8	26.8
1968	34.8	23.7	39.2	4.2	34.0	4.5	28.1	676.3	29.4
1969	37.5	24.8	38.5	4.6	33.3	6.5	25.4	736.4	29.1
1970	43.1	26.6	38.3	4.8	32.8	6.4	18.0	804.4	30.6
1971	44.1	27.4	38.6	5.2	32.6	6.4	22.1	869.1	29.9
1972	42.6	28.5	37.8	6.0	31.5	6.3	29.2	933.0	29.3
1973	44.9	33.5	37.9	5.8	30.9	6.3	42.1	1,027.4	29.3
1974	46.3	31.7	39.3	5.8	31.5	6.3	44.6	1,183.8	30.9
1975	47.8	69.5	39.4	6.1	31.4	6.2	39.7	1,366.7	31.8
1976	53.9	69.5	40.7	6.4	32.3	6.2	41.4	1,516.7	31.0
1977	55.5	75.5	42.3	6.6	33.6	6.2	52.9	1,654.8	30.2
1978	56.3	84.9	43.1	6.6	33.9	6.2	67.3	1,830.1	30.9
1979	61.6	93.1	45.5	6.4	34.9	4.4	84.6	2,061.0	31.7

See Section 3 for data definitions and sources.

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