



Congressional Budget Office

Background Paper

How CBO Forecasts Income

August 2006



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Notes

Unless otherwise specified, all years referred to in the figures, tables, and text of this paper are calendar years.

Numbers in the tables and text may not sum to totals because of rounding.

The tables reflect data as of early August. The figures reflect earlier data consistent with CBO's current economic forecast as detailed in *The Budget and Economic Outlook: An Update* (August 2006).

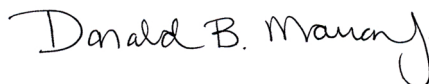
Shaded vertical bars in the figures indicate periods of recession (the bars extend from the peak of a business cycle to its trough).

Preface

The Congressional Budget Office's (CBO's) reports on the federal budget and the outlook for the overall economy give the Congress a baseline against which to measure the effects of proposed changes in spending and tax laws. To generate projections of the federal budget under current law, CBO must make projections of federal receipts as well as outlays. Federal receipts are determined largely by taxes collected on individual and business income, including the payroll taxes collected for Social Security and Medicare. This paper explains how CBO projects various categories of income. As with other CBO background papers, it is designed to make the agency's analyses more transparent by explaining CBO's methodologies and assumptions.

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Loretta Lettner edited the paper, and Leah Mazade proofread it. Maureen Costantino prepared the paper for publication. Lenny Skutnik produced the printed copies, and Simone Thomas prepared the electronic version for CBO's Web site (www.cbo.gov).



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Introduction

Projections of income earned by individuals and businesses are an integral part of the Congressional Budget Office's (CBO's) regular projections of the economy and a key component of its projections of the federal budget. The budget projections rely on data that are compiled on federal receipts, or revenues, which, in turn, are determined largely by taxes collected on personal and business income. Although a number of factors other than individual and business income affect federal receipts (such as changes in statutory tax rates, interest rates, and the like), the growth of the various income categories subject to taxation is a major determinant of the revenue outlook. Historically, the movement of just one component of income—wages and salaries—has been closely and consistently associated with federal receipts (see Figure 1).

Because federal receipts are determined to a great extent by taxes collected on individual and business income, this background paper focuses on how CBO projects income earned by individuals and businesses. It concentrates primarily on CBO's methodology as it pertains to those categories of individual and business income that are encompassed within the framework of the national income and product accounts, or NIPAs (see Appendix A for explanations). Using that framework for projecting income helps to ensure consistency with CBO's projections of the overall economy.

The National Income and Product Accounts as a Framework

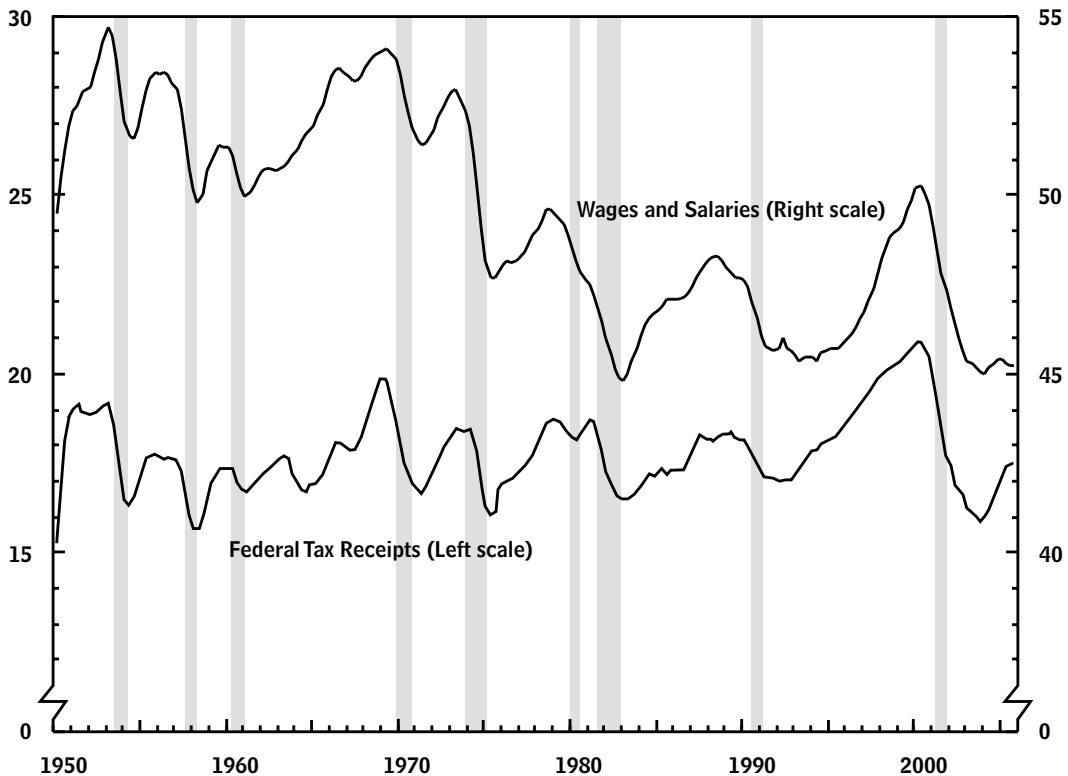
CBO's projections of income use concepts that underlie the national income and product accounts. Developed and maintained by the Bureau of Economic Analysis (BEA), a division of the Department of Commerce, NIPAs are official U.S. accounts that track the level and composition of gross domestic product (GDP), the prices of its components, and the way in which the costs of production are distributed as income. When projecting tax revenues, CBO uses the income concepts of the NIPAs as inputs into its estimates of taxable income.¹ (The NIPA concepts of income do not exactly correspond to the concepts that individuals and businesses use to compute federal taxes.) Using the NIPA framework makes it possible to keep the projection of income consistent with the projection of GDP and with other aspects of the overall projections, such as investment, consumer spending, wage rates, prices, and interest rates.

1. For a detailed discussion of the projections of federal receipts, see Congressional Budget Office, *The Budget and Economic Outlook: An Update* (August 2006), and "The Revenue Outlook," Chapter 4 in *The Budget and Economic Outlook: Fiscal Years 2007 to 2016* (January 2006), pp. 79–105.

Figure 1.

Federal Tax Receipts and Wages and Salaries, 1950 to 2005

(Percentage of potential gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Notes: Potential gross domestic product is an estimate of “full-employment” GDP, or the level of GDP attainable when the economy is operating at a high rate of resource use. Rather than being a technical ceiling on production, potential GDP is a measure of the economy’s maximum sustainable output, in which the intensity of resource use is neither adding to nor subtracting from inflationary pressure.

Data were led two quarters and smoothed using a four-quarter moving average.

In the NIPAs, aggregate economic activity is measured in two ways (see Figure 2).² On the product side (also known as the demand side), it is called GDP, the sum of all output produced for final use (consumer spending, private investment, government spending, and net exports). On the income side, it is called gross domestic

2. There are several ways to view the NIPAs, but the two cited in the text are most relevant for projecting income. For further discussion, see Department of Commerce, Bureau of Economic Analysis, *An Introduction to National Economic Accounting*, Methodology Paper Series MP-1 (March 1985), and “A Guide to the NIPAs” (June 2001), available online at www.bea.gov/bea/an/nipaguid.pdf.

Figure 2.**The Product and Income Sides of the National Income and Product Accounts, Calendar Year 2005**

(Billions of dollars)

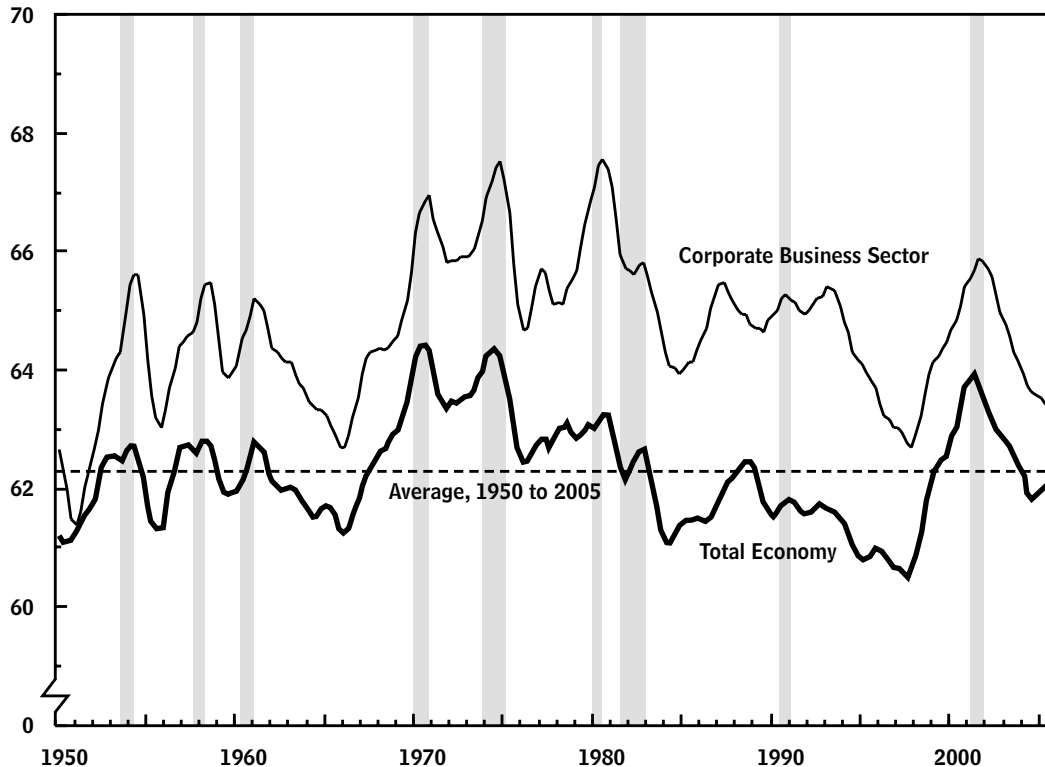
PRODUCT SIDE			INCOME SIDE	
Consumption	8,742		Compensation	7,030
Business Investment	1,266		Wage and salary accruals	5,665
Residential Investment	770		Supplements paid by employers	1,366
Inventory Change	21		Government social insurance	432
Government Expenditures	2,373		Private pensions and insurance	933
Exports	1,303		Proprietors' Income	971
Minus: Imports	2,020		Nonfarm	940
			Farm	30
			Rental and Royalty Income of Persons	73
			Business Transfer Payments	74
			Business Interest Payments	483
			Consumption of Fixed Capital	1,605
			Private	1,353
			Governmental	252
			Corporate Profits	1,331
			Other Income Categories	850
			Taxes on production and imports	865
			Surpluses of government enterprises	-15
			Equals: Gross National Income	12,417
			Minus: Net Income from Abroad	32
			Net labor income from abroad	-6
			Investment income from foreigners	510
			Minus: Investment income to foreigners	472
Equals: Gross Domestic Product	12,456	= STATISTICAL DISCREPANCY + [71]	Equals: Gross Domestic Income	12,385

Source: Department of Commerce, Bureau of Economic Analysis.

Figure 3.

The Labor Share of Income in the Corporate Business Sector and the Total Economy, 1950 to 2005

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Notes: The estimate of the labor share in the total economy assumes that about 65 percent of proprietors' income is labor income.

Data were smoothed using a four-quarter moving average.

income (GDI).³ GDI is the sum of all income earned in the production of that output (such as wages and salaries, interest income, and profits), plus the “other incomes category,” which is the amount earned by government as saleslike taxes on production and imports or as surpluses of government-owned enterprises.⁴ Although the product

3. The evolution of the national income and product accounts is considered one of the major achievements of economic science. For a discussion of the historical development, see John W. Kendrick, “National Income and Product Accounts,” in David L. Sills, ed., *International Encyclopedia of the Social Sciences*, vol. 11 (New York: Macmillan, 1968), pp. 19-34. For a discussion of the development in the United States, see Carol S. Carson, “The History of the United States National Income and Product Accounts: The Development of an Analytic Tool,” *Review of Income and Wealth*, vol. 21, no. 2 (1975), pp. 153–181.

4. In the NIPAs, GDI less taxes on production and imports is referred to as gross domestic factor income.

and income measures are theoretically the same and should in principle have the same total, the sum of the income categories does not exactly equal the sum of the final demand categories because the estimation methods for each component are subject to measurement error. BEA considers the product-side measure to be more accurate than the income-side measure. As a result, BEA includes the difference between GDP and GDI—called the statistical discrepancy—on the income side of the product and income accounts (see Box 1).⁵

The income side of the NIPAs also makes a distinction between domestic and national income. Domestic income is that generated in the United States, regardless of whether the earners of such income reside in the United States or abroad. National income is domestic income plus the income earned abroad by U.S. residents less the domestic income earned here by residents of other countries. National income is useful for measuring the economic well-being of residents, as well as for projecting tax receipts. Domestic income earned here by residents of other countries is also taxed, but for some categories, such as interest and dividends, that tax is typically offset by tax treaties and other provisions.

The Importance of the Labor Share Assumption

The major factor underlying the projection of all categories of income five to 10 years ahead is the relative stability of the labor income share of GDP. Since World War II, the labor share of GDP—defined here as the sum of wages and salaries, supplemental benefits provided by employers (such as contributions to retirement plans and health insurance premiums), and a portion of proprietors' income—has varied around what seems to be a stable long-term average (see Figure 3). That stable behavior of the labor share also has occurred in the corporate sector (which excludes the income of the self-employed). Therefore, as will be detailed later, CBO's forecast of the labor share assumes a reversion to the long-term average; that reversion is the dominant constraint on the forecasting of income.

CBO's projections of income categories not included in the labor income share are affected by other aspects of its forecast. For example, projections of interest payments by businesses depend on the interest rate forecast and estimates of future business borrowing. Consumption of fixed capital (depreciation) must be consistent with projections for investment. And taxes on production and imports (which include excise taxes and customs duties) are related to the forecast for consumer spending and imports. CBO also examines the implications of the preliminary outlook for labor income on the other income categories because those categories are constrained to equal the difference between GDI and labor income. If the initial estimates of labor income imply unlikely projections of other components of income, CBO may adjust its initial estimates, particularly for the near term (typically, the next two years).

5. For further discussion, see Robert P. Parker and Eugene P. Seskin, "Annual Revision of the National Income and Product Accounts: Annual Estimates, 1993–96, and Quarterly Estimates, 1993:I–1997:I," *Survey of Current Business*, Department of Commerce, Bureau of Economic Analysis, August 1997, pp. 6–35. (Especially noteworthy is the box "The Statistical Discrepancy," p. 19.)

Box 1.

The Assumption Underlying the Statistical Discrepancy

Given a forecast of gross domestic product (GDP), the Congressional Budget Office (CBO) must make a projection of the statistical discrepancy to obtain a projection of gross domestic income (GDI).¹ Typically, CBO uses a judgment-based, “rule of thumb” approach. Historically, the statistical discrepancy has tended to be positive on average—estimates of the size of the economy from the product side have been larger than estimates from the income side—and in the current historical data the statistical discrepancy averages 0.6 percent of GDP (see the figure to the right). Revisions to the statistical discrepancy emerge as the difference between revisions to GDP and revisions to GDI. In the Bureau of Economic Analysis’s last comprehensive revisions to the national income and product accounts, the revised data for the statistical discrepancy from 1994 to 2002 show that it averaged 1 percentage point of GDP, compared with a previously published average of 0.7 percent of GDP.²

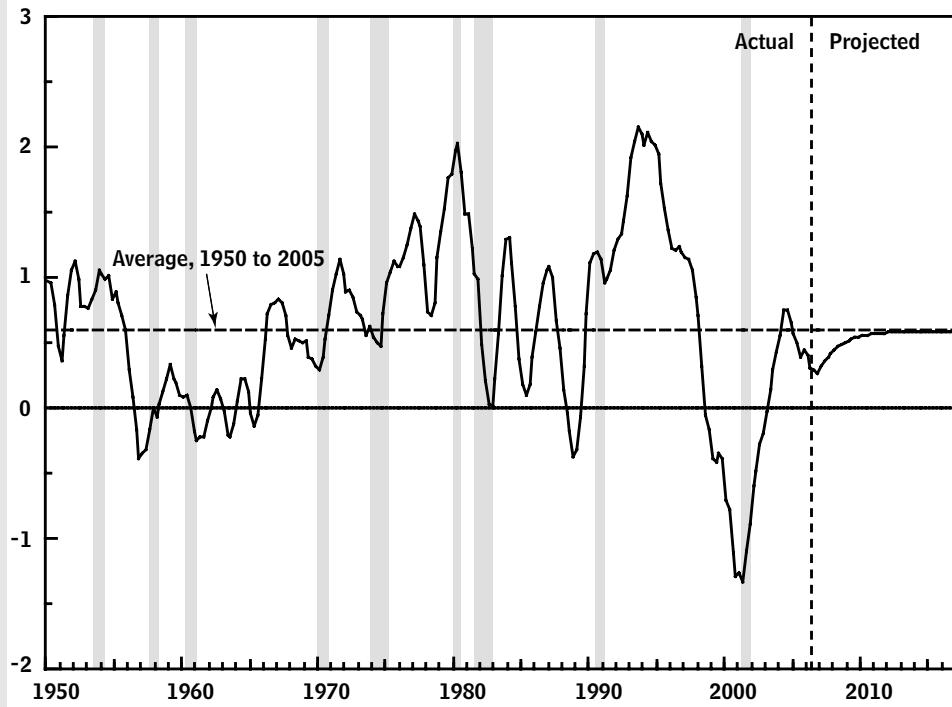
CBO’s forecasts in recent years have assumed that the statistical discrepancy will move to its historical average. If, at the time of a forecast, the last published value is close to the long-term average, CBO assumes it will revert to that average within a few quarters. If, however, the published data indicate that the last quarterly value of the discrepancy is far from the historical average, CBO tries to ensure that the assumption does not have a large effect on the growth of income relative to the growth of GDP in any one year. Therefore, CBO assumes, as a rule of thumb, that the statistical discrepancy will revert to its historical value within two to three years.

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1. For further discussion, see Dennis J. Fixler and Bruce T. Grimm, “Reliability of the NIPA Estimates of U.S. Economic Activity,” *Survey of Current Business*, Department of Commerce, Bureau of Economic Analysis, February 2005, pp. 8–19.
 2. For additional details, see Eugene P. Seskin and Daniel Larkins, “Improved Estimates of the National Income and Product Accounts for 1929-2002: Results of the Comprehensive Revision,” *Survey of Current Business*, Department of Commerce, Bureau of Economic Analysis, February 2004, pp. 7–29.

Box 1.

Continued

**Statistical Discrepancy, 1950 to 2016
(Percentage of gross domestic product)**



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

An Overview of the Income Categories

Proceeds from the sale of goods and services produced are paid out to those who participate in production in the following ways (see Figure 2):

- Wages, salaries, and supplemental benefits of workers employed by others. In 2005, such compensation amounted to \$7 trillion and accounted for about 57 percent of domestic income.
- Income of sole proprietorships and partnerships. Such income can be viewed as having two parts: wages assumed to be paid to oneself as if one worked for others; and the balance of proprietors' income, which is considered a return to capital. In 2005, sole proprietorships and partnerships earned \$971 billion, about 8 percent of domestic income.
- Interest paid by businesses on borrowed funds (\$483 billion in 2005 and 4 percent of domestic income).
- Rents and royalties paid to people who own tangible and intellectual property (\$73 billion and 0.6 percent of domestic income in 2005).
- Depreciation paid for capital used up in production by sole proprietorships, partnerships, corporations, and government enterprises (\$1.6 trillion and 13 percent of domestic income in 2005).
- Business transfer payments to individuals and all levels of government for expenses such as fees, fines, and insurance settlements (\$74 billion and 0.6 percent of domestic income in 2005).
- Profits of corporate businesses, which is income net of expenses deducted for depreciation, interest, wages, salaries, benefits, and transfers (\$1.3 trillion and 11 percent of domestic income in 2005).
- Taxes on production and imports and net surpluses of government-owned enterprises (\$850 billion and 7 percent of domestic income in 2005).

Together, interest, profits, depreciation expenses, rents, royalties, business transfers, and the estimated profit portion of proprietors' income are considered capital income of the private sector, and wages, salaries, benefits, and the estimated wage portion of proprietors' income are considered labor income. Taxes on production and imports drive a wedge between total sales and total income, and the NIPAs recognize that by including such taxes in domestic income, even though they are received by neither labor nor capital. Surpluses of government-owned enterprises (such as the U.S. Postal Service, Tennessee Valley Authority, and state and locally owned water and sewage authorities) can be viewed as capital income of the public sector.

The Labor Income Share of Gross Domestic Product

In practice, determining labor's share of GDP raises three broad issues. The first is how to determine the portion of proprietors' income to view as labor income, with the balance allocated to capital income. The second is how to determine the evolution of labor's share of GDP over the projection period. The third issue is how to project the components of labor income: wage and salary distributions and supplemental benefits (employers' payments to government social insurance programs, private pensions, and private insurance premiums) and the labor share of proprietors' income.

What Portion of Proprietors' Income Represents Labor Income Versus Capital Income?

NIPA data do not expressly indicate which portion of proprietors' income should be considered labor income and which portion capital income. However, analyses of proprietors' income over time for many countries have suggested that assigning a share of proprietors' income to labor that is in the same proportion as the share of labor income in the corporate business sector produces a pattern for labor's share that is relatively trendless across countries and over long periods of time, despite large differences in real (inflation-adjusted) GDP per capita among individual countries.⁶ Applying that rule of thumb to U.S. data by using labor's average share of total income in the corporate business sector suggests placing about 65 percent of proprietors' income into labor income. Other, more complicated approaches have been suggested, but they do not appear to significantly improve upon the rule of thumb for estimating the labor share of proprietors' income.⁷

How Should Labor's Share of Gross Domestic Product Evolve in the Projection Period?

CBO uses a relatively simple assumption for projecting the overall share of income that goes to labor in the medium term (the next 10 years). As previously stated, labor income in the overall economy has not deviated too far from the historical average of 62.3 percent of GDP (see Figure 3 on page 4). Further, since the early 1980s, when CBO began to project labor's share of GDP several years ahead, the average itself seems to have changed little. As a result, CBO's projection assumes that labor's share of GDP will revert to its historical average (see Figure 4). Projecting labor income's share to revert to its historical average entails some uncertainty as that share is governed by factors that are not well understood. Moreover, the labor share does not always revert quickly to its average. Between 1968 and 1980, that share was above its

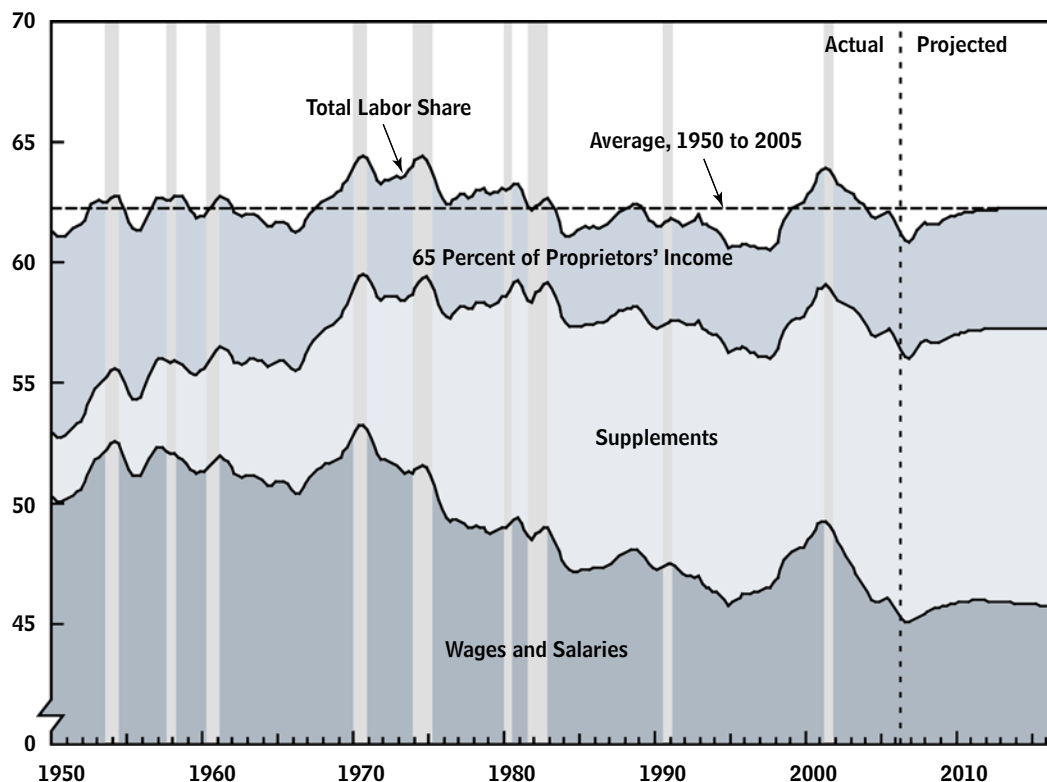
6. For an analysis of the United States and 30 other countries (industrial and developing), see Douglas Gollin, "Getting Income Shares Right," *Journal of Political Economy*, vol. 110, no. 2 (April 2002), pp. 458–474.

7. The other approaches are discussed in Rainer Klump, Peter McAdam, and Alpo Willman, *Factor Substitution and Factor Augmenting Technical Progress in the U.S.: A Normalized Supply-Side System Approach*, Working Paper No. 367 (Frankfurt am Main, Germany: European Central Bank, June 2004).

Figure 4.

The Total Share of Labor Income and Its Major Components, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

average over an extended period; there were also long periods—between 1955 and 1967, and between 1983 and 1998—when it was mostly below the average. That persistence in the share raises the possibility that the long-term trend itself may evolve randomly.

However, the consensus among economists seems to be that the long-run stability, or approximate constancy, of the labor income share of GDP should be regarded as an established empirical fact.⁸ That consensus has held despite periodic, comprehensive revisions to measures of capital and labor income in the NIPA data that have changed the magnitude of the share without changing its appearance of long-run constancy

8. For a discussion of that and other traits of models of economic growth, see Robert J. Barro and Xavier Sala-i-Martin, *Economic Growth* (New York: McGraw-Hill, 1995). For the empirical evidence across countries, see Gollin, “Getting Income Shares Right,” pp. 458–474.

(see Appendix B). That consensus suggests, in turn, that the projections can plausibly assume constancy in the underlying trend of the labor income share for the projections.⁹

The assumption of the long-run constancy of labor's share of GDP still leaves open the possibility that labor's share can change over the near term as a result of a variety of factors, and CBO attempts to take such factors into account. CBO makes a detailed analysis of the one- to two-year-ahead prospects for employment growth, average hours worked, and compensation rates. For example, labor's share tends to change cyclically as the economy moves through a business cycle.¹⁰ Those projections sometimes imply that labor's share will not immediately revert to its historical trend during the early stages of recovery from recession. Other factors that affect the labor share in the short run, such as that on employee benefits, are described next.

Projecting the Components of Labor Income

Once a preliminary pattern for the overall labor share is determined, the components that make up that share are projected.

Wages, Salaries, and Supplements (WSS). The largest component of labor income, representing about 90 percent in 2005, is that paid either directly to employees as wages and salaries or on behalf of employees as supplemental benefits. The supplements consist of employer contributions for government social insurance programs, or payroll taxes; private pensions and profit-sharing plans; and private insurance premiums for health, life, and workers' compensation. Total supplements grew most rapidly from 1950 to the early 1980s, driving an increasing wedge between labor income earned by employees and that disbursed as taxable wages and salaries (see Figure 4). As a share of GDP, supplements have not exhibited such a strong trend since then.

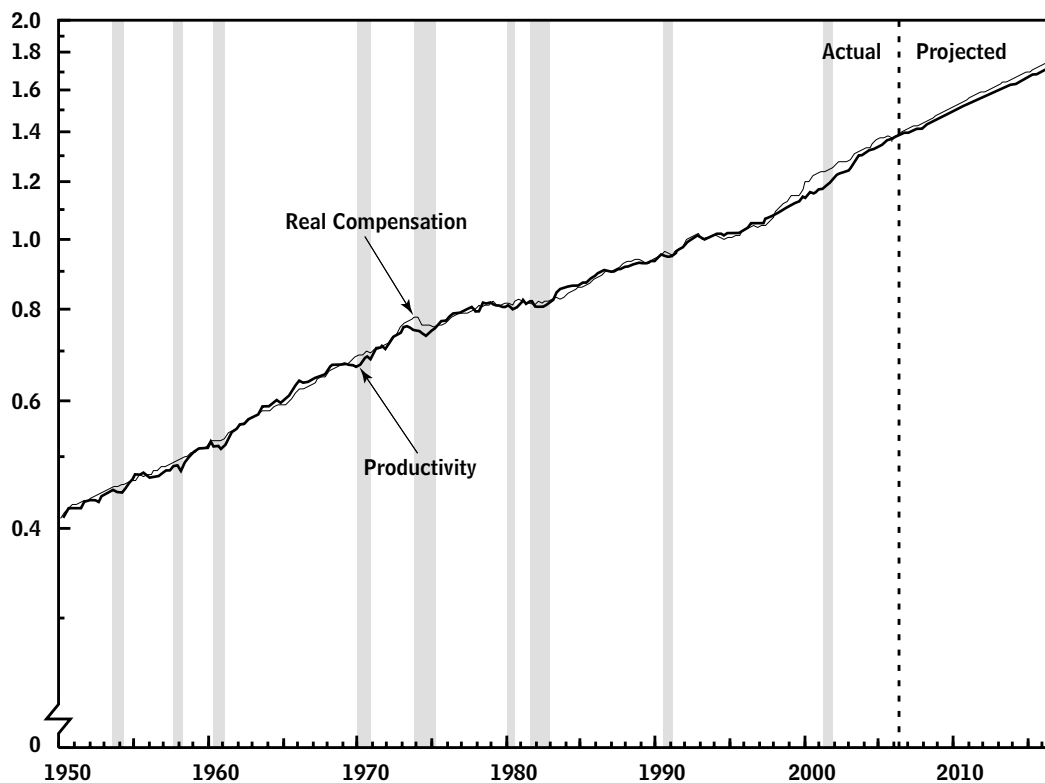
9. Statistical tests of the competing hypotheses of whether labor's share of income fluctuates around a random trend or a flat trend (such as that depicted in Figure 3) lean toward the latter. For example, regressing labor income as a share of GDP on a constant and its lagged value accepts the hypothesis of a flat trend at the .01 level. (The test uses the Dickey Fuller F -statistic on the null hypothesis, intercept = 0 and slope = 1, versus respective estimated values, 0.05358 and 0.91403. The estimated F -statistic is 10.34 versus Dickey-Fuller, Table values of $F_{.025} = 5.45$ and $F_{.01} = 6.52$.) Repeating the test for labor income as a share of GDI gives less strong results. (On the same null hypothesis, intercept and slope estimates are .03124 and .95019, respectively, and the F -statistic is 5.77, in between the .025 and .01 F -test levels.) The tests suggest that analysts can be 97.5 percent confident about the assumption of constancy in the labor income share but not 99 percent confident.

10. For a recent discussion of short-term factors, see Samuel Bentolila and Gilles Saint-Paul, "Explaining Movements in the Labor Share," *Contributions to Macroeconomics*, vol. 3, no. 1, article 9 (2003).

Figure 5.

Real Compensation and Productivity, 1950 to 2016

(Logarithmic Scale, 1992 = 1.0)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Real compensation is the sum of wages, salaries and supplements in the private business sector (including 65 percent of proprietors' income) divided by the chained price index of gross domestic product in that sector. Productivity is output per hour in the business sector.

The projections for total WSS must take into account the medium-term relationship between private-sector WSS and productivity, hours worked, and the GDP price index. The real compensation rate (private-sector WSS divided by hours worked, all divided by the GDP price index) for the private business sector of the economy is closely related to business productivity (see Figure 5). That close relationship is implied by the stability of the labor income share (which was displayed in Figure 3 for both the whole economy and the corporate business sector). Therefore, CBO's projections force private-sector WSS to conform to that relationship in the medium term.

The forecast for private-sector WSS in the near term, however, is heavily influenced by assessments about the economy's cyclical position and the short-run outlook for wage rates, growth in hours worked, and supplemental benefits. Forecasts for wage rates and hours conform to CBO's assessment of the state of labor markets and the

near-term outlooks for GDP and productivity growth. CBO analyzes recent economic developments and examines reasons for deviations from usual patterns—such as the weak job growth that characterized the recovery following the 2001 recession—to make those near-term forecasts. Special factors are also examined to forecast the supplemental benefits portion of private-sector WSS. More recently, the likelihood that firms, under current law, would have to make additional contributions to defined-benefit plans was a factor in the forecast.¹¹

The projections for total WSS also incorporate CBO's estimates of federal spending for wages and salaries and supplements for both civilian and uniformed military personnel, and estimates of WSS for the state and local government sector. The latter exhibits a strong trend for the last 15 years, and the projection generally continues that trend. CBO, however, also examines factors affecting state and local spending, such as school-age population growth, and state and local defined-benefit pension systems that may affect the trend growth of state and local WSS over the near term or medium term.

In order to determine the wage and salary component of total compensation, CBO has to estimate what proportion of total compensation consists of supplemental benefits. Because the projections for most of the supplements are based on the growth of wages and salaries, CBO iteratively works out a medium-term projection for supplements that is consistent with the total compensation projections and consistent with the relationship between supplements and wages and salaries.

The projections for employees' supplemental income focus mostly on the three largest components: the share that consists of employers' payroll-tax contributions for government social insurance; the share applied to private health insurance premiums; and that going into pension and profit-sharing plans.

Projections of employers' payroll-tax contributions for government social insurance depend on projections of wages and salaries, employment, and proprietors' income and are contingent on the provisions of current law that apply to social insurance funds. The model for those projections considers the distribution of taxable income in the United States based on a sample of income tax returns for the most recent year available and the Current Population Survey and calculates taxes for both employed and self-employed individuals. The largest components of employers' contributions are for Social Security (Old-Age, Survivors, and Disability Insurance, or OASDI) and Medicare Part A (which covers hospital insurance, or HI). Contributions for OASDI are calculated on taxable earnings below the statutory limit and are based on the statutory rate applied to the sample of individual returns. The projection for the statutory limit takes into account growth in average earnings in the economy, as stipulated un-

11. For CBO's analysis of defined-benefit contributions, see Congressional Budget Office, "Contributions to Defined-Benefit Pension Plans," Box 2-2 in *The Budget and Economic Outlook: Fiscal Years 2007 to 2016*, pp. 34–35.

der current law. Earnings subject to contributions for HI are not subject to a taxable limit, and contributions are based on the statutory rate applied to the sample of individual returns. The projections are then scaled to project contributions for the entire U.S. economy. Projections for employer payroll-tax contributions for other government social insurance, which consists mostly of unemployment insurance and workers' compensation, are additionally based on factors unique to those state programs, such as the financial condition of program funds. For example, projections earlier in this decade reflected relatively high levels of unemployment during the 2001 recession and slow recovery subsequently, which drained funds that had to be replenished through increased employers' contributions. Recent projections of employers' contributions reflect the increased unemployment benefits following Hurricanes Katrina and Rita, which have again resulted in needed replenishment of unemployment-insurance funds.

Projections of employers' contributions to private health insurance premiums are based on projections of wages and salaries (as a proxy for the growth of the demand for health insurance) and also on consensus projections of the "excess cost growth" of health insurance premiums (the greater growth of the costs of medical services relative to other prices and wage rates). The projections of excess cost growth draw upon information developed by a variety of analysts in government and the private sector. Such information includes, for example, analyses by human-resources consulting firms about the outlook for the growth of health insurance premiums and 10-year projections of the growth of total private health insurance premiums produced by the Department of Health and Human Services' Centers for Medicare and Medicaid Services.

Employers' payments to employee pension and profit-sharing plans include both defined-contribution and defined-benefit plans. Payments to defined-contribution plans have been relatively stable in relation to wage and salary disbursements, and CBO forecasts that they will grow with wages and salaries. Projections for payments to defined-benefit plans are more complicated.¹² CBO first estimates the current funding status of such pensions (that is, the extent to which overall funding is above or below the level required by law). CBO then projects contributions by combining estimates of the normal growth of plan participation and contributions with estimates of the future additional amounts needed to reduce funding deficiencies, given the stipulations of current law (such as, for example, recently enacted provisions that require the use of private rather than Treasury interest rates). The projections also adjust for the likely incidence of corporate insolvencies that would reduce future contributions by shifting the affected pension obligations from the private sector to the Pension Benefit Guaranty Corporation.¹³

12. The methodology that CBO uses for its projections is described in Congressional Budget Office, "Forecasting Employers' Contributions to Defined-Benefit Pensions and Health Insurance," Appendix D in *The Budget and Economic Outlook: Fiscal Years 2006 to 2015* (January 2005), pp. 125–127.

13. For additional discussion, see Congressional Budget Office, *The Risk Exposure of the Pension Benefit Guaranty Corporation* (September 2005).

The contributions of employers to their employees' nontaxable fringe benefits (health insurance premiums and pensions) are also assumed to be affected by tax law provisions that are scheduled to expire during the projection period. As CBO has explained elsewhere, marginal tax rates on labor income are scheduled to increase from an estimated 28.6 percent in 2010 to an estimated 30.4 percent in 2011.¹⁴ On the basis of available research, economists would expect that some portion of labor income would shift from taxable wages and salaries to nontaxable fringe benefits.¹⁵ As a result, the projections incorporate a shift that increases the share of fringe benefits in labor income during 2011.

Proprietors' Income. CBO projects proprietors' income in two ways: first, in a residual manner, as will be explained, and second, on the basis of characteristics of proprietors' income. Carrying out the projection in two ways helps to cross-check the consistency of the projections for the components of labor and capital income.

In the residual method, CBO uses the assumption, as already indicated, that labor income includes about 65 percent of proprietors' income. Thus, given the projections of the labor share and WSS that have just been discussed, the projection of labor income less the projection of WSS necessarily is a residual projection of 65 percent of proprietors' income. Simply dividing that residual projection by 0.65 creates the first preliminary projection of proprietors' income.

The second method is based on the characteristics of proprietors' income. Proprietors' income consists of the income of the self-employed who are organized as sole proprietorships, partnerships, or tax-exempt cooperatives. It is broadly divided between farm and nonfarm establishments, and over time it has become increasingly dominated by nonfarm establishments (see Figure 6). In 2005, the farm-income component was \$30 billion versus \$940 billion for the nonfarm component. Somewhat more than half the income of nonfarm occupations is generated by service professions, such as law, medicine, and noncorporate real estate and finance (see Table 1).

Projecting proprietors' income on the basis of an analysis of its inherent characteristics is hampered by the poor quality of reported data. Tax filings are the primary source of data on proprietors' income, and the Internal Revenue Service (IRS) has determined from periodic audits and other means that nonfiling and underreporting by individuals result in significant understatement of proprietors' income as recorded in tax

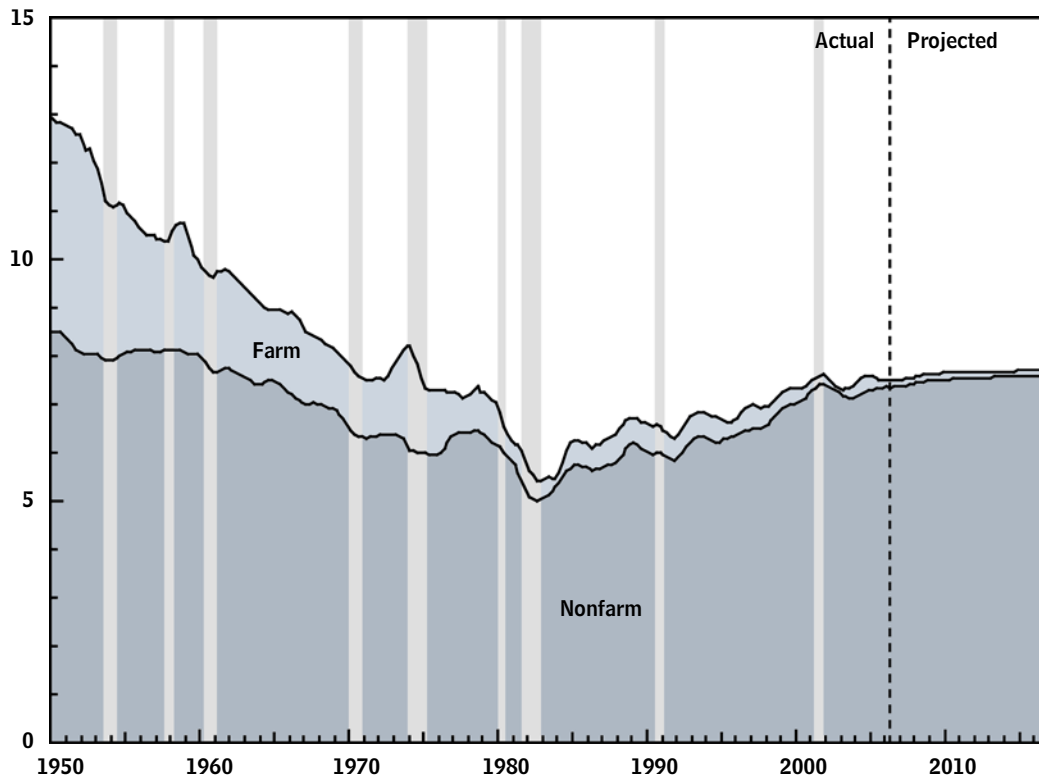
14. For details of the tax increase, see Congressional Budget Office, *An Analysis of the President's Budgetary Proposals for Fiscal Year 2007* (March 2006), Table 2-2, p. 33, and the accompanying discussion.

15. For further discussion and additional references, see Stephen A. Woodbury and Wei-Jang Huang, *The Tax Treatment of Fringe Benefits* (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 1991).

Figure 6.

Proprietors' Income: Farm and Nonfarm, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

filings.¹⁶ BEA makes an adjustment for such misreporting when it converts the IRS measure to a NIPA measure.¹⁷ For nonfarm proprietors' income, that misreporting adjustment has accounted for as much as 70 percent of the NIPA measure and has averaged about 50 percent of that measure over the past 10 years. Future IRS estimates of misreporting will continue to affect BEA's estimates of proprietors' income.

Keeping the problems with the data in mind, CBO develops a second preliminary forecast for proprietors' income that is not constrained by the overall labor share assumption. It is based on recent historical trends in the data series and any other

16. For a recent discussion, see Charles Bennett, "Preliminary Results of the National Research Program's Reporting Compliance Study of Tax Year 2001 Individual Returns" (paper presented at the 2005 Internal Revenue Service Research Conference, Washington, D.C., June 7–8, 2005), available at www.irs.gov/taxstats/productsandpubs/article/0,,id=130103,00.html.

17. For additional discussion, see Mark A. Ledbetter, "Comparison of BEA Estimates of Personal Income and IRS Estimates of Adjusted Gross Income: New Estimates for 2001, Revised Estimates for 1959–2000," *Survey of Current Business*, Department of Commerce, Bureau of Economic Analysis, vol. 84, no. 4 (April 2004).

Table 1.**Distribution of Nonfarm Proprietors' Income, 2005**

	Percent
Forestry, Fishing, and Related Activities	0.8
Mining	4.1
Utilities	2.3
Construction	13.3
Manufacturing	8.4
Wholesale Trade	3.0
Retail Trade	5.8
Transportation and Warehousing	3.6
Information	2.7
Finance, Insurance, Real Estate, Rental, and Leasing	15.6
Professional and Business Services (Legal, scientific, technical, and administrative)	23.8
Health Care, Social Assistance, and Educational Services	10.3
Arts, Entertainment, Recreation, Accommodation, and Food Services	2.7
Other Services, Except Government	3.6
Total	100.0

Source: The Congressional Budget Office's calculations using data from the national income and product accounts.

information—such as the relative tax burdens on proprietors' income versus corporate income—that may indicate whether proprietors' income will grow or shrink relative to GDP. CBO's analysis of those factors is rather rudimentary to date, and the agency continues to investigate the determinants of the proprietors' share. If the two preliminary forecasts of proprietors' income do not agree, CBO decides how the various components of the labor share have to be adjusted (which may involve adjustments to the preliminary assumption for the growth of the wage rate) to conform to the target share in the projection period.

The latest CBO projection assumes that the approximately level ratio to GDP that has occurred since the early 2000s will prevail over the next 10 years (see Figure 6). That assumption is also consistent with the residual projection derived from the projections of WSS and of labor income's share of GDP. The assumption of a level ratio will be reviewed when BEA releases new estimates of proprietors' income.

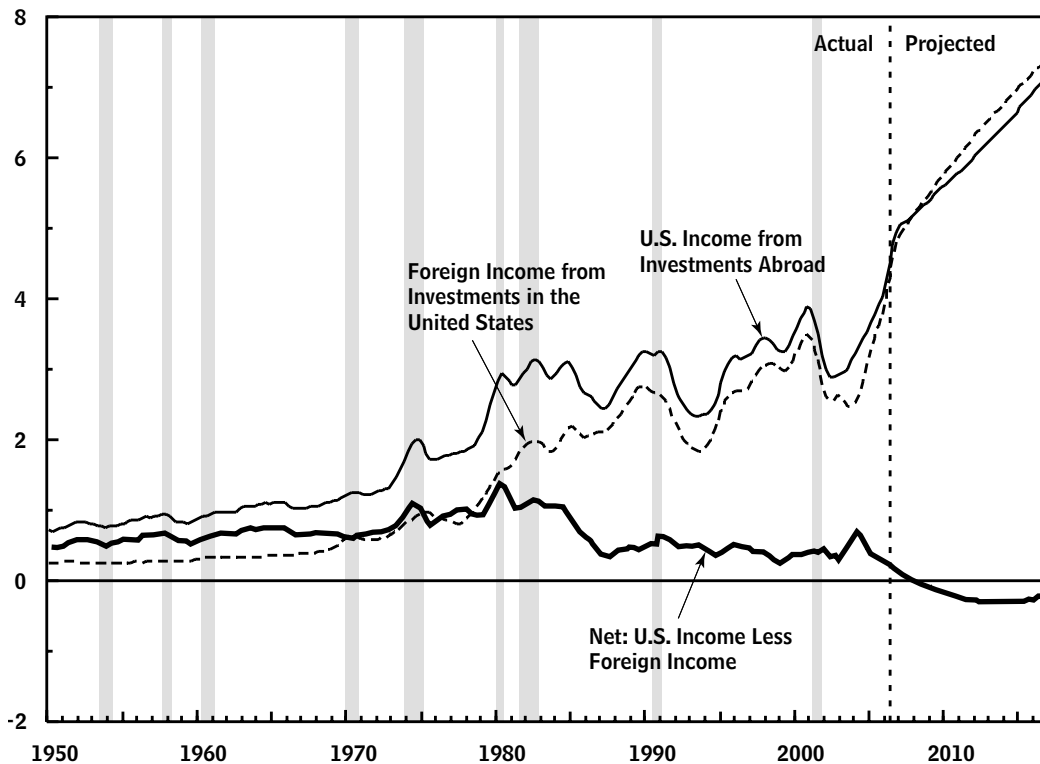
The Capital Income Share of Gross Domestic Product

In principle, the capital share of gross domestic product is what is left of GDP after the labor income share has been determined. (In practice, the statistical discrepancy must also be determined, as explained in Box 1.) Each component of the capital share must still be projected, however. In addition to the 35 percent of proprietors' income already determined, the other components are as follows: net income received from U.S. investments abroad less income paid on foreign investments in the United States; personal rent and royalty income; business transfer payments (fees, fines, insurance, and litigation settlements); business interest payments; consumption of fixed capital; and, finally, corporate profits.

Figure 7.

Net Income from Abroad, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

Net Income from Abroad

This component, a small share of GDP, mostly consists of income earned by U.S. residents on their investments abroad less the income earned by foreign residents on their investments in the United States.¹⁸ For both U.S. and foreign residents, income is separated into two categories: that earned from direct investment in business enterprises having at least 10 percent ownership by U.S. residents and that earned from portfolio investments, such as stocks, interest-bearing securities (government and private), and other financial assets (bank deposits, mortgage-backed securities, and

18. In addition, there is the net of income earned by U.S. employees abroad less that earned by foreign employees in the United States. That net labor income from abroad has been relatively small, an outflow of \$6.3 billion in 2005, which represents 0.05 percent of GDP. CBO does not attempt to estimate that labor component separately from the total net income from abroad. It may be necessary at some future time to reexamine that practice should flows of net labor income from abroad (positive or negative) increase sufficiently relative to GDP.

Table 2.

Returns on Foreign-Owned Assets in the United States and U.S.-Owned Assets Abroad

	Amounts at the End of 2005 (Billions of U.S. dollars)	Average Annual Return, 1982 to 2005 (Percent)
Foreign-Owned Assets in the United States		
Direct Investment	2,797	2.2
Portfolio Investment	<u>10,828</u>	5.1
Total	13,625	4.5
U.S.-Owned Assets Abroad		
Direct Investment	3,524	7.6
Portfolio Investment	<u>7,555</u>	4.8
Total	11,079	5.7
Difference (U.S. minus Foreign)		
Direct Investment	727	5.3
Portfolio Investment	<u>-3,273</u>	-0.3
Total	-2,546	1.2

Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis (BEA).

Note: Rates of return are based on definitions used by BEA, which reports only the market value of portfolio assets and excludes capital gains and losses on both direct investment and portfolio assets.

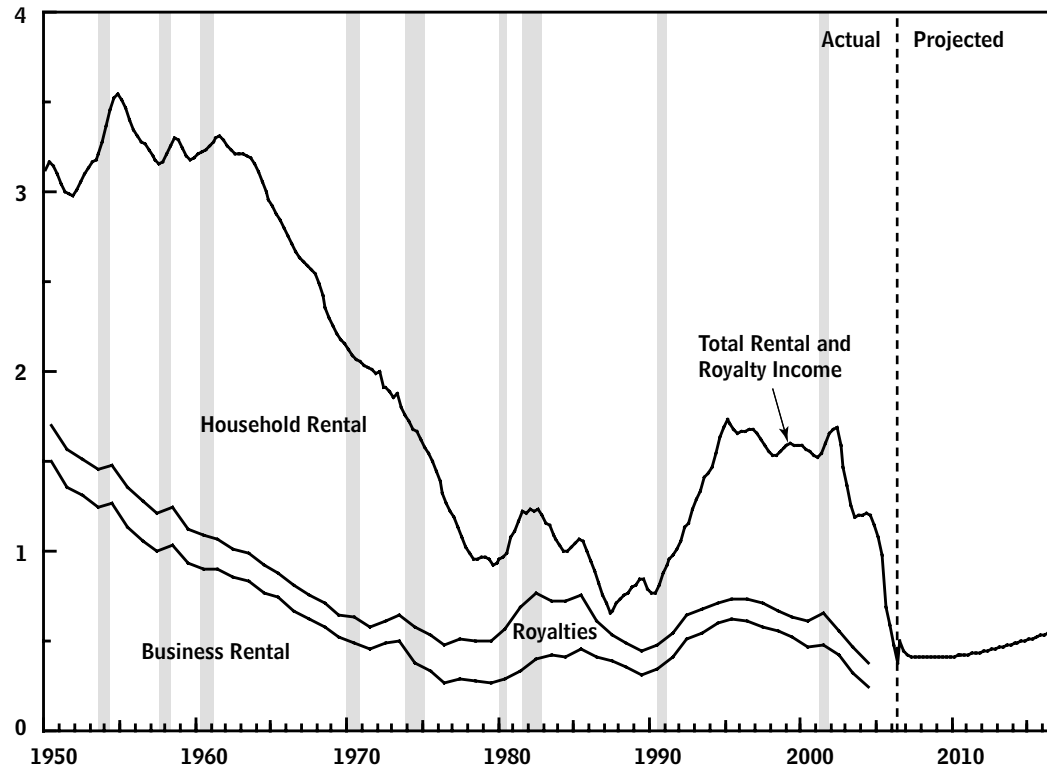
others). Although capital income earned abroad by U.S. residents and income earned here by foreign residents have both risen in relation to GDP throughout the period since 1950—a reflection of the rise in the global integration of capital markets— income on U.S. investments abroad has consistently exceeded that of income earned here by foreign residents. That net income balance equals about 0.4 percentage points of GDP in recent years and increases national income (see Figure 7).¹⁹ The source of the positive income balance is the much higher return on direct investments abroad, averaging 7.6 percent on assets from 1982 to 2005, relative to an average return of only 2.2 percent on assets for foreign direct investments in the United States (see Table 2). By contrast, returns on portfolio investments have been slightly higher for foreigners' investments in the United States. At some point, however, the United States' growing external indebtedness, a result of the accumulation of deficits in the

19. For an analysis of net investment income, see Juann H. Hung and Angelo Mascaro, "Return on Cross-Border Investment: Why Does U.S. Investment Abroad Do Better?" Technical Paper 2004-17 (December 2004), available at www.cbo.gov/ftpdocs/60XX/doc6043/2004-17.pdf. For a less technical discussion, see Congressional Budget Office, *Why Does U.S. Investment Abroad Earn Higher Returns than Foreign Investment in the United States?* (November 30, 2005).

Figure 8.

Rental and Royalty Income of Persons, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data for total rental and royalty income were smoothed using a four-quarter moving average.

current account of the balance of payments, could lead the net income balance to become negative and thereby cause national income to be less than domestic income.

The United States' positive balance on net investment income from abroad despite its negative net foreign asset position has caused some economists to suggest that U.S. assets abroad are possibly mismeasured. In that view, if the assets were correctly measured to reflect the positive income balance, U.S. assets abroad would greatly exceed foreign assets in the United States. The missing assets themselves have been dubbed "dark matter" to reflect the difficulty of measuring them.²⁰ Although it is possible that assets have been mismeasured, the projections of net income from abroad must

20. For further discussion of dark matter, see Ricardo Hausmann and Frederico Sturzenegger, *U.S. and Global Imbalances: Can Dark Matter Prevent a Big Bang?* Center for International Development, Harvard University (November 13, 2005), available at www.cid.harvard.edu/cidpublications/darkmatter_051130.pdf.

necessarily rely on BEA's published data if consistency with other NIPA data is to be maintained.

The projections for both inflows and outflows of income are assembled as the product of broad classes of assets and rates of return on those assets. The projections of assets are based on projections of the exchange rate, the current-account balance, and federal deficits. The projections of rates of return are based on interest rates and stock returns. For income earned by U.S. residents on assets held abroad, assets are separated into direct investments and portfolio assets. For each, the historical rate of return is measured as income on U.S. assets held abroad divided by the value of the assets themselves. The behavior of the two rates of return is determined by interest rates, the dividend yield on stocks as measured by the Standard & Poor's index of 500 stocks, and a risk premium that is residually determined.²¹ Those empirical approximations become the basis for projected returns. Income earned by foreign entities on their assets held in the United States, and the assets themselves, are separated into those related to holdings of U.S. Treasury debt, other financial assets, and direct investments. In each case, historical returns are measured analogously as the ratio of income to assets, and projections are made from empirical approximations like those just described.

Rental and Royalty Income of Persons

This component of capital income, also a relatively small share of GDP, consists of the imputed net rental income of owner-occupied residential housing; the rental income net of expenses that is earned by individuals; and royalties from oil, gas, and mineral properties, and from copyrights and patents (see Figure 8). The rental income of households consists of the rental value of owner-occupied housing less expenses that would be eligible for deduction if households could treat occupancy as a business activity (for instance, property insurance premiums, mortgage interest, property taxes, and depreciation). Rental value is the product of the estimated housing stock and the Bureau of Labor Statistics' consumer price index for rent excluding utilities. Rental income and royalties of persons who receive such income in a business capacity are taken from federal tax data for individuals, partnerships, S (personal service) corporations, estates, trusts, and residential interests in real estate mortgage investment instruments.

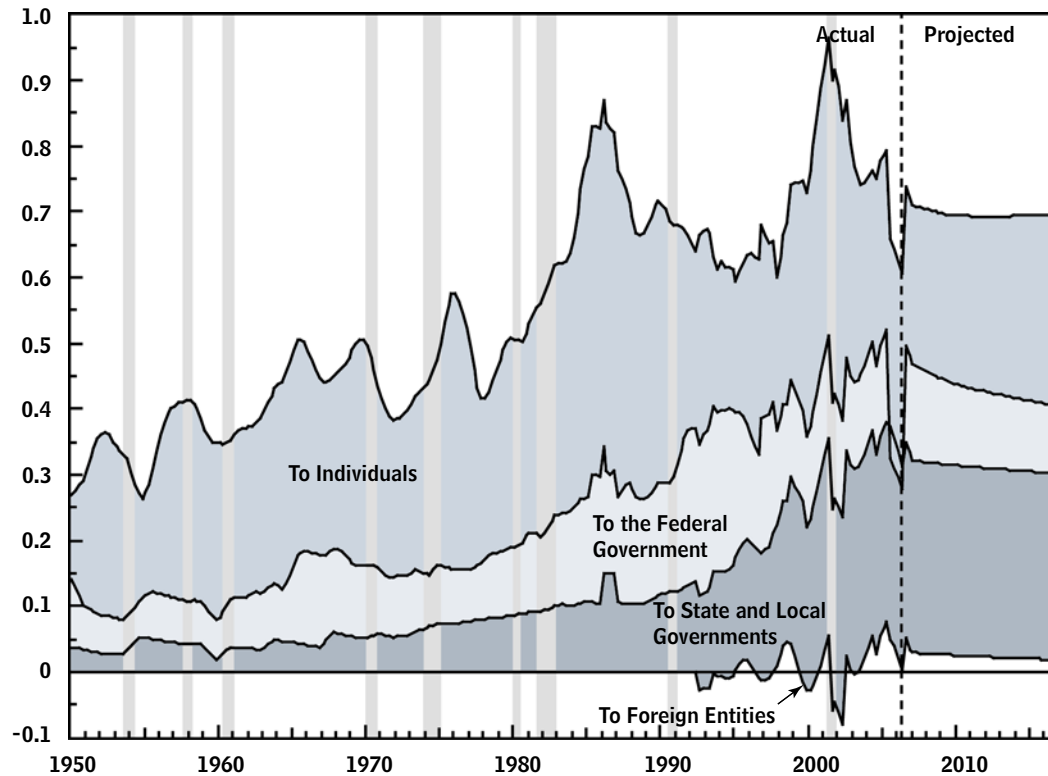
Imputed rental income now is the largest share of this component (about two-thirds in 2004). As a result, only about one-third of total rent and royalty income is subject to tax. The NIPAs include the imputed rental value of owner-occupied housing so

21. In the NIPAs, income and assets are converted into U.S. dollars. The use of U.S. interest rates and dividend yields assumes that changes in U.S. rates are adequate proxies for changes in foreign rates.

Figure 9.

Business Transfer Payments, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

that GDP will be invariant to whether individuals obtain housing services by owning or renting. Those and other imputations by BEA also are intended to enhance the use of GDP as a measure of the overall level of economic activity.²²

CBO projects only total rental and royalty income and simply assumes that it will average about 0.5 percent of GDP in the later years of the projections. In the near term, however, growth from current levels to the later years' average incorporates the outlook for factors that the NIPA methodology uses to construct rent and royalty income. For example, the destruction of housing from Hurricanes Katrina and Rita contributed to a fall in rental income for owner-occupied and tenant-occupied dwellings, from a level of \$102.8 billion in the second quarter of 2005 to a level of

22. For a discussion of imputations in the NIPAs, see Brent R. Moulton, "Presenting Imputations in the National Income and Product Accounts" (paper presented at the Organisation for Economic Co-operation and Development Meeting of National Accounts Experts, Paris, October 2002), available at www.oecd.org/dataoecd/25/61/1958278.doc.

-\$11.5 billion in the third quarter of 2005. CBO's projections reflect the estimated recovery from those hurricanes. A smaller adjustment was made in the third quarter of 2004 for hurricane destruction of a much smaller scale.

Net Business Transfer Payments to Persons; Federal, State, and Local Governments; and Foreign Entities

Business transfer payments, also a small share of GDP, are charges against revenue as expenses that might otherwise have constituted profits. They are paid to individuals, governments, and entities outside the United States. Although they represent payments for which no current services have been performed, they can be viewed as capital income in the sense that profits might have been higher had the expenses not been incurred. Those paid to persons consist of insurance settlements and become a part of personal income. Those paid to governments take a variety of forms, such as deposit-insurance premiums, regulatory and inspection fees, fines, and tobacco settlements. Those paid out to the rest of the world, net of similar-type receipts from abroad, include insurance settlements paid to policyholders (see Table A-1 for additional details).

CBO's projections assume that business transfer payments eventually will stay roughly level with GDP (see Figure 9). Underlying the overall, level movement relative to GDP are evenly moving transfers to state and local governments (assuming tobacco settlements move evenly with GDP) and two roughly offsetting trends—slightly rising transfers to individuals from insurance and other settlements, and slightly tapering transfers to the federal government from regulatory and insurance fees. At times, however, special events can require a more detailed approach. For example, the November 1998 settlement of tobacco companies with states led to a gradual rise in business transfer payments relative to GDP for a few years. More recently, businesses received transfer payments from the federal government in the form of insurance benefits under the National Flood Insurance Program for damages related to Hurricanes Katrina and Rita. CBO assumes that those benefit payments will be mostly completed in 2006.

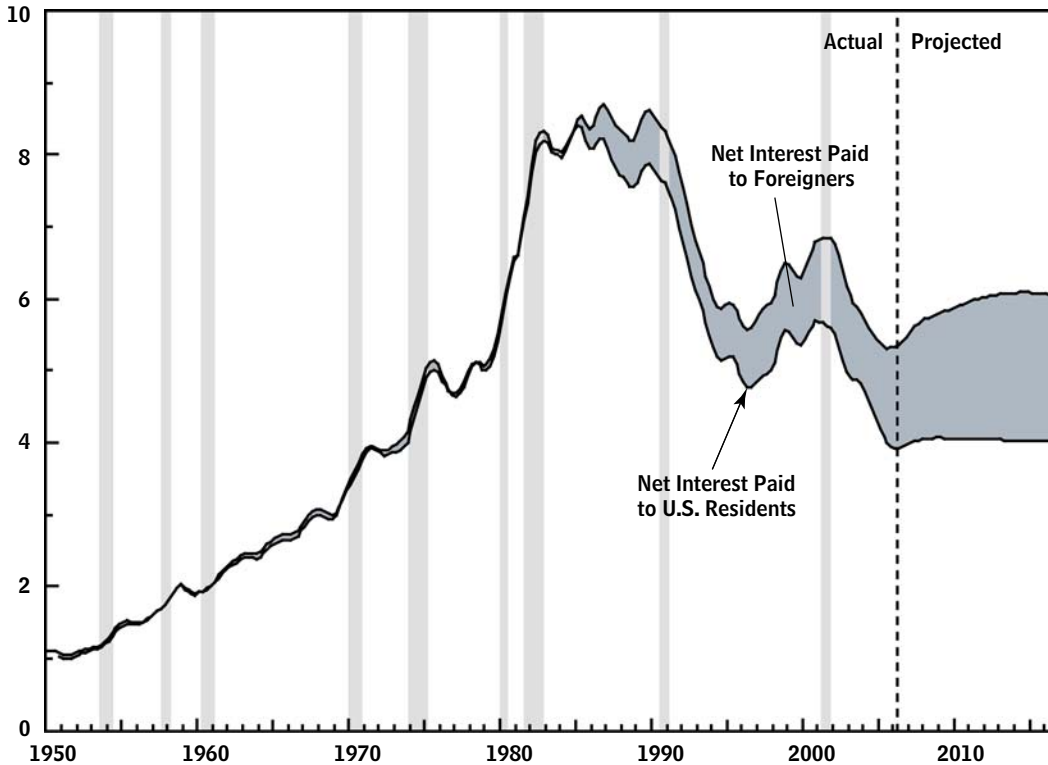
Net Interest Payments by Business to U.S. Residents

Net interest payments by business are payments (net of receipts) to resident creditors, an important and difficult income share to project. It is constructed in the NIPAs as the net interest paid by private business less the net interest paid to the rest of the world. Net interest paid to the rest of the world is the difference between the interest paid to entities abroad on their loans to U.S. residents, including their holdings of U.S. Treasury debt, and the interest paid by foreigners on their debts to U.S. residents. That difference has moved increasingly in favor of foreigners since the mid-1980s (see Figure 10). Private business consists of U.S. domestic corporations (financial and nonfinancial), sole proprietorships and partnerships (farm and nonfarm), and other domestic businesses. The net interest payments of the latter stem from home mortgages and home improvement loans by people who earn rental income (as described previously).

Figure 10.

Net Interest Paid by Businesses to U.S. Residents and Foreigners, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

Net interest paid by businesses to U.S. residents has varied widely over history because of variations in interest rates and debt levels. Because interest payments are a tax-deductible expense for businesses, they affect the projections of corporate profits and corporate income tax revenues.

Projections of net interest are primarily determined by projections of interest rates and business indebtedness. An estimate of net interest payments as a ratio to business debt is fitted econometrically on contemporaneous and lagged values of a representative interest rate. That estimate is then projected on the basis of the projection for interest rates. Simultaneously, the growth of business debt is projected on the basis of the

growth of the economy and the likely debt-financing needs of business. Together, the two sets of projections are used in each period of the projection span to estimate the level of net interest payments by businesses.²³

Consumption of Fixed Capital

This component of NIPA capital income consists of depreciation of public and private investment goods, and it includes depreciation of housing and public infrastructure (both civilian and military), as well as depreciation of private-sector businesses' plant, equipment, and computer software. The NIPA estimate of the consumption of fixed capital, known also as economic depreciation, measures the decline in the value of fixed capital from wear and tear, obsolescence, accidental damage, and aging. It differs from another measure, the "capital consumption allowance," which, for businesses, is based on depreciation reported in tax returns. The bulk of depreciation, about five-sixths, comes from private investment goods, those owned by businesses and households, with the balance coming from investment goods owned by federal, state, and local governments (see Figure 11). Overall, capital consumption has been growing as a share of GDP, especially since the mid-1970s, largely as a result of rapid technological advancement in computers, communications, and software, which has shortened the lives and increased replacement rates of investment goods.

The projection of overall capital consumption relies on projections of the individual components of investment, the depreciation rates for their respective capital stocks, the implied levels of those capital stocks, and the prices of the respective investment goods over the projection span. The private-sector components consist of computers, software, communications equipment, other producers' durable equipment, nonresidential structures and residential structures. The product of depreciation rates and capital stocks, converted to nominal values from projections of prices of capital stocks, are summed to obtain aggregate private, government, and total capital consumption. In the projections, a continuation of the shift toward computers and software causes continued increases in overall depreciation relative to GDP.

Corporate Profits

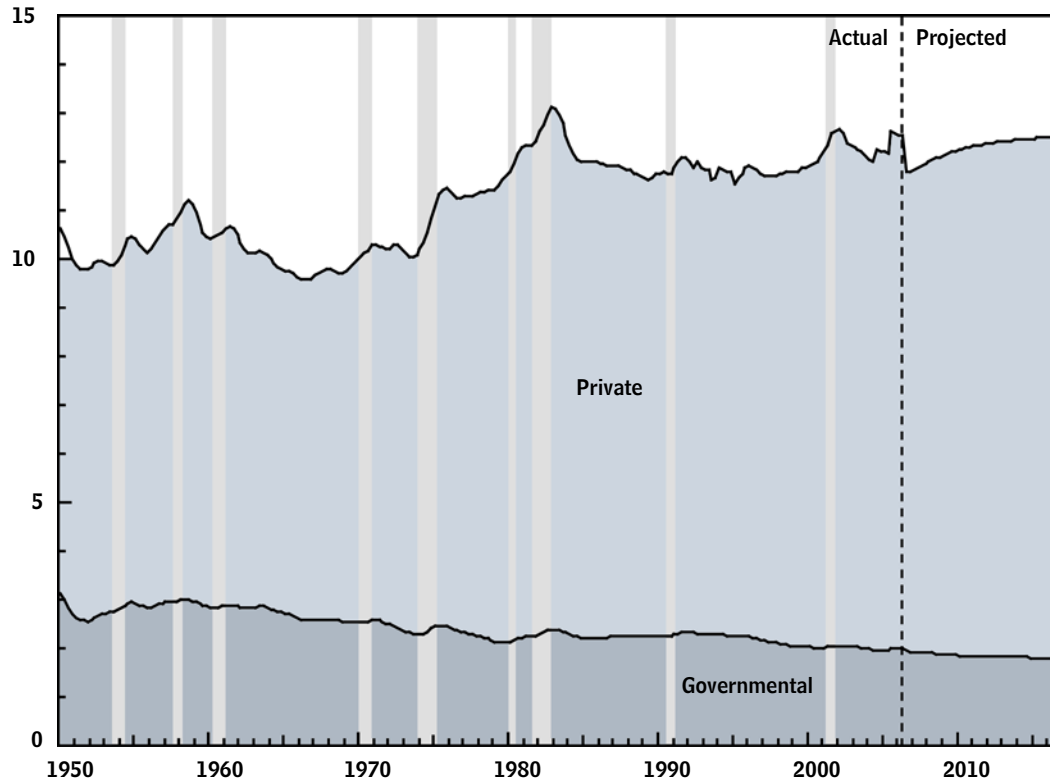
Corporate profits constitute the final component of capital income, and their projection is determined "residually," in the sense of the portion of income remaining after all the other expenses of business have been projected. But CBO also examines the profits projections directly. If the profits projections do not conform to other considerations, such as the consensus projections of private forecasters, CBO uses that information to reexamine projections of other components of GDP.

23. Also simultaneously in each period, the projection for the amount of net interest paid to the rest of the world is determined from the several other relations that, taken together, incorporate the requirement that public and private saving equal the sum of domestic investment and net portfolio and direct investment abroad.

Figure 11.

Capital Consumption: Private and Governmental, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

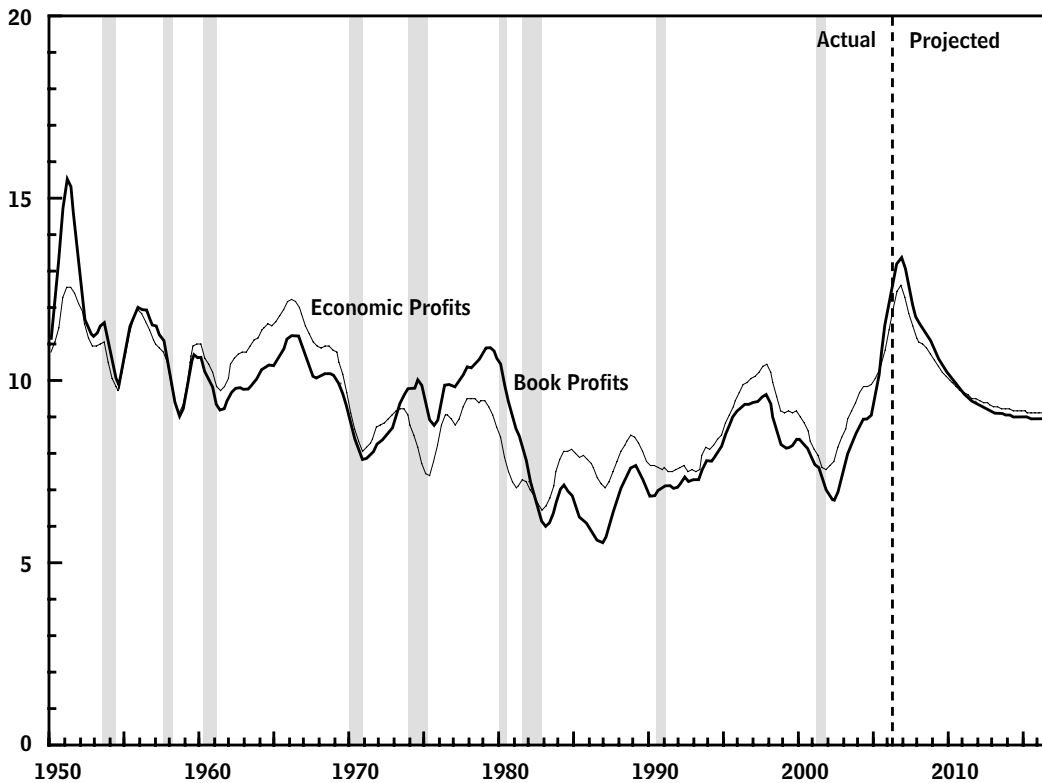
Two measures of NIPA corporate profits are projected: economic profits and book profits. Economic profits are a NIPA measure based on economic depreciation, as described above. They differ from the profits measure that is reported to the Internal Revenue Service. They also differ from the NIPA measure of book profits. The latter is similar to the IRS measure in that it includes capital gains resulting from changes in the value of inventories and calculates depreciation based on tax law rather than on economic depreciation.²⁴ Thus, NIPA book profits differ from NIPA economic

24. Numerous other adjustments made to the IRS measure are detailed in Table 7.16 of the NIPAs, available at <http://www.bea.gov/bea/dn/nipaweb/index.asp>.

Figure 12.

Corporate Profits: Economic and Book, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Notes: Economic profits are a national income and product accounts (NIPAs) measure based on economic depreciation; they exclude capital gains resulting from changes in the value of inventories. Book profits, also a NIPA measure, include those capital gains and calculate depreciation based on tax law rather than on economic depreciation.

Data were smoothed using a four-quarter moving average.

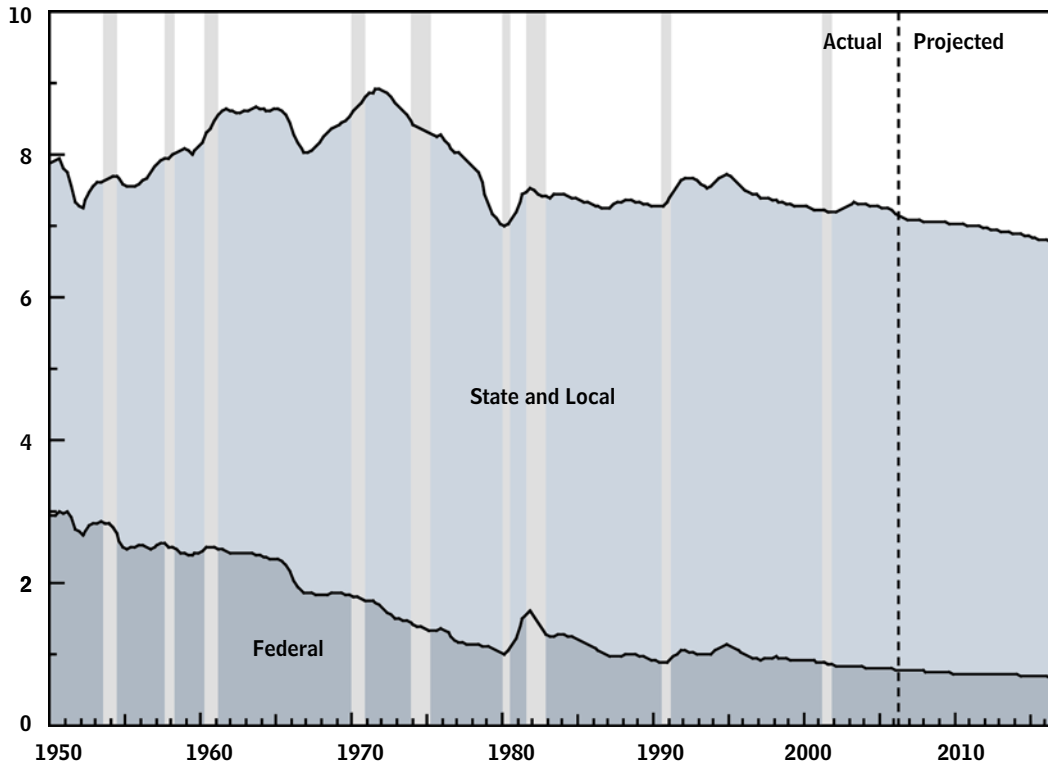
profits by an inventory valuation adjustment and a capital consumption adjustment (see Figure 12).²⁵ CBO projects the inventory valuation adjustment on the basis of projections of the volume of inventories and overall inflation. The capital consumption adjustment is determined from the difference between projections of economic depreciation and tax-based depreciation. The latter, in turn, uses historical and projected levels of the individual components of private investment (structures and different types of equipment) and applies IRS depreciation schedules that are appropriate for each component.

25. In the NIPAs, the inventory valuation adjustment removes inventory “profits,” which are more like a capital gain than like profits from current production. The capital consumption adjustment is the difference between capital consumption allowances under tax law and the consumption of fixed capital. The latter is the “economic” charge for the using up of fixed capital.

Figure 13.

Taxes on Production and Imports, by Level of Government, 1950 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

Other Income Categories

Two remaining income categories are unique in that they are not attributed either to labor income or to capital income. The first, direct taxes on production and imports, is relatively large, whereas the other, net surpluses of government enterprises, is quite small.

Taxes on Production and Imports by Federal, State, and Local Governments

Taxes levied on sales create a wedge between the proceeds from the sale of goods and services and the income paid out to labor and capital. Most of the taxes collected on production are levied at the state and local level (see Figure 13). Those imposed at the federal level consist of excise taxes and customs duties. Those imposed at the state and

local level include sales taxes, property taxes, motor vehicle licenses, severance taxes, and special assessments.²⁶

Projections of taxes on production and imports are based on the underlying source. About half of federal excise taxes come from highway taxes, which are projected mainly on the basis of forecasts of motor fuel use. Projections for other federal excise taxes, including airport, telephone, alcohol, and tobacco taxes, are also based on the behavior of their respective sources. Projections of federal customs duties are based on projections of imports. For projections of state and local taxes on production, CBO assumes that such taxes grow in line with growth in the nominal value of private spending on goods and services.

Surpluses Less Subsidies for Federal, State, and Local Government-Owned Enterprises

This final category of income parallels profits of private businesses. It consists of federal, state, and local enterprises (see Figure 14). At the federal level, enterprises include the U.S. Postal Service, Federal Housing Administration, Tennessee Valley Authority, Bonneville Power Administration and other electric power agencies, and various insurance agencies other than the Federal Deposit Insurance Corporation. Enterprises at the state and local level include utilities, transportation, port and toll facilities, parking structures, state-owned liquor stores, and lotteries. As a percentage of GDP, state and local enterprises have generated very small net surpluses, ranging between 0.3 percent and -0.2 percent of GDP, while federally owned enterprises have generated deficits as large as 0.7 percent and more recently about 0.4 percent of GDP.

CBO's projections of net surpluses of federally owned enterprises are based on the relevant aspects of overall economic activity that affect their net receipts. In addition, administered aspects such as rates charged for services also are factored into the projections. Projections for surpluses and subsidies of state and local enterprises are based mostly on the general level of economic activity.

The Effect of Policy Changes on CBO's Projections of Income

CBO's baseline budget and economic projections are projections under current law. That is, they are estimates of the spending and revenue that would prevail if there were no legislative changes. However, legislative changes may directly affect not only the outlook for revenues and spending but also the outlook for the economy. CBO may change its projections of real GDP growth, labor force growth, interest rates, and other aspects of the economic outlook in response to a policy change, and the components of income will be affected as well.²⁷

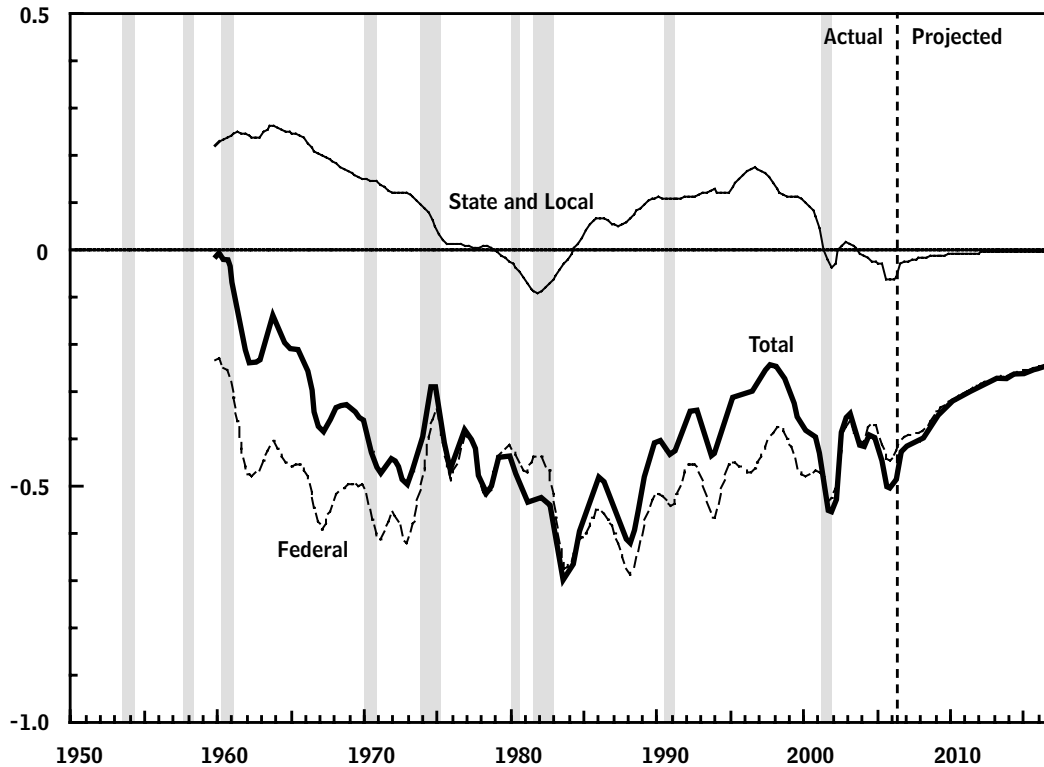
26. Although property taxes are included here with taxes on production and imports as a NIPA convention, they could be viewed as capital income.

27. For an extended discussion of how CBO's projections are affected by policy changes, see Congressional Budget Office, *What Is a Current-Law Economic Baseline?* (June 2, 2005).

Figure 14.

Net Surpluses of Government Enterprises, by Level of Government, 1960 to 2016

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

The effects of policy changes on income projections can be separated into two categories: effects on the level of GDP and effects on the income shares of GDP. Projections of the level of GDP can change in response to a variety of policies but particularly those that may affect investment or incentives to work. For example, policies that increased the deficit but did not change people's incentives to work or invest would tend to lower the average level of investment and the productive potential of the economy. Those effects would extend to tax receipts, reducing them if income shares of GDP did not change. By contrast, a reduction in marginal tax rates—if combined with other policy changes that held the deficit constant (such as offsetting changes in spending or tax law)—could encourage more work and saving, which could boost GDP and raise tax receipts. In the case of a reduction in tax rates that increased the

deficit, the aforementioned effects would work in opposite directions, and the net effect on the economy would depend on the details of the particular policy changes.²⁸

In general, income shares of GDP are less affected by policy changes than is the overall level of GDP, but some policies have a large effect on shares. Under CBO's current procedures, the projections of the overall labor income share for the medium term would assume a return to its postwar average regardless of policy changes. The composition of income within the labor share, however, can be affected by policy. As described earlier, for example, tax-law provisions scheduled to expire in 2010 that will raise the tax rate on labor income are projected to encourage some shift of labor income from taxable wages and salaries to nontaxable fringe benefits. For another example, changes in required contributions by employers to defined-benefit pension plans or changes in social insurance programs also can affect the share of labor income in the form of employer supplements versus wages and salaries.²⁹

Projections of the composition of income within the capital share of income can also change in response to policy. For example, the lower tax rates on dividends and capital gains that were initially enacted under the Jobs and Growth Tax Relief Reconciliation Act of 2003 are scheduled to expire at the end of 2010. As a result, some portion of corporate profits that might otherwise have been paid out as dividends in 2011 is projected to be paid out in 2010 to avoid higher taxes on dividends. More generally, any policy that tended to increase interest rates would increase the business interest payments share of capital income, and a policy that increased investment on average would tend to increase the depreciation (consumption of fixed capital) share of capital income. Profits, the major remaining category of capital income, would be lower under such policies, and all else being equal, any policies that resulted in higher business interest payments or business depreciation would reduce the projection of corporate income tax revenues. The temporary increase in depreciation allowances enacted in 2001 also reduced projected income revenues.

28. For additional discussion, see Congressional Budget Office, *Analyzing the Economic and Budgetary Effects of a 10 Percent Cut in Income Tax Rates* (December 1, 2005).

29. For further discussion of how recent changes in legislation governing defined-benefit pension plans have affected the composition of income shares, see Congressional Budget Office, "Contributions to Defined-Benefit Pension Plans."

Appendix A

A Summary Description of the Components of Gross Domestic Income

This appendix summarizes the income concepts explored in more depth in the text (see Table A-1). The explanations for each concept are based on the glossary that resides on the Bureau of Economic Analysis's Web site (www.bea.gov).

Table A-1.

The Components of Gross Domestic Income

Income Concept	Explanation
Gross domestic income (Theoretically identical to gross domestic product)	Income generated by labor and property located in the United States.
Plus: Income from U.S. investments abroad less income to foreign investments in the United States; and net labor income	U.S. portfolio and direct investments abroad. Foreign portfolio and direct investments in the United States. Net labor income from abroad.
Equals: Gross national income, which consists of:	Income from labor and property supplied by U.S. residents.
Wages, salaries, and supplements	Earnings of employed individuals. Supplements consist of employers' contributions to pensions, health insurance premiums, and social insurance on behalf of their employees.
Proprietors' income	Current production income of self-employed individuals in agricultural and nonagricultural businesses (sole proprietorships, partnerships, and tax-exempt cooperatives).
Consumption of fixed capital	Capital income set aside for replacement investment.
Rental and royalty income of persons	Earnings from the rental of real property by individuals who are not primarily engaged in the real estate business. Also includes the imputed net rental income of owner-occupants and the royalties received by individuals from patents, copyrights, and rights to natural resources.
Net interest paid by business	Capital income paid as interest to resident creditors.
Business transfer payments to persons, net	Insurance settlements and income payments for which no current services are performed.

Continued

Table A-1.**Continued**

Income Concept	Explanation
Business transfer payments to governments, net	Payments to the federal government for premiums for deposit insurance, fees for regulatory and inspection activities, and fines; payments to state and local governments for fines, tobacco settlements, and donations; and net insurance settlements paid to governments as policyholders.
Business transfer payments to the rest of the world, net	Payments to entities abroad for insurance settlements (excluding taxes paid by domestic corporations to foreign governments).
Corporate profits	Residual income from capital after expenses.
Surpluses (less subsidies) of government enterprises	Residual income from capital after expenses.
Taxes on production and imports	Federal excise taxes and customs duties, state and local sales taxes, property taxes (including residential real estate taxes), motor vehicle licenses, severance taxes, and special assessments.

Source: Department of Commerce, Bureau of Economic Analysis.

Appendix B

The Effect of NIPA Revisions on the Labor Income Share of Gross Domestic Product

Projections of the components of gross domestic income (GDI) are regularly modified through revisions to data and methodology by the Bureau of Economic Analysis (BEA). Quarterly and annual revisions occur as BEA incorporates data that arrive with a lag and which, in the meantime, have been estimated by staff from BEA. Comprehensive revisions, which occur about every five years, incorporate changes in methodology (new definitions, classifications, and estimation techniques).

For example, in 1998, as part of its 11th comprehensive revision of the national income and product accounts (NIPAs), BEA altered the treatment of software purchases by businesses and government from an intermediate input to a part of investment.¹ That alteration changed gross domestic product (GDP) and the investment share of GDP. It also increased GDI and the share attributable to capital income by increasing depreciation and profits. As a result, the share of labor income was reduced by the changed treatment of computer-software purchases by businesses and government.

Again, in 2003, BEA completed its 12th comprehensive revision of the NIPAs. The result of that revision was to broaden GDP and GDI in ways that also increased the size of capital income relative to labor income. One change was in the recognition of some of the financial services rendered by banks and insurance companies as final output instead of intermediate services. Another change was to treat insurance losses differently, by substituting the concept of normal losses for actual losses.²

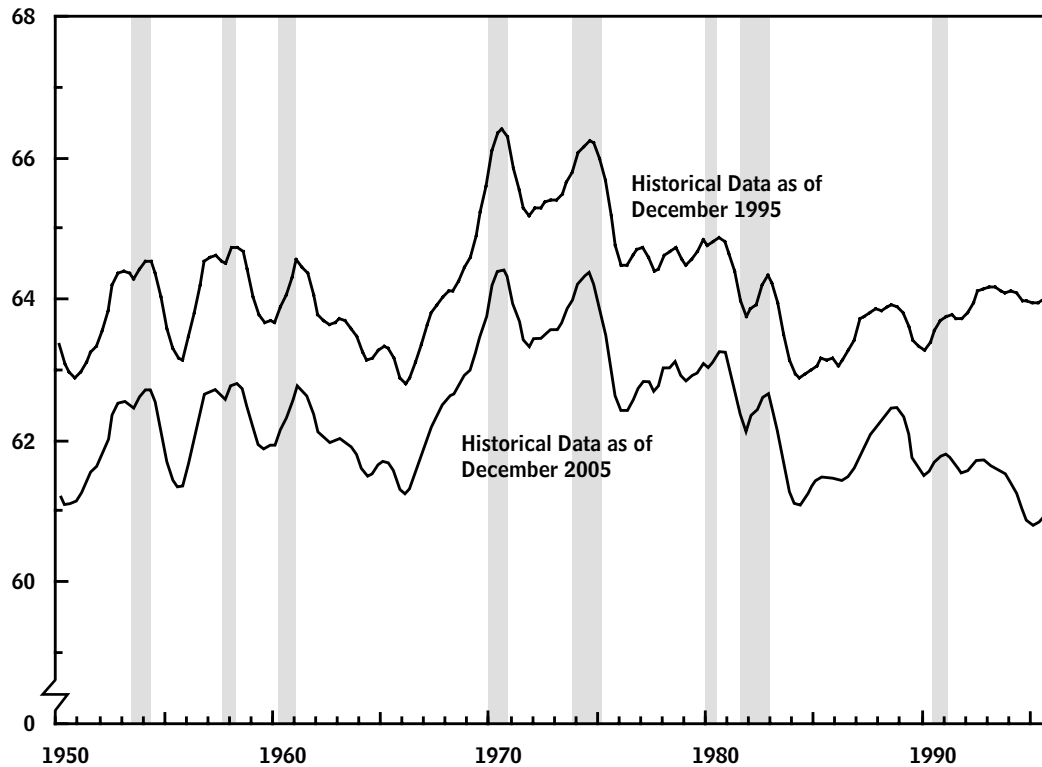
Those changes in 1998 and in 2003, and other changes too numerous and complex to describe here, were carried back to earlier years and have affected measured behaviors of capital and labor income components. An indication of the effects that comprehensive revisions can have is shown in Figure B-1, which compares the labor income share from 1950 to 1995 on the basis of data available at the end of 1995 and data available

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1. The 1998 revisions are discussed by Eugene P. Seskin, "Improved Estimates of the National Income and Product Accounts for 1959–98: Results of the Comprehensive Revision," *Survey of Current Business*, Department of Commerce, Bureau of Economic Analysis, vol. 79, no. 12 (December 1999), pp. 15–43.
 2. The 2003 revisions are discussed by Brent R. Moulton and Eugene P. Seskin, "Preview of the 2003 Comprehensive Revision of the National Income and Product Accounts: Changes in Definitions and Classifications," *Survey of Current Business*, Department of Commerce, Bureau of Economic Analysis, vol. 83, no. 6 (June 2003), pp. 17–34.

Figure B-1.

Labor Share of Income Using Different Sets of Historical Data, 1950 to 1995

(Percentage of gross domestic product)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: Data were smoothed using a four-quarter moving average.

at the end of 2005. In Figure B-1, the measured labor share of income was lowered by the revisions from 64.1 percent of GDP in the data available at the end of 1995 to 62.3 percent of GDP in the revised data that became available at the end of 2005. At the same time, however, the constancy in the long-run average seems apparent in both sets of data, albeit at different levels (64.1 percent on the basis of pre-1998 methodology and 62.3 percent on the basis of the methodology that includes the comprehensive revisions of 1998 and 2003).