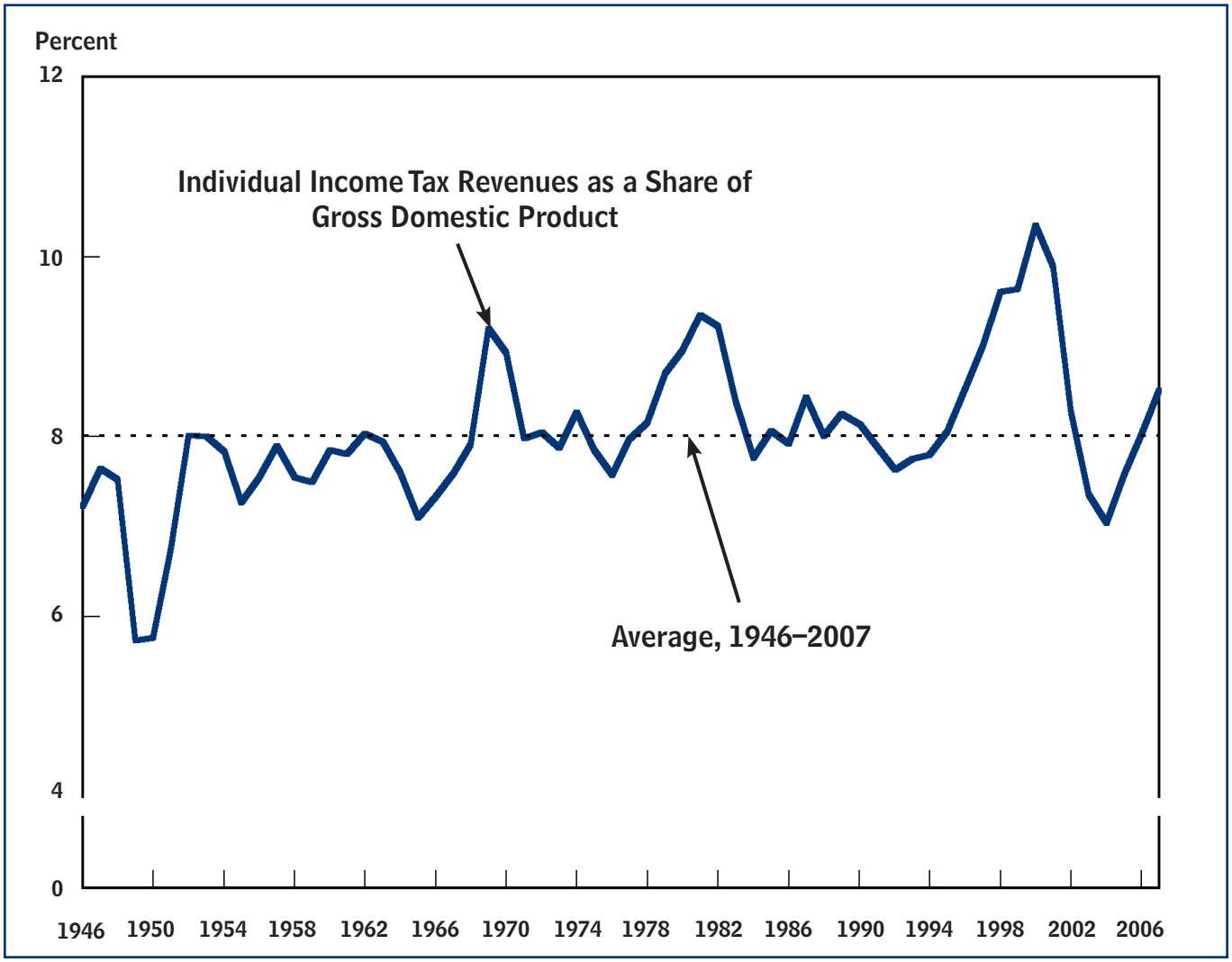
CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

Sources of the Growth and Decline in Individual Income Tax Revenues Since 1994



MAY 2008

Pub. No. 2221

A

CBO

PAPER

Sources of the Growth and Decline in Individual Income Tax Revenues Since 1994

May 2008

The Congress of the United States ■ Congressional Budget Office

Notes

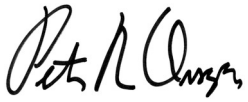
Numbers in the text, tables, and figures may not add up to totals because of rounding.

Preface

Federal individual income tax revenues have risen and fallen by significant amounts since 1994. Although income tax revenues generally rise and fall with the economy, what is exceptional about the period since 1994 is the dramatic change in revenues relative to the nation's gross domestic product (GDP). The ratio of individual income tax revenues to GDP reached an all-time high in 2000, followed by a 50-year low in 2004. This Congressional Budget Office (CBO) paper explores the forces that have led to the rise and fall of individual income tax revenues relative to total economic output since 1994, expanding upon previous analyses in various editions of CBO's *The Budget and Economic Outlook.*

Kurt Seibert of CBO's Tax Analysis Division wrote the report with guidance from David Weiner, Frank Sammartino, Roberton Williams (formerly with CBO), and Tom Woodward. Doug Hamilton, Jonathan Huntley, and Arlene Holen (formerly with CBO) provided comments.

Sherry Snyder edited the paper, and Leah Mazade proofread it. Maureen Costantino prepared it for publication and designed the cover. Lenny Skutnik printed the initial copies, Linda Schimmel handled the print distribution, and Simone Thomas prepared the electronic version for CBO's Web site (www.cbo.gov).



Peter R. Orszag
Director

May 2008

Contents

Tables

Figures

Box

Sources of the Growth and Decline in Individual Income Tax Revenues Since 1994

Summary and Introduction

Federal individual income tax revenues have risen and fallen by significant amounts since 1994. Revenues increased by $461 billion (85 percent) between fiscal years 1994 and 2000, fell by $211 billion (21 percent) between 2000 and 2003, and then increased by $370 billion (47 percent) between 2003 and 2007. Those changes in individual income tax revenues are partially responsible for a similar pattern in the overall budget balance.

Income tax revenues generally rise and fall with the economy, and changes in the level of economic activity explain some of the fluctuation in nominal revenues. What is remarkable about the period since 1994, however, is the dramatic change in revenues relative to the nation's gross domestic product (GDP). From 1994 to 2000, income tax revenues grew by 85 percent compared with growth of only 39 percent for nominal GDP. That growth increased the ratio of income taxes to GDP by 2.5 percentage points—from 7.8 percent to just over 10.3 percent, a historic high. In the following four years, that trend reversed, and individual income taxes dropped precipitously, falling to 7.0 percent of GDP by 2004, the lowest level in more than 50 years. Revenues rebounded in the next three years, rising to 8.5 percent of GDP by 2007.

Those changes in individual income tax revenues relative to the economy present a complicated story. The key factors include:

- A rising and falling income tax base, resulting from growth in wages and capital gains realizations that first exceeded and then lagged behind overall economic growth;
- A rising and falling effective tax rate on adjusted gross income, caused by changes in real (inflation-adjusted) bracket creep and a concentration of income in higher tax brackets; and
- Tax legislation, which was a major factor in the decline in income taxes relative to GDP from 2000 to 2004 but had little to do with the increase from 1994 to 2000.

Understanding those forces is critical to projecting the future path of federal revenues.

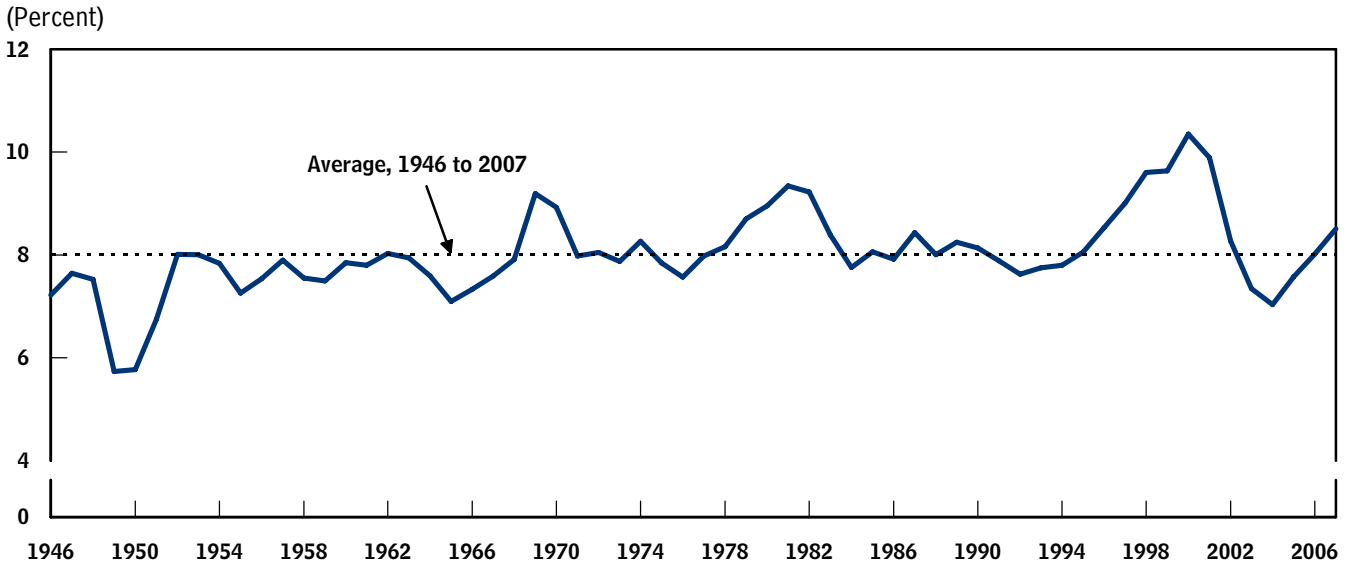
Historical Perspective

Income tax revenues ordinarily fluctuate as a percentage of GDP, but the magnitude of the rise and fall during the 1994–2004 period was exceptional. From 1946 to 2007, income tax revenues averaged just over 8 percent of GDP. Revenues have fluctuated around that average since 1946 but not by as much as the recent swings, aside from the years immediately following World War II (see Figure 1).

Previous revenue peaks occurred at the end of the 1960s and the beginning of the 1980s. Revenues reached 9.2 percent of GDP in 1969 following enactment of surtaxes during the Vietnam War era but fell in 1971 when those surtaxes expired. Revenues peaked again in 1981 at 9.3 percent of GDP as a result of high inflation and an income tax structure that was not indexed to inflation, causing more income to be taxed at higher rates. The 1981 tax cuts offset that rise and drove down the revenue share of GDP over the next few years. Troughs that occurred in the late 1940s and mid-1960s were caused by changes in tax law enacted during those periods.

Figure 1.

Individual Income Tax Revenues as a Share of Gross Domestic Product, Fiscal Years 1946 to 2007



Source: Congressional Budget Office.

Major Sources of Change from 1994 to 2004

This Congressional Budget Office (CBO) paper explores the forces that have led to the rise and fall of individual income tax revenues as a share of total economic output since 1994. The paper addresses changes in tax liabilities on a calendar year basis because the data needed to identify the sources of change are available only for tax liabilities that accrue in a calendar year, not for actual revenues collected in a fiscal year. (Fiscal year revenues are reported in the aggregate and are not identified with particular sources of income.) The pattern of change in calendar year liabilities closely follows, but does not mirror exactly, the pattern of change in revenues that occurs during the fiscal year, which starts and ends three months earlier than the calendar year.

This analysis focuses primarily on the 1994–2004 period because complete detailed data are not yet available for later calendar years. To assess the various sources of change in revenues, in this analysis CBO first adjusted the results to isolate the effects of legislation and then estimated how other sources of change contributed to the variations that would have occurred in the absence of legislation enacted after 1994.[1]

Changes in tax law accounted for little of the rise in federal income tax liabilities as a percentage of GDP between calendar years 1994 and 2000 but played a more prominent role in the decline between 2000 and 2004. In the absence of legislated changes, income tax liabilities would have grown by an estimated 2.7 percentage points as a share of GDP between 1994 and 2000—only slightly more than the actual growth of 2.4 percentage points (see Table 1). But between 2000 and 2004, that share would have fallen by an estimated 1.5 percentage points in the absence of legislated changes—about half of the actual decline.

1. CBO did not adjust the estimates to remove the effects of legislation on revenues from capital gains. Although legislation was responsible for some change in revenues from capital gains over this period, those effects are treated together with other changes in capital gains revenues because it is difficult to separate the impact of legislation from other factors that caused revenues from capital gains to rise and fall.

Table 1.

Sources of Change in Individual Income Tax Liabilities as a Share of Gross Domestic Product, Calendar Years 1994 to 2004

(Percentage points)

	1994–2000	2000–2004	1994–2004
	Total Change in Income Tax Liabilities Relative to Gross Domestic Product		
Actual Changes (Including effects of legislation)	2.4	-2.9	-0.4
Changes Resulting from Legislation[a]	-0.2	-1.3	-1.6
Changes Excluding Effects of Legislation	2.7	-1.5	1.1
	Sources of Change Excluding Effects of Legislation		
Income Tax Base	1.5	-1.2	0.3
TPI growth more or less than GDP growth	0.5	-0.6	0
AGI growth more or less than TPI growth[b]	0.9	-0.6	0.3
Capital gains growth	0.7	-0.6	0.1
Other AGI growth	0.2	0	0.2
Effective Tax Rate on AGI[c]	1.2	-0.3	0.9
Per capita TPI growth more or less than inflation	0.8	-0.3	0.5
Income distribution and other factors	0.4	-0.1	0.4

Source: Congressional Budget Office using data from the Internal Revenue Service's Statistics of Income.

Note: TPI = taxable personal income; GDP = gross domestic product; AGI = adjusted gross income.

a. Excludes capital gains liabilities.

b. Adjusted gross income has been modified to remove the impact of legislation since 1994.

c. Excludes capital gains.

Excluding the effects of legislation, most of the variation in income tax receipts relative to GDP resulted from three factors:

- Fluctuations in taxable personal income relative to total economic output,
- Changing amounts of capital gains liabilities, and
- Changes in the effective individual tax rate.

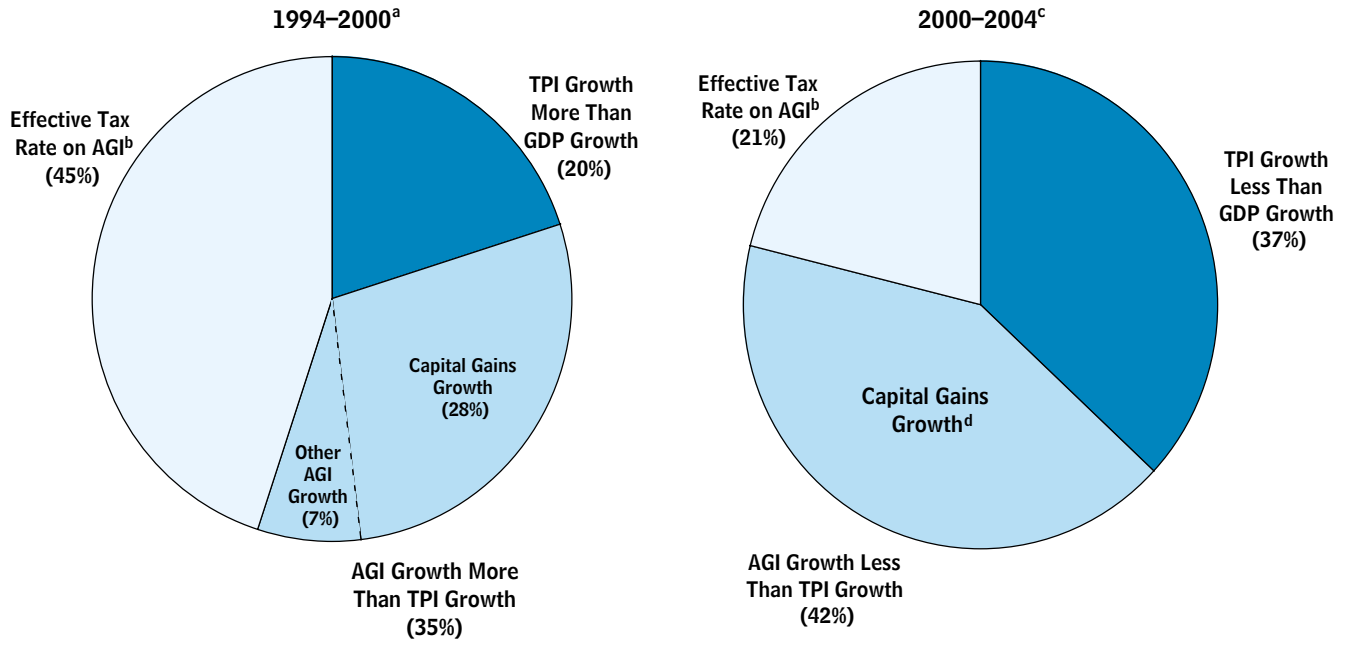
A significant portion of the rise and fall of income taxes relative to GDP was the result of fluctuations in the size of the income tax base relative to total economic output. Growth in wages and other taxable personal income outpaced overall economic growth between 1994 and 2000 and was responsible for 20 percent of the 2.7-percentage-point increase in the income tax share of GDP that would have occurred in the absence of legislation (see Figure 2). Wages grew more slowly than GDP over the 2000–2004 period, offsetting all of the excess growth from the earlier period. The slower growth in wages and other components of taxable personal income accounted for about 37 percent of the 1.5-percentage-point decline that would have occurred in the absence of tax legislation between 2000 and 2004.

Changing amounts of capital gains liabilities also played an important role in explaining why individual income liabilities rose and then fell relative to GDP. The ratio of capital gains liabilities to GDP increased from 0.5 percent in 1994 to 1.3 percent in 2000, accounting for about 28 percent of the increase in the tax share of GDP in the absence of legislation. In contrast, between 2000 and 2004 the ratio of capital gains liabilities to GDP declined from 1.3 percent to 0.6 percent, accounting for about 42 percent of the total decline in income tax liabilities that would have occurred in the absence of legislation.

Figure 2.

Contribution of Various Sources to the Change in Individual Income Tax Liabilities as a Share of Gross Domestic Product, Calendar Years 1994 to 2004

(Percent)



Source: Congressional Budget Office using data from the Internal Revenue Service's Statistics of Income.

Note: TPI = taxable personal income; GDP = gross domestic product; AGI = adjusted gross income.

a. The ratio of liabilities to GDP rose 2.7 percentage points from 1994 to 2000.

b. Excludes capital gains.

c. The ratio of liabilities to GDP fell 1.5 percentage points from 2000 to 2004.

d. Growth in capital gains liabilities accounted for almost all of the growth in AGI; the amount attributed to other growth in AGI rounds to zero.

Changes in the effective individual income tax rate—the ratio of income taxes to adjusted gross income (AGI)—accounted for almost all of the remaining change in the ratio of income taxes to GDP. A number of factors can cause the effective rate to rise or fall, including real growth in per capita income, which pushes more income into higher tax brackets (real bracket creep), and changes in the distribution of income, which can increase or decrease the concentration of income in the highest income tax brackets. Between 1994 and 2000, changes in the effective tax rate accounted for almost 45 percent of the 2.7-percentage-point rise in the ratio of liabilities to GDP that would have occurred in the absence of legislation; from 2000 to 2004, they accounted for about 21 percent of the 1.5-percentage-point decline that would have occurred without new tax legislation.

Causes of Changes in Individual Income Tax Revenues, 1994 to 2004

Decomposing the changes in individual income tax revenues into the various sources can help explain the rise and fall and subsequent rise of revenues since 1994. The analysis focuses on the fluctuations in revenues as a share of GDP from 1994 to 2004. A later section of this paper presents a preliminary analysis of factors underlying the rise in that share of GDP from 2004 to 2007.

This analysis uses data from the Internal Revenue Service's Statistics of Income (SOI) sample for each calendar year from 1994 to 2004. The estimates based on SOI data differ from those based on fiscal year collections in several ways. First, they are based on taxes owed for a particular calendar year, not on taxes paid (or collected) in a

fiscal year. Thus, "income tax liabilities from 2002" refers to income taxes owed on all income accrued during 2002, not all income taxes collected by the government between October 1, 2001, and September 30, 2002. In most years, between 70 percent and 80 percent of individual income tax liabilities for the calendar year are collected in the same fiscal year through withholding and quarterly estimated payments, but a very high percentage of taxes on volatile sources of income, such as capital gains and bonuses, is collected in the fiscal year following the calendar year in which those liabilities accrue. That timing explains why the trough in calendar year liabilities as a percentage of GDP occurred in 2003 but the trough in fiscal year revenues occurred in 2004. Second, the SOI sample is drawn only from individual income tax returns and thus excludes some income taxes paid by estates and trusts.[2] Finally, the sample for each year contains some returns from prior years.

Individual income tax liabilities grew from 7.6 percent of GDP in calendar year 1994 to 10.0 percent in 2000, an increase of 2.4 percentage points. Liabilities dropped to 6.7 percent of GDP in 2003 before rising slightly to 7.1 percent in 2004, a net decline of 2.9 percentage points. That sharp rise and fall follows the same general pattern as the change in fiscal year revenues.

Three factors were primarily responsible for the rise and fall of liabilities relative to total economic output:

- Legislative changes,
- A rising and falling income tax base (measured as the ratio of taxable income to GDP), including changing amounts of capital gains liabilities, and
- Changes in the effective individual income tax rate.

The following sections explore each of these factors in turn.

2. Receipts from income taxes paid by estates and trusts, or fiduciary income taxes, followed a pattern similar to that for individual income taxes, though the percentage change was much greater. In fiscal year 1995, fiduciary tax collections were estimated to be $5 billion. In fiscal year 2000, they grew to about $18 billion, but by fiscal year 2003 they were down to about $8 billion.

Legislative Changes

Several major pieces of legislation—the Taxpayer Relief Act of 1997, the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA), and the Jobs and Growth Tax Relief Reconciliation Act of 2003 (JGTRRA)—all lowered individual income tax liabilities between 1994 and 2004. Other tax legislation enacted in that period did not have a significant effect on liabilities.

Legislation accounted for little of the change in income tax liabilities as a percentage of GDP between 1994 and 2000 but was a much more important factor in the decline in that share between 2000 and 2004. The Taxpayer Relief Act of 1997, which reduced income taxes, lowered the ratio of individual income tax liabilities to GDP by an estimated 0.2 percentage points between 1994 and 2000 (see Table 1). Over the next four years, however, that ratio fell by an estimated 1.3 percentage points, primarily because of the effects of EGTRRA and JGTRRA. That drop represents almost half of the total decline over the 2000–2004 period. In the absence of legislated changes, liabilities as a share of GDP would have grown by an estimated 2.7 percentage points between 1994 and 2000, only slightly more than the actual growth (2.4 percentage points), but would have fallen by 1.5 percentage points between 2000 and 2004.

The estimated effects of legislation reported here exclude the following:

- The impact of legislation on capital gains liabilities,
- The impact of tax changes on the amount of income reported on tax returns, and
- Any potential feedback effect of the tax changes on the economy.

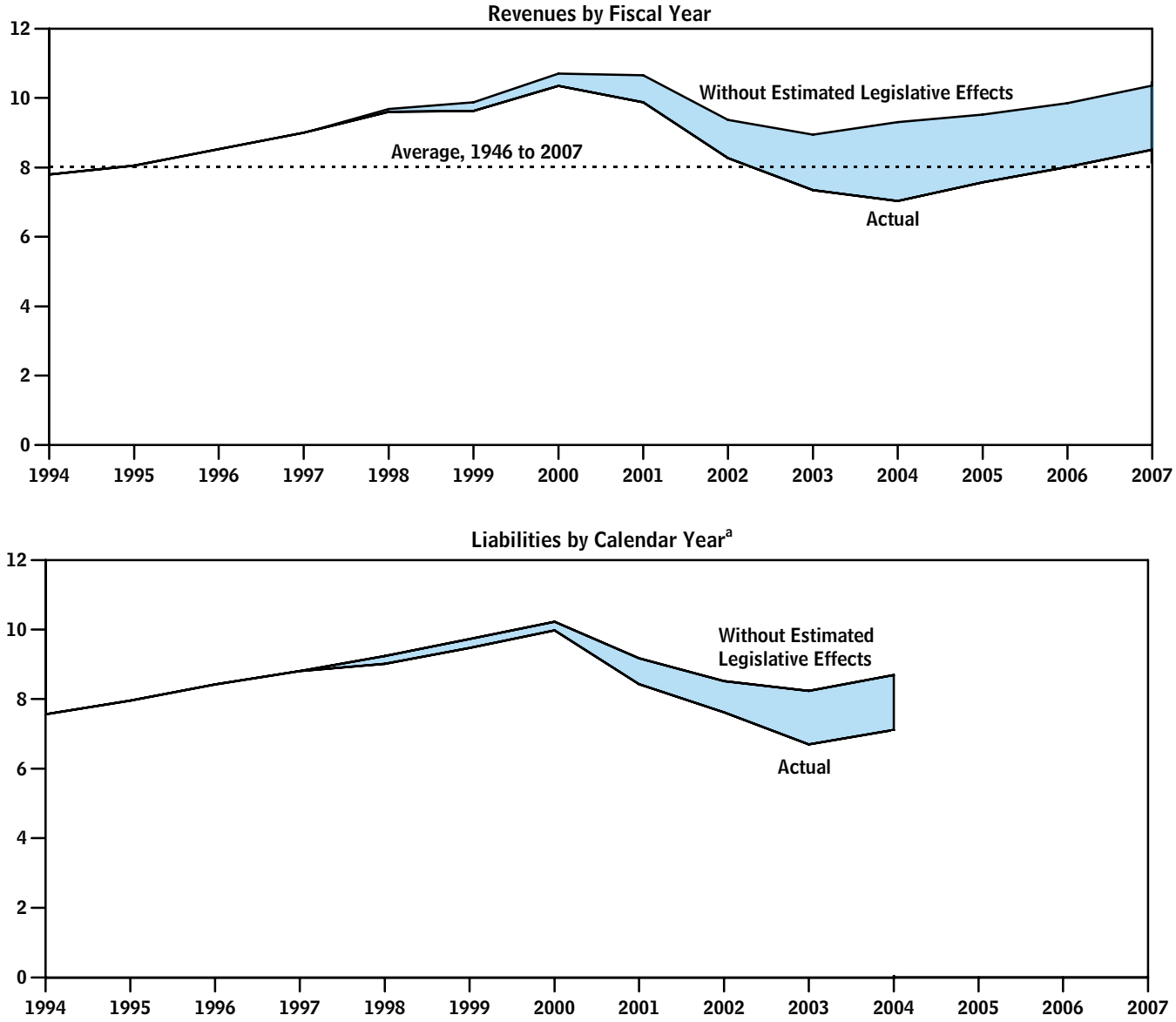
These estimates exclude the **impact of legislation on capital gains liabilities.** Because gains can easily be shifted in response to legislation as taxpayers attempt to realize gains when tax rates are low, behavioral effects cannot easily be separated from other effects. Moreover, how taxpayers will actually respond to changes in the taxation of capital gains is highly uncertain.

The estimated effect of legislation also excludes **the impact of tax changes on the amount of income reported on tax returns.** For example, lowering tax rates could reduce the incentive for people to shift income into

Figure 3.

Individual Income Tax Revenues and Liabilities as a Share of Gross Domestic Product, Actual and Without Estimated Legislative Effects After 1994

(Percent)



Source: Congressional Budget Office using data from the Joint Committee on Taxation for fiscal year revenues and data from the Internal Revenue Service's Statistics of Income for calendar year liabilities.

a. Data on liabilities are not available for years after 2004.

tax-deferred accounts, such as 401(k) retirement plans. That type of income shifting is not observed in the data, however, because the analysis is based on the actual income reported on tax forms and the amount of income that would have been reported in the absence of legislation is not known. In addition, although the model that CBO used to estimate liabilities captures almost all of the legislative effects between 1994 and 2004, some changes in legislation were too small or too complex to be included.

One check on the estimates of legislative effects on calendar year liabilities is to see how closely they track CBO's estimates of legislative effects on fiscal year revenues (see Figure 3).[3] The latter estimates include the impact of legislation on capital gains revenues, the type of income shifting omitted in the estimates of calendar year liabilities, and the effects of legislative changes too small or complex to be included in CBO's calendar year liability estimates. Thus, comparing the two sets of estimates highlights the effect those limitations have on the estimates of calendar year liabilities used in this analysis. Generally, the estimates of liabilities are close to those of fiscal year revenues. For example, legislation is estimated to have reduced income tax revenues by 12 percent, 18 percent, and 24 percent for 2002, 2003, and 2004, respectively, compared with estimated reductions in calendar year liabilities, as calculated for this analysis, of 11 percent, 19 percent, and 18 percent.[4]

The estimated impact of legislation also does not include **any potential feedback effect of the tax changes on the economy.** Tax cuts can influence the overall level of demand in the economy in the short term and, on the supply side, can affect incentives to work and save over the longer term. The effect on liabilities of tax legislation enacted between 1994 and 2000 on liabilities was too small—relative to the overall economy—to have much effect on total economic output. The tax legislation enacted after 2000 probably had a modest effect. Most analysts agree that the approximately $36 billion paid out in rebates between July and December 2001 had some effect on the economy.[5] According to one estimate, the rebates boosted total consumption by 0.8 percent in the quarter the rebates were received and by 0.6 percent in the following quarters.[6] Those effects were probably short-lived, however. The reduced tax rates enacted in 2001 and 2003 increased incentives for people to work and save, but those supply-side effects generally take longer to have an impact on the economy. In addition, the tax legislation increased the budget deficit, and higher deficits tend to reduce economic growth over the medium and long term. Once all those factors are taken into account, the overall impact of the 2001 and 2003 tax legislation on the economy is likely to have been small through 2004.

CBO's analysis of the President's budgetary proposals for fiscal year 2006 suggests the potential order of magnitude of such feedback effects.[7] Although CBO analyzed the effects of the President's proposals taken as a whole, the major proposal in the budget was to extend provisions of EGTRRA and JGTRRA that are set to expire after 2010. The analysis found that, on average, the economic effect of the budgetary proposals could add up to 2 percent or offset up to 9 percent of the cost of the proposals over the medium term, depending on the assumptions used. Feedback effects in that range would have little impact on the estimates of the legislation-induced change in liabilities as a percentage of GDP. The estimated effect of EGTRRA and JGTRRA combined was to reduce income tax liabilities by 1.3 percent of GDP from 2000 to 2004. A positive feedback on liabilities at the upper end of the CBO analysis, for example, would lower that estimate by only 0.1 percentage point.

3. CBO's estimates are based on the Joint Committee on Taxation's estimates at the time of enactment, modified to account for changes in the economic forecast and actual receipts.

4. The somewhat larger difference for 2004 reflects the effect of legislation enacted in 2003 on the timing of tax revenues.

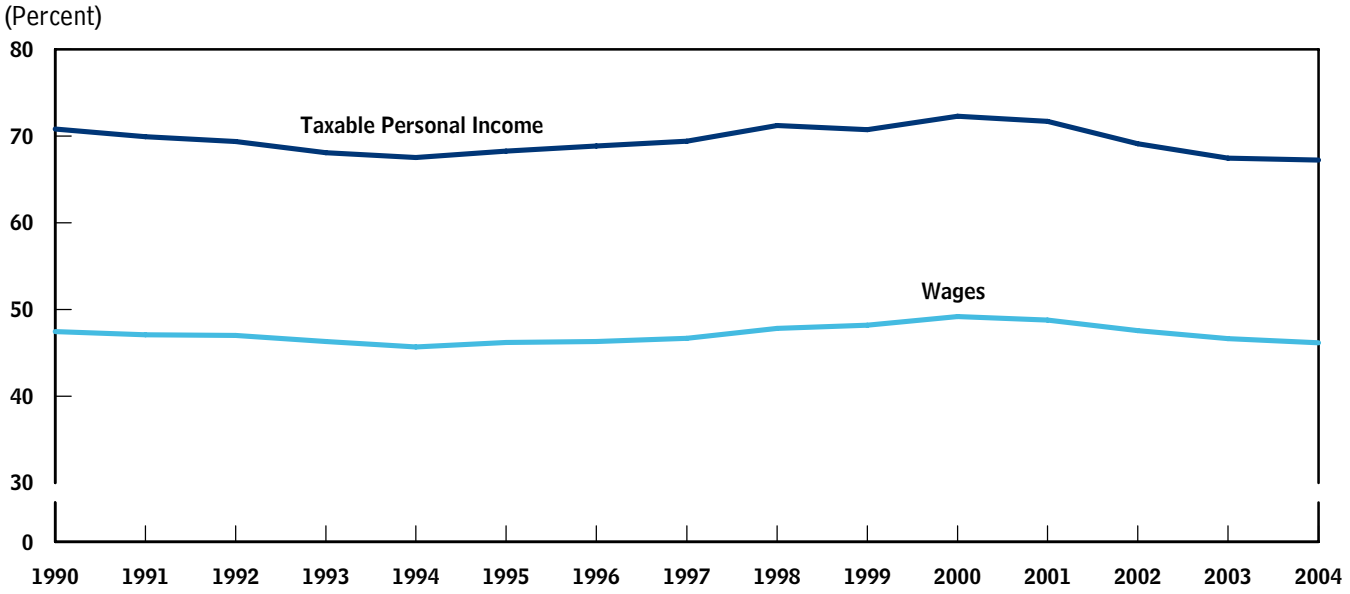
5. See Congressional Budget Office, *Options for Responding to Short-Term Economic Weakness* (January 2008).

6. David Johnson, Jonathan Parker, and Nicholas S. Souleles, "Household Expenditure and the Income Tax Rebates of 2001," *American Economic Review*, vol. 96, no. 5 (December 2006), pp. 1589–1610.

7. Congressional Budget Office, *An Analysis of the President's Budgetary Proposals for Fiscal Year 2006* (March 2005), Chapter 2. The estimates are for the impact of all of the President's proposals from 2011 to 2016, including proposed changes in revenues and outlays. Proposals other than the extension of the expiring tax cuts had relatively minor net economic effects. More recent editions of that annual report encompass proposals other than the extension of the expiring tax cuts. Those other proposals would have additional economic effects, which is why those studies were not used in this analysis.

Figure 4.

Taxable Personal Income and Wages as a Share of Gross Domestic Product, Calendar Years 1990 to 2004



Source: Congressional Budget Office.

A Rising and Falling Individual Income Tax Base

A significant portion of the rise and fall of the income tax share of GDP stems from the rise and fall of the income tax base relative to total economic output. The tax base for individual income taxes is adjusted gross income, defined in the Internal Revenue Code as gross income from all sources minus certain deductions. To understand how AGI first grew more rapidly and then more slowly than the economy, it is useful to separate AGI into two components—income from current production, based on the income concepts that underlie the national income and product accounts (NIPAs), and income from other sources, particularly the realization of capital gains.

In the NIPAs, GDP measures aggregate economic activity on the product (or output) side, and gross domestic income (GDI) measures the same aggregate activity on the income side.[8] Personal income is the portion of GDI accruing to households. It comprises employees' compensation (including wages and salaries, employers' contributions to pensions and insurance, and employers' contributions for social insurance), proprietors' income, rental income, interest, dividends, and transfer payments from governments and businesses, less employees' and employers' contributions for social insurance, primarily Social Security and Medicare.

Taxable personal income (TPI) is the income measure based on the NIPAs that most closely corresponds to the portion of the individual income tax base that comes from current production. TPI includes the taxable components of personal income, plus employees' contributions for social insurance. It excludes tax-exempt forms of compensation such as employers' contributions for pensions, private health insurance, and other nontaxable fringe benefits.

8. Total production and total income should be equal; however, a statistical discrepancy exists between the two and is reported in the NIPAs. In 1994, that discrepancy was $143 billion, meaning that measured national product was $143 billion greater than measured national income. The discrepancy fell after 1994 and eventually became negative, indicating that measured national income was higher than national product. By 2000, the discrepancy had reached -$127 billion. The trend reversed course, and by 2004 the discrepancy was $19 billion. Although it is not possible to assign the statistical discrepancy to either the product side or the income side of the national accounts, the discrepancy could account for some of the differences in the growth of GDP and in the income tax base over the 1994–2004 period.

Table 2.

Contribution of Changes in the Individual Income Tax Base to Changes in Income Tax Liabilities as a Share of Gross Domestic Product, Calendar Years 1994 to 2004

Source of Change	1994–2000	2000–2004
	In Percentage Points	
TPI Growth More or Less Than GDP Growth	0.5	-0.6
AGI Growth More or Less Than TPI Growth[a]		
Capital gains growth	0.7	-0.6
Other AGI growth	0.2	0
Subtotal	0.9	-0.6
Total, individual income tax base	**1.5**	**-1.2**
	As a Percentage of All Changes in Liabilities Relative to Gross Domestic Product	
TPI Growth More or Less Than GDP Growth	20	37
AGI Growth More or Less Than TPI Growth[a]		
Capital gains growth	28	42
Other AGI growth	7	0
Subtotal	35	42
Total, individual income tax base	**55**	**79**
Memorandum:		
All Changes (Percentage points)	2.7	-1.5

Source: Congressional Budget Office using data from the Internal Revenue Service's Statistics of Income.

Note: TPI = taxable personal income; GDP = gross domestic product; AGI = adjusted gross income.

a. Adjusted gross income has been modified to remove the impact of legislation since 1994.

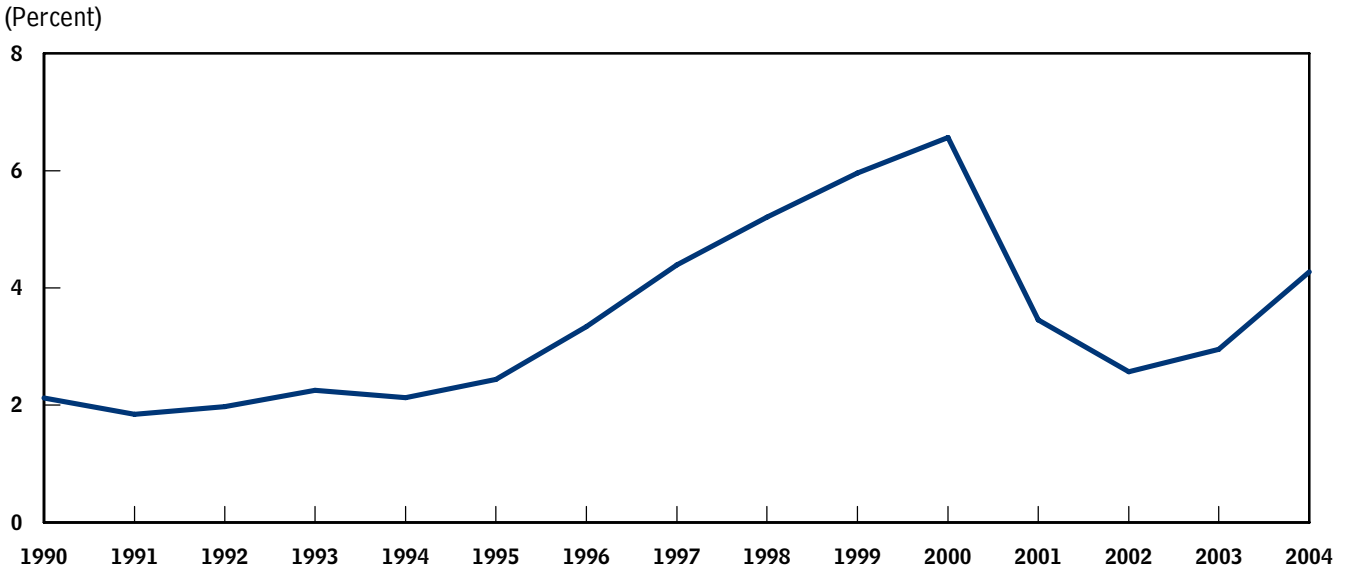
TPI Growth More or Less Than GDP Growth. Between 1994 and 2000, taxable personal income grew much faster than total economic output. The ratio of taxable personal income to GDP increased from 67.5 percent to 72.3 percent (see Figure 4). Wages are the largest component of TPI (68 percent in 2000), and their growth accounts for most of the excess growth in TPI relative to GDP over the 1994–2000 period. Personal dividend income and proprietors' income also grew faster than GDP but are much smaller components of TPI.

Over the 1994–2000 period, the accelerated growth in TPI raised the individual income tax share of GDP by 0.5 percentage points, or roughly 20 percent of the 2.7-percentage-point increase that would have occurred in the absence of legislation (see Table 2). That trend reversed, however, over the next four years. The TPI share of GDP fell from 72.3 percent in 2000 to 67.2 percent in 2004, eliminating the effects of growth in the earlier period. Wages grew more slowly than GDP over that period, accounting for much of the slower growth in TPI. The declining TPI share of GDP accounted for a drop of 0.6 percentage points in the individual income tax share of GDP between 2000 and 2004, or 37 percent of the 1.5-percentage-point decline that would have occurred in the absence of tax legislation.

AGI Growth More or Less Than TPI Growth. Adjusted gross income—the tax base for individual income taxes—does not include all taxable personal income as measured in the national accounts. Certain items are specifically excluded by law. For example, employee contributions to 401(k) and 403(b) retirement accounts are included in TPI but not in AGI. Also, income earned by people who do not file tax returns is not included in AGI. If excluded income grew at a different rate from other income or if

Figure 5.

Realizations of Capital Gains as a Share of Gross Domestic Product, Calendar Years 1990 to 2004



Source: Congressional Budget Office.

the growth in income of filers and nonfilers differed, it would show up as different growth rates of TPI and AGI.

AGI, however, does include a significant amount of income that is not included in TPI. Pension income is one example, and realized capital gains are another. Pension income and realized capital gains reported on tax returns do not reflect income from current production; rather, they reflect income that has been deferred from previous years and therefore are not included in TPI.

From 1994 to 2000, AGI grew faster than TPI, accounting for an increase of 0.9 percentage points in income tax liabilities as a share of GDP (see Table 2). That trend reversed from 2000 to 2004, with AGI growing more slowly than TPI, causing a drop of 0.6 percentage points in that share.

Changing amounts of capital gains realizations play an important role in explaining why AGI grew and then fell relative to GDP. From 1994 to 2000, realized capital gains grew much faster than GDP. The ratio of gains to GDP increased from 2.2 percent in 1994 to 6.6 percent by 2000 (see Figure 5). As a result of increased realizations, income tax liabilities from capital gains grew by $91 billion between 1994 and 2000, even with a reduction (from 28 percent to 20 percent) in the top tax rate on gains in 1997. The increase in capital gains liabilities accounted for almost 80 percent of the 0.9-percentage-point increase in income tax liabilities as a percentage of GDP caused by AGI growth in excess of TPI and more than a quarter of the total increase in the tax share of GDP in the absence of legislation (see Table 2).

In contrast, between 2000 and 2004, GDP rose by 19.0 percent and AGI by 6.7 percent, partly because of a drop in capital gains realizations. The ratio of gains to GDP declined from 6.6 percent in 2000 to a low of 2.6 percent in 2002 and then rose to 4.3 percent in 2004. Tax liabilities from capital gains fell by $55 billion between 2000 and 2004. That decline was responsible for almost the entire drop of 0.6 percentage points in the income tax share of GDP caused by the difference between AGI growth and TPI growth during that period.

Those results were influenced by changes in the tax rates applicable to capital gains that were enacted in 1997 and 2003—but CBO has no clear basis for delineating how much of those outcomes was attributable to the enacted legislation. The Taxpayer Relief Act of 1997 reduced the top marginal tax rate on long-term gains from 28 percent to 20 percent. JGTRRA reduced the top rate on long-

term gains from 20 percent to 15 percent starting in 2003; that reduction is scheduled to expire after 2010. Because taxpayers can choose when to realize capital gains (and losses), more gains are realized when tax rates are lower. However, over time, the increase in realizations induced by lower tax rates is not sufficient to offset the direct impact on revenues from the tax reduction itself, for two reasons. First, revenues will always increase by less than realizations following a tax cut because gains are taxed at the lower rate. For example, if the rate were lowered from 20 percent to 15 percent (a 25 percent reduction in the tax rate), realizations would need to increase by a third just to keep revenues unchanged. Second, increases in realizations are generally much larger in the short term than over the long term because some of the additional revenues in the short term come from gains that would have been realized in later years.

It is difficult to disentangle tax-induced changes in realizations from other factors that cause realizations to increase. Capital gains realizations rose by 45 percent in 1996 (before the 1997 tax cut) and by 40 percent in 1997 (after the tax cut). The increase was 25 percent in 1998. The increases in tax liabilities were larger in 1996—50 percent—but much smaller in the following two years, growing by 19 percent in 1997 and 12 percent in 1998.

Realizations also rose following the 2003 tax cut, by 20 percent in 2003 and by 54 percent in 2004. By contrast, tax liabilities increased by only 4 percent in 2003 and by 41 percent in 2004. Those increases came after a prolonged drop in both capital gains realizations and liabilities, however. Realizations in 2004 were still about 23 percent below their peak in 2000, and liabilities were about 43 percent below the 2000 level.

Separating the effects of changes in the tax rate from other factors affecting capital gains realizations is difficult. The best estimates of taxpayers' response to changes in the capital gains tax rate do not suggest a large revenue increase from additional realizations of capital gains—and certainly not an increase large enough to offset the losses from a lower rate.[9] Estimates of the effect of capital gains legislation on revenues include taxpayers' response to the changes in the tax rate on capital gains. Taking that effect into account, the Joint Committee on Taxation estimated at the time of enactment that the reduction in the capital gains rates in 1997 and 2003 would result in a small revenue loss through 2004.

Changes in the Effective Tax Rate on Adjusted Gross Income

Changes in income tax liabilities not accounted for by legislation or growth in adjusted gross income are explained by changes in the effective individual income tax rate—the ratio of income tax liabilities to AGI. A number of factors can cause the effective tax rate to rise or fall.

Per Capita TPI Growth More or Less Than Inflation. Growth in real per capita income raises the effective tax rate. Because tax parameters, such as the tax brackets and the values of credits and deductions, are indexed to increases in consumer prices, only income growth in excess of price inflation will push more income into higher tax brackets. That phenomenon, known as real bracket creep, causes tax liabilities to grow as real per capita income grows over time; it is routinely incorporated into revenue projections whenever the economic projections forecast real income growth.

Changes in the Distribution of Income. Changes in the distribution of income also can increase the effective tax rate. Given the graduated structure of the individual income tax, increased concentration of income at the top of the distribution increases the effective tax rate because a large share of that taxable income is taxed at higher rates. Changes in the distribution of income can come from changes across and within sources of income. As a result of such changes, the income of higher-income taxpayers grew more rapidly than income for other taxpayers from 1994 to 2000, thereby raising the effective income tax rate (see Figure 6).

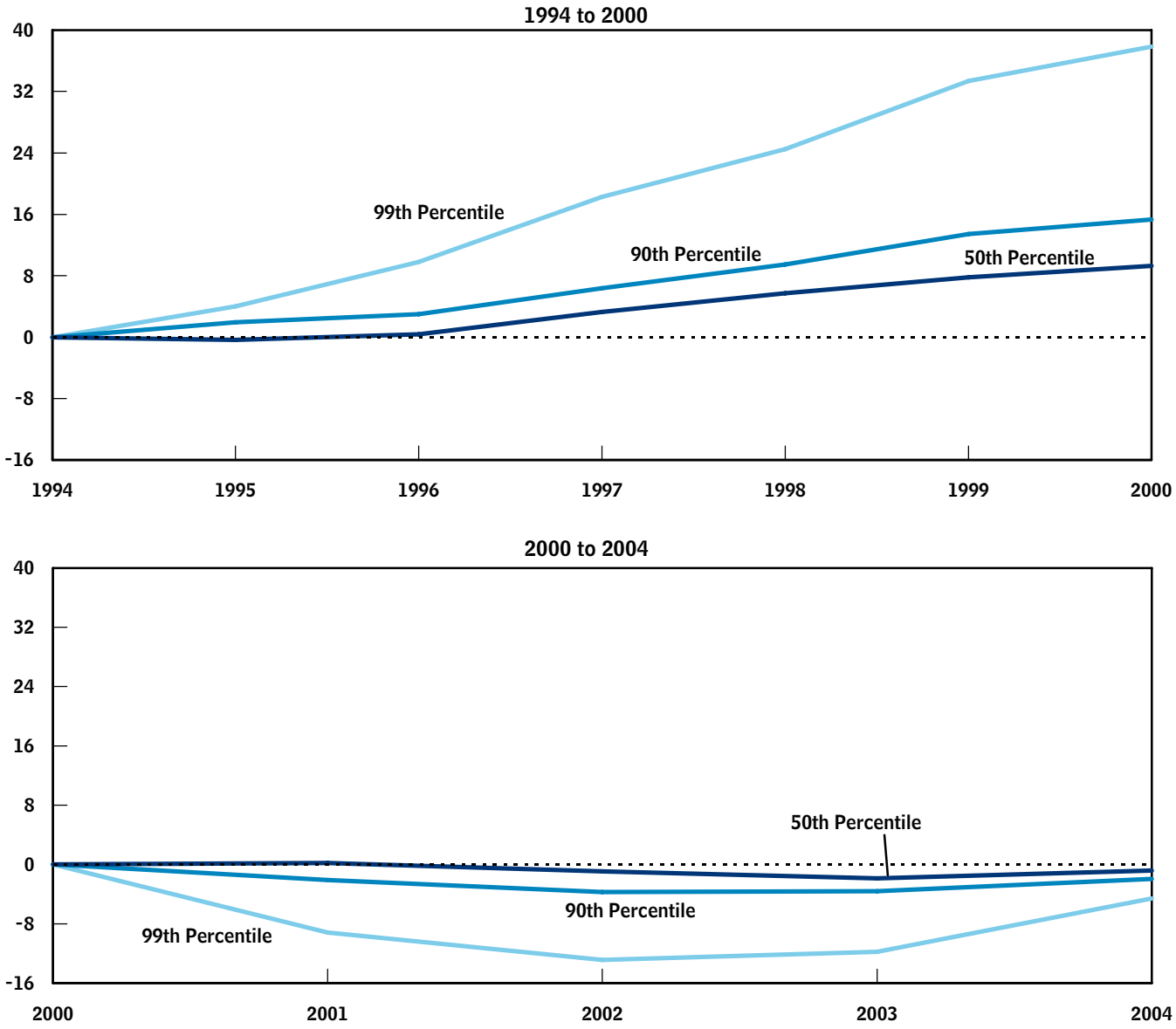
Changes Across Sources of Income. Changes across sources of income will increase effective tax rates if high-income filers receive a disproportionate share of the source of income with the fastest growth. For example, a rapid rise in partnership income, which accrues predominantly to upper-income taxpayers, would raise the effective rate. Conversely, relatively more growth in sources of income accruing primarily to low-income filers would decrease

9. See Leonard E. Burman, *The Labyrinth of Capital Gains Tax Policy* (Washington, D.C.: Brookings Institution Press, 1999), Chapter 4; Jane G. Gravelle, *The Economic Effects of Taxing Capital Income* (Cambridge, Mass.: MIT Press, 1994), Chapter 6; and George Zodrow, "Economic Analysis of Capital Gains Taxation: Realizations, Revenues, Efficiency, and Equity," *Tax Law Review*, vol. 48, no. 3 (1990), pp. 419–527.

Figure 6.

Percentage Growth in Adjusted Gross Income (Excluding Capital Gains) at the 50th, 90th, and 99th Income Percentiles, Calendar Years 1994 to 2004

(Percent)



Source: Congressional Budget Office.

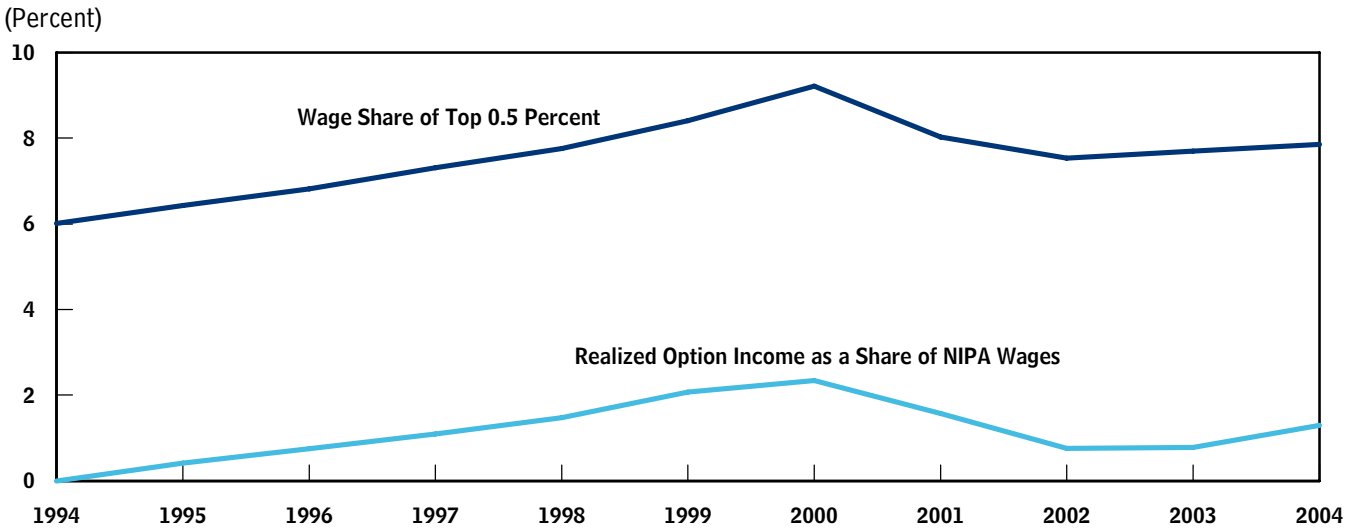
the average effective tax rate because more income would be taxed at lower rates.

Certain forms of income that tend to flow to higher-income individuals grew more rapidly than other types of income between 1994 and 2000 but more slowly between 2000 and 2004 (see Figure 6). For example, income from S corporations rose from 1.9 percent of adjusted gross income (excluding capital gains) in 1994 to 2.2 percent by 2000.[10] In contrast, wages as a share of AGI (excluding capital gains) fell from 81 percent to 78 percent during the same period. Because the tax rate on S corporation income is, on average, twice the rate on

10. Gains are excluded from the calculation because they are taxed under a separate rate schedule.

Figure 7.

Share of Wages Accruing to the Top 0.5 Percent of Earners and Income from Nonqualified Stock Options as a Share of Wages, Calendar Years 1994 to 2004



Source: Congressional Budget Office using data from Scott Jaquette, Matthew Knittel, and Karl Russo, *Recent Trends in Stock Options*, OTA Working Paper 89 (Washington, D.C.: Department of the Treasury, Office of Tax Analysis, March 2003).

Notes: Nonqualified stock options can be granted in unlimited amounts and, for purposes of the individual income tax, are treated the same as wages once they are exercised and the stock is purchased.

NIPA = national income and product accounts.

wages, the shift in composition between the two sources of income raised the average tax rate on AGI.[11] Other highly taxed sources also grew more quickly during this period, raising the effective tax rate on AGI.

Changes Within Sources of Income. In addition to differential growth in sources of income taxed at higher rates, changes to the distribution of income within sources can increase the effective tax rate. For example, the share of wages going to the top one-half of one percent of wage earners rose sharply, from 6 percent of all wages in 1994 to just over 9 percent in 2000 (see Figure 7). One reason for the rapid growth was the rise in income gained from exercising nonqualified stock options over this period.[12] Nonqualified stock options can be granted in unlimited amounts and, for purposes of the individual income tax, are treated the same as wages once they are exercised and the stock is purchased. Although not all option income was claimed by taxpayers at the top end of the wage distribution, much of it was realized by highly compensated taxpayers, one of the likely causes of the rise in the wage share of GDP over this period.[13] The increase in option income along with the previous evidence on the rapid rise of capital gains realizations suggests that the stock market

11. These calculations of average tax rates were done on the 1994 Statistics of Income file. The amount of taxable income in each tax bracket was allocated to each component of income in proportion to that component's share of total income (excluding capital gains).

12. See Scott Jaquette, Matthew Knittel, and Karl Russo, *Recent Trends in Stock Options*, OTA Working Paper 89 (Department of the Treasury, Office of Tax Analysis, March 2003).

13. Although option income may explain some of the rise in individual income taxes because of the impact on the distribution of wages, the income itself may have had a minimal impact on overall receipts. The income claimed by individuals was simultaneously a deduction for corporations under the corporate income tax.

Box 1.

Effect of the Alternative Minimum Tax on Individual Income Tax Receipts

Although the alternative minimum tax (AMT), if left unchanged, will have a significant effect on federal income tax revenues in the near future, the AMT played only a small role in explaining the rise and fall of individual income tax revenues between 1994 and 2004. The AMT accounted for just $2 billion of income tax revenues in 1994, $9 billion in 2000, and $13 billion in 2004. AMT liabilities were less than 1.0 percent of total individual income tax liabilities before 2003, rising to 1.3 percent in 2003 and 1.6 percent in 2004.

The AMT is a parallel tax system originally designed to ensure that high-income taxpayers who faced little liability under the regular tax system would pay some amount of income tax. The tax base for the AMT includes several items that are excluded from taxation under the regular income tax. For example, taxpayers cannot claim personal exemptions or the standard deduction under the AMT, and if they itemize they cannot claim a deduction for state and local taxes. In lieu of personal exemptions and the standard deduction, the AMT allows a sizable exemption—$35,750 for a single tax filer and $45,000 for a married couple (temporarily increased to $44,350 and $66,250 in 2007). The exemptions are phased out for high-income filers. Income in excess of the exemption is subject to a tax rate of 26 percent initially and 28 percent after income exceeds a certain threshold ($175,000 in 2007). Most tax filers face no AMT liability at present, but that will change in time because—unlike the regular income tax—the exemption amounts for the AMT are not adjusted for inflation.

Recent tax legislation provided temporary relief starting in 2001 by increasing the AMT exemption, but the most recent increases in the exemption expired at the end of 2007. If there are no changes in current law, by 2010 the AMT will account for $90 billion of individual income tax revenues.[1] That amount will decline in 2011 because the expiration of the Economic Growth and Tax Relief Reconciliation Act of 2001 will increase regular income tax liabilities and thus decrease the amount of taxes collected under the AMT. In years after 2011, AMT liability will increase as incomes rise relative to the fixed AMT exemptions.

1. See Congressional Budget Office, *The Alternative Minimum Tax* (April 15, 2004), for a more thorough explanation of the AMT and its impact on income tax revenues.

has played an important role in the rise and fall of individual income tax liabilities since 1994.[14]

Other Factors. Other, minor factors also contributed to the change in the effective tax rate from 1994 to 2004. Changes in the ratio of itemized deductions to AGI can change the effective tax rate. In general, itemized deductions grow with income. Some itemized deductions, such as those for state and local taxes, are directly linked to income, although the deduction is based on actual tax payments, which may occur in the tax year that follows the year in which the income is reported. Other deductions may have only an indirect connection to income. For example, mortgage interest deductions are linked to past and current mortgage interest rates. However, as income rises, households may take on more mortgage debt, creating a longer-run link between income and interest deductions. Even if deductions were linked to income, those links would probably take place with a lag, which would tend to cause effective tax rates to rise when

14. The stock market also affects receipts in other ways. Receipts based on asset levels, such as taxable retirement distributions and estate and gift tax receipts, were also affected by the rise and fall in the stock market since 1994. Because asset levels grow differently than GDP, receipts associated with those assets will move differently as well. For more information on the impact of the stock market, see Congressional Budget Office, *Revenue Projections and the Stock Market* (December 20, 2002).

Table 3.

Contribution of Changes in the Effective Tax Rate on Adjusted Gross Income to Changes in Income Tax Liabilities as a Share of Gross Domestic Product, Calendar Years 1994 to 2004

Source of Change	1994–2000	2000–2004
	In Percentage Points	
Per Capita TPI Growth More or Less Than Inflation	0.8	-0.3
Income Distribution and Other Factors	0.4	-0.1
Total, effective tax rate on AGI	**1.2**	**-0.3**
	As a Percentage of All Changes in Liabilities Relative to Gross Domestic Product	
Per Capita TPI Growth More or Less Than Inflation	28	17
Income Distribution and Other Factors	16	4
Total, effective tax rate on AGI	**45**	**21**
Memorandum:		
All Changes (Percentage points)	2.7	-1.5

Source: Congressional Budget Office using data from the Internal Revenue Service's Statistics of Income.

Notes: Estimates exclude capital gains.

TPI = taxable personal income; AGI = adjusted gross income.

income is rising and to fall when income is declining. Itemized deductions grew relative to AGI throughout the entire period, slightly offsetting some of the increase in effective tax rates from 1994 to 2000 and slightly adding to the decrease from 2000 to 2004.

Exercising incentive stock options can generate additional tax liability under the alternative minimum tax (AMT) without generating additional AGI under the regular income tax, thereby raising the effective tax rate on AGI.[15] A noticeable increase in this activity contributed to a bump in taxes collected from the AMT in 2000 to a level that was $3 billion above 1999 liabilities.[16] However, the AMT does not play a large role in explaining changes in individual income tax liabilities from 1994 to 2004 (see Box 1). Changing demographics can also raise or lower the effective tax rate through changes in taxpayers' filing status and the number of exemptions claimed, as can growth in the number of taxpayers claiming tax credits and the amount of credits claimed. Those factors, however, probably had only a small effect.

Impact of Changes in the Effective Tax Rate. From 1994 to 2000, the increase in the effective tax rate accounted for 1.2 percentage points of the 2.7-percentage-point increase in the ratio of liabilities to GDP that would have occurred in the absence of legislation—or about 45 percent of the total increase (see Table 3). Conversely, from 2000 to 2004 income at the upper end fell by more than income at other points in the distribution, contributing to a decline in the effective income tax rate. Over that period, that lower rate accounted for a drop of 0.3 percentage points in the ratio of liabilities to GDP—about 21 percent of the decline that would have occurred without legislation.

Separating the effect of growth in real per capita income from the effects of changes in the distribution of income is difficult. Real per capita AGI (excluding capital gains) grew by 24 percent between 1994 and 2000. The estimated elasticity of income tax liabilities with respect to real income growth is roughly 1.5—that is, growth of 10 percent in real per capita AGI results in growth of

15. Unlike nonqualified stock options, incentive stock options can be offered only in limited amounts and are normally subject to the individual income tax when the stock is sold, not when the options are exercised. However, exercising such options can generate liability under the AMT.

16. See Shelly K. Schwartz, "Beware Stock Option Taxes" (April 10, 2001), money.cnn.com/2001/04/10/living/q_stockoptions/index.htm.

10 percent in real per capita AGI results in growth of 15 percent in income tax liabilities.[17] With that elasticity, the 24 percent growth in AGI (excluding capital gains) would have increased the ratio of liabilities to GDP by 0.8 percentage points as a result of real bracket creep, out of the 1.2-percentage-point increase resulting from changes in the effective tax rate. Between 2000 and 2004, real per capita AGI (excluding capital gains) declined by 4 percent, which would have lowered the ratio of liabilities to GDP by 0.3 percentage points. Thus, over that period, real bracket creep accounted for most of the change attributable to variations in the effective tax rate.

Changes in Income Tax Revenues Since 2004

The detailed calendar year data on individual income liabilities needed to identify the source of the increase in individual income taxes between 2004 and 2007 are not yet fully available. One can, however, identify some of the factors responsible for that increase from information related to fiscal year tax revenues.

Between fiscal years 2004 and 2007, individual income tax revenues grew from 7.0 percent to 8.5 percent of GDP—about 1.5 percentage points of GDP. In both years, revenues were lower than they would have been without the enactment of various pieces of legislation since 1994, but the reduction was larger in 2004 than in 2007, mostly because of timing effects. Thus, although the ratio of income tax revenues to GDP was lower in both years than it would have been in the absence of the 2001 and 2003 tax cuts, the ratio rose between 2004 and 2007 because of the smaller impact in the later year. Excluding any potential macroeconomic effects, the legislation enacted since 1994 (including EGTRRA and JGTRRA) accounted for an estimated 0.5 percentage points of that change.[18]

The remaining 1 percentage point of the increase in individual income tax revenues was the combined result of some factors that acted to reduce revenues relative to GDP and others that acted to raise them. Taxable personal income—principally wages and salaries—rose relative to GDP, increasing receipts relative to GDP by about 0.1 percentage point. Higher realizations of capital gains (including any effects associated with legislated reductions in tax rates) added about 0.4 percentage points. The remaining 0.6 percentage points of the increase in individual income tax revenues relative to GDP resulted from real bracket creep and a variety of potential factors that cannot be evaluated fully until more complete data are available. Such potential factors include shifts in the share of aggregate taxable income accruing to households with higher marginal tax rates; changes in taxable income relative to the measures of personal income in the NIPAs; and changes in retirement income, the alternative minimum tax, and tax deductions.

17. The 1.5 elasticity is with respect to tax liabilities excluding capital gains, and the calculations were done on tax return incomes exclusive of capital gains. (Since most gains are taxed at the top rate, little real bracket creep is associated with them.) The calculation was done using the consumer price index, which is relevant for constructing the tax brackets in each year. It assumes that incomes grow evenly across the income distribution and is meant to illustrate how much to expect from real income growth. The actual change in income was not evenly distributed because of differential growth in various sources of income and because of changes in the distribution within sources.

18. These estimates of revenues exclude the impact of legislation on capital gains, as did the estimates of liabilities over the 1994–2004 period.