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Average Effective Corporate Tax Rates: 1959 to 2005

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Summary

This report examines average effective corporate tax rates of domestic nonfinancial corporations. Generally, the average effective corporate tax rate is total corporate tax receipts divided by corporate profits. The average rate is not synonymous with other types of effective corporate tax rates — for example, the marginal effective tax rate. Where analyzing the average effective tax rate over time can indicate trends in the relationship between corporate profits and tax receipts, the marginal effective rate describes the rate that influences corporate investment decisions.

One finding of this report is a *decline* in the average effective corporate tax rate *at the state-local level* in the 1990s, with a spike in 2005. There are many theories as to why the state average appeared to decline through 2004 while the federal rate seemed to have remained relatively constant. State tax competition, a process whereby states attempt to lure businesses through favorable corporate income tax laws, may have been the primary cause. Though not confirmed in this report, the data suggest the possibility. Other findings of the report include a significant decline in average effective corporate tax rates at both the federal and state level since the 1960s and volatility in the average effective corporate tax rates.

Recently, however, the average effective corporate tax rate, as defined here, has increased. The series of tax law changes in 2002 and 2003 included several provisions affecting the timing of corporate income tax liability. The most prominent is the bonus depreciation as provided for in the Job Creation and Worker Assistance Act of 2002 (JCWAA) and expanded by the Jobs Growth and Tax Relief Reconciliation Act of 2003 (JGTRRA). This report will be updated as legislative events merit.

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Introduction

There are several measures of the tax rate on corporations. Generally, they can be split into statutory and either average or marginal effective rates. Statutory rates are those that appear in the tax code and that apply to taxable income whereas effective rates are derived from economic measures of income and provide a better measure of the true burden of the tax. This report provides the federal statutory rates along with an estimate of the average effective corporate tax rate for both the federal and state and local governments.

Average effective tax rates have the advantage of being constructed from observed historical data on the return to the average investment. On the other hand, marginal effective tax rates are a better indicator of the anticipated tax consequences of marginal investment decisions.[1] Most observers feel that investment decisions are influenced primarily by the marginal effective tax rate, though the average effective tax rate may be justified as a rough approximation of the tax rate on the marginal investment.

In this report, we focus on the average effective corporate tax rate (AECTR) as measured by corporate tax receipts divided by an adjusted measure of income (profits) for all domestic nonfinancial corporations. Averaging corporate tax rates across industries like this tends to minimize the potential for misinterpretation of the fluctuations. Also, using decade averages or the average over several years further reduces the probability of misinterpreting the data.

Two issues of current interest, the growing use of corporate tax shelters and what some term corporate tax 'welfare,' are not addressed explicitly in this report. The reports conclusions, however, can inform the related policy debate. Corporate tax shelters refer to aggressive tax planning where corporations 'shelter' income to avoid taxation. The difference between legitimate tax planning and illegally sheltering income is often difficult to identify. Generally, the Internal Revenue Service (IRS) identifies an inappropriate shelter as an activity which has no real economic purpose and is primarily a device for avoiding tax liability. Average effective tax rates, which rely upon reported income and tax receipts, would not

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[1] For a detailed explanation of the difference between average and marginal effective tax rates, see Fullerton, Don, "Which Effective Tax Rate?," *National Tax Journal*, vol. 37, no. 1 (March, 1984) p. 23-41 and Fullerton, Don, "The Use of Effective Tax Rates in Tax Policy," *National Tax Journal*, vol. 39, no. 3 (September, 1986) p. 285-292.

explicitly capture the prevalence of corporate tax shelters.[2] They can be, however, a crude indicator. For example, growth in revenue losses from sheltering activities would likely be reflected in a reduced average effective corporate tax rate (AECTR) if fewer firms were paying taxes.

Corporate tax 'welfare', e.g., the special exclusion of certain types of income, special exemptions, and accelerated depreciation, is partially observable through comparison of the statutory tax rate and the average effective tax rate. Generally, the wider the difference between the average effective tax rate applied to pre-tax economic income from capital and the highest statutory rate implies a greater use of tax benefits by corporations.

There are several sources of data for corporate profits and corporate taxes. For this report, CRS uses National Income and Product Accounts (NIPA) data reported by the U.S. Department of Commerce, Bureau of Economic Analysis. The NIPA series provides historical data on federal and state-local corporate tax receipts as well as corporate profits.[3] From these data, an average effective tax rate can be calculated as the ratio of taxes to pre-tax profits. However, the reported data is modified to provide a more accurate estimate of economic income. The methodology is explained first, then the estimated effective tax rates are presented and discussed.[4] Generally, the analysis suggests that the federal average effective tax rate has remained relatively constant over the 1990s, but has fluctuated significantly in the 2000s. The recession and changes to the tax laws were likely key contributors to the fluctuations.

State average effective tax rates, which have also fluctuated in the 2000s, had been drifting lower until 2005 when a sharp increase was realized. The cause of an unusual spike in the AECTR in 2000 and 2005 is unclear. The 2005 spike, however, is likely related to the changes in depreciation rules that shifted deductions from 2005 (and later years) to 2004. The bonus depreciation rules available in 2003 and 2004 generated a significant gap between the statutory rate and the average rate calculated for this report.

Methodology

The first adjustment is relatively straight forward. By NIPA definition, corporate tax receipts include payments the Federal Reserve district banks (the Fed) make to the US Treasury. These payments represent the amount above a regular profit the Fed earns from bank operations. The payments are not tax receipts in the

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[2] Intuitively, if the income is 'sheltered' then the base of corporate tax is reduced though the rate of tax would likely not change given the relatively flat statutory corporate tax rate schedule.

[3] NIPA is the official US government accounting system developed in the 1930s by, among others, Nobel Prize winning economist Simon Kuznets. The accounts are used to track the flow of goods and services as well as income through the economy.

[4] For this memorandum, only domestic nonfinancial corporations were analyzed given the constraints imposed by the methodology employed in determining average tax rates.

usual sense and thus are removed from total corporate tax receipts in our tax rate calculations.

In addition to the adjustment for Fed payments, the implicit increase in corporate profits resulting from the effect of inflation on net corporate debt is added to corporate profit. Generally, the 'cost' of existing debt declines as the inflation rate rises. Corporate debt holders typically receive fixed payments based upon the coupon rate at the time of the debt issue and the term (time to maturity) of the instrument. The payments to debt holders are worth less in periods of inflation because the corporation is paying back the debt in 'cheaper' dollars. In short, the firm realizes an explicit gain. To adjust for this explicit gain, we multiply the annual rate of inflation by the net financial liabilities of the corporations and add the result to reported profits.[5] In years where net corporate debt is negative, or total financial assets actually exceed financial liabilities, an economic *loss* from debt is realized. Net corporate financial liabilities were negative from 2000 through 2005. Generally, effective tax rates for heavily indebted corporations will be lower than what would otherwise be the case. Conversely, relatively low-debt corporations would have relatively higher effective tax rates.

The calculated average effective corporate tax rates in this report are for domestic nonfinancial corporations. To calculate the average corporate tax rates levied by federal, state, and local governments, we need data on the tax receipts of nonfinancial corporations for federal as well as state-local governments. Unfortunately, domestic nonfinancial corporate tax receipts are combined for federal, state, and local governments in the NIPA data. Thus, for this analysis we assume that the ratio of state and local tax receipts to federal corporate tax receipts of *all* domestic corporations — not just nonfinancial corporations — accurately approximates the *nonfinancial* ratio. This ratio is used to separate the combined nonfinancial corporate profits tax liability into a federal share and a state-local share.

Corporate Tax Rates: 1959 to 2005

Three average tax rates are presented in **Table 1** below. The first (in column b) is the average effective tax rate for the federal corporate tax. The second (in column c) is the state and local average effective corporate tax rate. The third (in column d) is the combined average effective corporate tax rate for a hypothetical composite government entity. The base (taxable profits) of the federal corporate tax does not include taxes paid to state and local governments. Thus, the combined federal, state and local tax rate, column (d), does not equal the sum of columns (b) and (c). **Table 2** presents the AECTR by decade.

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[5] The Federal Reserve publishes aggregated annual balance sheet data for corporations (e.g., financial assets and liabilities).

Table 1. Average Effective Corporate Tax Rates, 1959 to 2005

(estimates are for domestic nonfinancial corporations only)

Year	Highest Federal Statutory Corporate Tax Rate (a)	Federal AECTR (b)	State-Local AECTR (c)	Combined AECTR (d)
1959	52%	45.27%	2.43%	46.60%
1960	52%	44.56%	2.54%	45.97%
1961	52%	44.22%	2.70%	45.72%
1962	52%	39.34%	2.60%	40.96%
1963	52%	38.56%	2.70%	40.22%
1964	50%	36.59%	2.57%	38.22%
1965	48%	35.21%	2.49%	36.82%
1966	48%	35.02%	2.53%	36.66%
1967	48%	34.08%	3.07%	36.10%
1968	52.8%	37.71%	3.57%	39.93%
1969	52.8%	37.98%	3.98%	40.45%
1970	49.2%	36.77%	4.78%	39.79%
1971	48%	36.57%	4.95%	39.71%
1972	48%	35.43%	5.34%	38.87%
1973	48%	39.17%	5.71%	42.65%
1974	48%	40.32%	6.42%	44.15%
1975	48%	30.41%	5.52%	34.26%
1976	48%	34.63%	6.39%	38.81%
1977	48%	31.74%	6.12%	35.92%
1978	48%	30.35%	5.44%	34.14%
1979	46%	27.78%	5.49%	31.75%
1980	46%	28.05%	6.50%	32.73%
1981	46%	23.48%	6.58%	28.52%
1982	46%	20.43%	7.80%	26.64%
1983	46%	22.41%	7.09%	27.91%
1984	46%	21.89%	6.54%	27.00%
1985	46%	20.20%	6.37%	25.28%
1986	46%	28.02%	8.52%	34.15%
1987	40%	27.21%	6.92%	32.25%
1988	34%	25.74%	6.68%	30.70%
1989	34%	26.78%	6.26%	31.37%
1990	34%	24.89%	5.47%	29.00%
1991	34%	24.97%	6.17%	29.60%
1992	34%	24.58%	5.61%	28.81%
1993	35%	25.33%	5.27%	29.26%
1994	35%	25.73%	5.26%	29.64%
1995	35%	25.41%	4.88%	29.05%
1996	35%	24.29%	4.53%	27.72%
1997	35%	24.37%	4.43%	27.72%
1998	35%	25.05%	4.60%	28.50%
1999	35%	28.02%	4.95%	31.58%
2000	35%	33.80%	5.85%	37.67%
2001	35%	26.43%	5.13%	30.20%
2002	35%	24.63%	4.99%	28.40%
2003	35%	22.54%	4.29%	25.86%
2004	35%	22.65%	4.17%	25.87%
2005	35%	30.31%	5.54%	34.17%

Source: CRS calculations based upon data collected from the Bureau of Economic Analysis (NIPA), Federal Reserve Bank Flow of Funds, and the Bureau of Labor Statistics.

Note: From 1993 forward there is a higher statutory rate for profits between $100,000 to $335,000 of 39%; and for profits between $15,000,000 and $18,333,333 of 38%.

Table 2. Average Effective Corporate Tax Rates by Decade
(estimates are for domestic nonfinancial corporations only)

Decade	Federal Average Effective Corporate Tax Rate	State and Local Average Effective Corporate Tax Rate	Combined Average Corporate Tax Rate
1960s	37.57%	2.83%	39.34%
1970s	33.93%	5.56%	37.60%
1980s	23.61%	6.71%	28.74%
1990s	24.45%	4.98%	28.21%
1990 to 1994	24.17%	5.37%	28.24%
1995 to 1999	24.18%	4.52%	27.61%
2000 to 2005	25.48%	4.97%	29.16%

Source: CRS calculations based upon data collected from the Bureau of Economic Analysis (NIPA), Federal Reserve Bank Flow of Funds, and the Bureau of Labor Statistics.

Average Effective Corporate Tax Rates by Decade

Focusing on the last 15 years, the annual combined average corporate tax rates have fluctuated significantly with a slight drift downward in the last half of the 1990s followed by spikes upward in 2000 and 2005. The combined annual average corporate tax rate for the 1980's of 28.74% is just slightly greater than the annual average for the 1990's of 28.21% (see **Table 2**). However, in the last half of the 1990s, the combined average corporate tax rate is almost two-thirds of a percentage point lower than the in first half of the decade. The reason could be state-local rates: if the average tax rates for state and local governments are separated from the federal portion, a large part of the drop in the combined average corporate tax rates can be attributed to a drop in state-local average rates. The general trend down in rates continued through 2004 before a spike up to 34.17% in 2005.

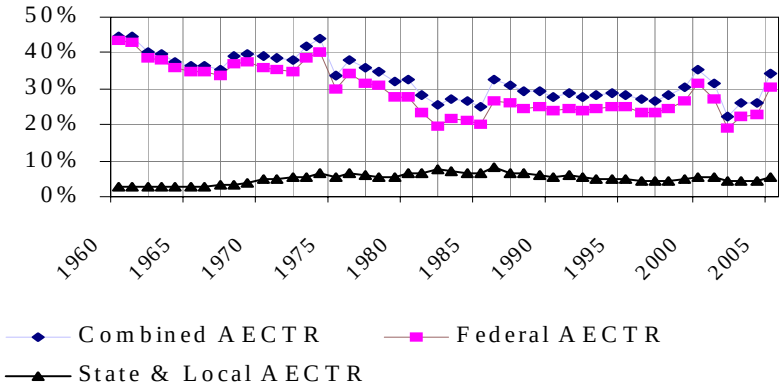
The drop in corporate tax rates of state-local governments can be explained by a variety of factors. Perhaps the most obvious explanation is the tax competition among states to attract businesses. Typically, state corporate tax liability is based upon an apportionment formula that calculates tax liability as a function of the state presence of three factors: labor, physical capital, and sales. A weighted average of the three is then used to determine how much of the firm's profits are allocable to the state for tax purposes. States, in an effort to attract new manufacturing and other businesses, will often double the sales factor or even use a 'single sales factor' to allocate income. Firms that manufacture a product in one state that sell throughout the country (or world) would minimize home-state tax burden in this scenario.

The *federal* average effective corporate tax rate decreased from approximately 38% in the 1960s to about 24% in the 1990s. In the first half of the 2000s, through 2004, the rate continued a gradual decline. The *state and local* average effective corporate tax rate increased from just under 3% in the 1960s to just about 5% in the

1990s. Like the federal tax, the state-local AECTR had been gradually declining since its relative peak in the mid-1980s until 2005 when it jumped to 5.54%. Aside from spikes upward in 2000 and 2005, the *combined* AECTR seems to have gradually declined.

Changes in statutory corporate tax rates and brackets — the rates that the tax code applies to taxable income — affect the average tax rates most directly. These changes are the likely cause of AECTR decline from 1974 to 1982 (clearly exhibited in **Figure 1**). Statutory federal corporate tax rates have gradually declined since 1959 with a slight jump in the late 1960s to help finance the Vietnam War effort and more recently in 1993 to help close the budget deficit.

Figure 1. Average Effective Corporate Tax Rates, 1960 to 2005



The relatively dramatic jump in 2005 is a likely artifact of the bonus depreciation provision included in the 2002 tax cut bill, *The Job Creation and Worker Assistance Act of 2002 (P.L. 107-147)*, and not changes in statutory rates. The bonus depreciation was expanded by the 2003 tax cut bill, *The Jobs and Growth Tax Relief Reconciliation Act of 2003 (P.L. 108-27)*. The tax cut legislation allowed firms to accelerate depreciation in 2003 and 2004, reducing tax liability in those years. The accelerated depreciation, however, reduces the available depreciation deduction for 2005 (and later years), increasing taxable income and thus tax liability.

In addition to changing statutory rates, the brackets that determine which rate applies have also been adjusted over the years. **Table 3** presents the taxable income level that begins the highest tax bracket from 1959 to present. After remaining constant from 1959 through 1974 (at $25,000), the brackets have risen significantly since. Raising the hurdle for entry into the top bracket has the effect of lowering the tax rate. Or, less profit is taxed at the highest rate. The large drop in the average effective tax rate between 1974 and 1975 may be partly attributed to the increase of the highest bracket to $50,000 from $25,000. Alternatively, bracket creep, or the move into higher tax brackets by virtue of inflation, would tend to increase average tax rates.

Table 3. Corporate Tax Highest Rate Brackets

Period or Year	Effective on Taxable Income Above
1959 to 1974	$25,000
1975 to 1978	$50,000
1979 to 1986	$100,000
1987	(a)
1988 to 1992	$335,000
1993 to Present	$10,000,000

a. 1987 averaged the 1986 and 1988 brackets and thus is not directly comparable to previous or later years.

Appendix 1. Technical Detail: Calculation of Average Effective Tax Rates

This section provides a brief overview of the mathematics behind the tax rate calculations. The formula for the calculation that yields the data appearing in **Figure 1** above and **Tables 2, 3, and 4**. Generally, superscripts identify the level of government, *F* for federal and *SL* for state and local, and the subscript *i* is simply an index for the year. **Table 1** presents the source of the data for each of the variables as well as a brief description. The equations are provided as a reference tool rather than a substantive addition to the previous analysis. As such, the reader can move directly to the result of these calculations in **Tables 2 through 4** without loss of context or understanding.

Table 4. Equation Variables and Definitions

Variable	Meaning
AECTR	Author calculated average effective corporate tax rate. ^{F} indicates federal; ^{SL} state and local.
TR	Total corporate tax receipts. *Source*: Bureau of Economic Analysis (BEA)
FRP	Federal reserve payments to the US Treasury. *Source*: BEA.
NFR	Nonfinancial corporate tax receipts. *Source*: BEA.
$NF\pi$	Nonfinancial corporate profits (tax base). *Source*: BEA.
CPI	Consumer price index. *Source*: Bureau of Labor Statistics (BLS).
L	Net liabilities of domestic nonfinancial corporations. *Source*: the Federal Reserve Banks Flow of Funds report.
i	Index for year, *i*=1959,..., 2005

Equations for the average effective tax corporate tax rate calculation (AECTR)

$$AECTR_i^{SL} = \frac{\left[1 - \frac{\left(TR_i^F - FRP_i^F\right)}{\left(TR_i^{SL} + TR_i^F\right)}\right] * NFR_i^{SL,F}}{NF\pi_i + CPI_i * \left(L_i^{NF}\right)}$$

$$AECTR_i^{F} = \frac{\left[\frac{\left(TR_i^F - FRP_i^F\right)}{\left(TR_i^{SL} + TR_i^F\right)}\right] * NFR_i^{SL,F}}{NF\pi_i + CPI_i * \left(L_i^{NF}\right) + NFR_i^{SL}}$$

$$AECTR_i^{F,SL} = \frac{NFR_i^{SL,F}}{NF\pi_i + CPI_i * \left(L_i^{NF}\right)}$$