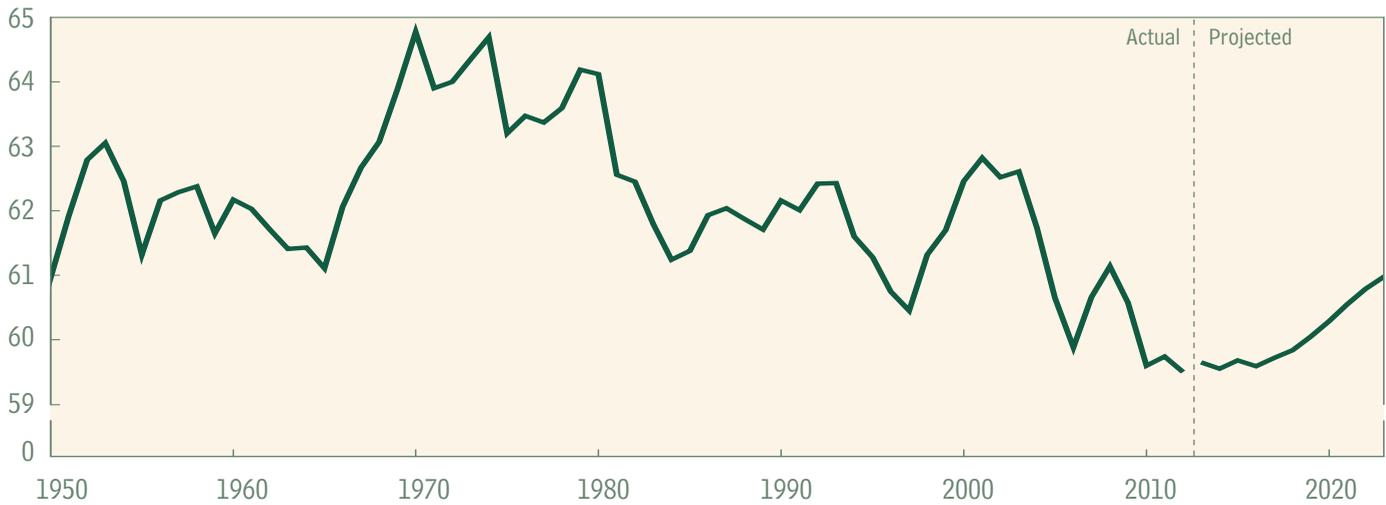


# CBO

## How CBO Projects Income

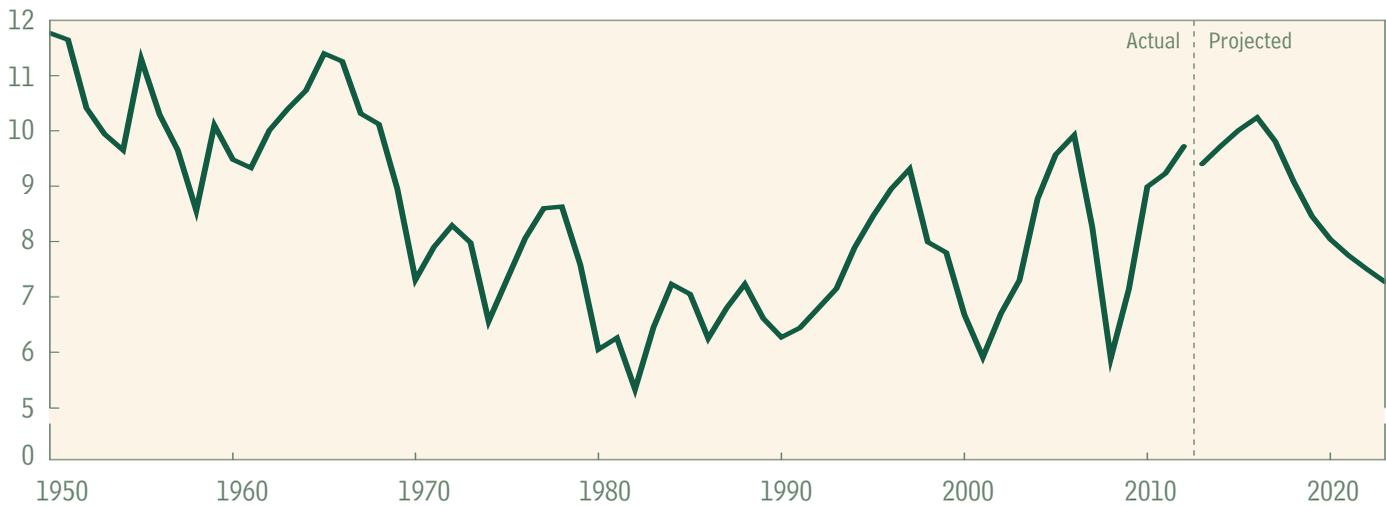
### Labor Income

Percentage of Gross Domestic Income



### Domestic Corporate Profits

Percentage of Gross Domestic Income



JULY 2013

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## Notes

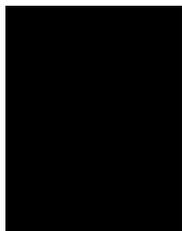
Some figures show a gap between the actual and projected data that reflects new data released and revisions to existing data since CBO's economic outlook was published in February 2013.

This report was completed in mid-July. As a result, the actual and projected data discussed in the report do not reflect the comprehensive revision to the national income and product accounts that the Commerce Department's Bureau of Economic Analysis expects to release on July 31.

Some figures use white vertical bars to indicate periods of recession. (A recession extends from the peak of a business cycle to the following trough.)

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

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# How CBO Projects Income

## Summary

Projections of income earned by individuals and businesses are an integral part of the Congressional Budget Office's (CBO's) regular 10-year projections of the economy and a key component of its projections of federal revenues and outlays. CBO projects all the major income measures that are presented in the Commerce Department's national income and product accounts (NIPAs). The total of those measures is gross national income (GNI), which can be broken down into gross domestic income (GDI) and net income from the rest of the world. GDI consists primarily of the income earned by labor and capital in the production of goods and services in the United States, and net income from the rest of the world consists of labor and capital income from the rest of the world minus payments of labor and capital income to the rest of the world. Using the NIPAs framework ensures that CBO's projections of income are consistent with its projections of gross domestic product (GDP), which measures overall economic output produced in the United States for final use (consumer spending, private investment, government spending, and net exports).

Three broad categories of income are central to CBO's projections of income and revenues:

- Income earned by labor in the production of goods and services in the United States,
- Income earned by the owners of capital in the production of goods and services in the United States, and
- Net income from the rest of the world.

CBO projects those income categories separately because they are driven by different fundamental forces and

because they are taxed differently and therefore affect revenues and spending in different ways. CBO's methods for projecting income also differ between the near term and medium term. In this analysis, the near term corresponds to the current business cycle, and the medium term refers to the remainder of the 10-year projection period, when output is forecasted to equal CBO's estimate of potential (or maximum sustainable) output. The agency does not attempt to project future business cycles.

## How Does CBO Project the Labor Income Component of GDI?

CBO uses different methods to project the labor income component of GDI in the near term and in the medium term. For the near term, labor income and its components (such as wages and salaries) reflect the agency's projections of economic measures that vary over the business cycle (such as employment, wage rates, and productivity growth). For the medium term, CBO projects the labor share of GDI on the basis of its historical pattern, taking into account any special factors that could affect labor's share in the future.

In its most recent forecast, published in February 2013, CBO projects that the labor share will rise with the continuing economic expansion, increasing from 59.4 percent of GDI in 2012 to 61.0 percent in 2023, but will remain below its average since 1980 of 61.5 percent. CBO's near-term projection reflects stronger demand for labor between 2013 and 2017, resulting in faster growth in overall compensation and labor income. CBO's medium-term projection, which extends from 2018 through 2023, reflects both the low level of the labor share since the recession began and the possibility that the effects of several factors that may have depressed the labor share in recent years (such as technological change and globalization) will not fade away.

### How Does CBO Project the Capital Income Component of GDI?

CBO determines the capital income component of GDI in the near term and the medium term by projecting the individual components of capital income (such as corporate profits and rental income). As with labor income, CBO's forecasts of the components of capital income reflect the projections of other measures (including interest rates, depreciation rates, and growth in the capital stock) but are constrained by the requirement that they add up to a capital share consistent with the projection of the labor share. With the exception of profits, the components of capital income are generally much less sensitive to business-cycle fluctuations than are the components of labor income, so CBO uses the same procedures for projecting most components of capital income in the near term and medium term.

For CBO's projections of the various categories of income to be consistent with one another, the sum of the projected components of nonlabor income relative to GDI—which consists primarily of the capital share of GDI—must vary inversely with the projected labor share. In its forecast process, the agency usually adjusts the projected components of capital income to ensure that this condition is satisfied. In its most recent forecast, CBO projects that capital income will decline as a share of GDI between 2012 and 2023, mirroring the increase in the labor share.

### How Does CBO Project Net Income From the Rest of the World?

CBO separately projects income receipts from foreigners and income payments to foreigners. CBO projects income receipts as the product of its projections of U.S.-owned assets abroad and the rate of return on those assets; it projects income payments as the product of its projections of foreign-owned assets in the United States and the rate of return on those assets. (CBO does not project the wage and salary component of net income from the rest of the world because that component has historically been a very minor share of the total.) The near-term and medium-term projections of the level and composition of U.S.-owned and foreign-owned assets are based on projections of the exchange rate, the current-account balance, and the federal debt. In its most recent forecast, CBO projects that net income from the rest of the world will fall as a share of GDI between 2012 and

2023 as income payments to foreign investors rise faster than income receipts from foreigners.

## Income and Its Components

Income is generated by the production and sale of goods and services. Total income in the economy—as measured by the NIPAs—is GNI, which can be separated into GDI and net income from the rest of the world. GDI is the sum of all income earned in the production of goods and services in the United States and two other income categories: the surpluses of government-owned enterprises (such as the U.S. Postal Service) and the amount received by government from taxes on production and imports (such as sales taxes) minus government subsidies. Income earned in the production of goods and services can be further classified as labor income (such as wages and salaries) and capital income (such as corporate profits). Net income from the rest of the world consists of net wage and salary income from the rest of the world plus net investment income from the rest of the world. CBO analyzes and projects the various categories of income separately because they are driven by different fundamental forces and because they are taxed differently and therefore affect federal revenues and spending in different ways.<sup>1</sup>

### The National Income and Product Accounts As a Framework

CBO's projections of income use concepts that underlie the NIPAs. Developed and maintained by the Bureau of Economic Analysis (BEA), a division of the Department of Commerce, the NIPAs are official U.S. accounts that show the value and composition of the nation's output as well as the costs incurred and incomes earned in the production of that output.<sup>2</sup> The NIPAs distinguish between domestic and national measures of income and output: Domestic measures of income include income earned in

1. The United States generally taxes income earned in this country by residents from abroad. However, tax treaties and other provisions reduce or eliminate those taxes for certain types of income.
2. For discussion of the NIPAs, see Bureau of Economic Analysis, *Concepts and Methods of the U.S. National Income and Product Accounts* (November 2012), [www.bea.gov/methodologies](http://www.bea.gov/methodologies); J. Steven Landefeld, Eugene P. Seskin, and Barbara M. Fraumeni, "Taking the Pulse of the Economy: Measuring GDP," *Journal of Economic Perspectives*, vol. 22, no. 2 (Spring 2008), pp. 193–216, <http://dx.doi.org/10.1257/jep.22.2.193>; and Bureau of Economic Analysis, *An Introduction to the National Income and Product Accounts* (September 2007), [www.bea.gov/methodologies](http://www.bea.gov/methodologies).

**Figure 1.**

## The Product and Income Sides of the National Income and Product Accounts, Calendar Year 2012

(Billions of dollars)

Product Side			Income Side	
Consumption	11,120		Labor Income (Apart from the labor share of proprietors' income)	
Residential Investment	383		Compensation of employees	8,600
Business Investment	1,621		Capital Income (Apart from the capital share of proprietors' income)	
Change in Inventories	58		Consumption of fixed capital	2,012
Government Expenditures	3,063		Corporate profits	1,521
Exports	2,184		Net business interest payments	684
Imports	-2,744		Rental and royalty income of persons	463
			Net business transfer payments	128
			Proprietors' Income	1,202
			Taxes on Production and Imports Minus Subsidies	1,069
			Surpluses of Government Enterprises	-34
<b>Gross Domestic Product</b>	<b>15,685</b>	= Statistical Discrepancy (40) +	<b>Gross Domestic Income</b>	<b>15,645</b>
			Net Income From Abroad	243
			Gross national income	15,888
			Consumption of fixed capital	-2,012
			<b>National Income</b>	<b>13,876</b>

Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Gross domestic product is the total market value of goods and services produced in the United States in a given year. Gross domestic income is the sum of all income earned in the production of gross domestic product.

the production of goods and services in the United States, and national measures of income include income earned by U.S. residents at home and abroad.<sup>3</sup>

In principle, comparable measures on the income and product sides of the NIPAs—GDI and GDP, for example—should be equal, as businesses use the funds they receive from expenditures for goods and services (GDP) to pay income to workers and the owners of productive capital (GDI). In practice, however, the two sides differ because the data for each component are subject to different measurement errors. BEA includes the difference between GDI and GDP, called the statistical discrepancy, on the income side of the NIPAs to balance the two accounts (see Figure 1). The statistical discrepancy has tended to be positive; estimates of the size of the econ-

omy from the product side usually have been larger than estimates from the income side (see Figure 2).<sup>4</sup>

Using the NIPAs as a framework enables CBO to keep its projection of income consistent with its projection of GDP and other aspects of economic activity. Although the NIPA concepts do not exactly correspond to the concepts that individuals and businesses use to compute their federal income taxes, CBO uses data and concepts of income from the NIPAs as inputs into its estimates of taxable income.<sup>5</sup> In producing its projections of tax

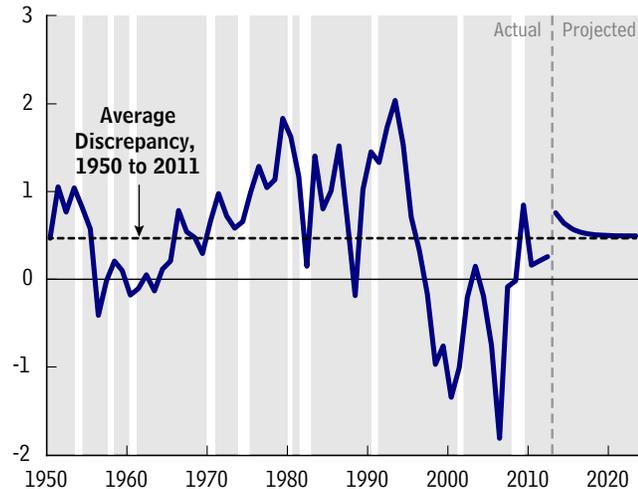
3. Similarly, domestic measures of output (such as GDP) include all output produced in the United States, and national measures of output (such as gross national product) include all output produced by U.S. residents at home and abroad.

4. For a further discussion of the reliability of the NIPAs, see Dennis J. Fixler, Ryan Greenaway-McGrevy, and Bruce T. Grimm, "Revisions to GDP, GDI, and Their Major Components," *Survey of Current Business*, vol. 91, no. 7 (July 2011), pp. 9–31, [www.bea.gov/scb/toc/0711cont.htm](http://www.bea.gov/scb/toc/0711cont.htm).

5. For example, GDI does not include pension distributions, capital gains and losses, dividends received, and government transfers, all of which are taxable in part.

## Figure 2. Statistical Discrepancy Between GDP and GDI

(Percentage of gross domestic product)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Notes: The statistical discrepancy is the difference between gross domestic product (GDP) and gross domestic income (GDI).

Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

revenue, CBO adjusts the NIPA measures to reflect differences from the corresponding taxable income measure.

### The Labor Income Share of GDI

CBO's measure of the labor income component of GDI consists of the total compensation that employers pay their employees plus a portion of proprietors' income that is intended to reflect the value of proprietors' labor services. Total compensation is the sum of wages, salaries, and supplemental benefits paid to employees in both the private sector (by businesses, households, and nonprofit institutions) and the public sector (by federal, state, and local governments). Supplemental benefits include employers' payments for health and other insurance premiums, their share of payroll taxes for Social Security and Medicare, and their contributions to retirement plans. Proprietors' income reflects both compensation for the proprietors' work (their labor income) and compensation for the capital they have invested in their businesses; the NIPAs, however, do not specify the proportion of

proprietors' income that is labor income.<sup>6</sup> CBO estimates that this proportion equals employees' compensation as a share of all income except for proprietors' income (that is, as a share of the difference between GDI and proprietors' income), which was 59 percent in 2012.<sup>7</sup>

**The Labor Share Since 1950.** The labor share of GDI has varied over time but displayed no clear trend before 2001, averaging 62.4 percent between 1950 and 2000 (see Figure 3). The share averaged 61.9 percent from the 1950s to the mid-1960s and 64.0 percent in the 1970s. It fell back to 61.4 percent by 1985 and remained close to that value through the 1990s. Since 2001, however, the labor share has exhibited a downward trend, reaching 59.4 percent in 2012, its lowest value since 1950.

The relative stability of the overall labor share between 1950 and 2000 reflected in large part the offsetting effects of changes in the sectoral composition of the economy. Expansion of the nonprofit sector, which includes most hospitals, for example, put upward pressure on the labor share because that sector is labor-intensive and has a high labor share of income. In contrast, growth of income generated by owner-occupied housing, which represents the bulk of income generated by the household sector, increased the income going to capital and put downward pressure on the labor share of income.<sup>8</sup>

The decline in the labor share since 2001 has been particularly evident in the business sector, which pays

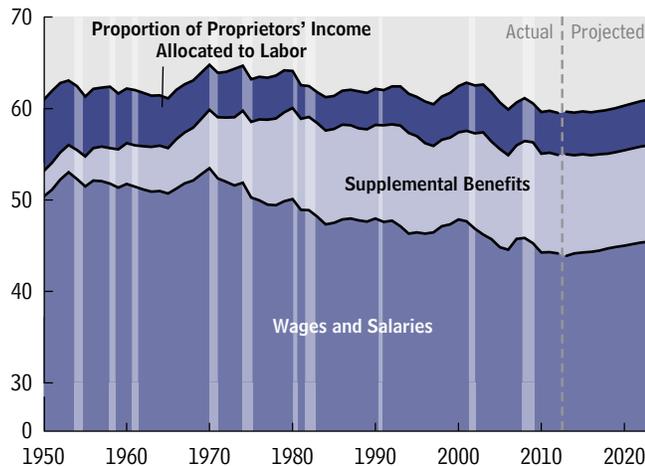
6. For a discussion of some conceptual and empirical challenges associated with measuring labor's share of income, see Paul Gomme and Peter Rupert, "Theory, Measurement, and Calibration of Macroeconomic Models," *Journal of Monetary Economics*, vol. 54, no. 2 (March 2007), pp. 460–497, <http://dx.doi.org/10.1016/j.jmoneco.2005.09.005>.

7. See Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2013 to 2023* (February 2013), p. 46, footnote 13, [www.cbo.gov/publication/43907](http://www.cbo.gov/publication/43907). In the past, CBO attributed a constant 65 percent of proprietors' income to labor income, following several empirical studies. CBO's current approach reflects recent research, including Congressional Budget Office, *The Taxation of Capital and Labor Through the Self-Employment Tax* (September 2012), [www.cbo.gov/publication/43644](http://www.cbo.gov/publication/43644).

8. The NIPAs treat owner-occupied housing as rental businesses in which the owners are landlords who are renting to themselves. For further discussion, see "Rental and Royalty Income of Persons" on page 10.

**Figure 3.**  
**Labor Income and Its Major Components**

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

much more labor income than all of the other sectors—households, nonprofits, and the public sector—combined. In the business sector, the labor share of income averaged 62.6 percent between 1950 and 2000, slightly higher than the labor share in the economy overall. Between 2001 and 2011, the labor share of income in the business sector fell from 63.7 percent to 59.3 percent, putting that sector’s share slightly lower than in the economy overall (see Figure 4).<sup>9</sup>

The decline in the labor share within the business sector in recent years occurred entirely among incorporated businesses, which account for most business income. Among corporations, the average labor share of income between 1950 and 2000 was 64.7 percent. That share rose to 66.1 percent in 2001—its highest level since

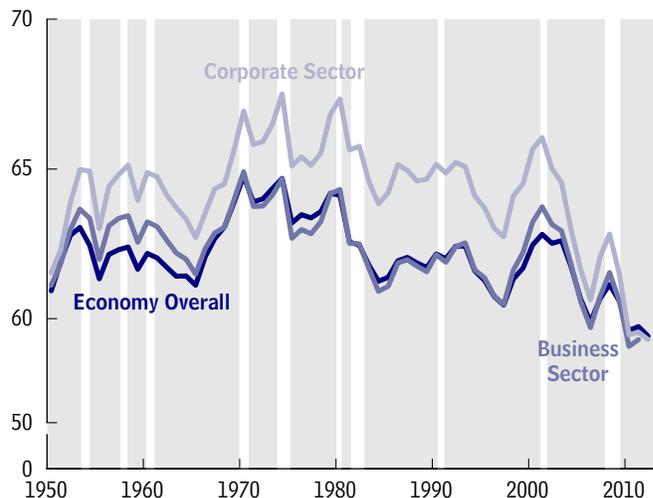
9. This report uses the latest data available. In some cases, the most recently published values are for 2011 because the full set of NIPA data for 2012 was not yet available when this report was released. In other cases, where CBO has calculated estimates for 2012, those estimates are provided; see Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2013 to 2023* (February 2013), pp. 46–47, [www.cbo.gov/publication/43907](http://www.cbo.gov/publication/43907).

1980—but then declined sharply to 59.3 percent by 2012. In contrast, labor income in the noncorporate business sector (composed mostly of proprietorships, partnerships, and government-owned enterprises) rose as a share of GDI between 2001 and 2011.

The decline in the labor share over the past decade reflects the reversal of an upward trend in labor’s share within the private nonmanufacturing sector and an intensification of a long-standing decline in labor’s share within the manufacturing sector. Before 2001, the increase in the labor share within the private nonmanufacturing sector was large enough to offset the downward

**Figure 4.**  
**Labor Income As a Share of Total Income in the Corporate Sector, the Business Sector, and the Economy Overall**

(Percent)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Notes: The corporate sector consists of all private entities organized as corporations. The business sector consists of all corporate and noncorporate private entities organized for profit and certain other entities; for example, it includes mutual financial institutions, private noninsured pension funds, cooperatives, nonprofit organizations that primarily serve businesses, Federal Reserve banks, federally sponsored credit agencies, and government-owned enterprises.

Data are annual. For the business sector, data are plotted through 2011. For the other two categories, data are plotted through 2012.

pressure exerted on the overall labor share by the manufacturing sector. Since 2001, the labor share has declined in both of those sectors but much more dramatically in manufacturing than in nonmanufacturing: Within manufacturing, the labor share fell from 65.9 percent to 52.9 percent between 2001 and 2011, while within nonmanufacturing, it fell from 59.2 percent to 55.9 percent over the same period. Nevertheless, the much larger size of the nonmanufacturing sector means that the manufacturing and nonmanufacturing sectors made roughly equal contributions to the overall decline in labor's share.

A variety of factors may account for the unusual decline in the overall labor share in recent years. One factor, which should have only a temporary effect on the labor share, is the business cycle. The recession of 2007–2009 and the ongoing slow economic recovery have restrained the demand for labor and kept the rate of unemployment above 7.0 percent since late 2008. The labor share typically declines early in a recession and then rebounds once a recovery is well under way.

Technological change and globalization also appear to have put downward pressure on the labor share in recent years, and some economists believe that the influence of those factors will be long-lasting.<sup>10</sup> Indeed, an increas-

ingly common view is that the effects of technology and globalization on wages have intensified in the past few decades. For example, technological change may have reduced the returns to labor relative to capital in several ways:<sup>11</sup>

- By expanding options for employing capital in place of labor (such as through automation);<sup>12</sup>
- By reducing the relative price of capital goods, especially those used for communications and information processing;<sup>13</sup> and
- By increasing the pace at which skills tied to old technologies become obsolete, thereby reducing the productivity of workers whose skills are not up to date.<sup>14</sup>

10. Economists also observe that a downward trend in the labor share is incompatible with the model of production and payments to labor and capital that is often used to describe the economy in macroeconomic analysis. That model, known as the Cobb-Douglas production function with competitive markets for labor and capital, implies that income shares would remain constant over time. For further discussion of that model and alternatives, see Devesh Raval, *Beyond Cobb-Douglas: Estimation of a CES Production Function with Factor Augmenting Technology*, Working Paper 11-05 (U.S. Census Bureau, Center for Economic Studies, February 2011), <http://ideas.repec.org/p/cen/wpaper/11-05.html>; Xavier Raurich, Hector Sala, and Valeri Sorolla, *Factor Shares, the Price Markup, and the Elasticity of Substitution Between Capital and Labor*, Visiting Fellow Working Papers (Cornell University, School of Industrial and Labor Relations, August 23, 2010), <http://digitalcommons.ilr.cornell.edu/intlvf/29/>; Pol Antràs, "Is the U.S. Aggregate Production Function Cobb-Douglas? New Estimates of the Elasticity of Substitution," *Contributions to Macroeconomics*, article 4, vol. 4, no. 1 (April 2004), <http://dash.harvard.edu/handle/1/3196325>; Charles I. Jones, *Growth, Capital Shares, and a New Perspective on Production Functions* (draft, June 12, 2003), [www.stanford.edu/~chadj/](http://www.stanford.edu/~chadj/); and John Duffy and Chris Papageorgiou, "A Cross-Country Empirical Investigation of the Aggregate Production Function Specification," *Journal of Economic Growth*, vol. 5, no. 1 (March 2000), pp. 87–120, <http://dx.doi.org/10.1023/A:1009830421147>.

11. For discussions of technological change and other factors that may be putting sustained downward pressure on labor's share, see, for example, Ángel Estrada and Eva Valdeolivas, *The Fall of the Labour Income Share in Advanced Economies*, Occasional Papers No. 1209 (Madrid: Bank of Spain, 2012), <http://tinyurl.com/nu2m3xg>; Francisco Rodriguez and Arjun Jayadev, *The Declining Labor Share of Income*, Human Development Research Paper 2010/36 (United Nations Development Programme, November 2010), <http://tinyurl.com/26n6vsa>; Arjun Jayadev, "Capital Account Openness and the Labour Share of Income," *Cambridge Journal of Economics*, vol. 31, no. 3 (May 2007), pp. 423–443; International Monetary Fund, "The Globalization of Labor," Ch. 5 in *World Economic Outlook* (April 2007), pp. 161–192, <http://tinyurl.com/4zvx84> (892 KB); and Robert J. Gordon, "Exploding Productivity Growth: Context, Causes, and Implications," *Brookings Papers on Economic Activity*, no. 2 (2003), pp. 247–261, [www.brookings.edu/about/projects/bpeal/past-editions](http://www.brookings.edu/about/projects/bpeal/past-editions).

12. For a recent discussion of how technological change is expanding options for employing capital, see David H. Autor, David Dorn, and Gordon H. Hanson, *Untangling Trade and Technology: Evidence From Local Labor Markets* (March 2013), <http://economics.mit.edu/faculty/dautor/papers/inequality>.

13. See, for example, Loukas Karabarbounis and Brent Neiman, *The Global Decline of the Labor Share*, Working Paper 19136 (National Bureau of Economic Research, June 2013), [www.nber.org/papers/w19136](http://www.nber.org/papers/w19136).

14. See, for example, Andreas Hornstein, Per Krusell, and Giovanni Violante, "Technology-Policy Interaction in Frictional Labor Markets," *Review of Economic Studies*, vol. 74, no. 4 (October 2007), pp. 1089–1124, <http://restud.oxfordjournals.org/content/74/4.toc>.

Moreover, technological change has increasingly contributed to the globalization of markets for services as well as for goods.<sup>15</sup> At the same time, globalization of labor and product markets may have increased the returns to capital relative to labor by enabling the United States to specialize in the production of goods and services that require the capital inputs that it has in abundance relative to most other countries.<sup>16</sup> Globalization may have also eroded the bargaining power of workers by increasing the mobility of capital.<sup>17</sup>

**Wages, Salaries, and Supplemental Benefits.** Employee compensation includes wages, salaries, and supplemental benefits. Wages and salaries paid directly to employees are the largest component of labor income, representing almost three-quarters of the total in 2012. Wages and salaries consist of money paid to employees; commissions, tips, and bonuses; voluntary employee contributions to certain deferred compensation plans such as 401(k) plans; employee gains from exercising nonqualified stock options; and other miscellaneous compensation of employees.<sup>18</sup> Just under 83 percent of wages and salaries in 2012 were paid to private-sector workers, and the rest were paid to federal, state, and local government employees. Supplemental benefits consist mainly of employers' contributions to private health insurance premiums, pension and profit-sharing plans, and payroll taxes that help to fund government social insurance programs such as Social Security and Medicare.

15. See, for example, Jonathan Haskel and others, "Globalization and U.S. Wages: Modifying Classical Theory to Explain Recent Facts," *Journal of Economic Perspectives*, vol. 26, no. 2 (Spring 2012), pp. 119–140, <http://tinyurl.com/nzq6puw>.

16. For an international study that makes a similar argument, see Anastasia Guscina, *Effects of Globalization on Labor's Share in National Income*, Working Paper 06/294 (International Monetary Fund, December 2006), <http://tinyurl.com/pv6alu5>.

17. For further discussion of globalization and labor income, see, for example, Avraham Ebenstein and others, *Why Are American Workers Getting Poorer? Estimating the Impact of Trade and Offshoring on American Workers Using the Current Population Survey*, Working Paper 15107 (National Bureau of Economic Research, June 2009), [www.nber.org/papers/w15107](http://www.nber.org/papers/w15107); and Ann Harrison, *Has Globalization Eroded Labor's Share? Some Cross-Country Evidence* (University of California at Berkeley, 2005), <http://mpr.ub.uni-muenchen.de/39649/>.

18. "Nonqualified" stock options do not qualify for special tax treatment. As a result, such stock options result in additional taxable income to the recipient when they are exercised.

After remaining roughly stable during the 1950s and 1960s, wages and salaries have fallen steadily as a share of GDI since 1970. Until the 1980s, however, that decline was more than offset by the growth of supplemental benefits, and, as a result, employee compensation increased as a share of GDI. Since the 1980s, however, the average growth of supplemental benefits has slowed substantially, and the sum of those benefits and wages and salaries has declined as a share of GDI (see Figure 3 on page 5).<sup>19</sup> The pace of that decline accelerated after 2000; between 2001 and 2012, employee compensation fell by 2.6 percentage points as a share of GDI, the largest drop in any 11-year period since 1950. The decline accounts for the majority of the 3.4 percentage-point fall in the labor share of GDI over that period.

**Proprietors' Income.** The income of proprietors consists of the income of the self-employed who work in sole proprietorships, partnerships, or tax-exempt cooperatives; that income is divided between farm and nonfarm businesses (see Figure 5). Over time, nonfarm businesses have accounted for an increasing share of such income; roughly 95 percent of proprietors' income in 2012 was earned by nonfarm businesses. More than two-thirds of nonfarm proprietors' income belongs to service industries, which include legal services, scientific and technical services, and health care services (see Table 1).

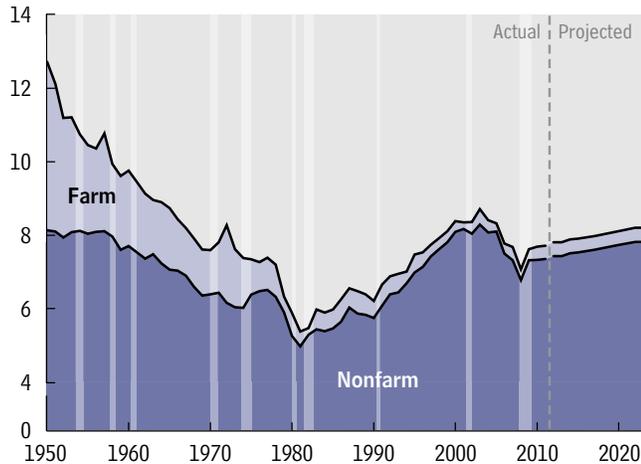
Although the share of GDI attributed to proprietors has, on balance, risen modestly in the past three decades, it is lower today than 60 years ago primarily because of the steady decline in the number of self-employed workers relative to the total number of workers (see Figure 6 on page 10). In particular, agricultural self-employment as a share of total employment has been declining since 1950, reflecting a drop in agricultural output as a share of total output. A compositional shift in self-employment toward industries with higher incomes—as well as the above-average growth of income in some of these industries—

19. Adjusted for changes in the consumer price index for all urban consumers, the annual growth of supplemental benefits averaged 8.1 percent between 1950 and 1980. Over that period, supplemental benefits rose from 2.7 percent of GDI to 10 percent of GDI while wages and salaries fell slightly from 50.4 percent of GDI to 50.1 percent of GDI. Between 1981 and 2012, the growth of real (inflation-adjusted) supplemental benefits slowed to an average of 2.5 percent per year, and supplemental benefits rose by less than 1 percentage point as a share of GDI while wages and salaries declined by slightly less than 5 percentage points as a share of GDI.

**Figure 5.**

## Proprietors' Income in the Farm and Nonfarm Business Sectors

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

probably explains the small increase in the share of GDI attributed to proprietors since the early 1980s.<sup>20</sup>

### The Capital Income Share of GDI

CBO's definition of the capital income component of GDI includes domestic corporate profits, consumption of fixed capital, net interest payments by domestic businesses, rental and royalty income of persons, net business transfer payments (fees, fines, insurance, and litigation settlements), and the proportion of proprietors' income not allocated to labor income.<sup>21</sup> An increase in the capital share of income in the United States since 2001 represents the flip side of the decrease in the labor share of income. Among the components of capital income,

20. For instance, since the early 1980s the share of professional, legal, and financial-service income in proprietors' income has risen relative to other sectors.

21. Corporations are defined as entities that must file federal corporate tax returns, including mutually chartered financial institutions and cooperatives subject to federal income tax; nonprofit organizations that primarily serve businesses; Federal Reserve banks; and federally sponsored credit agencies.

corporate profits and rental and royalty income of persons declined as shares of GDI from 1965 to 1980 while labor's share rose; they displayed an upward trend after that. However, the increase in those components was largely offset by decreases in other components of capital income, especially declining interest payments, until 2001.

**Domestic Corporate Profits.** Domestic corporate profits in the NIPAs reflect the net income (receipts minus associated expenses) earned by corporations from current production within the United States, regardless of who has a claim on that income.<sup>22</sup> In contrast, national (or total) corporate profits include income earned by U.S. producers abroad but exclude income earned by foreigners in the United States. Corporate profits are highly cyclical, often falling faster than GDI before and during a recession and rising faster during a recovery.

Domestic corporate profits as a share of GDI declined from an average of 10.1 percent in the 1950s and 1960s to a low of 5.3 percent in 1982 before following an upward trend over the next three decades (see Figure 7 on page 10). The reduction in the share of domestic corporate profits between the 1960s and early 1980s stemmed primarily from an increase in corporate interest payments as a share of GDI, owing initially to rising interest rates and later to both rising interest rates and increasing indebtedness. Because those payments are a business expense and are tax-deductible, they reduced corporate profits and corporate income tax revenues.

Although domestic corporate profits fell sharply before and during the last two recessions (which occurred in 2001 and 2007–2009), they also rebounded from both of those drops; profits' share of GDI was 9.7 percent in 2012, after a recent low of 5.9 percent in 2008. Within domestic corporate profits, the share earned by financial corporations has risen relative to that of nonfinancial corporations, accounting for nearly 30 percent of all domestic corporate profits in 2012. The sharp fall and

22. Many differences exist between domestic corporate profits as measured by the NIPAs and the corporate income tax base. For example, the corporate tax base includes depreciation deductions provided by tax law and includes capital gains resulting from sales of corporate assets. For other differences between domestic corporate profits and the corporate tax base, see Bureau of Economic Analysis, "National Income and Product Accounts Tables" (August 2012), Table 7.16, <http://tinyurl.com/pf5br49>.

**Table 1.****Distribution of Nonfarm Proprietors' Income, 2011**

	Percentage of Nonfarm Proprietors' Income
Goods-Producing Industries	
Construction	14.3
Manufacturing	2.4
Mining	1.5
Forestry, fishing, and related activities	1.0
Utilities	-0.7
Services-Producing Industries	
Professional and business services (Scientific, technical, legal, and administrative)	26.2
Health care, social assistance, and educational services	13.3
Other services, except government	11.6
Finance, insurance, real estate, rental, and leasing	10.7
Retail trade	8.0
Wholesale trade	4.3
Arts, entertainment, recreation, accommodation, and food services	3.2
Transportation and warehousing	3.2
Information	1.1
<b>Total</b>	<b>100.0</b>

Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

recovery in domestic corporate profits observed during the last recession was driven largely by financial corporate profits.

**Consumption of Fixed Capital.** The NIPAs estimate of the consumption of fixed capital, also known as economic depreciation, measures the decline in the value of fixed capital attributable to wear, obsolescence, and damage.<sup>23</sup> Depreciation is treated as income in the NIPAs because it represents income forgone as a consequence of the need to replace assets used in production. Consumption of fixed capital consists of depreciation of public and private investment goods. Thus, 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 bulk of depreciation, about 80 percent, comes from private investment goods (those owned by businesses and households), and the balance comes from investment goods owned by federal, state, and local governments (see Figure 8). Consumption of fixed capital has grown as a share of GDI since the mid-1970s, largely

as a result of the shift in investment spending toward assets with shorter service lives (especially computers, communications equipment, and software) and thus higher rates of depreciation.

**Net Interest Payments by Domestic Businesses.** Net interest payments by domestic businesses are payments (net of receipts) to creditors residing in the United States and make up one of the largest components of capital income, averaging 4.9 percent of GDI between 1950 and 2012.<sup>24</sup> This is the part of capital income that arises from servicing debt, and it includes interest payments on mortgage and home-improvement loans and on home-equity loans—which are considered business interest payments in the NIPAs because the NIPAs treat home ownership as a business. Since 1950, net interest payments on mortgages for owner-occupied housing have been, on average, roughly half of total net domestic interest payments, although that share has varied widely over time. For example, the mortgage share of the net interest payments

23. Consumption of fixed capital differs from the value of depreciation reported on tax returns. The NIPAs include a "capital consumption adjustment" to account for the difference.

24. This category of interest payments includes only those made to domestic businesses; interest payments made to foreign private businesses are separately discussed in the section "Net Income From the Rest of the World" beginning on page 13.

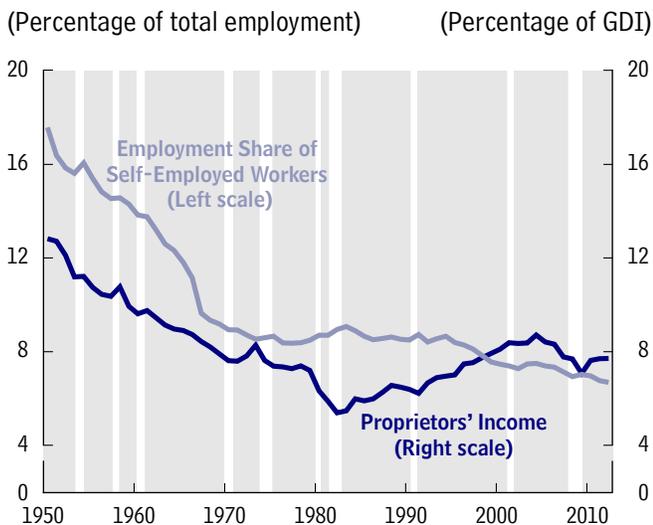
increased rapidly from 36.4 percent in 1981 to 65.3 percent in 2004 but declined quickly thereafter, reaching 54.7 percent in 2012, CBO estimates.

Net interest payments by domestic businesses depend on interest rates and business indebtedness, both of which have varied widely since 1950. A downward trend in interest rates since the 1980s dampened the level of net interest payments because new debt was issued at lower rates over time (see Figure 9). Since the early 1990s, however, the opposing forces of lower interest rates and higher debt have left net interest payments by domestic businesses as a share of GDI roughly constant at about 6 percent. The volume of outstanding business debt relative to GDP has exhibited an upward trend over the past several decades, although the ratio has tended to fall after recessions. For example, the ratio of nonfinancial business debt to GDP has fallen sharply since 2009, following a period of rapid debt accumulation.

**Rental and Royalty Income of Persons.** Rental and royalty income of persons, a relatively small share of capital income, is the sum of the imputed net rental income

**Figure 6.**

### Self-Employment and Proprietors' Income



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics.

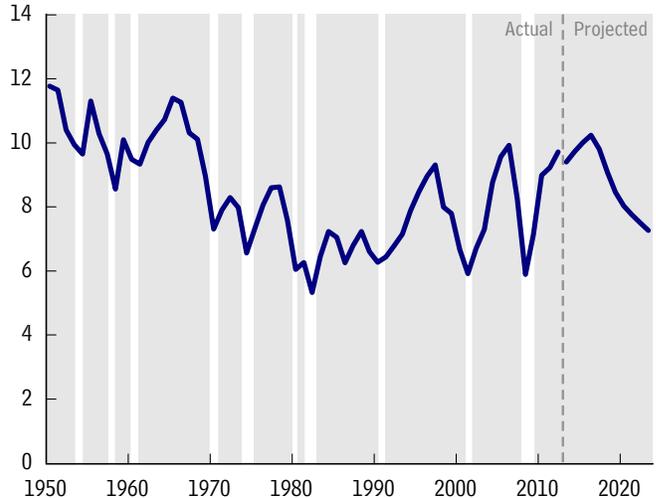
Notes: Data are annual and are plotted through 2012.

GDI = gross domestic income.

**Figure 7.**

### Domestic Corporate Profits

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

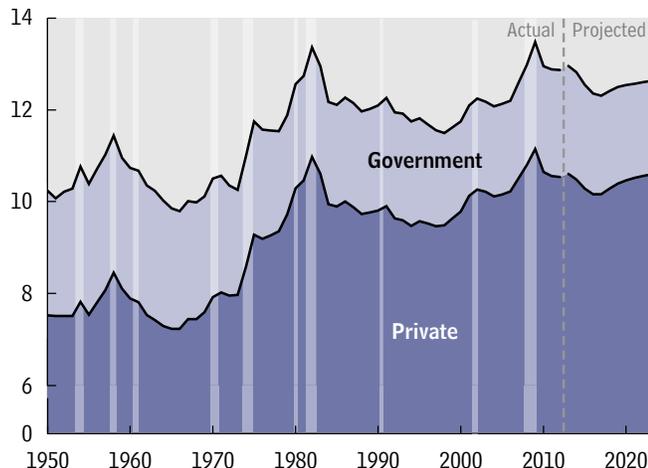
from owner-occupied residential housing, rental income from tenant-occupied property (after expenses) that is earned by individuals, and royalties from oil, gas, mineral properties, copyrights, and patents. Because the NIPAs treat owner-occupied housing as rental businesses, homeowners are viewed as renting to themselves. BEA imputes a value for the services of owner-occupied housing based on the rents charged for similar tenant-occupied housing.<sup>25</sup>

Imputed net rental income represents the largest component of rental income, averaging roughly 63 percent of total rental and royalty income, or 1 percent of GDI, between 1991 and 2011. That imputed net rental income is recorded in the NIPAs as the difference between the value generated from housing services and expenses such as mortgage interest, maintenance and repairs, property insurance premiums, property taxes, and depreciation. (Higher mortgage interest rates reduce imputed net rental

25. For more on how BEA treats owner-occupied housing in the NIPAs, see Nicole Mayerhauser and Marshall Reinsdorf, *Housing Services in the National Economic Accounts* (Bureau of Economic Analysis, September 2007), [www.bea.gov/papers](http://www.bea.gov/papers).

**Figure 8.**  
**Consumption of Fixed Capital**

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Notes: Consumption of fixed capital measures the decline in the value of fixed capital attributable to wear, obsolescence, and damage.

Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

income but increase net interest income.) Rental income on tenant-occupied property averaged roughly 29 percent of total rental and royalty income, or 0.5 percent of GDI, between 1991 and 2011. Royalty income, the smallest component of the rental and royalty income category, averaged roughly 8 percent of total rental and royalty income, or 0.1 percent of GDI, between 1991 and 2011; royalties depend primarily on the price of crude oil.

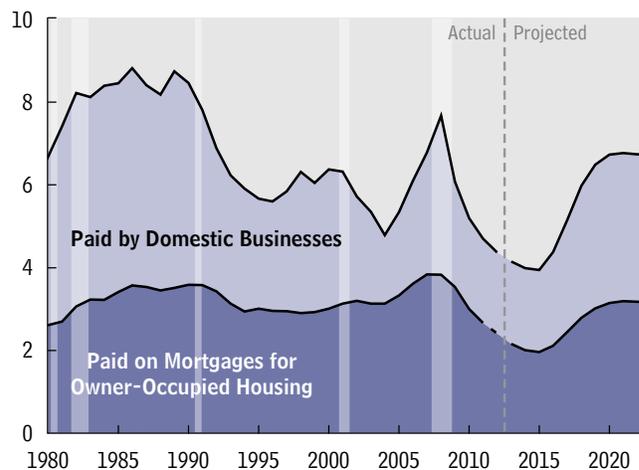
The rental and royalty income share of GDI fell from an average of 3.0 percent between 1950 and 1970 to an average of 1.2 percent between 1971 and 1990, driven by the declining value of imputed rental income of owner-occupied housing (see Figure 10). Over the next two decades, that trend reversed, and the rental and royalty income share of GDI rose to an average of 1.9 percent between 1991 and 2012. Imputed rental income declined sharply as a share of GDI between 2001 and 2007—probably driven by the increase in net mortgage interest payments associated with the increase in mortgage debt over the housing boom—but it has since recovered; in 2011, imputed rental income was 1.9 percent of GDI.

Rental income on tenant-occupied housing also experienced a decline between 2001 and 2007 followed by a sharp recovery, albeit at a lesser magnitude.

**Net Business Transfer Payments.** Net business transfer payments, also a small share of capital income, are payments (net of receipts) made by businesses to individuals, governments, and foreign entities for which no goods are provided or current services are performed. They represent business expenses, like economic depreciation and net interest payments, and profits would have been higher had those expenses not been incurred. Business transfer payments to persons include payments generated by litigation and insurance settlements; those paid to governments include fines and deposit insurance premiums; and those paid to the rest of the world—after subtracting similar receipts from the rest of the world—consist of insurance settlements paid to policyholders. Total business transfer payments have gradually risen as a share

**Figure 9.**  
**Net Interest Paid by Businesses to U.S. Residents**

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. For net interest paid on mortgages for owner-occupied housing, actual data are plotted through 2011; because data for 2012 are not yet available, CBO's estimate is shown. For total net interest paid by domestic businesses, actual data are plotted through 2012. Projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

of GDI since 1950; they increased from 0.4 percent of GDI, on average, between 1950 and 1980 to an average of 0.7 percent of GDI between 1981 and 2012 (see Figure 11).

**Other Categories of GDI**

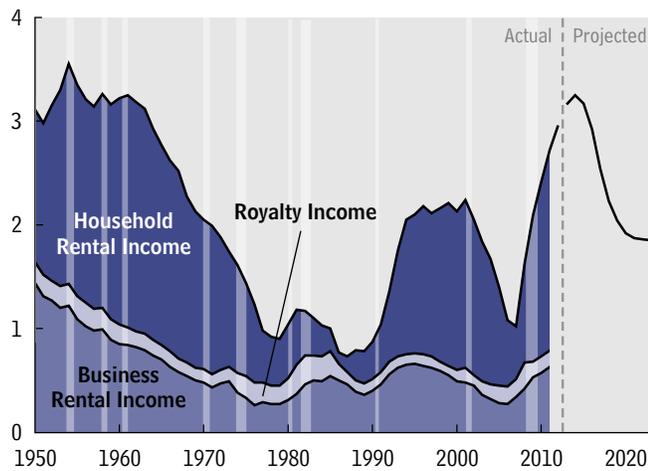
The two remaining income categories are distinctive in that they are not attributed either to labor income or to capital income. The first, taxes on production and imports minus government subsidies, is fairly large, whereas the other, surpluses of government-owned enterprises, is quite small.

**Taxes on Production and Imports by Federal, State, and Local Governments, Minus Subsidies.** Taxes levied on sales of newly produced goods and services create a wedge between the proceeds from the sale of goods and services and the income paid out to labor and capital. Government subsidies are transfers to businesses or government-owned enterprises at another level of government and

**Figure 10.**

**Rental and Royalty Income of Persons**

(Percentage of gross domestic income)



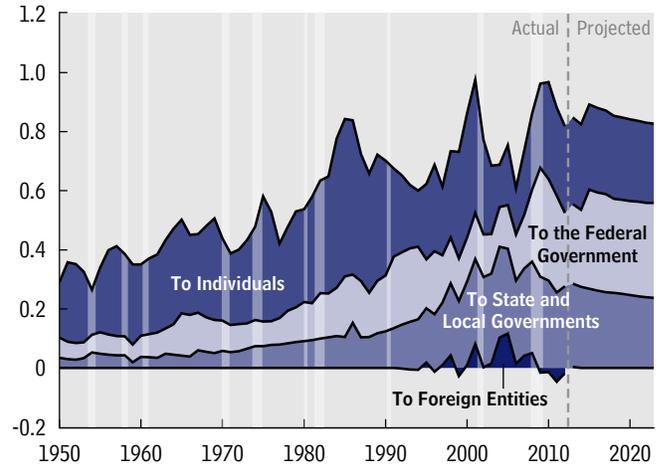
Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. For royalties, household rental income, and business rental income, actual data are plotted through 2011. For rental and royalty income of persons, actual data are plotted through 2012, and projections are plotted through 2023. CBO does not project the individual components of rental and royalty income of persons. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

**Figure 11.**

**Net Business Transfer Payments**

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

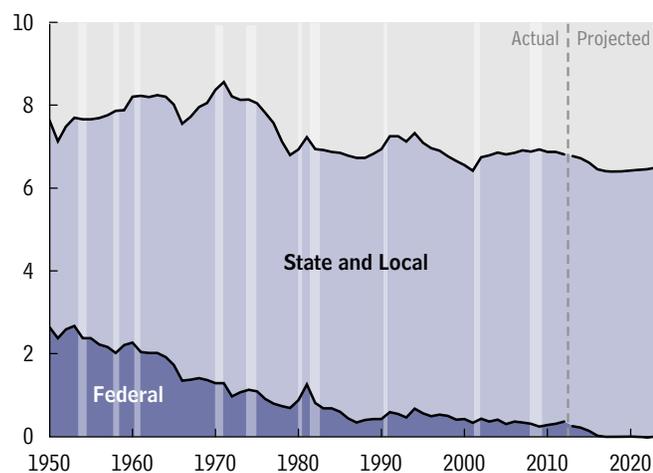
thus are equivalent to a negative tax on production. For that reason, the NIPAs treat subsidies as a subtraction from taxes on production and imports. After subtracting government subsidies, taxes on production and imports (also known as indirect business taxes) by federal, state, and local governments rose from 7.7 percent of GDI in 1950 to 8.6 percent of GDI in 1971 and then fell sharply during the 1970s; since 1980, those taxes (minus subsidies) have remained roughly constant at a little under 7 percent of GDI (see Figure 12).

Most of the taxes collected on production are levied at the state and local levels. Those state and local taxes amounted to 6.5 percent of GDI in 2012, and they include sales taxes, property taxes, motor vehicle licenses, severance taxes, and special assessments.<sup>26</sup> Those imposed at the federal level consist of excise taxes (including highway, airport, and tobacco taxes) and customs duties and were 0.7 percent of GDI in 2012.

26. Although property taxes are included with taxes on production and imports as a NIPA convention, they could be viewed as capital income (as are business transfer payments).

**Figure 12.**  
**Taxes on Production and Imports**  
**Minus Government Subsidies, by**  
**Level of Government**

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

Federal subsidies make up more than 99 percent of all government subsidies and consist primarily of agricultural subsidies (such as direct payments to farmers), housing subsidies (such as rental assistance for low-income households), and transportation subsidies (such as support for Amtrak). Since 1959, federal government subsidies have averaged roughly 0.4 percent of GDI, while state and local subsidies have averaged less than 0.01 percent of GDI.<sup>27</sup>

**Surpluses of Federal, State, and Local Government-Owned Enterprises.** This category of income to federal, state, and local enterprises parallels profits of private businesses. At the federal level, enterprises include the Postal Service, Federal Housing Administration (FHA), Tennessee Valley Authority, Bonneville Power Administration and other electric power agencies, and various insurance enterprises such as the National Flood

Insurance Program. Enterprises at the state and local level include utilities, transportation, port and toll facilities, parking structures, state-owned liquor stores, and lotteries. Since the 1960s, state and local enterprises have most often generated net surpluses, averaging slightly less than 0.1 percent of GDI and ranging from surpluses of about 0.3 percent of GDI (in the mid-1960s) to deficits as large as 0.1 percent of GDI (in 1981). Over the same period, federally owned enterprises have most often generated deficits, averaging less than 0.1 percent of GDI and ranging from 0.2 percent of GDI in the mid-1970s to approximate balance between 1990 and 2010.<sup>28</sup> Since then, those deficits have risen substantially, owing primarily to losses incurred by the FHA as a consequence of the recent housing crisis (see Figure 13).

**Net Income From the Rest of the World**

Net income from the rest of the world, which is included in GNI but not in GDI, consists of net wage and salary income from abroad plus net investment income from abroad. Historically, income earned by U.S. residents on their investments abroad has accounted for virtually all of the inflow of income from abroad, while the income earned by foreign residents on their investments in the United States has accounted for only a slightly smaller share of outflows of income.<sup>29</sup> BEA separates investment income into two categories for both U.S. and foreign residents: income earned from direct investment and income earned from portfolio investments such as stocks, interest-bearing securities (government and private), and other financial assets such as bank deposits and mortgage-backed securities.<sup>30</sup>

Years of large deficits in the U.S. current account have resulted in a significant increase in foreign-owned assets in the United States relative to U.S.-owned assets

28. The data series for surpluses of federally owned enterprises does not extend back before 1959.

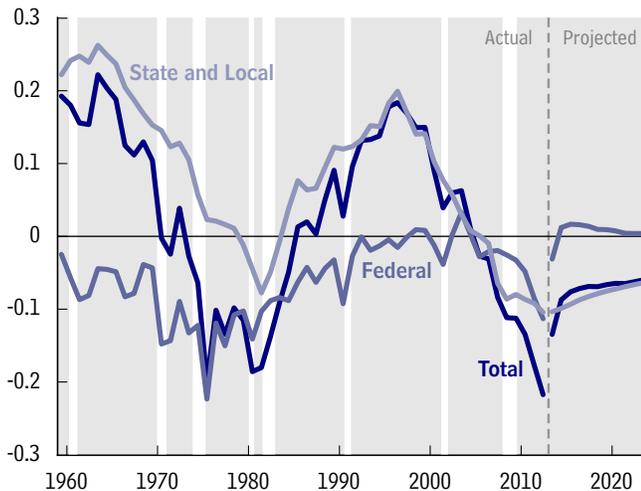
29. Net labor income from the rest of the world represents a small portion of GDI (about 0.05 percent in 2012).

30. BEA defines direct investment as U.S. investors' ownership of a foreign business that equals or exceeds 10 percent of the value of that business. Foreign direct investment in the United States follows a similar convention. For further details, see Bureau of Economic Analysis, *The Balance of Payments of the United States: Concepts, Data Sources, and Estimating Procedures* (May 1990), [www.bea.gov/scb/pdf/internat/bpa/meth/bopmp.pdf](http://www.bea.gov/scb/pdf/internat/bpa/meth/bopmp.pdf).

27. The data series for government subsidies does not extend back before 1959.

**Figure 13.**  
**Surpluses of Government-Owned Enterprises, by Level of Government**

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

abroad.<sup>31</sup> That gap has not widened as much as the accumulated sum of U.S. current-account deficits because in some years, U.S.-owned assets gained more from changes in asset prices and the exchange rate than did foreign-owned assets in the United States. Nevertheless, the net international investment position of the United States—the gap between U.S.-owned assets abroad and foreign-owned assets in this country—dropped from near zero in 1985 to about -25 percent of GDI in 2012.

U.S. residents have persistently earned more investment income on their assets abroad than foreigners have earned on their assets in the United States, even though foreigners appear to own more assets in the United States than U.S. residents own abroad (see Figure 14). In one view, that conjunction of the United States' positive balance on

net investment income from abroad and its negative net foreign asset position stems from a higher rate of return earned by U.S. investors. In another view, that conjunction arises because the value of U.S. assets abroad is understated; in that view, if the assets were correctly measured, U.S. assets abroad might exceed foreign assets in the United States. The missing assets themselves have been dubbed “dark matter” to reflect the difficulty of measuring them. CBO’s method for projecting net investment income from the rest of the world reflects the agency’s recognition of that measurement difficulty.<sup>32</sup>

### Projecting Income and Its Components

CBO projects various measures of income in the course of generating projections for the federal budget and the economy as a whole. CBO’s baseline projections build on the assumption that fiscal policy generally follows current law. Those projections span a 10-year horizon, which includes a near term, corresponding to the current business cycle, and a medium term, the remainder of the 10-year period. (In the medium term, CBO projects output to equal its estimate of potential output because the agency does not attempt to project future business cycles.) CBO projects the components of GDI in the near term using the agency’s projections of GDP and other economic measures that vary over the business cycle (such as employment, wage rates, and productivity growth).<sup>33</sup> In the medium term, CBO projects that the labor and capital shares of GDI reach particular levels

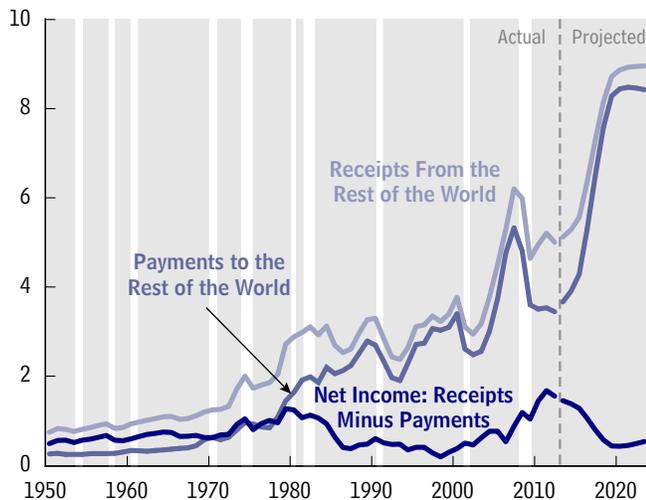
32. For a discussion of dark matter, see Ricardo Hausmann and Federico Sturzenegger, *U.S. and Global Imbalances: Can Dark Matter Prevent a Big Bang?* (Center for International Development, Harvard University, November 2005), [www.cid.harvard.edu/cidpublications/darkmatter\\_051130.pdf](http://www.cid.harvard.edu/cidpublications/darkmatter_051130.pdf). For an analysis of U.S. net investment income, including a review of the prevailing hypotheses, see Juann H. Hung and Angelo Mascaro, *Return on Cross-Border Investment: Why Does U.S. Investment Abroad Do Better?* Technical Paper 2004-17 (Congressional Budget Office, December 2004), [www.cbo.gov/publication/16204](http://www.cbo.gov/publication/16204). 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 2005), [www.cbo.gov/publication/17504](http://www.cbo.gov/publication/17504).

31. When the United States runs a current-account deficit, its residents spend more than they earn. To pay for that extra spending, the nation must borrow from foreigners or sell them some assets; that is, Americans have to reduce their holdings of assets abroad or allow foreigners to increase their holdings of assets in the United States.

33. CBO projects that the statistical discrepancy between GDP and GDI moves toward its historical average as a share of GDP at a rate consistent with its past behavior. In CBO’s projection in February 2013, for example, the statistical discrepancy as a share of GDP gradually reverts back to a level close to its historical average (as measured during the period from 1950 to 2011) by 2018.

**Figure 14.****Net Income From the Rest of the World**

(Percentage of gross domestic income)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Note: Data are annual. Actual data are plotted through 2012, and projections are plotted through 2023. There is a gap between the actual and projected data that reflects new data released and revisions to existing data since the projection was published in February 2013.

based on their historical behavior and adjusted for various special factors that CBO thinks are useful to incorporate. The near-term and medium-term projections of net income from the rest of the world are based on projections of the exchange rate, the current-account balance, and the federal debt.

**Projecting Labor Income As a Component of GDI**

CBO's methods for projecting labor income as a component of GDI differ for the near term and the medium term. For the near term, CBO projects the various components of labor income—wages and salaries, supplemental benefits, and the labor share of proprietors' income—on the basis of each component's business-cycle dynamics and the agency's projections of other economic measures. For example, CBO projects that the effects of the most recent recession will continue to diminish between 2013 and 2017; stronger demand for labor during that period will speed growth in employment and hourly labor compensation, both of which will, in turn, lead to faster growth in overall compensation and labor income (see Figure 3 on page 5).<sup>34</sup>

For the medium term, CBO projects the labor share on the basis of its historical pattern, taking into account any special factors that could affect labor's share over the projection period. In CBO's current projection, for example, the labor share rises with the continuing economic expansion, increasing from 59.4 percent of GDI in 2012 to 61.0 percent in 2023 but remaining below 61.5 percent, its average since 1980.<sup>35</sup> That projection reflects both the low level of the labor share since the recession began and the possibility that the effects of several factors that may have depressed the labor share in recent years (such as technological change and globalization) will not fade away. Although it is too soon to tell whether those factors have permanently lowered the labor share, CBO's projection reflects the small but growing body of evidence suggesting that the labor share of income will be lower in the future than it was, on average, in past decades.<sup>36</sup>

**Wages and Salaries.** CBO projects wages and salaries for the public and private sectors in both the near term and the medium term.

The near-term forecast for public-sector wages and salaries is based on forecasts of public-sector compensation. At the federal level, CBO generally estimates compensation for the current year on the basis of appropriations

34. See Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2013 to 2023* (February 2013), pp. 46–47, [www.cbo.gov/publication/43907](http://www.cbo.gov/publication/43907).

35. Before the recent downward trend in the labor share became apparent, CBO projected that the labor share would return to its long-run historical average as the influence of the business cycle diminished. In 1961, Nicholas Kaldor included in his list of so-called stylized facts about economic growth the notion that factor shares of national income remain constant over time; see his "Capital Accumulation and Economic Growth," in Friedrich A. Lutz and Douglas Chalmers Hague, eds., *The Theory of Capital: Proceedings of a Conference Held by the International Economic Association* (Macmillan, 1961), pp. 177–222. For the next few decades, most economists accepted Kaldor's perspective. Since the late 1990s, however, a decline in labor's share in some countries, especially within Western Europe, has increased economists' interest in the determinants of that share. See, for example, Olivier Blanchard, "The Medium Run," *Brookings Papers on Economic Activity*, no. 2 (1997), pp. 89–158, [www.brookings.edu/about/projects/bpea/past-editions](http://www.brookings.edu/about/projects/bpea/past-editions).

36. See, for example, Erik Brynjolfsson and Andrew McAfee, *Race Against the Machine: How the Digital Revolution Is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy* (Lexington, Mass.: Digital Frontier Press, 2012).

provided for such purposes; in the absence of any special restrictions on future appropriations, CBO projects that defense and nondefense compensation will grow in future years in line with measures of inflation specified in law. Because nearly all federal spending for compensation takes place through appropriation acts, which are currently subject to caps on future discretionary funding and the automatic reductions described in the Budget Control Act of 2011, CBO reduces its year-by-year extrapolation of discretionary spending to account for such constraints. For states and localities in the near term, CBO assesses the impact of their current and projected budget balances on growth in employment and average earnings, taking recent data into consideration; it also takes into account the projected growth of average hourly earnings in the private sector. Those near-term projections of public-sector compensation are then translated into near-term projections of wages and salaries for public employees on the basis of recent data and underlying trends.

The near-term forecast for private-sector wages and salaries is determined by CBO's assessment of the economy's position in the business cycle and the short-run outlook for employment, the average number of hours worked, and the growth of wage rates. CBO's projections of the growth of employment and the average number of hours worked are mainly influenced by its projection of GDP growth. The growth of wage rates is influenced by CBO's projections of the unemployment gap (the difference between the actual rate of unemployment and CBO's measure of the natural rate of unemployment), the inflation rate, and productivity growth. An increase in the unemployment gap or a decrease in the inflation rate or productivity growth generally reduces the growth of wage rates, whereas a decrease in the unemployment gap or an increase in the inflation rate or productivity growth tends to boost the growth of wage rates.

Like the near-term forecast, the medium-term forecast for public-sector wages and salaries is based on forecasts of public-sector compensation. For federal employees, CBO follows the procedures described above for the near-term forecast; for state and local government employees, the projections are based on cyclically adjusted measures of employment and earnings. CBO then divides that projected total compensation into a wage and salary component and a supplemental benefit component. The projected share of public-sector wages and salaries depends on both recent data and historical trends for the wage and salary share and its underlying determinants,

such as employment, payrolls, hourly employment costs, and hours worked. It also incorporates information from related movements in the wage share of compensation in the private sector.

The medium-term forecast for private-sector wages and salaries is constrained to achieve a medium-term target for labor income as a share of GDI. That target for labor income combined with a projection of the amount of proprietors' income assigned to labor yields a target for total compensation as a share of GDI. CBO projects that compensation as a share of GDI reaches its medium-term target value at a speed that depends on the share's current proximity to that value and on the various cyclical factors and historical dynamics mentioned above. Private-sector wages and salaries are then determined by subtracting from total compensation CBO's projections of supplemental benefits and the government component of wages and salaries.

**Supplemental Benefits.** CBO estimates the different components of supplemental benefits for the 10-year projection period using the same procedure for the near term and medium term. The projections of employers' payroll tax contributions for government social insurance programs depend on projections of the wage and salary component of employee compensation as well as proprietors' income, and they are contingent on the provisions of current law that apply to payroll taxes for social insurance.<sup>37</sup> The projections of employers' contributions to private health insurance premiums combine projections of growth in premiums per enrollee, growth in enrollment, and provisions of current law.<sup>38</sup>

Employers' payments to employee pension and profit-sharing plans include payments to both defined-contribution and defined-benefit plans. Payments to defined-contribution plans in the private sector have been relatively stable in relation to wage and salary disbursements, and CBO forecasts that both will grow at a similar pace. Projections for payments to defined-benefit plans in the private sector are based mainly on estimates of their current funding status—including the outlook for returns on assets—and projections of growth in plan participation.

37. The largest components of employers' contributions are for Social Security (Old-Age, Survivors, and Disability Insurance) and Medicare Part A, which covers hospital insurance.

38. For example, CBO's current projections of supplemental benefits incorporate the estimated effects of the Affordable Care Act.

CBO's projection of government contributions to retirement plans for public-sector employees includes projections of regular payments and projections of additional payments made to gradually eliminate unfunded obligations to defined-benefit plans. Projections of the regular payments are based on projected salaries and employment; for the federal government, separate estimates are made for military employees and for civilian employees. Estimates of the federal contributions for unfunded liabilities are based on projections from the Administration.<sup>39</sup> For states and localities, those payments are assumed to grow roughly in line with payrolls, on average, and thus are estimated together with regular payments.<sup>40</sup>

**Proprietors' Income.** Measurement of proprietors' income is hampered by the underreporting of such income on tax forms, which are BEA's source of data for that income.<sup>41</sup> BEA therefore makes a significant upward adjustment when it converts the Internal Revenue Service's measure to a NIPAs measure.<sup>42</sup> In 2010, for example, that adjustment accounted for 54.2 percent of the NIPAs measure of nonfarm proprietors' income. As more complete tax records become available, data for recent years are subject to considerable revision.

Taking such problems with data into consideration, CBO projects proprietors' income and then allocates a portion to labor income. That projection is based on recent historical data and on other information that

39. The sources for these data are, respectively, Office of Management and Budget, *Budget of the U.S. Government* (various years); and Board of Actuaries of the Civil Service Retirement and Disability Fund, *Annual Report of the Board of Actuaries of the Civil Service Retirement and Disability Fund* (Washington, D.C., various years).

40. For a discussion of the unfunded liabilities of state and local governments, see Congressional Budget Office, *The Underfunding of State and Local Pension Plans* (May 2011), [www.cbo.gov/publication/22042](http://www.cbo.gov/publication/22042).

41. The Internal Revenue Service has determined from periodic audits and other means that nonfiling and underreporting by individuals result in significant understatement of proprietors' income in tax filings. See Charles Bennett, *Preliminary Results of the National Research Program's Reporting Compliance Study of Tax Year 2001 Individual Returns* (report prepared for the 2005 Internal Revenue Service Research Conference, Washington, D.C., June 7–8, 2005), [tinyurl.com/vxkrcl](http://tinyurl.com/vxkrcl).

42. See Mark A. Ledbetter, "Comparison of BEA Estimates of Personal Income and IRS Estimates of Adjusted Gross Income: New Estimates for 2005, Revised Estimates for 2004," *Survey of Current Business*, vol. 87, no. 11 (November 2007), pp. 35–41, [www.bea.gov/scb/toc/1107cont.htm](http://www.bea.gov/scb/toc/1107cont.htm).

suggests whether proprietors' income will grow or shrink relative to GDI in the future. In projecting proprietors' income for the near term, CBO considers the growth in the number of self-employed workers, the average labor income of self-employed workers relative to the average labor income of employed workers, and the sectoral composition of proprietors' income. (For CBO's projection of proprietors' income in the farm and nonfarm business sectors, see Figure 5 on page 8.) In the medium term, CBO projects proprietors' income by analyzing its historical share of GDI. Although that share plunged during the recent recession, it has displayed an upward trend since 1981, and CBO projects that it will continue to rise in the medium term. In both the near term and the medium term, the proportion of proprietors' income that CBO assigns to labor income equals employees' compensation as a share of the difference between GDI and proprietors' income.

### Projecting Capital Income As a Component of GDI

CBO determines capital income as a component of GDI in the near term and the medium term by projecting the individual components of capital income. For example, CBO's projection of business interest payments depends on a number of factors, including the current level of corporate indebtedness and the agency's projection of the interest rate on corporate debt. In addition, capital income includes the portion of projected proprietors' income not allocated to labor income. With the exception of corporate profits, CBO uses the same procedures for projecting capital income in the near term and medium term because the other components of capital income are usually not heavily influenced by business-cycle fluctuations.

For CBO's projections of the various categories of income to be consistent with one another, the sum of the projected components of nonlabor income relative to GDI—which consists primarily of the capital share of GDI—must vary inversely with the projected labor share. In its forecast process, CBO usually adjusts the projected components of capital income to ensure that this condition is satisfied. In the agency's most recent forecast, the capital share is projected to decline between 2012 and 2023, mirroring the increase in the labor share.

**Domestic Corporate Profits.** CBO's projection of domestic corporate profits depends on its projection of the strength of overall economic activity as well as its projections of the various business expenses that corporations incur in the course of their operations. The projection of

profits in the near term is heavily influenced by the business cycle: Profits typically rise sharply as a share of GDI during business-cycle recoveries and fall during the latter stages of expansions and in recessions. In addition, in the near term and in the medium term, profits and business expenses such as interest payments and wages are inversely related as shares of GDI. In CBO's current projection, domestic corporate profits, which surged during the recovery from the recent recession, remain elevated in the near term and then decline after 2016 (see Figure 7 on page 10).

**Consumption of Fixed Capital.** CBO's projection of capital consumption (the decline in the value of the stock of assets attributable to wear, obsolescence, and damage) reflects its projections of the individual components of investment, the levels of the corresponding real (inflation-adjusted) capital stocks, the depreciation rates for the stocks, and the prices of the respective investment goods over the projection period. To project capital consumption for the private sector, the government, and the economy overall, CBO multiplies each capital stock projection, converted to nominal values by the price projections, by its depreciation rate and adds up the resulting values for the individual components. In CBO's current projection, depreciation falls slightly, on balance, as a share of GDI between 2012 and 2023 largely because government depreciation grows more slowly than GDI during that period (see Figure 8 on page 11). Private depreciation is fairly stable as a share of GDI in the projection period, reflecting CBO's view that the long-standing shift in the composition of the capital investment toward computers and other information-technology goods with relatively short service lives will not go much further.

**Net Interest Payments by Domestic Businesses.** CBO projects two broad components of net interest payments by domestic businesses: net interest payments by private businesses (excluding homeowners) and net interest payments on mortgages for owner-occupied housing (see Figure 9 on page 11 for CBO's current projection of net interest payments).

The projection of business interest payments depends mainly on the current level of corporate indebtedness and CBO's projection of the effective interest rate on corporate debt, along with the projected corporate financing gap, which measures corporations' need for external funds. In CBO's forecast, the measure of corporate

indebtedness is the outstanding debt among nonfinancial corporations, as measured by the Federal Reserve's flow of funds accounts. The effective interest rate is defined as the ratio of interest payments to that measure of business indebtedness and is projected on the basis of various interest rates forecasted by CBO. The corporate financing gap is the difference between corporate investment in nonresidential fixed assets and inventories and corporate cash flow (retained earnings plus a provision for depreciation). A positive corporate financing gap indicates investment in excess of cash flow, thereby causing businesses to increase their indebtedness. The reverse holds for a negative corporate financing gap.

CBO's forecast of net mortgage interest payments depends on its forecasts of outstanding mortgage debt and the effective interest rate on that debt. CBO's forecast of outstanding mortgage debt relies on CBO's projections of the change in mortgage debt and interest rates. The change in mortgage debt arises from originations of new mortgages for the purchase of new and existing homes as well as the amortization, prepayment, write-down, and refinancing of existing mortgages. The forecast of the effective interest rate on mortgage debt relies on a combination of various interest rates forecasted by CBO.

**Rental and Royalty Income of Persons.** CBO derives its forecast of rental and royalty income from the projected path of a subset of housing-related expenses. (For CBO's current projection of rental and royalty income, see Figure 10 on page 12.) Those expenses include rental income, net mortgage interest payments on owner-occupied housing, and consumption of fixed residential capital.<sup>43</sup> CBO projects that the sum of those expenses will grow at roughly the same rate as consumption (which equals output) of housing services in personal consumption expenditures. To obtain the forecast of rental and royalty income, CBO subtracts from that sum its projections of net mortgage interest payments on owner-occupied housing and consumption of fixed residential capital.

**Net Business Transfer Payments.** CBO projects each component of business transfer payments (payments to

43. CBO estimates that, in 2012, rental income, mortgage interest payments on owner-occupied housing, and consumption of fixed residential capital accounted for roughly 28 percent, 23 percent, and 16 percent of housing output, respectively.

individuals, governments, and foreign entities), which depend on the underlying strength of economic activity and, in some cases, on government policies. In CBO's most recent forecast, those projections result in a roughly stable relationship between business transfer payments and GDI over the next decade (see Figure 11 on page 12). CBO projects that business transfers to individuals will continue their modest decline as a share of GDI since 1985. CBO's projection of transfers to state and local governments also falls modestly as a share of GDI over the projection period. In contrast, transfers to the federal government are projected to increase as a share of GDI over the 10-year period, owing largely to fees associated with the Affordable Care Act.<sup>44</sup> Because business transfer payments to foreign entities have historically been a very small share of GDI and have been negative since 2009 (indicating that transfer payments to domestic businesses from foreign entities have exceeded payments in the other direction), CBO projects that the value of such transfers will be zero throughout the projection period.

### Projecting Other Categories of GDI

Projections of taxes on production and imports are based on projections of production and spending, and the portion of such taxes that is federal tax receipts enters directly into CBO's projection of total federal revenues. About half of federal excise taxes come from highway taxes, which are projected mainly on the basis of forecasts of motor fuel use. Projections of other federal excise taxes, including airport, alcohol, and tobacco taxes, are based on forecasts of production of the underlying goods and services. Projections of federal customs duties are based on projections of imports. For projections of state and local taxes on production (such as sales taxes), CBO forecasts that such taxes rise and fall with growth in the nominal value of private spending on goods and services.

CBO projects both federal subsidies, which constitute the vast majority of government subsidies, and state and local subsidies. CBO's projection of federal subsidies enters directly into its projection of total federal outlays. The agency considers individual program areas separately,

taking into account past and projected economic developments that affect the size and composition of federal subsidies under existing laws. CBO's projection of state and local subsidies is based on recent history as well as an analysis of current developments and other special factors. (See Figure 12 on page 13 for CBO's current projections of taxes on production and imports minus government subsidies.)

CBO also projects the surpluses of both federally owned enterprises and state and local enterprises. CBO's projections of federally owned enterprises are based on aspects of overall economic activity that affect their net receipts (for example, the state of the business cycle informs revenue projections for the Postal Service) as well as on other factors such as rates charged for services. Projections of the surpluses of state and local enterprises are based mainly on overall economic activity. (For CBO's current projection of surpluses of government-owned enterprises, see Figure 13 on page 14.)

### Projecting Net Income From the Rest of the World

Net income from the rest of the world is projected as the difference between income earned by domestic investors from assets held in the rest of the world and income payments to foreign investors holding assets in the United States. (CBO does not project net labor income because it accounts for a very small share of income—in 2012, for example, wages and salaries earned by U.S. residents abroad were less than 1 percent of all income receipts from abroad.) Income receipts from the rest of the world are the product of CBO's projections of U.S.-owned assets abroad and the rate of return on those assets. Income payments to the rest of the world are the product of CBO's projections of foreign-owned assets in the United States and the rate of return on those assets. The near-term and medium-term projections of the level and composition of U.S.-owned and foreign-owned assets are based on projections of the exchange rate, the current-account balance, and the federal debt.

CBO's approach to projecting rates of return differs by asset category. CBO considers foreign holdings of U.S. Treasury debt separately from foreign holdings of other assets, including both portfolio and direct investments, while it jointly considers all U.S.-owned portfolio and direct investments held in other countries. CBO's projection of the rate of return on aggregate foreign holdings of Treasury debt is based on historical patterns in the returns on that debt and CBO's forecast of interest rates

44. For an analysis of the Affordable Care Act, see the statement of Douglas W. Elmendorf, Director, Congressional Budget Office, before the Subcommittee on Health, Committee on Energy and Commerce, U.S. House of Representatives, *CBO's Analysis of the Major Health Care Legislation Enacted in March 2010* (March 2011), [www.cbo.gov/publication/22077](http://www.cbo.gov/publication/22077).

on Treasury debt over the projection period. CBO's projection of the rate of return on foreign holdings of other U.S. assets is based on historical patterns in that return relative to Treasury rates. CBO's projection of the rate of return on U.S.-owned assets held abroad equals the rate of return on foreign-owned assets in this country plus a positive spread reflecting an expected gap between those rates. Historically, that spread has varied over a fairly narrow range and is projected to remain close to its historical average over the forecast period.

In CBO's current projection, net income from the rest of the world falls as a share of GDI between 2012 and 2023 as income payments to foreign investors rise faster than income receipts from abroad (see Figure 14 on page 15). That decrease reflects a widening gap between the projected stock of foreign-owned U.S. assets and the projected stock of U.S.-owned foreign assets as well as an increase in domestic rates of return that raises payments to foreign investors by more than income earned abroad by U.S. investors.

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## About This Document

The Congressional Budget Office's (CBO's) reports on the outlook for the federal budget and 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 projects federal receipts and outlays. Federal receipts are composed largely of taxes collected on individual and business income, including the payroll taxes collected for Social Security and Medicare. Federal outlays also depend, in part, on individual and business income because the spending amounts for many federal programs, such as Social Security, are affected by income levels. This report, which is part of the agency's ongoing efforts to make its analysis transparent, explains the methods that CBO uses to project various categories of income. In keeping with CBO's mandate to provide objective, impartial analysis, this report makes no recommendations.

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