CBO

Projected Changes in the Distribution of Household Income, 2016 to 2021

Percent

Before Transfers and Taxes   **After Transfers and Taxes**

Average Annual Growth in Inflation-Adjusted Household Income, 2016 to 2021

DECEMBER 2019

At a Glance

The Congressional Budget Office regularly analyzes the distribution of income in the United States and how that distribution has changed over time. Building on those past analyses, this report presents CBO's projections of the distributions of household income, means-tested transfers, and federal taxes in 2021 (under current law and measured in 2016 dollars) and compares them with the actual distributions in 2016 (the most recent year for which data were available when this analysis was conducted).

- **Income.** Adjusted for inflation, average household income *before* means-tested transfers and federal taxes increases for all income groups between 2016 and 2021 in CBO's projections; the highest and lowest quintiles (or fifths) of the income distribution experience the largest percentage increases. Average household income *after* transfers and taxes also increases over the period, but that growth is more skewed toward higher-income households than growth in income before transfers and taxes.

- **Means-Tested Transfers.** The ratio of means-tested transfers to income before taxes and transfers decreases between 2016 and 2021 in CBO's projections. Lower-income households, which receive most means-tested transfers, experience the greatest percentage-point decreases in transfer rates. Those changes are largely attributable to income growth at the bottom of the distribution, which pushes some people's income above the eligibility thresholds for transfers.

- **Federal Taxes.** In CBO's projections, all income groups' average federal tax rates are lower in 2021 than they were in 2016; the largest percentage-point decreases are in the highest-income households' rates. Income growth pushes more household income into higher tax brackets, thereby increasing average tax rates, but that effect is more than offset by reductions in taxes stemming from the 2017 tax act.

- **Income Inequality.** Income before transfers and taxes is projected to be less evenly distributed in 2021 than it was in 2016. Together, means-tested transfers and federal taxes work to reduce income inequality. The reduction in inequality stemming from transfers and taxes is projected to be smaller in 2021 than it was in 2016.

This analysis relies on comprehensive data on household income, taxes, and transfers in 2016. CBO projected that data forward to 2021 to be consistent with the baseline projections reported in *An Update to the Budget and Economic Outlook: 2019 to 2029* (August 2019).

Contents

Notes

Numbers in the text, tables, and figures may not add up to totals because of rounding. Dollar amounts are generally rounded to the nearest hundred.

All years referred to in this report are calendar years.

All dollar amounts are in 2016 dollars. To convert amounts, the Congressional Budget Office used the Bureau of Economic Analysis's price index for personal consumption expenditures for past years and CBO's projections of that index for future years.

The projections in this analysis reflect CBO's economic forecast and budget projections as published in *An Update to the Budget and Economic Outlook: 2019 to 2029* (August 2019). That report was based on information available to the agency as of July 25, 2019. The effects of legislation enacted after that date are not incorporated in the projections.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

Some of the figures have shaded vertical bars that indicate the duration of recessions. (A recession extends from the peak of a business cycle to its trough.)

Specific colors have been used to represent certain income concepts in the figures: Green denotes income before transfers and taxes, blue denotes means-tested transfers, orange denotes federal taxes, and purple denotes income after transfers and taxes.

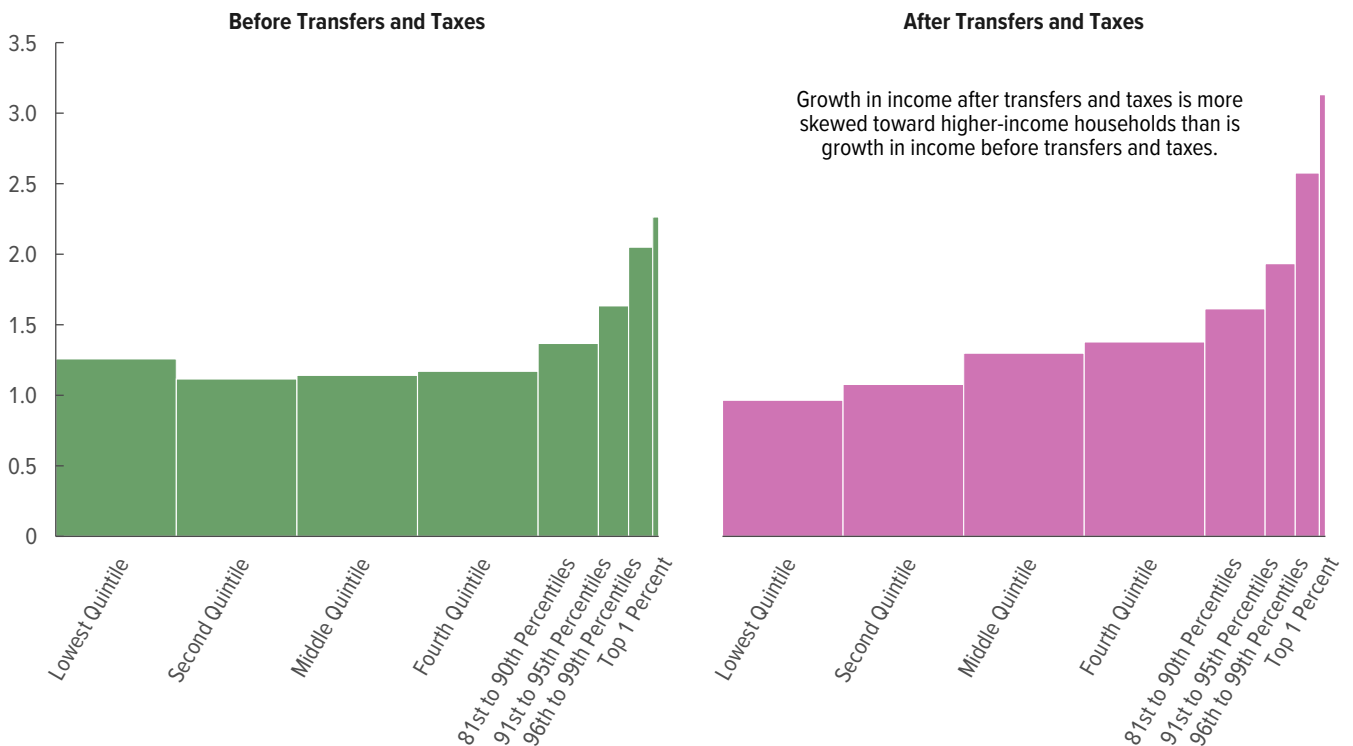# Projected Changes in the Distribution of Household Income, 2016 to 2021

Visual Summary

In this report, the Congressional Budget Office builds on its past analyses of the distribution of household income in the United States by projecting what that distribution would look like in 2021 under current law and comparing those projections with the actual distribution in 2016. In particular, this analysis focuses on how two factors—means-tested transfers and federal taxes—affect the distribution of income. Means-tested transfers are cash payments and in-kind benefits from federal, state, and local governments that are designed to provide assistance to individuals and families with low income and few assets. Such transfers include benefits provided through programs such as Medicaid and the Supplemental Nutrition Assistance Program (SNAP) but not social insurance benefits, such as Social Security and Medicare. Federal taxes consist of individual income taxes, payroll taxes, corporate income taxes, and excise taxes.

Average Household Income

Average inflation-adjusted household income is projected to grow for all groups. Growth in average income—both before and after means-tested transfers and federal taxes are accounted for—is projected to be fastest for households in the highest quintile (or fifth) of the income distribution.

Projected Average Annual Growth in Average Inflation-Adjusted Household Income, 2016 to 2021
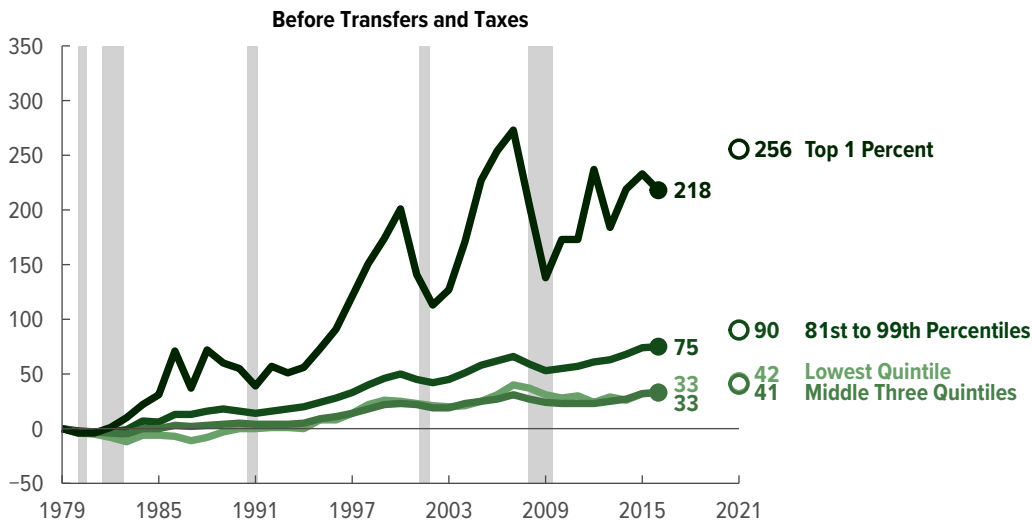Percent

Growth in income after transfers and taxes is more skewed toward higher-income households than is growth in income before transfers and taxes.

*See Figure 1 on page 8 and Figure 2 on page 13*

Cumulative Income Growth

Growth in income *before* transfers and taxes is generally slower than growth in income *after* transfers and taxes. That pattern reflects rising means-tested transfer rates and decreasing federal tax rates from 1979 (the first year for which data are available) to 2016.

Cumulative Growth of Average Inflation-Adjusted Household Income Since 1979
Percent

Before Transfers and Taxes

In CBO's projections, the average income of households in the top 1 percent grows more than that of other households from 2016 to 2021. That group's average income in 2021 falls just short of the peak it reached in 2007, before the most recent recession began.
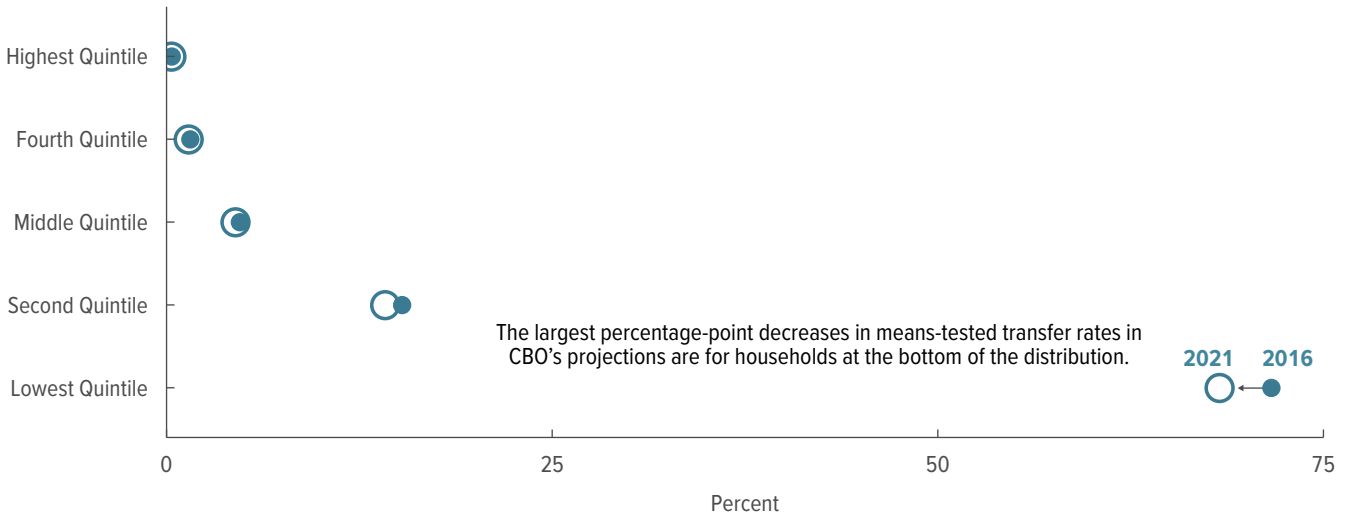
After Transfers and Taxes
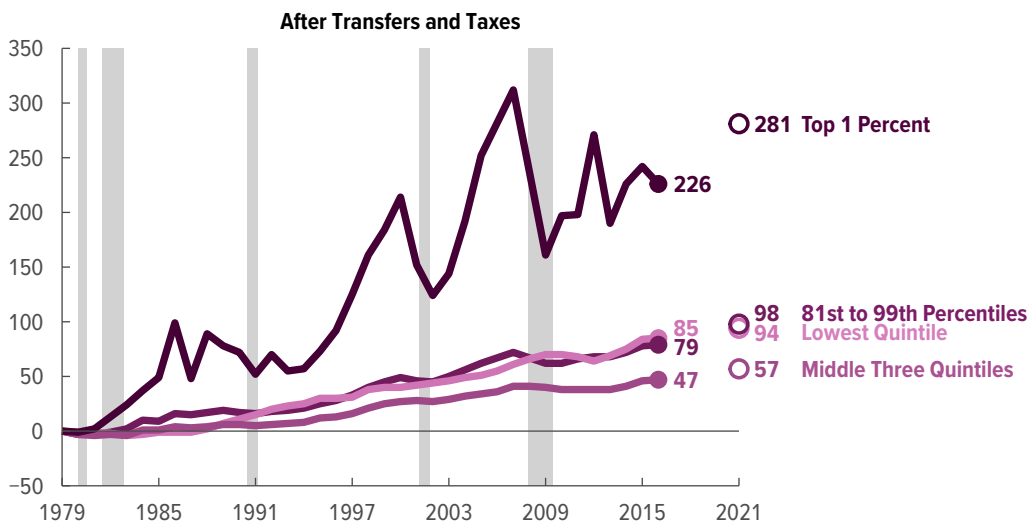
The income of households in the bottom 99 percent of the distribution is projected to be higher, on average, than it has been at any point since 1979, the first year covered in this analysis.

See Figure 4 on page 15

Means-Tested Transfers

Means-tested transfer rates—that is, the ratio of means-tested transfers to income before transfers and taxes—are projected to fall for all income groups from 2016 to 2021.

Average Means-Tested Transfer Rates, 2016 and 2021

The largest percentage-point decreases in means-tested transfer rates in CBO's projections are for households at the bottom of the distribution.

2021   **2016**

See Figure 5 on page 20

Average Means-Tested Transfer Rates Since 1979
Percent

○ 68 **Lowest Quintile**

○ 14 **Second Quintile**

○ 4   **Middle Quintile**
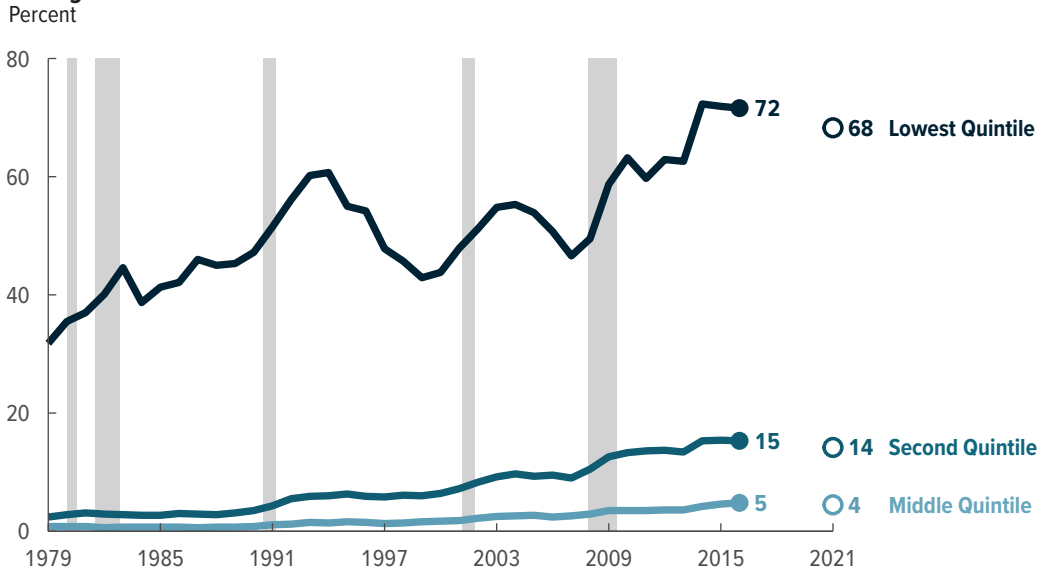
After rising in the mid-2010s, means-tested transfer rates—particularly those for households in the lowest quintile—are projected to fall as average income rises and fewer people qualify for transfers.

See Figure 7 on page 23

Federal Taxes

Average federal tax rates—that is, the ratio of federal taxes to income before transfers and taxes—are also projected to fall across the distribution from 2016 to 2021.

Average Federal Tax Rates, 2016 and 2021

Within the Highest Quintile
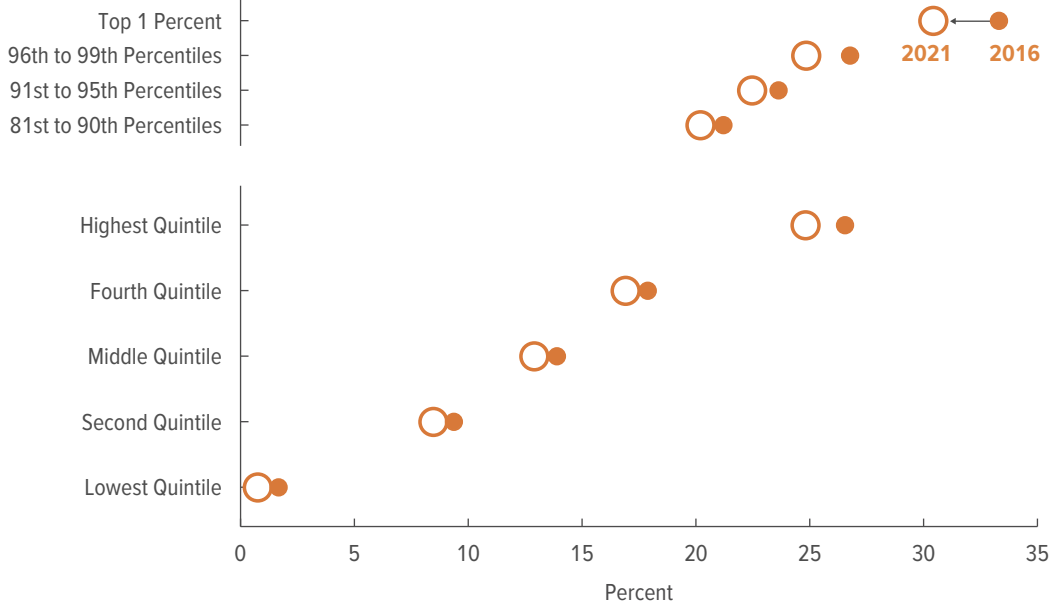
The highest-income households are projected to experience the largest percentage-point decreases in average federal tax rates.

Average Federal Tax Rates Since 1979
Percent

After increasing in the mid-2010s, average federal tax rates are projected to decrease for households in all income groups.

Income Inequality   Means-tested transfers and federal taxes reduce income inequality. But the reduction in inequality attributable to them varies from year to year according to changes in means-tested transfer rates and tax rates.

Income Inequality, as Measured by the Gini Coefficient, Since 1979
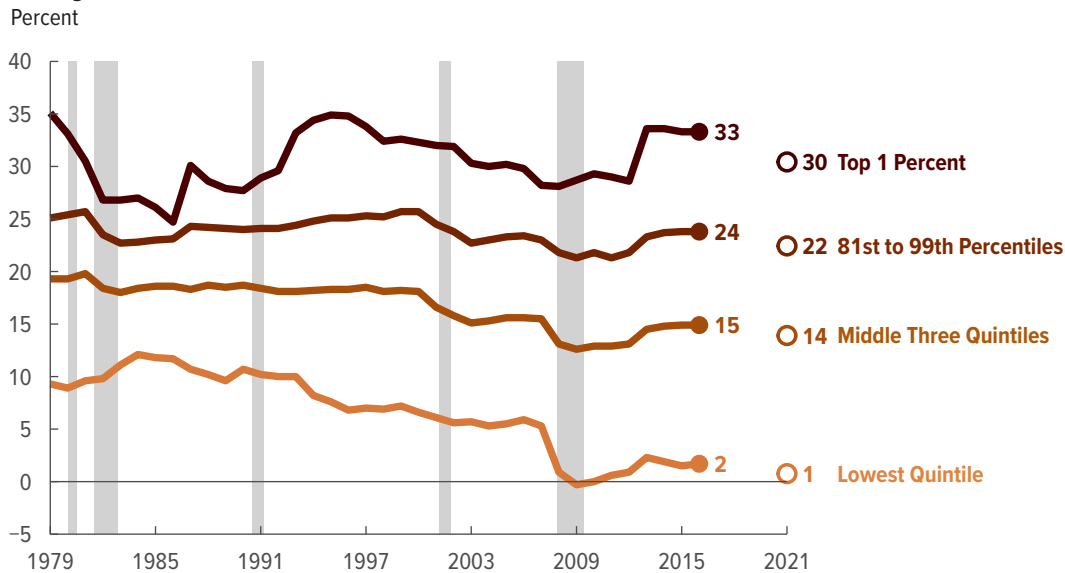Gini Coefficient (0 = lowest inequality, 1.0 = highest inequality)
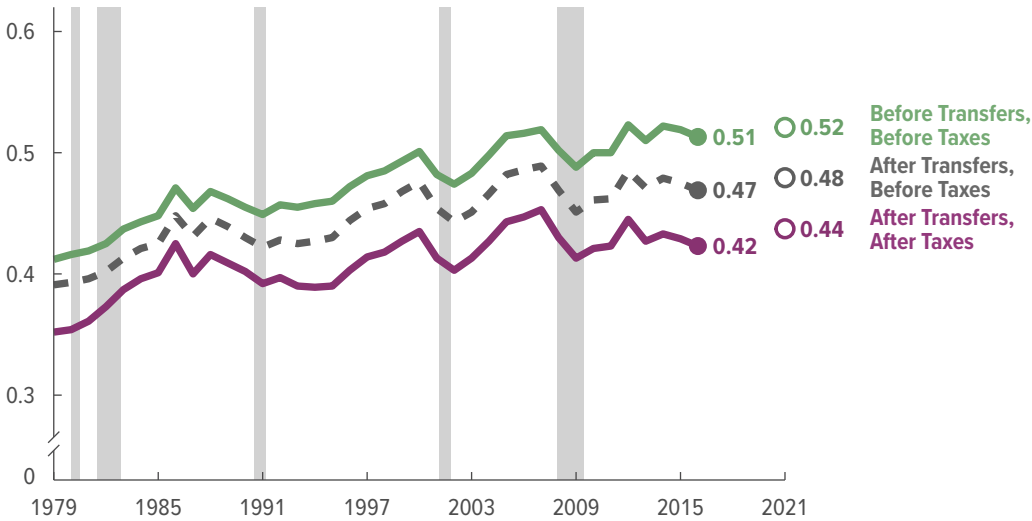
In CBO's projections, income is distributed less equally in 2021 than it was in 2016, though transfers and taxes still reduce inequality.

See Figure 8 on page 24

Reduction in Income Inequality Stemming From Means-Tested Transfers and Federal Taxes Since 1979
Change in Gini Coefficient
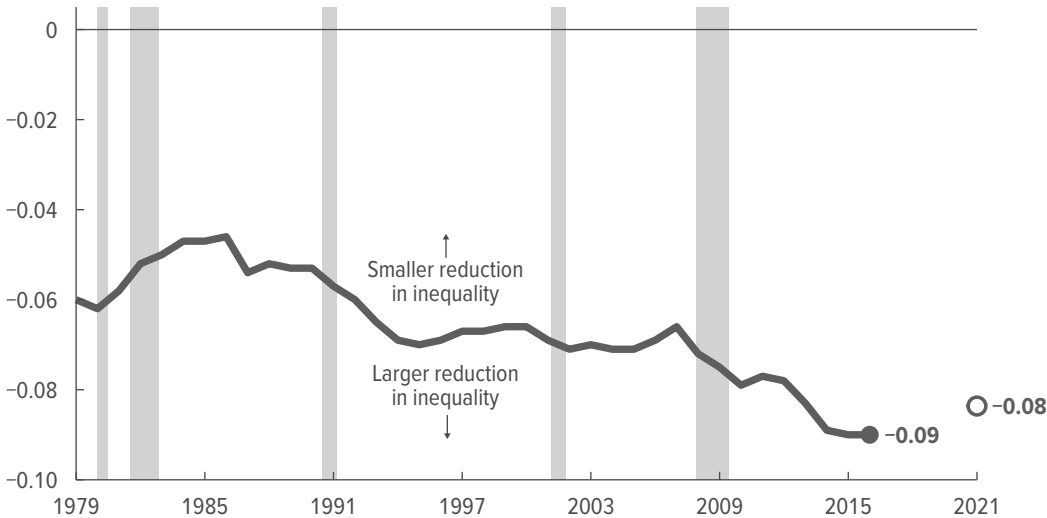
The reduction in inequality attributable to transfers and taxes is projected to be smaller in 2021 than it was in 2016.

See Figure 9 on page 25

Background

CBO regularly reports the income distribution in the latest year for which comprehensive income data are available.[1] Building on the agency's framework for distributional analysis, in this report CBO projects the distribution of household income in a future year, 2021, and compares that distribution with the actual distribution of income in 2016, the most recent year for which data were available when this analysis was begun in late 2018. In particular, this analysis examines the ways in which means-tested transfers and federal taxes would, under current law, alter the distribution of household income between 2016 and 2021.

The projected changes in the distributions of income, transfers, and taxes reflect expected economic and demographic developments as well as changes in policy that have occurred or are scheduled to occur under current law between 2016 and 2021. Those distributional changes are consistent with CBO's current economic and demographic forecasts and with the projections of the distribution of income that underlie the agency's baseline revenue projections published in August 2019.[2]

The projected economic and policy developments are closely intertwined. For example, output growth between 2016 and 2021 in CBO's economic forecast affects not only the distribution of income before transfers and taxes but also people's eligibility for means-tested transfer programs. Of the changes in government policy that have already occurred or are currently scheduled to occur during the period, the change affecting the distribution of household income most significantly is the implementation of the 2017 tax act (Public Law 115-97). In addition to directly altering people's taxes, that act is projected to affect the distribution of before-tax income in 2021 through its effects on the economy.

For this analysis, CBO focused on annual income. The agency calculated average annual income, transfer rates, and tax rates for households in different income groups (that is, segments of the income distribution). Many of the households represented by those averages are projected to experience changes in income that differ from the average experience of households in the income group to which they were initially assigned. As a result, the households in any particular group of the projected income distribution in 2021 do not necessarily represent the same households that were in that group in 2016 or before.

Annual income is only one measure of economic well-being. In this report, CBO does not assess trends in the distributions of other measures of economic well-being, such as household income measured over a longer period, household consumption, or household wealth.[3] Nor is the considerable variation in income, taxes paid, and tax rates within each group, which cannot be captured by average measures, addressed herein.

Projected Changes in the Distribution of Household Income

In 2016, there were 127 million households in the United States, and total household income for the year equaled $13.3 trillion.[4] In 2021, CBO projects, there will be 134 million households, and they will receive a total of $15.2 trillion in income (in 2016 dollars).[5] CBO's projections for the 2016–2021 period are as follows:

- Average household income, adjusted for inflation, is projected to grow by an average of 1.5 percent per year—from $105,500 in 2016 to $113,500 in 2021.

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1. For the most recent report, see Congressional Budget Office, *The Distribution of Household Income, 2014* (March 2018), www.cbo.gov/publication/53597. CBO has since published two slide decks that update the figures in that report to include additional data; for the most recent of those publications, see *The Distribution of Household Income, 2016* (July 2019), www.cbo.gov/publication/55413.

2. For the agency's most recent economic forecast and budget projections, see Congressional Budget Office, *An Update to the Budget and Economic Outlook: 2019 to 2029* (August 2019), www.cbo.gov/publication/55551.

3. Family wealth, for example, is also unequally distributed, and wealth inequality has increased in the past two decades. For more details, see Congressional Budget Office, *Trends in Family Wealth, 1989 to 2013* (August 2016), www.cbo.gov/publication/51846.

4. The scope of this analysis is limited to the civilian noninstitutionalized population of the United States. That approach is consistent with the sampling frame (the register of housing addresses) from which the Census Bureau draws a sample of households to survey for its Annual Social and Economic Supplement of the Current Population Survey.

5. All dollar amounts for 2021 presented in this report are in 2016 dollars. To convert those amounts, CBO used its forecast of the personal consumption expenditures price index.

- Federal fiscal policies—namely, policies governing means-tested transfer programs and federal taxes—will directly affect the economic resources available to U.S. households. In 2021, means-tested transfers are projected to add $5,600 to the average income per household, and federal taxes are projected to reduce that average by $22,300.

- As a result, average household income after transfers and taxes is projected to be $96,800—$16,700 less than average household income before those factors are accounted for. In 2016, average household income after taxes and transfers was $89,000.

Those average measures for the total population obscure a significant amount of variation in households' income, means-tested transfers, and federal taxes. For that reason, CBO regularly produces distributional analyses that report average household income for different income groups and examine how those groups are affected by means-tested transfers and federal taxes.

To produce the estimates in this report, CBO used the same framework that it used to prepare *The Distribution of Household Income, 2016*.[6] In that framework, household income before transfers and taxes consists of market income—that is, labor income, business income, capital income (including realized capital gains), and income from other nongovernmental sources—and social insurance benefits, such as Social Security and Medicare. CBO used that measure to rank households by income to create income groups; it also used that measure as the denominator when calculating average means-tested transfer rates and average federal tax rates.[7] That approach allows CBO to analyze transfers and taxes on a similar basis, which is particularly useful because the transfer and tax systems are frequently used in tandem in many areas of policymaking.[8] To calculate income

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6. Congressional Budget Office, *The Distribution of Household Income, 2016* (July 2019), www.cbo.gov/publication/55413.

7. CBO also publishes distributional statistics based on other rankings in its historical analyses of the distribution of household income. For income distributions based on alternative ranking measures for the years 1979 to 2016, see Congressional Budget Office, *The Distribution of Household Income, 2016* (July 2019), www.cbo.gov/publication/55413.

8. For more details about CBO's current framework and how it differs from the agency's previous approach to distributional analyses, see Kevin Perese, *CBO's New Framework for Analyzing the Effects of Means-Tested Transfers and Federal Taxes on the*

after transfers and taxes, the agency added a household's means-tested transfers to its income before transfers and taxes and then subtracted the household's federal tax payments. (For details about CBO's projections of income, transfers, and taxes, see Appendix B.)

Income Before Transfers and Taxes
CBO projects that income before transfers and taxes will be distributed more unevenly in 2021 than it was in 2016:

- For households in the lowest quintile, average income before transfers and taxes increases by an average of 1.3 percent per year in CBO's projections, from $20,600 in 2016 to $21,900 in 2021 (see Figure 1).

- Average annual growth is slower for households in the middle three quintiles—1.1 percent per year for the second and third quintiles and 1.2 percent for the fourth quintile.

- Average income before transfers and taxes grows fastest for households in the highest quintile, increasing at an average rate of 1.9 percent per year, from $291,200 in 2016 to $319,400 in 2021.

Even within the highest quintile, income growth is projected to be skewed toward the very top of the distribution:

- For households in the 81st to 90th percentiles (the bottom half of the highest quintile), average annual income before transfers and taxes grows by an average of 1.4 percent per year in CBO's projections, from $159,600 in 2016 to $170,800 in 2021.

- Over that same period, the average income of households in the top 1 percent of the distribution grows at an average rate of 2.3 percent per year, increasing from $1.8 million to $2.0 million.

Changes in tax policy affect the market income that households receive before they pay any federal taxes. The changes in tax rules stemming from the 2017 tax act are projected to alter both the amount and the distribution of income before transfers and taxes in 2021. CBO's economic forecast incorporates the economic and behavioral

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Distribution of Household Income, Working Paper 2017-09 (Congressional Budget Office, December 2017), www.cbo.gov/publication/53345.

Figure 1.

Household Income Before Transfers and Taxes, by Income Group, 2016 and 2021

Within the Highest Quintile

Average Household Income

Top 1 Percent
96th to 99th Percentiles
91st to 95th Percentiles
81st to 90th Percentiles

2016   2021

Highest Quintile

Fourth Quintile

Middle Quintile

Second Quintile

Lowest Quintile

50k   200k   500k   1m   2m

Dollars

Projected Average Annual Growth, 2016 to 2021

Top 1 Percent
96th to 99th Percentiles
91st to 95th Percentiles
81st to 90th Percentiles

Fourth Quintile

Middle Quintile

Second Quintile

Lowest Quintile

Highest Quintile

0   0.5   1.0   1.5   2.0   2.5   3.0   3.5

Percent

Source: Congressional Budget Office.

All dollar amounts are in 2016 dollars. To convert 2021 amounts, CBO used its forecast of the personal consumption expenditures price index.

Income before transfers and taxes is market income plus social insurance benefits.

Income groups are created by ranking households by their size-adjusted income before transfers and taxes.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

effects of those changes. In CBO's forecast, total output is greater and unemployment is lower in 2021 than they would have been if the tax act had not been enacted.[9] (The tax act also affects after-tax income, and those effects are included in the projections of income after taxes and transfers.)

Inflation-adjusted gross domestic product (GDP) grows at an average rate of more than 2 percent per year from 2016 to 2021 in CBO's forecast. That economic growth is expected to boost household income for all income groups; the increases in income before transfers and taxes are projected to be largest for households at the top of the distribution.

The uneven distribution of growth in total income in CBO's projections is driven by two key types of income: labor income and capital gains. Growth in other types of income (for example, business income, pension income, or social insurance benefits) is not projected to alter the distribution in a meaningful way: For some of those types of income, the amounts are too small to significantly affect the distribution, and for other types, growth is projected to be fairly evenly distributed among all income groups.

Labor Income. In CBO's projections, average labor income per household grows at an average annual rate of 1.3 percent between 2016 and 2021. Labor income is the largest and most evenly distributed source of market income. As a result, growth in labor income translates into increases in income across the distribution in CBO's projections.

The growth in labor income is less evenly distributed in the agency's projections than labor income itself. Households in the top 1 percent experience the greatest growth in labor income. In 2016, 8.4 percent of all labor income went to those households, but they are projected to receive 16.3 percent of the total increase in labor income over the five-year period; thus, their share of total labor income increases to 9.3 percent in 2021 in CBO's projections. In both years, labor income accounts

for about one-third of the top 1 percent's total income before transfers and taxes; business income and capital income (including realized capital gains) account for a larger share of that group's total income.

By contrast, in both years, about 60 percent of the total income of households in the lowest quintile is labor income; social insurance benefits account for most of the rest. Those households received 3.7 percent of all labor income in 2016 and are projected to receive 2.8 percent of the total increase in labor income from 2016 to 2021; their share of total labor income is projected to fall to 3.6 percent in 2021.

The projected growth in labor income is driven largely by growth in wages (including salaries). CBO's projections of the distribution of the growth of wages are based on recent trends in the growth of each income group's share of total wages. Because high-income households' share of total wages has increased since 2009, CBO expects that trend to continue through 2021 (see Box 1).

Capital Gains. In CBO's analyses of the distribution of household income, capital gains are defined as profits realized from the sale of assets. Increases in the value of assets that have not been sold are not included in capital gains and thus are excluded from household income. CBO measures income from capital gains when realized, partly because estimates of accrued gains depend on highly uncertain assumptions and partly to be consistent with the tax treatment of such gains (which generally are taxable only when they are realized).

Capital gains, which are highly concentrated at the top of the distribution, are projected to grow faster than other types of income.[10] In 2016, capital gains accounted for less than 2 percent of the total income of households

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9. For more details on CBO's estimates of the effect of the 2017 tax act on the agency's budget and economic projections, see Congressional Budget Office, *The Budget and Economic Outlook: 2018 to 2028* (April 2018), Appendix B, www.cbo.gov/publication/53651.

10. In 2016, capital gains realizations measured as a share of GDP were lower than their historical average, but they have since increased above that average. CBO anticipates that capital gains will slowly return to levels consistent with their historical average (after differences in applicable tax rates are accounted for), but capital gains as a share of GDP remain above their historical average in 2021 in the agency's projections. Because this analysis specifically compares 2016 data with projections for 2021, the high growth rate in capital gains partially reflects the difference between the relatively low value of realizations reported in 2016 and the higher value projected for 2021.

Box 1.

How CBO Projects the Distribution of Wage and Salary Income

Over the past few decades, inequality in wages (including salaries) has grown as the wages of the top decile (or tenth) of wage earners have grown faster than those of the rest of the distribution (see the figure below). Even within the top decile, inequality has increased because the growth of the average wages of earners in the top 1 percent, which has been correlated with the business cycle, has outpaced the growth of average wages of all other wage earners. That gap in growth has, however, narrowed in the past decade.
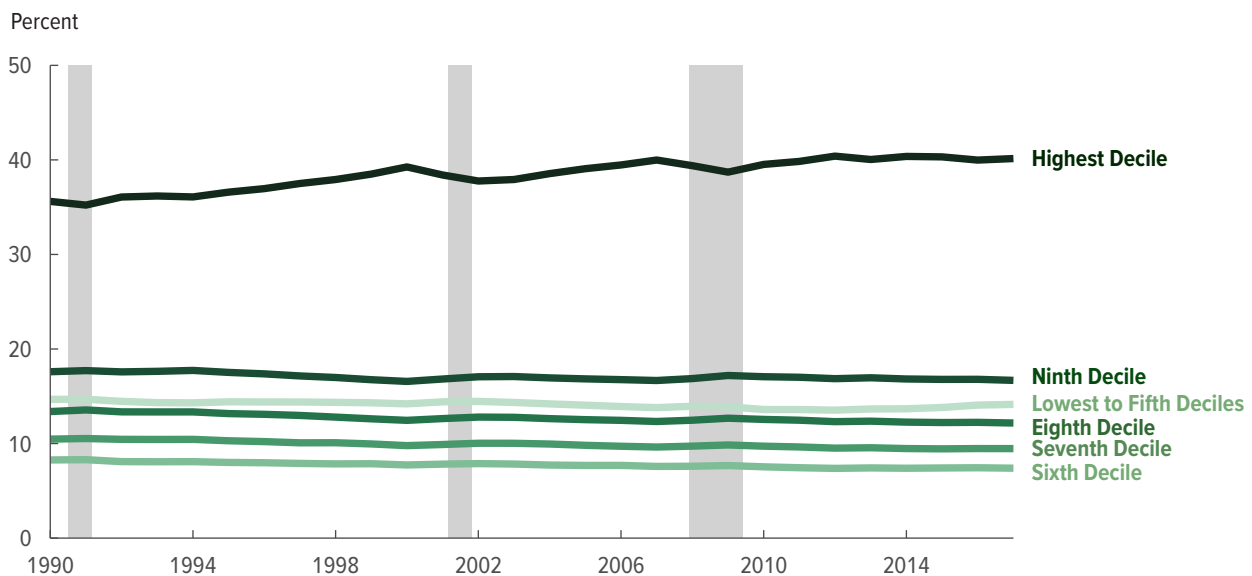
The Congressional Budget Office expects inequality to continue to increase—but at a decreasing rate—through the next decade. To project the share of wages that the top 1 percent of wage earners will earn, the agency uses a statistical model that reflects trends over the last four decades and accounts for slack, or unused productive resources, in the economy (see the figure on the next page). The share of wages earned by the remaining 9 percent of wage earners in the top decile is projected to grow at the same average rate that it has grown at since 1978. As a result, the shares of wages of all other groups of wage earners in the distribution are projected

to fall over that period. The projections used in this report are consistent with the agency's baseline projections published in August 2019.[1] CBO continues to evaluate new data as it becomes available and updates its projection method as needed.

Several factors may have contributed to the rapid rise in the wages of the highest-income households in the past few decades, but research has not yet led to a consensus about which of those factors are the most important. One potential explanation is that the compensation of superstars (such as actors, athletes, and musicians) may be especially sensitive to recent technological changes that expose their work to much wider audiences. Another possible explanation is the trend of large pay increases for top corporate executives. Yet another explanation could be that the complexity of the financial sector has grown—and the skill level required to work in that

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1. Congressional Budget Office, *An Update to the Budget and Economic Outlook: 2019 to 2029* (August 2019), www.cbo.gov/publication/55551.

Shares of Total Wages Received, by Decile of Wage Earners

Percent

Source: Congressional Budget Office, using data from the Social Security Administration.

Estimates are based on earnings as reported by employers on Internal Revenue Service Form W-2 and tabulated by the Social Security Administration.

CBO

Box 1.   Continued

How CBO Projects the Distribution of Wage and Salary Income

sector has risen—as that sector's share of the economy has increased.

The highest-income households' wages began to grow more slowly over the past decade. One possible explanation for that development is that owners of closely held businesses

might be reclassifying income that they would have previously classified as wage income as pass-through business income to take advantage of lower tax rates. Such a shift in the accounting of that income would reduce the share of wages earned by the top 1 percent of wage earners and increase their share of business income.

Share of Total Wages Received by the Top 1 Percent of Wage Earners

Percent
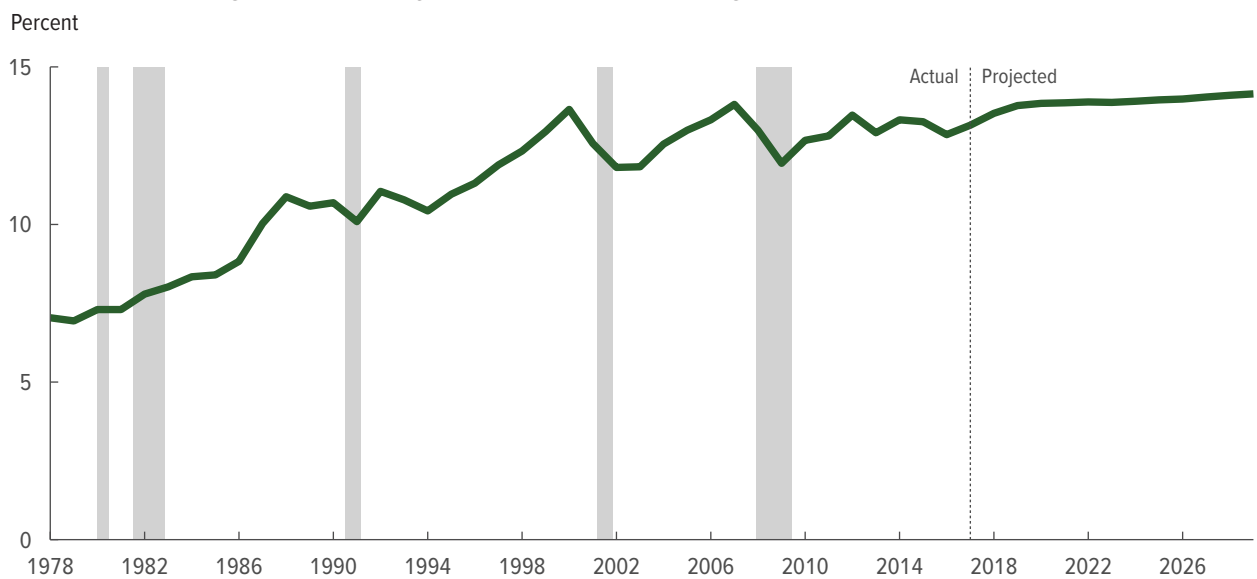
Source: Congressional Budget Office, using data from the Social Security Administration and Kopczuk, Saez, and Song (2010).

Estimates for 1978 to 1989 are based on tabulations of individual earnings drawn from Wojciech Kopczuk, Emmanuel Saez, and Jae Song, "Earnings Inequality and Mobility in the United States: Evidence From Social Security Data Since 1937," *Quarterly Journal of Economics*, vol. 125, no. 1 (February 2010), pp. 91–128, http://doi.org/10.1162/qjec.2010.125.1.91.

Estimates for 1990 to 2017 are based on earnings as reported by employers on Internal Revenue Service Form W-2 and tabulated by the Social Security Administration.

To account for differences in the methods used to generate the two sets of data, CBO adjusted the estimates for 1978 to 1989 to reflect the average difference in years for which data were available for both series (1990 to 2004).

in the bottom 99 percent of the income distribution and for 22 percent of the total income of households in the top 1 percent of the distribution. On the basis of analysis of recent trends, CBO projects that capital gains will grow at an annual average rate of 6.3 percent per household. That growth disproportionately increases income for households toward the top of the distribution in the agency's projections.

Projecting capital gains is difficult because they are historically volatile and depend on taxpayers' decisions about when to sell their assets. CBO uses recent trends in capital markets to project the future of those markets and incorporates expectations about when holders of assets will choose to sell those assets. Typically, asset holders will base their decisions to sell on the expected returns on those assets in the current and anticipated economic and policy environments.

Income After Transfers and Taxes

Because lower-income households receive a larger share of their income through means-tested transfer programs and pay a smaller share of their income in federal taxes than higher-income households, projected income after transfers and taxes is distributed more evenly than projected income before transfers and taxes. For example, in 2021, transfers and taxes are projected to *increase* the average income of households in the lowest quintile by 68 percent, from $21,900 to $36,700, whereas they are projected to *decrease* the average income of households in the highest quintile by 24 percent, from $319,400 to $241,200 (in 2016 dollars).

The average income after transfers and taxes of households in different income groups grows at different rates over time because of changes in means-tested transfer programs, federal tax laws, and economic conditions. Growth in income after transfers and taxes from 2016 to 2021 is skewed toward higher-income households in CBO's projections:

- For households in the lowest quintile, average income after transfers and taxes increases at an average rate of 1.0 percent per year, from $35,000 to $36,700 (see Figure 2).

- For households in the highest quintile, average income after transfers and taxes rises more than twice as fast—at an average annual rate of 2.3 percent— increasing from $214,900 in 2016 to $241,200 in 2021.

- For households in the top 1 percent of the income distribution, average income after transfers and taxes rises at an average annual rate of 3.1 percent per year—from $1.2 million in 2016 to $1.4 million in 2021.

The distributions of the growth in income before and after transfers and taxes differ because changes in average means-tested transfer rates and average federal tax rates from 2016 to 2021 vary among income groups in CBO's projections. Means-tested transfer rates are lower in 2021—especially at the bottom of the distribution—because the income of lower-income households increases, which decreases people's eligibility for means-tested transfers. Federal tax rates are also

lower—particularly at the top of the distribution— because of changes made by the 2017 tax act.

In CBO's projections, for households in the middle to highest quintiles (that is, the top 60 percent of the income distribution), income after transfers and taxes grows faster than income before transfers and taxes. By contrast, for households in the bottom two quintiles, income after transfers and taxes grows more slowly than income before transfers and taxes. Transfers and taxes still reduce inequality in 2021, but they do less to reduce inequality than they did in 2016 because of economic developments and changes in policy.

## Share of Total Income Received by Each Income Group

To assess the direct distributional effects of federal fiscal policies, CBO projected each quintile's share of total income both before and after means-tested transfers and taxes. Income shares are one measure of income inequality: When the share of income received by the top income group grows, income inequality tends to rise. CBO's projections reflect such a pattern:

- The highest quintile's share of income before transfers and taxes is projected to increase by 0.7 percentage points between 2016 and 2021, from 54.4 percent to 55.1 percent (see Figure 3).

- Within that quintile, the growth of shares of total income before transfers and taxes varies in CBO's projections. For example, for households in the 81st to 90th percentiles, the share decreases by 0.1 percentage points, from 14.9 percent to 14.8 percent. But for households in the top 1 percent, the share rises by 0.6 percentage points, from 15.8 percent to 16.4 percent.

- By contrast, the share of income before taxes and transfers received by the other four quintiles does not grow. The middle three quintiles' shares decline over the five-year period in CBO's projections. The lowest quintile's share remains roughly unchanged at 3.8 percent.

Because higher-income households receive a smaller share of their income in the form of transfers and pay a larger share of their income in taxes, shares of income after transfers and taxes are more evenly distributed than

Figure 2.

Household Income After Transfers and Taxes, by Income Group, 2016 and 2021
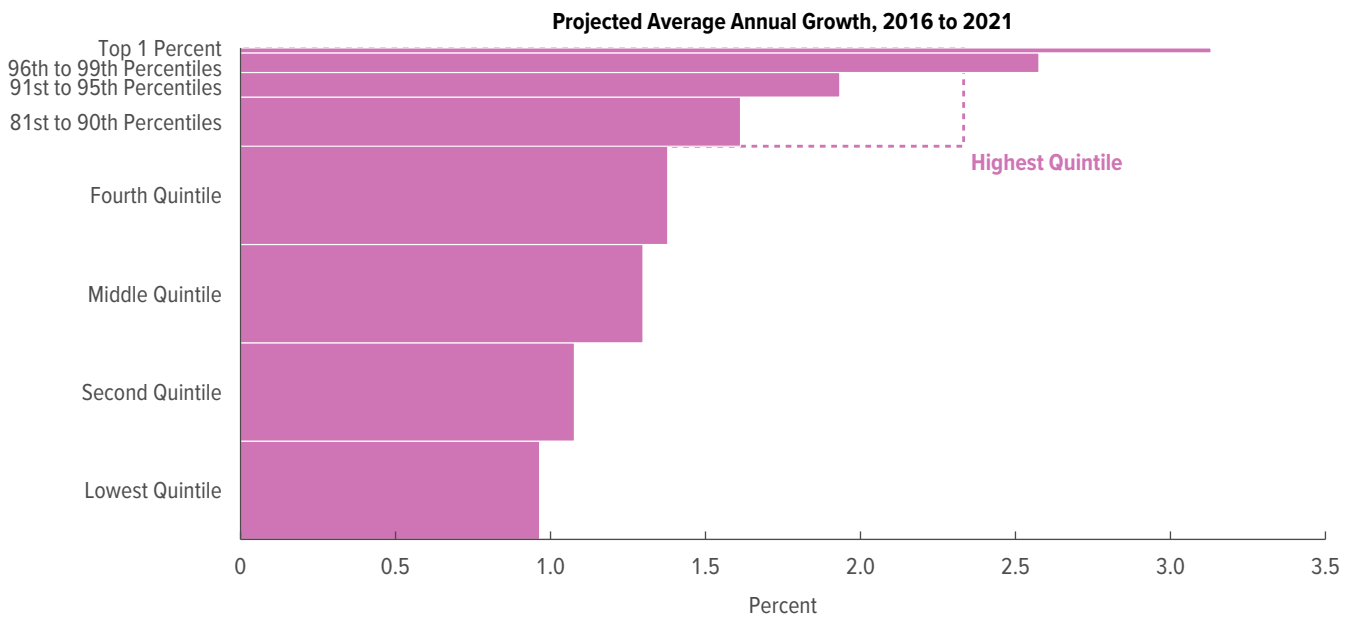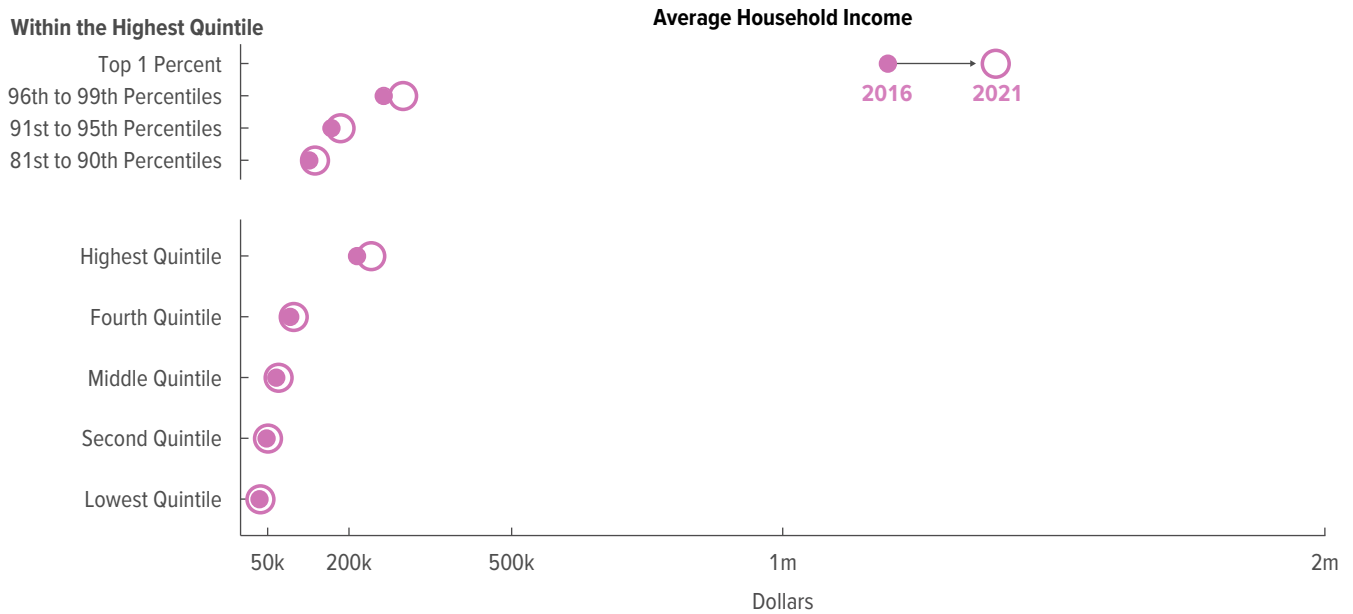
Source: Congressional Budget Office.

All dollar amounts are in 2016 dollars. To convert 2021 amounts, CBO used its forecast of the personal consumption expenditures price index.

Income after transfers and taxes is income before transfers and taxes (that is, market income plus social insurance benefits) plus means-tested transfers minus federal taxes. Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes.
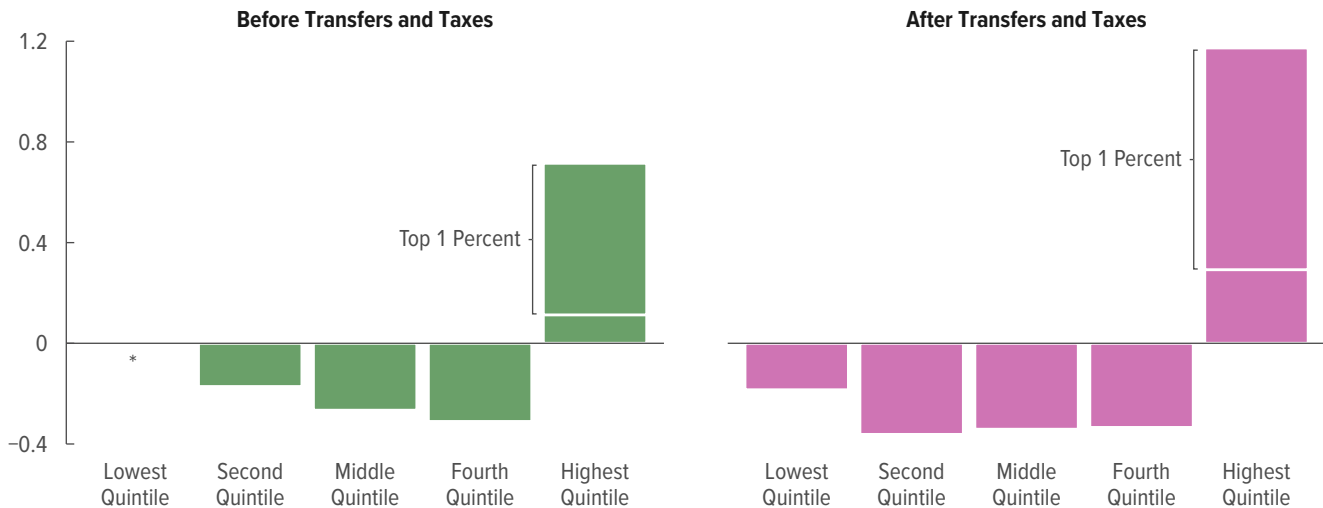
Income groups are created by ranking households by their size-adjusted income before transfers and taxes.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

CBO

Figure 3.

Projected Changes in Income Groups' Shares of Total Income, 2016 to 2021

Percentage Points

Source: Congressional Budget Office.

Income before transfers and taxes is market income plus social insurance benefits.

Income after transfers and taxes is income before transfers and taxes plus means-tested transfers minus federal taxes. Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes.

Income groups are created by ranking households by their size-adjusted income before transfers and taxes.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

* = between −0.05 and 0.05 percentage points.

shares of income before transfers and taxes. Nevertheless, in CBO's projections, the highest quintile's share of income after transfers and taxes increases even more over the 2016–2021 period than its share of income before transfers and taxes:

- The highest quintile's share of income after transfers and taxes rises by 1.2 percentage points, from 47.6 percent in 2016 to 48.8 percent in 2021.

- Most of that increase is attributable to households in the top 1 percent, whose share rises by 0.9 percentage points, from 12.5 percent to 13.4 percent.

By contrast, the share of income after transfers and taxes of each of the other quintiles declines over the period.

Historical Trends in the Distribution of Income
Over the 1979–2016 period as a whole, the average income of households (in 2016 dollars) at the top of the

income distribution grew faster than the average income of households in lower income quintiles. That trend is projected to continue through 2021 (see Figure 4).

Income Before Transfers and Taxes. For all income groups, average income before transfers and taxes is projected to be higher in 2021 than it was in 2016, and the growth of that measure is projected to be greatest for households in the top 1 percent. In CBO's projections, in 2021, the average income before transfers and taxes of the top 1 percent of households reaches its highest level since it peaked in 2007, just before the most recent recession began. For the rest of the top quintile, the middle three quintiles, and the lowest quintile, average income before transfers and taxes is projected to be higher than has ever been recorded.

Income After Transfers and Taxes. Income after transfers and taxes follows a similar pattern in CBO's projections. In 2021, the average income of households in

Figure 4.

Cumulative Growth of Average Household Income, by Income Group, Since 1979

Percent
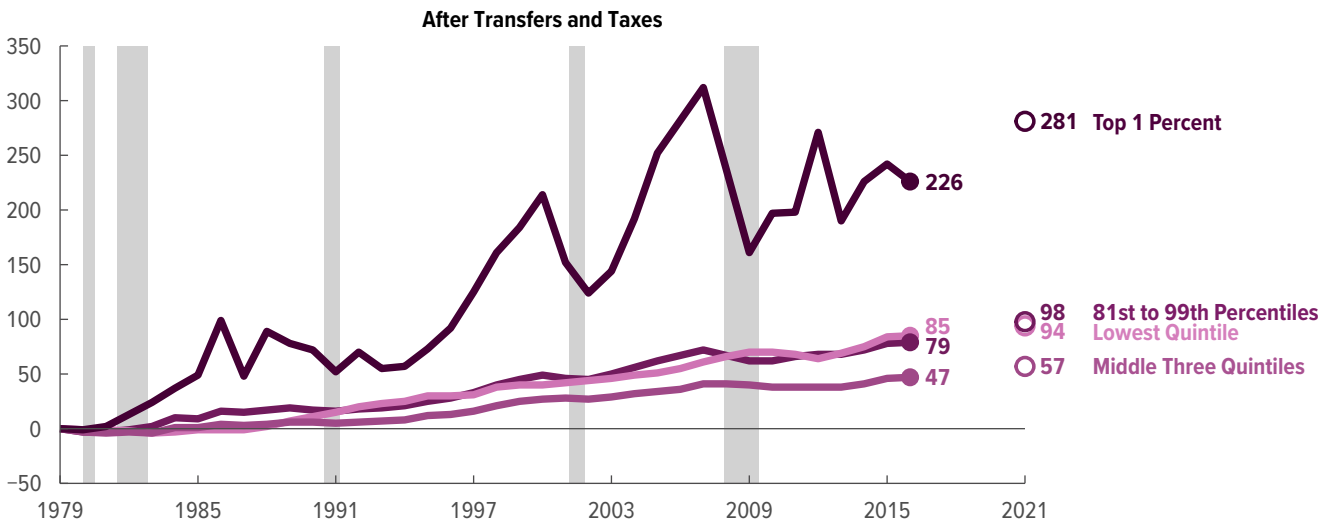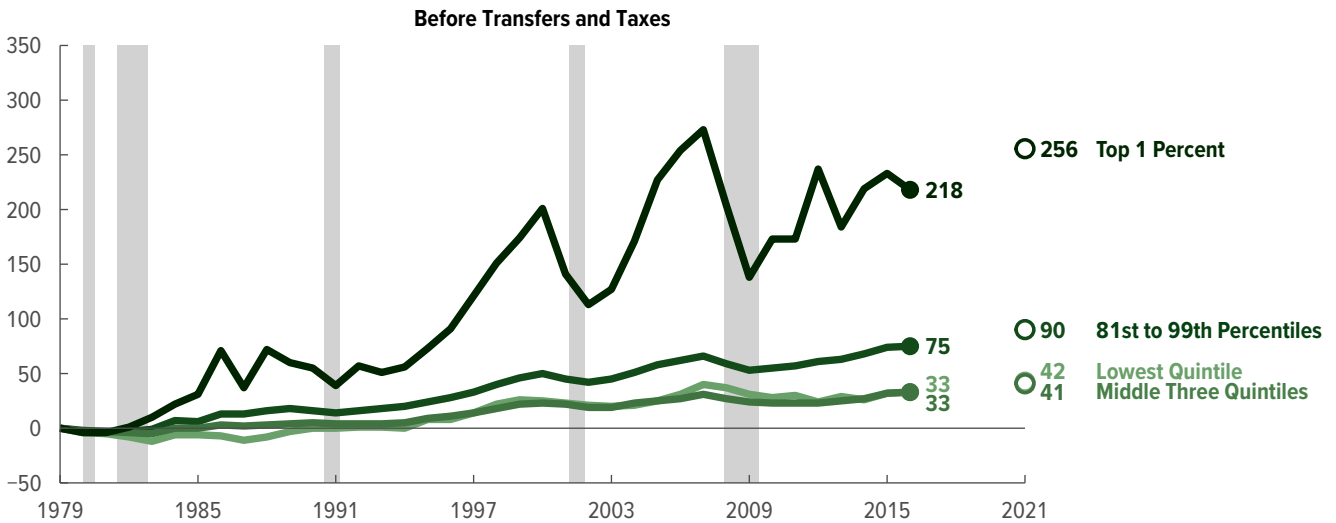
Source: Congressional Budget Office.

To calculate growth rates, CBO first converted all dollar amounts to 2016 dollars. To convert amounts, CBO used the Bureau of Economic Analysis's price index for personal consumption expenditures for past years and CBO's projections of that index for future years.

Income before transfers and taxes is market income plus social insurance benefits.

Income after transfers and taxes is income before transfers and taxes plus means-tested transfers minus federal taxes. Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes.

Income groups are created by ranking households by their size-adjusted income before transfers and taxes.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

CBO

the top 1 percent almost reaches its prerecession peak, and the average income of households in other income groups is higher than ever previously recorded. For the highest-income households, the increase in income after transfers and taxes from 2016 to 2021 is larger than the increase in income before transfers and taxes in the agency's projections. The differences between the rates of growth of the two income measures—particularly those for the highest quintile—are attributable to reductions in tax rates.

From 1979 to 2016, growth in income after transfers and taxes was generally faster than growth in income before transfers and taxes for households in all income groups. That pattern reflects two trends over the period: Spending for means-tested transfer programs grew and tax rates decreased.

Uncertainty in CBO's Projections of Income

The actual changes in the distribution of household income between 2016 and 2021 could differ from CBO's projections because of unanticipated changes in the economy, population, or policy. The agency aims for its projections to be in the middle of the distribution of possible outcomes given the assumptions about federal tax and spending policies underlying its baseline projections, but it recognizes that actual outcomes will differ from any such projections.

CBO's projections of income before transfers and taxes are based on its current projections about federal spending and taxes, the economy, and demographics.[11] Considerable uncertainty surrounds the projections of aggregate measures related to the economy and demographics that underlie this distributional analysis. The agency's projections of future spending and tax policies and how individuals will respond to those policies are also uncertain. Moreover, this analysis relies on CBO's projections of the *distributions* of economic variables, such as wages, which are even more uncertain than projections of the aggregate measures because they incorporate assumptions about how past distributional trends will continue (see Box 1 on page 10). Any

discrepancies between those projections and actual outcomes could cause the actual distribution of household income in 2021 to differ from CBO's projections of that distribution.

Projected Changes in Means-Tested Transfers and Federal Taxes

Means-tested transfers and federal taxes are both progressive—that is, low-income households receive a larger share of their income as means-tested transfers than high-income households do, and high-income households pay a larger share of their income in federal taxes than low-income households do. As a result, both transfers and taxes tend to reduce inequality. The degree to which they do so, however, varies from year to year because of changes in policy and economic conditions.

CBO projects that both means-tested transfers and federal taxes will reduce inequality by less in 2021 than they did in 2016 for two key reasons. First, income growth and reductions in the unemployment rate decrease people's eligibility for means-tested transfers, thereby reducing means-tested transfer rates, especially among low-income households. Second, changes made by the 2017 tax act generally decreased tax rates, especially for high-income households.

Means-Tested Transfers

Because means-tested transfers are designed specifically to help people who have relatively low income or few assets, they go overwhelmingly to households at the bottom of the income distribution. In 2016, more than half of means-tested transfers went to households in the lowest quintile.[12]

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11. For the agency's current projections, see Congressional Budget Office, *An Update to the Budget and Economic Outlook: 2019 to 2029* (August 2019), www.cbo.gov/publication/55551.

12. Although means-tested transfers are designed to assist people with low income, the data indicate that some high-income households receive benefits from the transfer programs. That phenomenon may occur for several reasons. For instance, some people have income that varies during the year, and they may therefore qualify for benefits on the basis of low monthly income even though their annual income is high. In addition, some people who qualify for benefits because their own income is low live in high-income households. Finally, a portion of the benefits reported as going to higher-income households probably reflects some misreporting of income, program participation, and benefit amounts in the survey data that are the basis for CBO's estimates.

Average inflation-adjusted means-tested transfers per household remain roughly unchanged at $5,600 from 2016 to 2021 in CBO's projections. That pattern reflects two offsetting effects.

First, enrollment in most means-tested transfer programs is projected to be lower primarily because of growth in market income for households at the bottom of the distribution. Typically, people are eligible for means-tested transfers if their income falls below certain thresholds. As lower-income households' average income rises, fewer households will fall below those thresholds; thus, the number of households that are eligible for means-tested transfers is projected to be smaller in 2021 than it was in 2016. As a result, total benefits from most means-tested transfer programs—including SNAP, the second-largest program—are projected to decrease.

Those decreases in benefits stemming from changes in enrollment are projected to be offset by continued growth in average benefits per enrollee in Medicaid and the Children's Health Insurance Program. Together, those two programs account for more than two-thirds of means-tested transfers, and average benefits from those programs are projected to increase, mainly because health care costs are expected to rise.

Although inflation-adjusted means-tested transfers per household remain roughly unchanged between 2016 and 2021 in CBO's projections, the share of transfers going to each income group changes. The share of all means-tested transfers received by the lowest quintile *increases* by 1.1 percentage points over the period, from 51.9 percent to 53.0 percent. The second-lowest quintile's share *decreases* by 0.7 percentage points, from 25.6 percent to 24.9 percent. The shares of transfers received by other quintiles change by less than 0.5 percentage points.

Total means-tested transfers are projected to grow more slowly than income for all income groups. As a result, means-tested transfer rates (total means-tested transfers divided by total income before transfers and taxes) are projected to fall for all income groups. In CBO's projections, the average means-tested transfer rate of households in the lowest quintile decreases from 72 percent in 2016 to 68 percent in 2021 (see Figure 5 on page 20). The average rate for households in the second-lowest quintile falls from 15 percent to 14 percent over that

period, and the rates for other quintiles fall by less than 0.5 percentage points. Transfers are thus projected to reduce inequality less in 2021 than they did in 2016, despite the lowest quintile's receiving a larger share of total transfers.

Federal Taxes

Average federal tax rates are calculated by dividing the federal taxes of all households in an income group by their total income before transfers and taxes. Average federal tax rates tend to increase as income rises.

Economic fluctuations and policy changes cause average federal tax rates to vary over time. In CBO's projections, income rises from 2016 to 2021, pushing more household income into higher tax brackets. Moreover, the unemployment rate is lower in 2021 than it was in 2016, indicating that more people—particularly in lower-income households—will be in the labor force and earn taxable wages. In the projections of average tax rates, those factors are more than offset by reductions in tax rates stemming mainly from the 2017 tax act that reduce both individual and corporate taxes. (For details on how CBO allocates corporate taxes to households, see Box 2.) As a result, total federal taxes are projected to be lower in relation to total income in 2021 than they were in 2016.

Average federal tax rates fall for all five quintiles from 2016 to 2021 in CBO's projections (see Figure 6 on page 21). But the highest quintile's average tax rate decreases by more than those of the other quintiles, so the reduction in inequality that stems from federal taxes is smaller in 2021 than it was in 2016. The average rate of households in the bottom 95 percent of the distribution drops by about 1 percentage point. For households in the 96th to 99th percentiles, the average federal tax rate falls by 2 percentage points, from 27 percent to 25 percent, and for households in the top 1 percent, the average rate drops by 3 percentage points, from 33 percent to 30 percent.

Most of those decreases are attributable to changes made to the tax code by the 2017 tax act.[13] Many provisions of that law reduced taxes for households: the reductions

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13. Under current law, most provisions of the tax act that apply to the individual income tax are scheduled to expire at the end of 2025.

Box 2.

CBO's Allocation of Corporate Taxes

To analyze the distribution of household income, the Congressional Budget Office must allocate certain taxes that are not directly paid by households. Corporations have the legal obligation to pay the corporate income tax, but households ultimately bear the burden of that tax. Economists estimate that the burden of the corporate tax is shared between the owners of capital (that is, corporations' shareholders and recipients of other forms of capital income, including interest, rents, dividends, and capital gains) and workers. Allocating the corporate income tax to households is especially relevant for this report given the significant changes to the corporate tax system that were made by the 2017 tax act.

Since 2012, CBO has allocated 75 percent of the corporate tax to owners of capital and 25 percent of the corporate tax to workers. That allocation is intended to reflect the long-run incidence—or the distribution of the burden of taxation—of the corporate tax system as a whole. The short-run incidence of a particular *change* in the corporate tax system could differ from the long-run incidence for two reasons. First, it takes time for corporations to change their allocation of capital and labor in response to a change in tax policy. In the short run, the share of the corporate tax shifted to workers may be small, so more of the burden of that tax will be borne by corporate shareholders. Second, the corporate income tax is a complex system, and changes in tax policy—such as those in the 2017 tax act—tend to focus on specific portions of the system. Therefore, the incidence of specific provisions may differ from CBO's allocation for the overall corporate tax system. Overall, the changes to the corporate tax system that were included in the 2017 tax act did not, in CBO's assessment, fundamentally alter the incidence of that system. In its projections for 2021, CBO therefore allocated 75 percent of the corporate tax to owners of capital and 25 percent to workers.

Overview of the Incidence of the Corporate Tax

A great deal of uncertainty exists over who ultimately bears the burden of the corporate tax. Before 2012, CBO allocated 100 percent of the burden of the corporate tax to owners of capital. After reevaluating research on the topic, CBO began in 2012 to allocate 75 percent of the federal corporate income tax to owners of capital in proportion to their income from interest, dividends, adjusted capital gains, and rent, and 25 percent to workers in proportion to their labor income. The agency based its decision to use that allocation on a review of existing studies of corporate tax incidence, some of which used general

equilibrium models of the economy and others of which empirically examined the incidence of the corporate tax by analyzing variations in corporate income taxes among different countries or U.S. states.[1]

In standard economic models, the incidence of the corporate tax spreads across owners of capital and workers until a general equilibrium is reached. An increase in the corporate income tax reduces the after-tax return on capital in the corporate sector. As a result, capital shifts to the noncorporate sector—and, in an open economy, to other countries—until the after-tax return is equalized among capital investment opportunities. The resulting reduction in capital investment in the United States reduces workers' productivity and, in turn, wages fall. The more internationally mobile capital is (and the less mobile labor is), the larger the share of the corporate income tax labor will bear.

When deciding how much of the corporate income tax to allocate to capital income, CBO accounted for certain factors that are not included in general equilibrium models. For example, CBO's allocation accounts for the fact that corporate profits can represent a return on capital that is beyond the "normal" return (that is, the return that could be obtained from making a risk-free investment). Corporate taxes on those excess returns are less likely to affect capital investment decisions and are therefore probably borne by the owners of the capital that produced the excess returns.

Short-Run Versus Long-Run Incidence

It takes time for the economy to reach a new general equilibrium after a change is made to the corporate tax system, so the short-run incidence of such changes can differ from the eventual long-run incidence. In the very short run, corporate shareholders probably bear most of the burden of a change in the corporate income tax. In the medium run, such a change would affect capital income more broadly as the change affected the return on all forms of capital. Finally, as changes in investment affected the size of the capital stock, some of the burden might shift to labor because the change in the capital stock would

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1. See Jennifer Gravelle, *Corporate Tax Incidence: Review of General Equilibrium Estimates and Analysis*, Working Paper 2010-03 (Congressional Budget Office, May 2010), www.cbo.gov/publication/21486, and *Corporate Tax Incidence: A Review of Empirical Estimates and Analysis*, Working Paper 2011-01 (Congressional Budget Office, June 2011), www.cbo.gov/publication/41511.

Continued

Box 2.

CBO's Allocation of Corporate Taxes

affect workers' productivity, and changes in labor productivity would translate to changes in wages.

The estimates in this report use CBO's standard allocation for the incidence of the corporate tax, which is based on the long-run incidence of changes in corporate tax policy. Because the changes to the corporate tax system analyzed here were made just two years ago by the 2017 tax act, it is uncertain whether the economy will actually reach a new long-run equilibrium by 2021. If it does not, then the use of CBO's standard long-run allocation may not distribute enough of the benefit of the reduction in corporate taxes to capital income and thus may allocate too little of the corporate income tax to labor income.

Incidence of Specific Changes

The incidence of a specific provision of the corporate tax system can differ from the incidence of the corporate tax system as a whole. The 2017 tax act included a variety of provisions that, on net, are projected to reduce corporate tax revenues in 2021. That net reduction reflects the offsetting effects of some provisions that reduce corporate tax revenues and others that increase them. The provision that is projected to have the largest effect on corporate tax revenues is the reduction in the

corporate income tax rate; CBO projects that its incidence will be consistent with the agency's standard allocation in the long run. However, the incidence of other provisions with smaller effects may differ from that standard allocation, meaning that capital owners' share of the burden or benefit of the change may be larger or smaller than projected. In particular, the 2017 tax act included a onetime tax on foreign profits that had not been previously taxed by the United States. A corporation's tax liability is determined by past business decisions, so that provision should have little effect on corporations' future investment decisions. As a result, the corporate tax payments associated with that provision will probably be absorbed by corporate shareholders.

Allocation of the Corporate Income Tax in 2021

After considering the potential impacts of recent changes in the corporate tax, CBO allocated 75 percent of the corporate tax in 2021 to owners of capital and 25 percent to workers. That choice reflects the agency's assessment that, on net, those changes will not fundamentally alter the incidence of the corporate tax from what it was in 2016. Some of the specific provisions of the 2017 tax act may have a different incidence, but those differences are likely to be small.

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in individual and corporate tax rates, the increase in the standard deduction, the expansion of the child tax credit, the establishment of the qualified business income deduction, the elimination of the penalty for not having health insurance, and the increase in the exemption amount for the alternative minimum tax (AMT). Other provisions increased taxes: the elimination of the personal exemption and the establishment of limits on certain itemized deductions, including the deduction for state and local taxes. The law's provisions interact in complex ways that vary according to each household's specific characteristics.[14] For most households, the net effect of the law has been to reduce their total federal taxes.
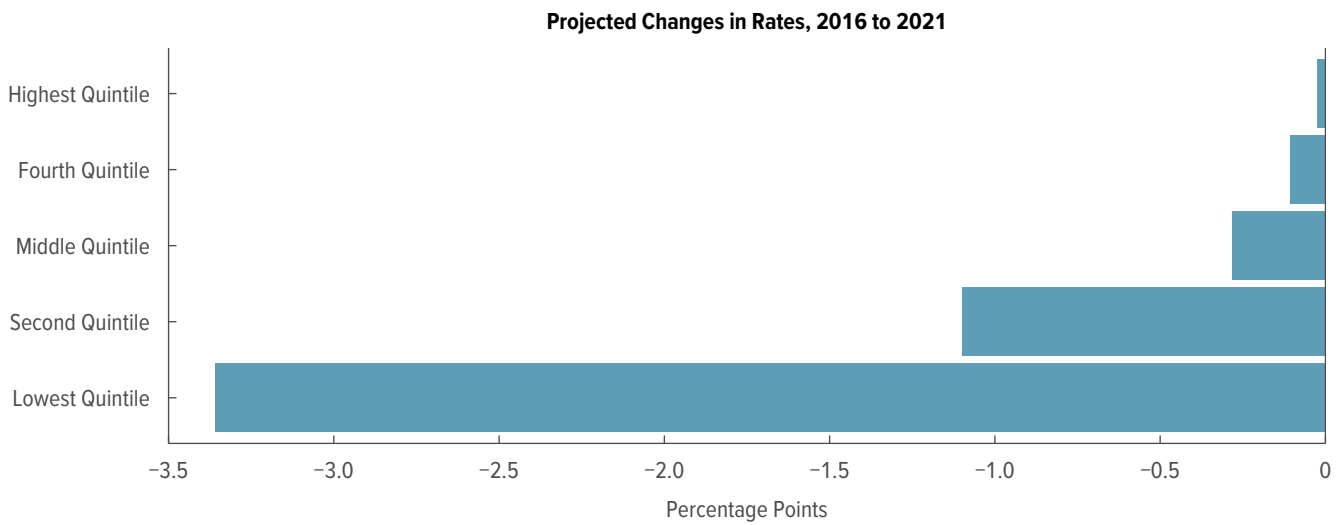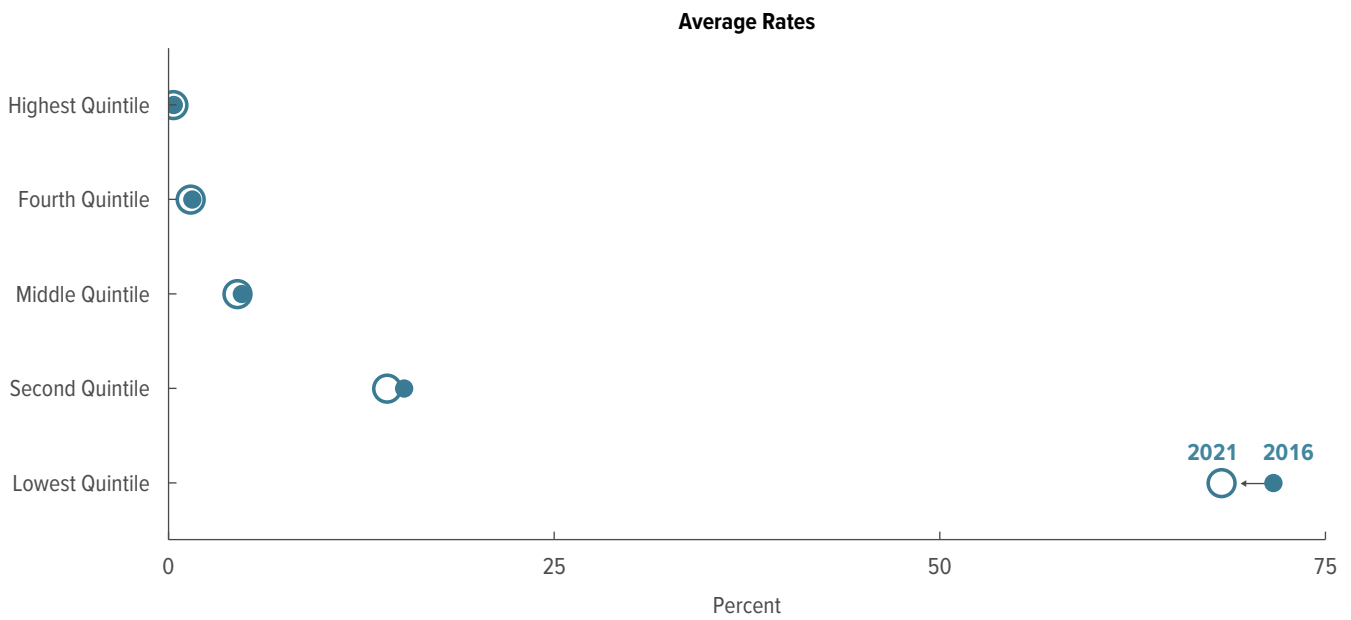
The ways in which the tax law has reduced average tax rates vary for households in different income groups. For example, many low-income households benefit from increases in the standard deduction, many middle-income households face lower rates because of the expansion of the child tax credit, and many high-income households pay less in taxes because of the increased AMT exemption.

Effects of the Conference Agreement for H.R. 1, The "Tax Cuts and Jobs Act," JCX-67-17 (December 18, 2017), www.jct.gov/publications.html?func=startdown&id=5053. For details about how different components of the tax act affect the distribution of taxes, see Joint Committee on Taxation, *Distributional Effects of the Conference Agreement for H.R. 1, The "Tax Cuts and Jobs Act,"* JCX-68-17 (December 18, 2017), www.jct.gov/publications.html?func=startdown&id=5054.

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14. For details about the budget effects of specific provisions of the 2017 tax act, see Joint Committee on Taxation, *Estimated Budget*

Figure 5.

Average Means-Tested Transfer Rates, by Income Group, 2016 and 2021

Average Rates

Projected Changes in Rates, 2016 to 2021
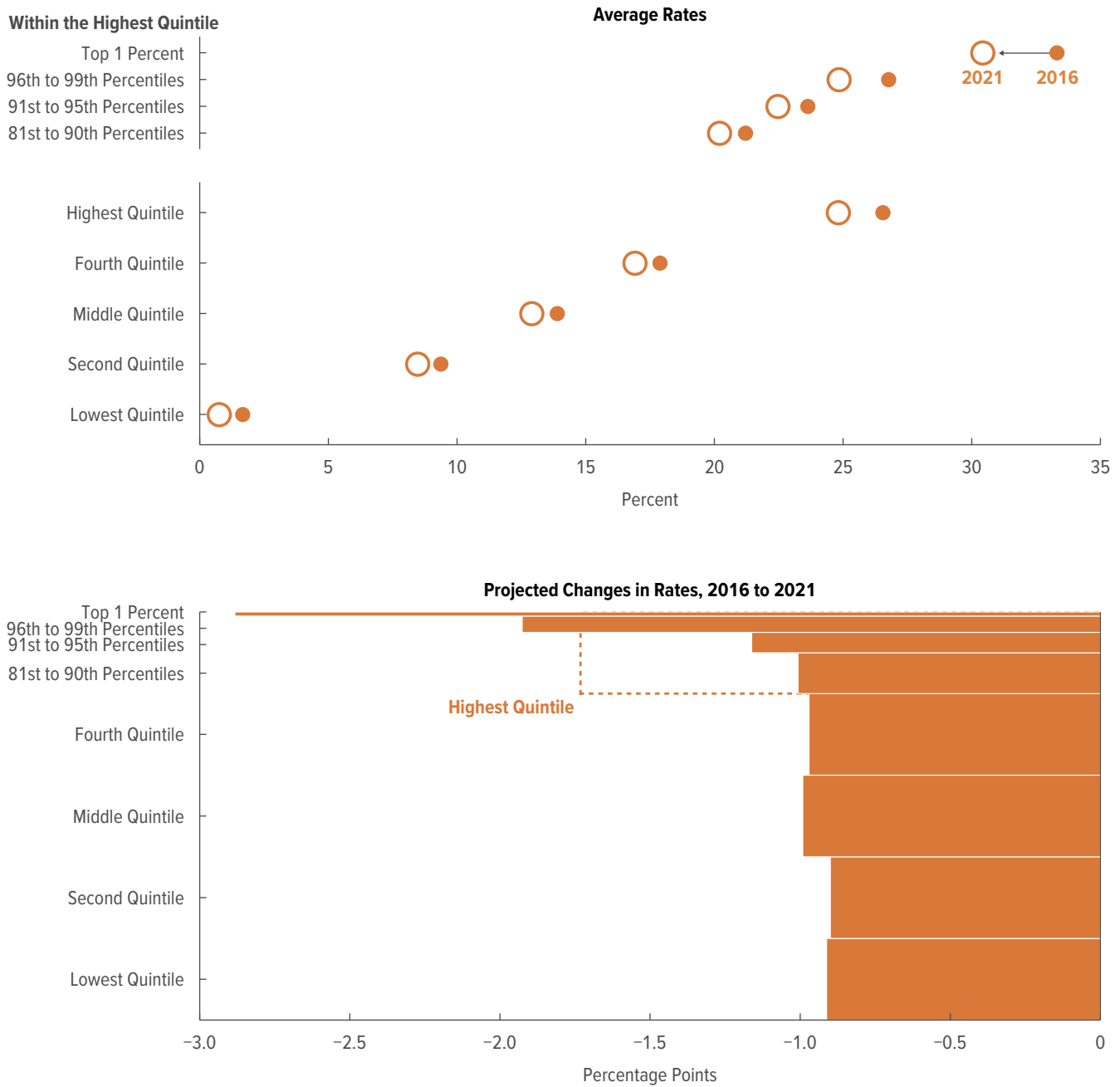
Source: Congressional Budget Office.

Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Average means-tested transfer rates are calculated by dividing the total means-tested transfers of each group by the total income before transfers and taxes (that is, market income plus social insurance benefits) of that group.

Income groups are created by ranking households by their size-adjusted income before transfers and taxes.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

Figure 6.

Average Federal Tax Rates, by Income Group, 2016 and 2021

Source: Congressional Budget Office.

Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes. Average federal tax rates are calculated by dividing the total federal taxes of each group by the total income before transfers and taxes (that is, market income plus social insurance benefits) of that group.

Income groups are created by ranking households by their size-adjusted income before transfers and taxes.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

Even as they experience the greatest reduction in average federal tax rates, households in the highest quintile see their share of total federal taxes increase by 0.8 percentage points in CBO's projections—from 68.9 percent in 2016 to 69.7 percent in 2021; about one-third of that increase is attributable to households in the top 1 percent, which account for 25.1 percent of total taxes in 2016 and 25.4 percent of total taxes in 2021. The highest quintile's share of total taxes increases because the growth of that group's average income more than offsets the decrease in the group's average tax rate. By contrast, the share of total taxes paid by each of the other quintiles is projected to decrease over the period.

Historical Trends in the Distribution of Means-Tested Transfers and Federal Taxes
The means-tested transfer rate of 68 percent for households in the lowest quintile that is projected for 2021 would be the lowest observed rate since Medicaid was expanded under the Affordable Care Act (ACA) in 2014 (see Figure 7). It would, however, still be higher than it was at any point before the ACA was enacted. That pattern reflects growth in health care costs, which contributes to the increase in the average cost per beneficiary of providing Medicaid benefits and offsets the effects of the reduction in caseloads for means-tested programs that results from income growth at the bottom of the distribution.

In CBO's projections, average federal tax rates decrease for all income groups. As a result of those decreases, in 2021, average rates for all groups approach the values recorded in 2012, before new taxes were enacted as part of the ACA and before individual income tax rates were increased. The rate for the top 1 percent in 2021 is projected to be nearly equal to its average over the 1979–2016 period.

Uncertainty in CBO's Projections of Means-Tested Transfers and Federal Taxes
Many of the factors that contribute to uncertainty in CBO's projections of income before transfers and taxes also contribute to uncertainty in the agency's projections of means-tested transfers and federal taxes. CBO's projections of the distributions of means-tested transfers and federal taxes are based on the agency's economic and demographic forecast for the coming decade as well as on its projections of budget outlays for transfer programs. The uncertainty inherent in those projections contributes to the uncertainty in the projections of the income distribution.

Another source of uncertainty in the projections is the possibility of changes in policy between now and 2021. The projections in this report reflect current law. Changes in policy—especially policies related to taxes and transfers—would affect distributional outcomes for 2021 and cause them to differ from those projected in this report. Moreover, the effects of certain policies on behavior are uncertain: People may respond to the policy changes scheduled under current law in ways that differ from CBO's projections.

Projected Changes in Income Inequality
If the distributions of income, means-tested transfers, and federal taxes follow CBO's projections, income inequality will be greater in 2021 than it was in 2016.

A standard composite measure of income inequality is the Gini coefficient, which summarizes an entire distribution in a single number that ranges from zero to one. A value of zero indicates complete equality (for example, if each household received the same amount of income), and a value of one indicates complete inequality (for example, if a single household received all the income). Thus, a Gini coefficient that increases over time indicates rising income inequality.

Income inequality as measured by the Gini coefficient increased from 1979 to 2016, and CBO projects that it will be higher in 2021. That increase reflects the accelerated growth of household income that is projected to occur at the top of the distribution. The Gini coefficient for income before taxes and transfers is projected to grow from 0.513 in 2016 to 0.521 in 2021—close to its previous peak, which was recorded in 2012 (see Figure 8).

The Gini coefficient can also be interpreted as a measure of one-half of the average difference in income between every pair of households in the population, divided by the average income of the total population. For example, the Gini coefficient of 0.513 for 2016 indicates that the

Figure 7.

Average Means-Tested Transfer Rates and Federal Tax Rates, by Income Group, Since 1979
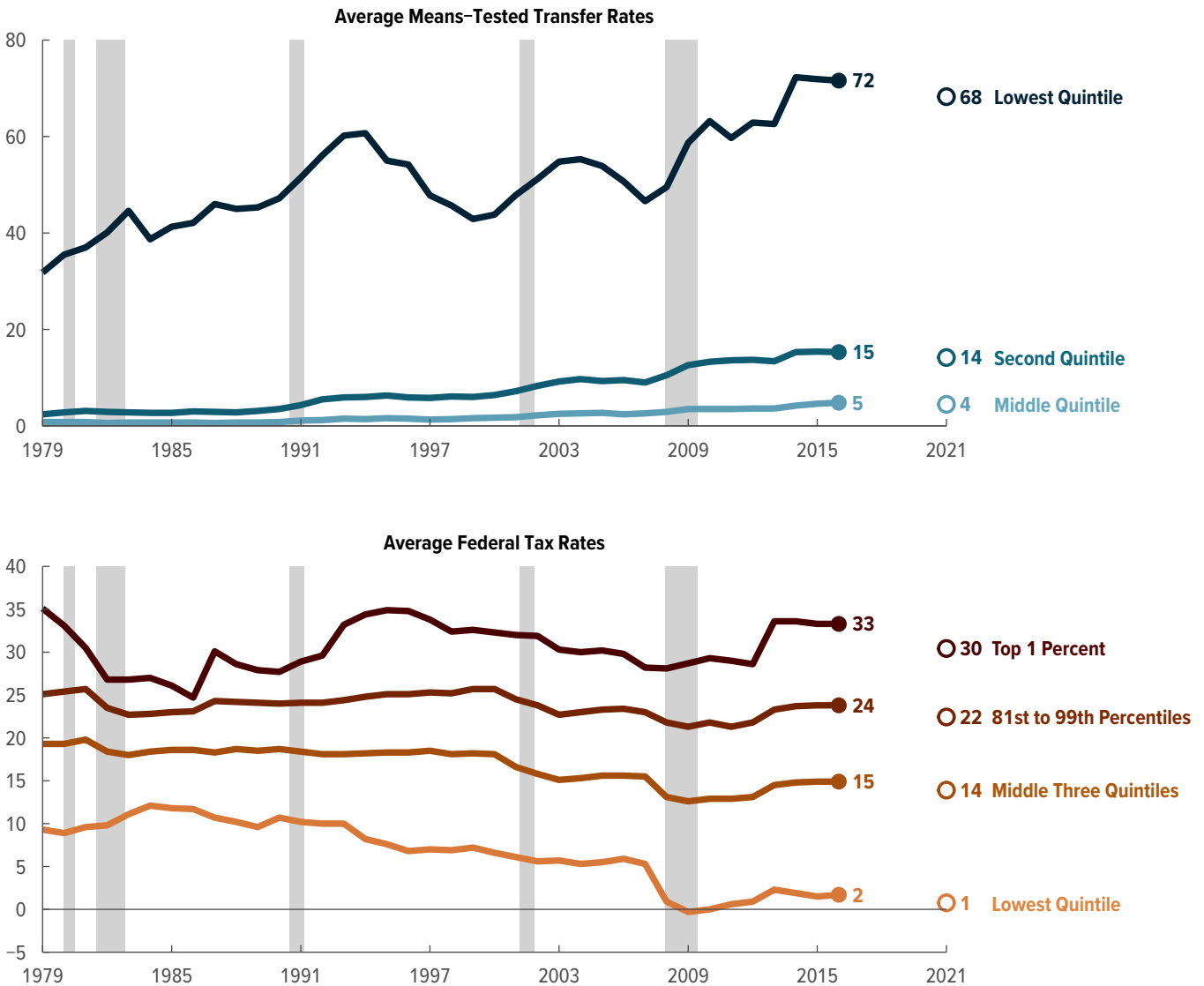
Percent

Average Means–Tested Transfer Rates

Average Federal Tax Rates
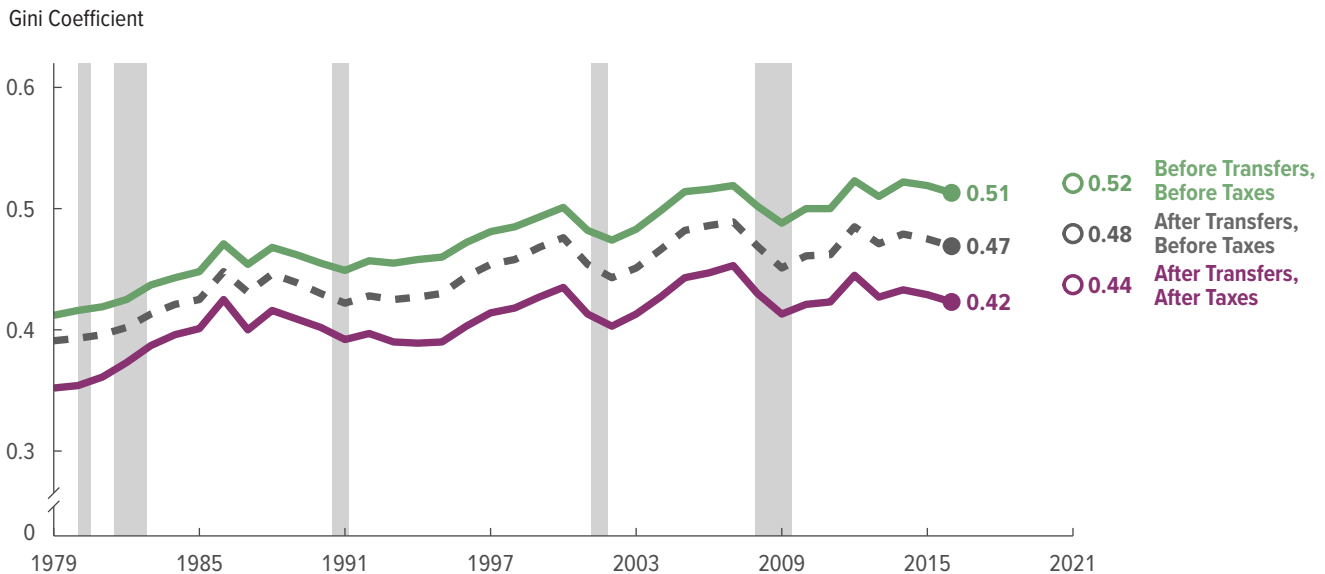

Source: Congressional Budget Office.

Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Average means-tested transfer rates are calculated by dividing the total means-tested transfers of each group by the total income before transfers and taxes (that is, market income plus social insurance benefits) of that group. The average transfer rates for the highest two quintiles have been less than 2 percent since 1979.

Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes. Average federal tax rates are calculated by dividing the total federal taxes of each group by the total income before transfers and taxes of that group.

Income groups are created by ranking households by their size-adjusted income before transfers and taxes.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

Figure 8.

Income Inequality, as Measured by the Gini Coefficient, Since 1979

Gini Coefficient

Source: Congressional Budget Office.

The Gini coefficient is a measure of income inequality that ranges from zero (the most equal distribution of income) to one (the least equal distribution of income).

Income before transfers and taxes is market income plus social insurance benefits.

Income after transfers and taxes is income before transfers and taxes plus means-tested transfers minus federal taxes. Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

average difference in income between pairs of households in that year was equal to 102.6 percent (twice 0.513) of average household income in 2016, or about $70,700 (adjusted to account for differences in household size). Similarly, the Gini coefficient of 0.521 projected for 2021 indicates that the average difference in income between pairs of households would equal 104.2 percent (twice 0.521) of average household income in 2021, or about $77,800 (in 2016 dollars).

In CBO's projections, inequality increases from 2016 to 2021 even as income grows for all income groups, including those at the bottom of the distribution. That pattern is similar to the one observed during the economic expansion of the mid-1990s, when income grew for households at the bottom of the distribution after a long period of stagnation, while inequality increased because income at the top of the distribution grew more

strongly. A similar pattern occurred during the expansion of the mid-2000s.

The Gini coefficient for income after transfers and taxes is lower than the coefficient for income before transfers and taxes because means-tested transfers and federal taxes in the United States are progressive. The degree to which means-tested transfers and federal taxes reduce income equality varies from year to year according to the size and progressivity of the tax and transfer systems. In CBO's projections, the Gini coefficient for income after transfers and taxes is 0.437 in 2021—0.084 less than the Gini coefficient for income before transfers and taxes (see Figure 9). That reduction in inequality is smaller than the reduction in 2016, when means-tested transfers and federal taxes reduced the Gini coefficient by 0.090, from 0.513 to 0.423.

Figure 9.

Reduction in Income Inequality Stemming From Means-Tested Transfers and Federal Taxes Since 1979

Change in Gini Coefficient
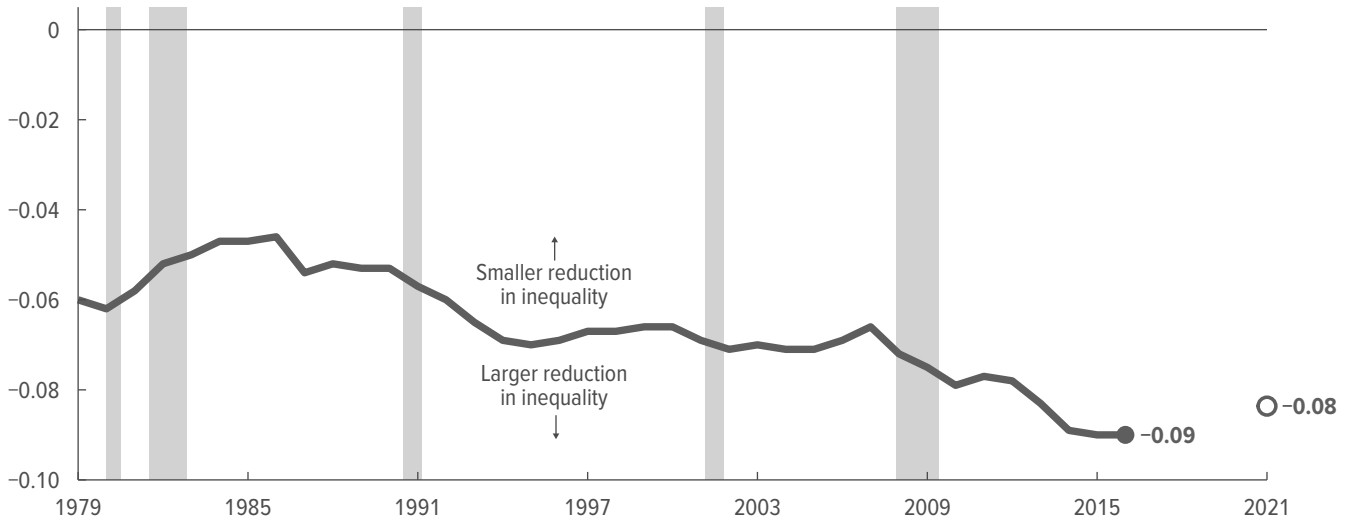
Source: Congressional Budget Office.

Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes.

Income before transfers and taxes is market income plus social insurance benefits. Income after transfers and taxes is income before transfers and taxes plus means-tested transfers minus federal taxes.

To measure the effect of means-tested transfers and federal taxes on inequality in each year, CBO subtracted the Gini coefficient of income before transfers and taxes from the Gini coefficient of income after transfers and taxes. A Gini coefficient value of zero indicates complete equality, and a value of one indicates complete inequality; thus, a negative change in the Gini coefficient indicates that inequality was reduced. The more negative the change, the greater the reduction in inequality.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

CBO's Projection Method

The Congressional Budget Office regularly reports the income distribution in the latest year for which comprehensive income data are available. The most recent publication in that series, released in July 2019, reported the distribution of household income in 2016. For this report, CBO has built on its framework for distributional analysis by projecting the distribution of household income to a future year. The distributional method is the same as that used in the most recent report, but additional procedures and assessments are used to project changes in the distribution of income from 2016 (referred to here as the base year) to 2021 (referred to as the projection year).

Modeling the Income Distribution
In its distributional analyses, CBO uses multiple data sources to create a sample data set of households that contains information about each household's demographics, income, means-tested transfers, and federal taxes. It uses that data set to sort households into income groups and determine the total and average income, means-tested transfers, and federal taxes for each group.

Data
CBO uses households as the unit of analysis in its distributional reports. A household consists of the people who share a housing unit, regardless of their relationship. The base-year data used in CBO's analyses come from two primary sources:

- The Statistics of Income (SOI), a nationally representative sample of individual income tax returns collected by the Internal Revenue Service that provides data on tax-filing units; and

- The Annual Social and Economic Supplement of the Census Bureau's Current Population Survey (CPS), which contains survey data on a large sample of households. Because it contains detailed demographic information as well as data on nontaxable sources of income, the CPS is used to supplement the SOI. The CPS also contains data on tax units that do not file taxes.

A household can consist of more than one tax-filing unit—a married couple and an adult child, for example. To incorporate data on tax-filing units into the analysis, CBO creates tax-filing units from the household data on the basis of the relationship and income information collected by the household surveys. Once data from the two sources are organized using the same unit of analysis—tax-filing units—they are statistically matched and combined to create one database.

For the final presentation of the distributional results, data for those statistically matched tax-filing units are summed back to create data on households. Sources of income, means-tested transfers, or federal taxes that are not available or that are underreported in the combined data set are imputed or allocated.

To rank households and assign them to income groups, CBO uses a broad measure of income before means-tested transfers and federal taxes are accounted for. Each quintile (or fifth) contains approximately the same number of households. The lowest quintile has slightly fewer households because households with negative income are not included in that income group, though they are included in all income totals.

Because households with identical income but different numbers of people can differ in their economic status, CBO adjusts income for household size by dividing household income by the square root of the number of people in the household. That adjustment is made only to rank households. All other income measures presented in the agency's distributional analyses are unadjusted.[1]

Income Measures
The income measures used throughout this analysis are defined as follows:

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1. For more details on CBO's distributional method, see Congressional Budget Office, *The Distribution of Household Income, 2014* (March 2018), Appendix A, www.cbo.gov/publication/53597.

Income before transfers and taxes consists of market income plus social insurance benefits.

Market income consists of the following components:

- Labor income—cash wages and salaries, including those allocated by employees to 401(k) plans; employer-paid health insurance premiums (as measured by the CPS); the employer's share of Social Security, Medicare, and federal unemployment insurance payroll taxes; and the share of corporate income taxes borne by workers.

- Business income—net income from businesses and farms operated solely by their owners, partnership income, and income from S corporations.

- Capital income (including capital gains)—profits realized from the sale of assets (but not increases in the value of assets that have not been sold); taxable and tax-exempt interest; dividends paid by corporations (but not dividends from S corporations, which are considered part of business income); positive rental income; and the share of corporate income taxes borne by capital owners.

- Other income—income received in retirement for past services and income from other nongovernmental sources.

Social insurance benefits comprise the following:

- Social Security benefits (which consist of benefits from Old Age, Survivors, and Disability Insurance),

- Medicare health insurance benefits (measured by the average cost to the government for providing those benefits),

- Unemployment insurance benefits, and

- Worker's compensation benefits.

Income after transfers and taxes equals income before transfers and taxes plus means-tested transfers minus federal taxes.

Means-tested transfers consist of both cash and in-kind benefits provided through the following programs:

- Medicaid and the Children's Health Insurance Program (measured by the average cost to the government for providing those benefits),

- The Supplemental Nutrition Assistance Program (SNAP; formerly known as the Food Stamp program),

- Housing assistance programs,

- Supplemental Security Income (SSI),

- Temporary Assistance for Needy Families and its predecessor, Aid to Families With Dependent Children,

- Child nutrition programs,

- The Low Income Home Energy Assistance Program, and

- State and local government general assistance programs.

Federal taxes comprise the following:[2]

- Individual income tax liabilities,

- Payroll taxes (also known as social insurance taxes),[3]

- Corporate income taxes, and

- Excise taxes.

Projecting Income Before Transfers and Taxes

Income before transfers and taxes consists of market income and social insurance transfers. To project most sources of market income, CBO uses the same methods that it uses to prepare its baseline revenue

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2. Federal taxes allocated to households in this analysis account for over 90 percent of all federal revenues annually, on average. The federal revenue sources not allocated to U.S. households include the estate and gift tax, Federal Reserve income remitted to the Treasury, and miscellaneous fees and fines.

3. Payroll taxes include those that fund the Social Security trust fund, the Medicare trust fund, and unemployment insurance trust funds. The federal portion of the unemployment insurance payroll tax covers only administrative costs for the federal-state program; state-collected unemployment insurance payroll taxes are not included in CBO's measure of federal taxes.

projections: Using its microsimulation tax model, the agency adjusts data from a representative sample of tax returns to make those data consistent with the projected demographic and economic characteristics of the population in a future year.[4]

- Demographic characteristics—age, sex, and marital status—are projected by the Congressional Budget Office Long-Term model.[5] CBO adjusts the weights assigned to tax units in the sample to reflect demographic characteristics in the projection year. Married couples filing jointly are assigned the average weight of the two taxpayers.

- Economic characteristics of the population are projected by adjusting the values of various types of income to reflect expected growth in aggregate income sources in CBO's economic forecast. The microsimulation tax model holds the distribution of each income type roughly constant by applying the same growth rate to each return in the sample. Wages (including salaries) are the exception: The highest earners' share of total wages is estimated using a statistical model (see Box 1 on page 10). The overall distribution of income will change over time if different income sources grow at different rates.

To construct households from tax units, CBO merges the projected weights and incomes of the tax units in the projection year with the data on households in the SOI-CPS merged file for the base year. Households with multiple tax units are assigned the average projected weight of the tax units in the household.

CBO projects social insurance benefits for specific programs—most notably Social Security and Medicare—in a way that reflects the overall growth of those benefits in the agency's baseline spending projections. The projected number of recipients of those benefits likewise reflects CBO's projections of changes in the elderly population. The agency applies the same growth rate to social insurance benefits in each household, which tends to hold the distribution of those benefits roughly constant.[6]

Projecting Means-Tested Transfers

Because means-tested transfers are not taxable, CBO relies on CPS data on those transfers for its distributional analyses. However, transfer recipients often fail to disclose to interviewers that they receive benefits through a means-tested transfer program. As a result, both the number of recipients and the total value of transfers for those recipients reported in the CPS data fall below the actual totals recorded by the agencies that administer the programs.

For the base year, CBO uses an imputation model to adjust the data to account for underreporting of means-tested transfers. The model estimates the probability that a unit in the CPS receives transfer income from each of the largest means-tested transfer programs (Medicaid, SNAP, SSI). The model then imputes additional recipients on the basis of those probabilities so that the total number of people receiving a transfer in CBO's household data matches a predetermined target—in this case, the actual number of recipients recorded in administrative program data. Finally, benefit amounts are assigned to imputed transfer recipients to match the total benefits recorded in the administrative program data.[7]

To project the base-year data to a future year, CBO develops projection-year targets for the imputation model. When preparing the agency's baseline projections, CBO analysts project spending for each budget account. The projections, which generally reflect current law, are based on a synthesis of information from program experts inside and outside the government, historical spending patterns, and the agency's economic forecast.[8] Those projections are used to develop the target number of recipients and the target amount of benefits for the projection year in the transfer imputation model.

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4. For more details on CBO's microsimulation tax model, see Congressional Budget Office, "An Overview of CBO's Microsimulation Tax Model" (June 2018), www.cbo.gov/ publication/54096.

5. For more information on that model, see Congressional Budget Office, *An Overview of CBOLT: The Congressional Budget Office Long-Term Model* (April 2018), www.cbo.gov/publication/53667.

6. For more details on CBO's economic forecast and spending and revenue projections, see Congressional Budget Office, *An Update to the Budget and Economic Outlook: 2019 to 2029* (August 2019), www.cbo.gov/publication/55551.

7. For further details, see Bilal Habib, *How CBO Adjusts for Survey Underreporting of Transfer Income in Its Distributional Analyses*, Working Paper 2018-07 (Congressional Budget Office, July 2018), www.cbo.gov/publication/54234.

8. For further details, see Congressional Budget Office, *How CBO Prepares Baseline Budget Projections* (February 2018), www.cbo.gov/publication/53532.

To impute the number of additional recipients in the projection year, CBO first applies the projection-year weights from the agency's microsimulation tax model to each record in the base-year data. The agency then uses the same probabilities of receiving transfers that it calculated for the base year and imputes recipients until the new target is reached. Benefit amounts are then assigned to match the target benefit amounts.

Smaller means-tested transfers (such as housing assistance and Temporary Assistance for Needy Families) are projected by applying a growth rate to all recipients in the base year so that the amounts in the projection year match CBO's spending projections for those programs.

Projecting Federal Taxes

In its distributional analyses, CBO allocates individual income taxes (including refundable credits) and the employee's share of payroll taxes to the households paying those taxes directly. CBO also allocates the employer's share of payroll taxes to employees because employers appear to pass on their share of payroll taxes to employees by paying lower wages than they otherwise would. The projected values of those taxes are calculated

by CBO's microsimulation tax model on the basis of projected income for each tax unit.

Excise taxes are allocated to households according to households' proportion of overall consumption of taxed goods and services.[9] The values of those taxes in the base year are projected to grow at the same rate that the total receipts of such taxes grow in the agency's baseline projections of revenues.

CBO allocates 75 percent of the burden of corporate income taxes to owners of capital in proportion to their income from interest, dividends, rents, and adjusted capital gains and allocates the remaining 25 percent of the burden to workers in proportion to their share of labor income (see Box 2 on page 18). Those taxes are allocated using the projected weights and incomes derived from the agency's microsimulation tax model and the total receipts from those taxes in CBO's baseline projections.

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9.   CBO's projections reflect the assumption that spending patterns for households in the different income and demographic groups in the CPS are similar to those observed in the Bureau of Labor Statistics's Consumer Expenditure Survey.

Details on Income, Transfers, and Taxes, 2016 and 2021

This appendix provides details on the average household income, means-tested transfers, and federal taxes for each income group in the Congressional Budget Office's analysis of actual data for 2016 and in the agency's projections for 2021. It also provides data on tax and transfer rates and on each group's shares of total income, transfers, and taxes.

Table B-1.

Average Household Income, Means-Tested Transfers, and Federal Taxes, by Income Group, 2016 and 2021

2016 Dollars

	Income Before Transfers and Taxes			Means-Tested Transfers and Federal Taxes			Income After Transfers and Taxes		
	2016	**2021**	**Change From 2016 to 2021**	**2016**	**2021**	**Change From 2016 to 2021**	**2016**	**2021**	**Change From 2016 to 2021**
All Quintiles	105,500	113,500	8,000	-16,500	-16,700	-200	89,000	96,800	7,800
Lowest Quintile	20,600	21,900	1,300	14,400	14,800	400	35,000	36,700	1,700
Second Quintile	45,300	47,900	2,600	2,700	2,700	0	48,000	50,700	2,700
Middle Quintile	72,500	76,700	4,200	-6,600	-6,500	100	65,900	70,300	4,400
Fourth Quintile	109,600	116,100	6,500	-17,900	-18,000	-100	91,700	98,100	6,400
Highest Quintile	291,200	319,400	28,200	-76,300	-78,300	-2,000	214,900	241,200	26,300
81st to 90th percentiles	159,600	170,800	11,200	-32,700	-33,400	-700	126,800	137,400	10,600
91st to 95th percentiles	218,300	236,800	18,500	-50,700	-52,300	-1,600	167,700	184,500	16,800
96th to 99th percentiles	359,500	397,900	38,400	-95,500	-98,000	-2,500	264,100	299,900	35,800
Top 1 percent	1,788,800	2,000,700	211,900	-594,900	-607,800	-12,900	1,193,900	1,393,000	199,100

Source: Congressional Budget Office.

Income before transfers and taxes is market income plus social insurance benefits.

Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes.

Income after transfers and taxes is income before taxes and transfers plus means-tested transfers minus federal taxes.

Income groups are created by ranking households by their size-adjusted income before taxes and transfers.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

Table B-2.

Average Means-Tested Transfer Rates and Federal Tax Rates, by Income Group, 2016 and 2021

Percent

	Means-Tested Transfer Rate			Federal Tax Rate		
	2016	**2021**	**Change From 2016 to 2021 (Percentage points)**	**2016**	**2021**	**Change From 2016 to 2021 (Percentage points)**
All Quintiles	5.3	5.0	-0.3	21.0	19.6	-1.3
Lowest Quintile	71.6	68.3	-3.4	1.7	0.8	-0.9
Second Quintile	15.3	14.2	-1.1	9.4	8.5	-0.9
Middle Quintile	4.8	4.5	-0.3	13.9	12.9	-1.0
Fourth Quintile	1.5	1.4	-0.1	17.9	16.9	-1.0
Highest Quintile	0.3	0.3	*	26.5	24.8	-1.7
81st to 90th percentiles	0.7	0.7	*	21.2	20.2	-1.0
91st to 95th percentiles	0.4	0.4	*	23.6	22.5	-1.2
96th to 99th percentiles	0.2	0.2	*	26.8	24.8	-1.9
Top 1 percent	0.1	0.1	*	33.3	30.4	-2.9

Source: Congressional Budget Office.

Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income. Average means-tested transfer rates are calculated by dividing the total means-tested transfers of each group by the total income before transfers and taxes (that is, market income plus social insurance benefits) of that group.

Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes. Average federal tax rates are calculated by dividing the total federal taxes of each group by the total income before transfers and taxes of that group.

Income groups are created by ranking households by their size-adjusted income before taxes and transfers.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

* = between −0.05 and 0.05 percentage points.

Table B-3.

Income Groups' Shares of Total Income, Means-Tested Transfers, and Federal Taxes, 2016 and 2021

Percent

	2016	2021	Change From 2016 to 2021 (Percentage points)	2016	2021	Change From 2016 to 2021 (Percentage points)
	Income Before Transfers and Taxes			**Income After Transfers and Taxes**		
Lowest Quintile	3.8	3.8	*	7.7	7.5	-0.2
Second Quintile	8.9	8.7	-0.2	11.1	10.8	-0.4
Middle Quintile	13.6	13.4	-0.3	14.7	14.3	-0.3
Fourth Quintile	20.5	20.2	-0.3	20.3	20.0	-0.3
Highest Quintile	54.4	55.1	0.7	47.6	48.8	1.2
81st to 90th percentiles	14.9	14.8	-0.1	14.1	13.9	-0.1
91st to 95th percentiles	10.3	10.3	*	9.4	9.4	*
96th to 99th percentiles	13.3	13.6	0.3	11.6	12.0	0.4
Top 1 percent	15.8	16.4	0.6	12.5	13.4	0.9
	Means-Tested Transfers			**Federal Taxes**		
Lowest Quintile	51.9	53.0	1.1	0.3	0.1	-0.2
Second Quintile	25.6	24.9	-0.7	4.0	3.8	-0.2
Middle Quintile	12.2	12.1	-0.2	9.0	8.8	-0.3
Fourth Quintile	6.0	5.9	-0.1	17.5	17.4	-0.1
Highest Quintile	3.5	3.5	*	68.9	69.7	0.8
81st to 90th percentiles	2.0	2.0	*	15.1	15.2	0.1
91st to 95th percentiles	0.8	0.8	*	11.6	11.8	0.2
96th to 99th percentiles	0.6	0.6	*	17.0	17.2	0.2
Top 1 percent	0.2	0.2	*	25.1	25.4	0.3

Source: Congressional Budget Office.

Income before transfers and taxes is market income plus social insurance benefits.

Means-tested transfers are cash payments and in-kind services provided through federal, state, and local government assistance programs for which eligibility is based primarily on income.

Federal taxes consist of individual income taxes, payroll (or social insurance) taxes, corporate income taxes, and excise taxes.

Income after transfers and taxes is income before taxes and transfers plus means-tested transfers minus federal taxes.

Income groups are created by ranking households by their size-adjusted income before taxes and transfers.

For detailed definitions of income measures and information on the methods underlying this analysis, see Appendix A.

* = between −0.05 and 0.05 percentage points.

List of Tables and Figures

About This Document

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