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WHY DIDN'T THE TAX REFORM ACT OF 1986 RAISE CORPORATE TAXES?

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EXECUTIVE SUMMARY

The Tax Reform Act of 1986 was projected to raise corporate taxes by more than \$120 billion over the 1986 to 1991 period. Actual federal corporate tax receipts in the last five years have fallen far short of these projections. This paper explores the factors that have contributed to this shortfall. The most important factor is lower-than-expected corporate profits. The underperformance of corporate profits can be attributed to three principal causes. First, the predicted rates of corporate profits when the 1986 Tax Reform Act was enacted were high by historical standards. The total returns on corporate capital in the U.S. economy in the late 1980s were not as high as the pre-1986 forecasts which underlay initial revenue projections. Second, corporate interest payments were significantly higher, as a share of corporate operating income or GNP, in the late 1980s than in the years leading up to the Tax Reform Act. This reduced the corporate tax base, and may in substantial part ultimately be attributable to the marginal incentive effects for debt and equity finance provided in the 1986 Tax Reform Act. Third, also quite likely in reaction to recent tax changes, the last few years

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have seen rapid growth in the income reported by Subchapter S corporations. This income is taxed under the individual income tax. The rise of S corporations has, therefore, contributed to the erosion of the corporate income tax.

The Tax Reform Act of 1986 was forecast to raise corporate taxes by nearly \$120 billion between 1986 and 1991. Actual corporate tax receipts have fallen below projections in each of these years. In February 1987, the Congressional Budget Office (CBO) forecast federal corporate tax collections of \$138 billion for fiscal year 1990. Actual receipts were \$94 billion. The corporate tax shortfall has exacerbated the federal deficit and raised fundamental questions about the long-term revenue potential of the corporate income tax.

This paper examines the reasons for the corporate tax shortfall. The paper is divided into five sections. The first summarizes the predicted effects of the Tax Reform Act of 1986 and the actual pattern of corporate tax collections in the last five years. It shows that TRA86 did raise federal corporate tax collections relative to what they would have been otherwise, but that a decline in corporate profits relative to their predicted level depressed corporate tax receipts.

Section II examines the source of the decline in corporate profits in more detail, identifying a component due to a reduction in the total return to capital, and a component due to an increase in the fraction of corporate earnings paid out as interest. Higher interest charges are the most important factor in the late-1980s decline in corporate profits. If corporate leverage had been constant at its 1986 level relative to earnings, then cumulative corporate tax receipts over the 1987 to 1991 period would have been \$42 billion (1991) dollars above their actual level.

Section III analyzes another post-1986 trend that has contributed to the corporate tax shortfall: The shift from C to S corporations. This shift accounts for a significant decline in corporate taxes, particularly in 1990 and 1991. This shift may in large part be the result of changes in the relative tax rates on individuals and corporations in the 1986 Tax Reform Act, notably the introduction of a top tax rate on individuals below that on corporations.

The fourth section analyzes how the Tax Reform Act of 1986 affected the effective tax rate on corporate capital, and what accounts for disparities between the statutory and effective rate. This section employs a methodology developed in Auerbach and Poterba (1987) to analyze the 1986 changes in the structure of corporate taxation. The conclusion speculates about the future revenue prospects of the corporate income tax.

I. CORPORATE TAX RECEIPTS, 1959–1990

The 1986 Tax Reform Act (TRA) raised corporate taxes in the year when it was enacted, and it was projected to increase corporate taxes for the remainder of the 1980s.¹ TRA reduced the statutory tax rate on corporate taxable income, but more than compensated for the associated revenue loss by eliminating the investment tax credit, lengthening depreciation lifetimes for many assets, and adopting a variety of other base-broadeners. Table 1 shows the forecasts made by the Congressional Budget Office in their *Economic and Budget Outlook* each February, as well as the actual pattern of corporate tax receipts. Actual revenues have fallen below projections, even one year ahead, in every year since 1986. The revenue shortfall began in 1987, widened in 1988, and then rose sharply in 1990 when actual revenues fell below 1989 collections. The table shows that the revenue shortfall is more than a failure of the TRA to increase revenues as predicted. In each fiscal year since 1987, actual tax receipts fell below the CBO's projections from before the Tax Reform Act of 1986 was enacted.²

There are two differences between the forecasts in early 1986 and those in early 1987, the passage of the Tax Reform Act, and changes in forecasts of corporate profits. Corporate profits are defined in this discussion as economic profits, which equals reported profits with corrections for the inventory valuation adjustment and the capital consumption adjustment.³ Table 2 shows the projected share of corporate profits in GNP in early 1986, and early 1987, as well as the actual values for calendar years 1987 to 1991. The CBO's forecast prior to the passage of TRA86 assumed that corporate profits would average more than 8 percent of GNP for the 1987 to 1991 period. One year later, projected corporate profits were much lower, averaging 7.2 percent of GNP. This downward revision reduced the projected level of corporate taxes. The last column of Table 2 shows that actual corporate profits averaged just over 6 per-

¹ One important component of the Tax Reform Act was a lengthening of depreciation life times. Longer asset lives raise taxes in the near term but reduce them in future years, when assets that would otherwise have been fully depreciated are still generating deductions.

² The corporate tax shortfall has attracted attention from tax policy makers. The U.S. Senate Committee on Finance (1990) held hearings to assess the reasons for the shortfall. Testimony presented at the hearings discusses the explanations for the profit decline that are developed in this paper as well as other possibilities.

³ The IVA removes spurious profits due to changes in the value of inventories and work-in-progress from the profit concept, while the CCA corrects accounting depreciation to reflect economic depreciation measured at replacement cost.

TABLE 1.
Forecast and Actual Federal Corporate Tax Receipts, FY 1986–1991.

Fiscal year	Actual receipts	Pre-TRA projection	1/87	Projected receipts as of:			
				2/88	1/89	1/90	1/91
1987	84	89	101				
1988	94	100	119	99			
1989	103	108	126	107	103		
1990	94	112	138	119	112	102	
1991	98*	114	151	126	120	111	99
1987	1.9	2.0	2.3				
1988	2.0	2.1	2.5	2.1			
1989	2.0	2.1	2.5	2.1	2.0		
1990	1.7	2.0	2.5	2.2	2.1	1.9	
1991	1.8	1.9	2.6	2.2	2.1	1.9	1.8

Source: Column 1 is drawn from the Congressional Budget Office, *The Economic and Budget Outlook: January 1991*, Table D-4. Column 2 is from the February 1986 CBO publication *The Economic and Budget Outlook*. Other columns are from intervening CBO publications dated as shown.

cent of GNP between 1987 and 1991, declining from 6.8 percent in 1987 to just over 5 percent in the first half of 1991.

The decline in corporate profits explains a large fraction of the corporate tax shortfall. Applying a marginal tax rate of 34 percent to profits to compute federal corporate tax receipts would suggest that a 1.7 percent of GNP decline in corporate profits, the difference between the January 1987 CBO forecast and actual profits for calendar 1991, would reduce corporate taxes by approximately 0.6 percent of GNP. The actual difference between the CBO's 1987 forecast and actual 1990 receipts was 0.8

TABLE 2.
Forecast and Actual Corporate Profits/GNP, CY 1987–1991.

Year	Forecast 2/86	Forecast 1/87	Actual
1987	8.1	7.2%	6.8
1988	8.2	7.1	6.9
1989	8.2	7.1	6.0
1990	8.1	7.2	5.5
1991	7.9	7.2	5.1*

Source: Column 1 is drawn from the Congressional Budget Office, *Economic and Budget Outlook: Fiscal Years 1987–1991* (February 1986), the second column from the similar publication dated January 1991, and the final column from the National Income and Product Accounts. The starred entry for 1991 is based on only two quarters of data.

percent of GNP. This preliminary calculation thus suggests that changes in corporate profitability have been a key factor in the reduction in corporate taxes.

II. WHY HAVE CORPORATE PROFITS FALLEN?

Profits vary as a result of fluctuations in operating earnings or because of changes in the share of earnings paid out as interest. The two sources of profit shocks imply different interpretations of a reduction in corporate taxes as a result of a profit decline. If the total returns from capital decline, then a decline in corporate profits coincide with a decline in the total revenue that can be collected from the corporate sector. If, however, the profit decline is the result of higher interest payments, then the decline in corporate taxes will be offset in part by higher tax collections on interest recipients.

Table 3 presents summary data on the role of interest payments and declining operating profits in explaining the decline in corporate profits. The first column displays corporate profits as a percentage of GNP, while the second shows corporate capital income, the sum of profits and interest payments, to GNP. Corporate capital income as a share of GNP has remained relatively stable, averaging 8.4 percent over the last five years, while corporate profits have declined from 6.7 percent in 1986 to 5.5 percent in 1991. This reflects the increase in the share of corporate capital income distributed as interest: 18.6 percent in 1986 and 32.4 percent in 1991. Corporate interest payments as a share of GNP rose from 1.5 percent (1986) to 2.6 percent (1990) during this period.

The rise in interest payout is due primarily to changes in corporate leverage. Nominal interest rates were somewhat higher in 1990 than in 1986, but not by enough to explain the rise in the interest payout ratio in Table 3.⁴ Between 1986 and 1990, however, U.S. nonfinancial corporations repurchased \$476 billion of corporate equity, and issued \$758 billion of debt. Share repurchases peaked in 1988, when these firms bought back shares worth \$130 billion. This pattern of equity repurchase by nonfinancial firms has attracted widespread attention, but it is only partly responsible for the increase in interest payouts from U.S. corporations. Approximately two-thirds of the increase in net interest payments is concentrated among financial firms.

⁴ The nominal interest rate on ten-year Treasury bonds averaged 7.68% in 1986, compared with 8.55% in 1990. The differential is a measure of the shift in the structure of interest rates affecting corporate borrowers.

TABLE 3.
Corporate Operating Income and Profits, 1960–1990.

Year	(Profits + Interest)/GNP	Interest/GNP	Profits/GNP
1960	9.6	0.0	9.6
1961	9.4	0.0	9.4
1962	10.2	0.0	10.1
1963	10.6	0.1	10.5
1964	10.9	0.1	10.9
1965	11.7	0.2	11.5
1966	11.6	0.4	11.2
1967	10.8	0.5	10.3
1968	10.7	0.5	10.2
1969	9.9	0.8	9.1
1970	8.4	1.1	7.4
1971	8.9	1.0	7.9
1972	9.2	0.9	8.3
1973	9.2	0.9	8.3
1974	8.2	1.3	6.9
1975	8.6	1.3	7.4
1976	9.0	0.9	8.1
1977	9.8	1.0	8.8
1978	9.9	1.1	8.8
1979	9.4	1.4	8.0
1980	8.4	1.9	6.5
1981	8.2	2.1	6.2
1982	6.9	2.2	4.7
1983	8.2	1.9	6.3
1984	8.9	1.8	7.1
1985	8.7	1.7	7.0
1986	8.2	1.5	6.7
1987	8.5	1.7	6.8
1988	8.6	1.7	6.9
1989	8.4	2.4	6.0
1990	8.0	2.6	5.5
1960–69	10.5	0.3	10.2
1970–79	8.2	1.0	7.2
1980–85	8.2	1.9	6.3
1986–90	8.3	2.0	6.3

Source: National Income and Product Accounts.

Until the mid-1980s, U.S. firms typically issued a small amount of equity each year. The shift in financial policy is at least in part attributable to the 1981 and 1986 tax reforms. Table 4 shows the net-of-tax returns individual investors in debt and equity could earn in various years since 1980. The table follows the tradition of Merton Miller's (1977) focus on the after-tax returns to investors at the top of the income distri-

TABLE 4.
Tax Incentives for Corporate Leverage, 1975-1990.

Year	After-Tax Return on Debt	After-Tax Return on Equity	Equity - Debt Differential
1975	.30	.315	.015
1980	.30	.332	.032
1985	.50	.392	-.108
1990	.72	.545	-.175

Source: Author's calculations. The first column reports $(1 - m^*)$, where m^* denotes the marginal federal income tax rate on interest income received by the highest income individual investors. The second column reports $(1 - \tau_{\text{corp}})^*(1 - .5m^* - .5\tau_{\text{cg}})$ where τ_{corp} denotes the statutory corporate tax rate and τ_{cg} the effective capital gains tax rate, defined as .25 times the statutory capital gains tax rate facing realized gains for top-bracket households. The .25 factor reflects the reduction in the effective tax rate as a result of deferral and basis step-up at death.

bution. The after-tax return on debt is $(1 - \tau_{\text{max}})$, where τ_{max} is the personal income tax rate on an individual facing the top marginal tax rate. The after-tax equity return is $(1 - \tau_{\text{corp}})^*(\lambda(1 - \tau_{\text{div}}) + (1 - \lambda)(1 - \tau_{\text{cg}}))$, reflecting both the corporate tax burden and the effect of shareholder taxes on dividends and capital gains.

Table 4 shows the sharp increase in the relative return on debt as opposed to equity finance. In 1980, the after-tax equity return for top bracket investors was significantly higher than that from investments in debt. This pattern was reversed by the end of the decade, when sharp reductions in the individual top marginal rate made the debt return more attractive than the equity return.⁵

When corporate profits decline because of higher interest payout, the net effect on federal revenue depends on the marginal tax rate of the interest recipient. It is difficult to measure the net revenue cost of higher interest payout, because this requires information on the tax brackets of these recipients. On average, as Gordon and Slemrod (1988) argue, interest is received by taxpayers with lower marginal tax rates than the interest payers. If the recipients are tax-exempt institutions, then the revenue cost is the full amount of the foregone corporate income taxes. If, however, the recipients are households, with an average marginal tax rate on interest income of more than 20 percent, then the net revenue cost of higher corporate interest payments are much smaller.

⁵ The tax incentives for debt versus equity finance are sensitive to assumptions about the investor's identity. For tax-exempt institutions, for example, the return to debt has been constant throughout the 1980s, while the return to equity has increased as a result of reductions in the corporate tax rate.

III. THE RISE OF SUBCHAPTER S STATUS

Another factor that has affected the level of corporate profits, particularly in the last two years, is the channelling of some income that would have been corporate before 1986 into noncorporate form. Many enterprises have some flexibility in choosing whether to incorporate, and to pay taxes as a C corporation, or to face the individual income tax code as an S corporation. C corporate income is taxed once at the corporate rate and again when it is distributed to shareholders.

Just as the 1981 and 1986 tax reforms altered the relative tax burdens on debt and equity finance, they altered the incentives for choosing C versus S corporation status. Gordon and Mackie-Mason (1991) and Nelson (1991) provide detailed summaries of the somewhat conflicting incentives in the recent tax reform. The principal effects are as follows. First, when the marginal personal tax rate falls relative to the corporate rate, it becomes more attractive to use Subchapter S status. Because the 1986 tax reform significantly reduced individual tax rates, it should provide a strong incentive for increased use of S corporations. Second, the 1986 reform repealed the General Utilities doctrine, making it more costly to hold appreciating assets in corporate form. There are some offsetting effects that make S status less attractive than C status for some activities, but the primary effect was to increase the incentive for organizing S status corporations.

Gordon and Mackie-Mason (1991) present preliminary evidence on the effects of the 1986 tax reform on C versus S corporate status. They document a sharp increase in S incorporations immediately after the tax reform, and show that this organizational form has continued to grow more rapidly in subsequent years. They also observe the difficulty of using net income reported by S and C corporations as measures of their relative size, because there are strong incentives for choosing one or the other organizational form based on whether a particular project is expected to generate income or losses.

Table 5 reports increase in the amount of income reported by S corporations during the 1980s. In 1980, S corporations reported only 2 percent as much income as C corporations. By 1986 this percentage had increased to 5 percent. Actual data are not available for years after 1988, but IRS projections suggest a continuing sharp increase to 18 percent in 1990. If the net income projected to be reported by S corporations had been reported by C corporations in 1990, ordinary corporate income tax receipts would have been higher by approximately 13 percent. The issue this table cannot resolve is whether the income that has been reported by S corporations would otherwise have been reported by C corporations.

TABLE 5.
The Rise of S Corporations.

Year	Net Income/NFC Net Assets			Increase in NFC Taxes if all S Corps were Cs
	C Corporations	S Corporations	Ratio	
1980	4.9%	0.1%	0.02	0.04%
1981	4.3	0.1	0.01	0.03
1982	2.8	0.1	0.04	0.03
1983	3.9	0.2	0.04	0.05
1984	5.5	0.2	0.04	0.06
1985	5.7	0.2	0.04	0.06
1986	5.3	0.3	0.05	0.07
1987	5.5	0.7	0.13	0.26
1988	7.1	0.9	0.13	0.28
1989	6.8	1.0	0.15	0.33
1990	6.5	1.2	0.18	0.37

Source: Columns 1 and 2 are from author's tabulations from various issues of the *SOI Bulletin*. Column 3 is the ratio of columns 1 and 2. Column 4 is the product of column 2 and the average tax rate on C corporate income. Data for 1989 and 1990 are based on IRS projections.

The timing of the rise in S corporate income, and its coincidence with the change in the tax law, suggests that there has been a shift from C to S corporate status and that this has reduced reported corporate profits.

Switching productive activities out of the corporate sector reduces corporate profits, but it also raises the income reported under the personal income tax. Nelson (1991) presents some evidence on the difference between the statutory corporate tax rate and the tax rate at which S corporate income is reported. The net effect of C to S corporate switching on total federal revenue may be substantially smaller than the estimated effects on corporate taxes alone.

IV. EFFECTIVE TAX RATES VS. STATUTORY TAX RATES: THE POST-1986 EXPERIENCE

A central issue in evaluating how an increase in interest payout or a decrease in profits within the corporate sector will affect revenue is the choice of the tax rate to apply to foregone profits. One obvious choice is the maximum statutory marginal rate, currently 34 percent. The difficulty with this choice is that some firms face lower marginal rates, and some, with loss carryforwards, may face a current marginal tax rate of zero on incremental earnings. An alternative choice is the effective tax rate, the average rate that applies to taxable income reported to the IRS.

This section explores the evolution of the effective tax rate relative to the statutory tax rate since 1986.

Auerbach and Poterba (1987) computed effective tax rates, compared them with statutory tax rates, and developed a framework for decomposing the difference between the two. That analysis focused on nonfinancial corporations (NFCs), because these firms were most directly affected by the tax reforms of 1981 and 1986. To compare the experience of NFCs with that of the entire corporate sector, Table 6 shows the net corporate tax payments by NFCs.⁶ The first column reports the NFC's real corporate tax payments, while the second and third columns scale these tax payments by GNP and corporate assets. Tax receipts from NFCs in the last five years were only slightly higher relative to GNP than in the first five years of the 1980s, when this share averaged 1.4 percent. The last column focuses on tax payments divided by net assets. This ratio, which averaged 4.6 percent during the first five years of the 1960s, was only 2 percent in the late 1980s. Corporate taxes have increased relative to corporate assets since 1986. For the first five years of the 1980s, NFC tax payments were only 1.5 percent of tangible assets. During the second half of the decade, they averaged 2.0 percent. In 1986, the Tax Reform Act was projected to increase tax collections from 2.5 percent to 3.0 percent of corporate assets in 1990.

The detailed decomposition of differences between the statutory and average effective tax rate is presented in Table 7. The first column shows the maximum statutory tax rate for each year from 1959 to 1988, the last year with complete IRS data for performing the analysis. The entries in the six middle columns describe how various factors have caused the average tax rate to differ from the statutory rate. Negative entries indicate factors that caused the average tax rate to be less than the statutory rate, and positive entries correspond to factors that increased the tax burden above the statutory rate. The average tax rate, taxes/profits, is reported in the last column. It is the sum of the maximum statutory tax rate plus the six adjustment factors in the middle columns.

The first source of differences between statutory and average tax rates, capital recovery provisions that are more or less generous than economic depreciation, is shown in the second column of Table 7. This column includes the tax reduction from use of the investment tax credit, as well as that due to differences between tax depreciation and true economic depreciation. During the early 1980s, capital recovery provisions ac-

⁶ The table measures tax payments net of refunds obtained by loss carrybacks, including taxes collected as a result of audits or other retabulations. The appendix to Auerbach and Poterba (1987) provides a more detailed description.

TABLE 6.
Federal Corporate Tax Receipts from NFCs, 1960–1990.

Year	Federal receipts from NFCs (\$1990)	NFC taxes as a percentage of: GNP	NFC taxes as a percentage of: NFC assets
1960	76.5	3.49	4.33
1961	76.8	3.41	4.31
1962	77.8	3.29	4.37
1963	86.1	3.49	4.81
1964	88.5	3.41	4.86
1965	98.2	3.58	5.28
1966	102.6	3.54	5.30
1967	92.6	3.10	4.53
1968	105.9	3.40	5.06
1969	98.4	3.09	4.53
1970	74.2	2.33	3.31
1971	77.4	2.37	3.40
1972	81.7	2.38	3.50
1973	91.7	2.54	3.79
1974	86.9	2.42	3.19
1975	76.2	2.15	2.56
1976	91.5	2.46	3.01
1977	96.3	2.48	3.10
1978	100.6	2.45	3.04
1979	93.7	2.23	2.62
1980	80.3	1.92	2.09
1981	65.8	1.54	1.63
1982	38.6	0.93	0.95
1983	54.2	1.26	1.34
1984	65.9	1.43	1.63
1985	59.5	1.25	1.49
1986	61.8	1.26	1.58
1987	79.5	1.57	2.05
1988	83.5	1.58	2.15
1989	83.2	1.54	2.18
1990	77.7	1.42	2.04
1960–69	90.3	3.3	4.4
1970–79	87.0	2.3	3.1
1980–85	60.7	1.4	1.3
1986–90	77.1	1.5	2.0

Source: Author's tabulations as described in the text.

counted for a 22 percent differential between the statutory and the average tax rate. This disparity was reduced substantially by the 1986 Tax Reform Act, which eliminated the investment tax credit and reduced the generosity of other capital recovery provisions. By 1988, the last year for which IRS data are available, capital recovery reduced the average tax

TABLE 7.
Statutory vs. Average Effective Tax Rates, 1970-1988.

Year	τ	λ	Components of Difference between Statutory & Average Rate							Average Tax Rate
			Capital Consumption, Adjustment, Investment, & Credits	IVA & Debt/Gain	NOL & NTI & Carrybacks	FTC and Foreign Income	Progressivity	Retabulations		
1970	49.2	0.935	-9.58	-2.09	7.73	0.66	-3.20	2.22	44.93	
1971	48	0.939	-8.26	-4.98	6.25	0.35	-2.93	2.12	40.56	
1972	48	0.940	-10.39	-1.76	3.97	1.09	-2.88	1.97	40.00	
1973	48	0.945	-11.28	0.53	3.17	3.47	-2.64	1.90	43.15	
1974	48	0.956	-13.11	8.03	4.76	-0.21	-2.11	1.91	47.27	
1975	48	0.940	-7.38	-4.68	4.36	-0.06	-2.89	1.57	38.91	
1976	48	0.946	-7.83	0.53	3.46	-0.19	-2.60	1.62	43.00	
1977	48	0.944	-9.53	-0.90	3.23	-0.86	-2.69	1.01	38.25	
1978	48	0.936	-11.39	-0.18	3.05	0.75	-3.09	1.64	38.77	
1979	46	0.933	-10.38	3.77	3.94	-4.64	-3.09	1.38	36.99	
1980	46	0.928	-13.28	4.21	6.90	0.18	-3.33	1.91	42.58	
1981	46	0.926	-18.73	0.02	10.51	1.46	-3.40	1.87	37.73	
1982	46	0.917	-27.20	-2.43	18.21	0.31	-3.83	2.53	33.59	
1983	46	0.920	-24.89	-0.65	12.08	0.08	-3.69	5.13	34.06	
1984	46	0.916	-22.09	-1.53	9.28	0.27	-3.88	1.64	29.68	
1985	46	0.912	-25.44	-2.60	11.11	-1.15	-4.06	2.06	25.93	
1986	46	0.890	-19.27	-5.12	11.21	0.27	-5.05	1.69	29.73	
1987	40	0.948	-13.59	-0.65	9.59	1.41	-2.09	2.92	37.58	
1988	34	1.003	-7.75	-1.05	3.88	-0.20	0.09	1.34	30.31	

Notes: τ denotes the statutory tax rate, λ the tax progressivity parameter ($\lambda = \text{Taxes Paid}/(\text{Taxable Income})^\tau$), and the various contributory factors to differences between statutory and effective tax rates are described in the text. IVA is the inventory valuation adjustment, NOL stands for Net Operating Losses, NTI denotes nontaxable income, and FTC denotes the Foreign Tax Credit.

rate by only 7.7 percent. This marks a return to roughly the conditions of the 1960s, when capital recovery reduced the average tax rate by 8.9 percent.

The third column in Table 7 reports the effect of inflation on average tax rates. This column combines two separate influences. First, inflation leads to spurious inventory profits that raise corporate tax payments and the average tax rate.⁷ Inflation also exerts a countervailing effect on the average tax rate by reducing the real value of corporate debt, thus generating capital gains for equity holders. These gains are untaxed, so inflation raises economic income but does not affect taxes. The two effects roughly cancel, resulting in a small net effect of inflation on the average tax rate. Inflation raised the average tax rate by less than 1 percent during the 1970s. It reduced the average tax rate by 2.3 percent during the 1986 to 1988 period.

The fourth column in Table 7 indicates the impact of imperfect loss offset provisions on the average tax rate. The principal effect of imperfect loss offset is to raise the average tax rate when firms experience losses, because firms with negative income cannot claim tax refunds. Tax receipts are therefore higher than they would be in a system with proportional taxation of economic income. This effect is somewhat attenuated by the availability of loss carrybacks and net operating loss carryforwards. Carrybacks allow some loss offset in the year when losses occur. Loss carryforwards, in contrast, reduce a firm's current tax liability as a result of previous losses.

Imperfect loss-offset provisions may raise or lower the average tax rate, depending on whether net operating loss deductions exceed the value of losses not carried back. The entries in column 7 of Table 4 show that the impact of loss provisions has declined in the post-1985 period. By 1988, these considerations raised the average corporate tax rate by less than 4 percent, while they had averaged a 12.7 percent increase during the 1982 to 1985 period. Losses had a much greater effect in the early 1980s than in any other period.

The decline in the incidence of losses since 1986 has contributed to a reduction in the average corporate tax rate, holding other things constant. While the factors that reduced the prevalence of losses, for example the less generous tax depreciation provisions in this period, have raised corporate taxes, the reduction in losses as a result of these provisions actually blunts their net effect on revenues.

The fifth column of Table 7 describes how foreign tax provisions affect

⁷ Inflation's positive impact through a related channel, the failure to index depreciation allowances for inflation, is subsumed in the capital recovery term.

the average tax rate. This term consists of two parts. The first measures the increase in taxes that would have resulted if foreign source income were taxable at the U.S. statutory rate, and the second reduces taxes by the amount of foreign tax credits claimed. If the statutory tax rates in all other countries equaled that in the United States and all firms could utilize foreign tax credits in full, then the net foreign tax effect in our table would equal zero. If foreign countries levied taxes at rates below the domestic rate, the foreign tax effect would be positive because the domestic taxes on foreign source income would exceed the foreign tax credit. The net effect of foreign tax provisions is a small increase in the average tax rate, with relatively little change between the early 1980s and the most recent years.

The sixth and seventh columns of Table 7 indicate the influence of two other factors, tax progressivity and retabulations, on the average tax rate. Tax progressivity, which accounts for the fact that some corporate income is taxed at rates below the statutory maximum, lowered the average tax rate by roughly 4 percent in the years preceding the 1986 Tax Reform Act. The progressivity effect became much smaller in 1988, with effectively *no* reduction in the average tax rate. This pattern deserves further exploration, but it could be a result of the previously noted shift from C to S corporations. This shift may have occurred disproportionately among small enterprises that previously may have faced marginal tax rates below the statutory corporate rate.

The final category, for retabulations, typically raises the average corporate tax rate. This reflects the impact of audits. There is no substantial change in the importance of this effect in the period since 1986.

Table 7 clearly suggests that the most important factor that historically led average tax rates to fall below the statutory rate is capital recovery. In the early 1980s, capital recovery provisions depressed the average tax rate by 14% more than they did during the 1960s and by 13 percent more than during the late 1970s. In large part because the 1986 Tax Reform Act reduced the generosity of tax depreciation, capital recovery factors today have a much smaller effect in reducing the effective average tax rate.

The most obvious conclusion from Table 7 is that the average effective tax rate has been closer to the statutory maximum rate in the post-1986 period than in any earlier time. In 1988, the average effective rate was less than 4 percent lower than the statutory rate, compared with a difference of more than 20% in 1985. These statistics confirm our earlier conclusion that the shortfall in corporate taxes since 1986 is not the result of differences between the projected and actual effective rate, but rather due to factors that have reduced the amount of corporate profits available for corporate taxation.

V. CONCLUSIONS

Corporate tax receipts during the last five years have fallen significantly below projections that were made when the Tax Reform Act of 1986 was enacted. These projections called for a substantial increase in corporate taxes during the last half of the 1980s. Actual corporate tax receipts have barely equalled the level projected in early 1986, before passage of the tax reforms that were expected to increase revenues.

The most important factor in the corporate tax shortfall is lower-than-expected corporate profits. The underperformance of corporate profits can be attributed to three principal factors. First, the predicted rates of corporate profits when the 1986 Tax Reform Act was enacted were high by historical standards. The total returns on corporate capital in the U.S. economy in the late 1980s were not as high as the pre-1986 forecasts which underlay initial revenue projections. Second, as a share of corporate operating income or GNP, corporate interest payments were significantly higher in the late 1980s than in the years leading up to the Tax Reform Act. This reduced the corporate tax base, and may, in substantial part, ultimately be attributable to the marginal incentive effects for debt and equity finance provided in the 1986 Tax Reform Act. Third, also quite likely in reaction to recent tax changes, the last few years have seen rapid growth in the income reported by Subchapter S corporations. This income is taxed under the individual income tax. The rise of S corporations, therefore, has contributed to the erosion of the corporate income tax.

The most important unsettled issue this paper raises is how to calculate the net revenue effect of the various behavioral shifts described herein. A decline in corporate profits that results from higher interest payouts reduces corporate income tax revenues, but at the same time may increase the tax collections from interest recipients. A similar shift in the labeling of revenue occurs when enterprises choose to become Subchapter S corporations. It is essential to net the decline in corporate taxes against the increase in other taxes in evaluating the revenue effects. This requires a set of assumptions about the marginal recipients of interest payments, and about the types of activity that are shifted between C and S corporate status. Further research is needed to provide such models.

The experience of the last several years underscores the elasticity of taxable income flows among different labels with different tax characteristics. When the tax code places different burdens on debt and equity or S and C corporate income, some taxpayers are likely to respond by rechanneling their taxable income. The elasticity of such financial flows

is far greater than the behavioral elasticities, say of labor supply or saving, because the real effects associated with financial relabeling are less substantial than those with changing a factor such as labor supply.

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