Reconciling the Official Poverty Measure and CBO's Distributional Analysis of Household Income

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Summary

For over 30 years, the Congressional Budget Office has regularly published reports on the distribution of household income, means-tested transfers, and federal taxes. (Means-tested transfers are cash payments or in-kind services provided primarily on the basis of income.) And for over 60 years, the Census Bureau has regularly updated its measure of poverty rates, known as the official poverty measure (OPM). CBO's distributional analysis of household income shows that from 1979 to 2021, income after transfers and taxes among households in the lowest quintile (or fifth) of the income distribution increased significantly, after adjusting for inflation. However, the OPM has not decreased significantly over that same period.

What accounts for that seeming disparity? In this report, CBO answers that question by examining how its method for analyzing the distribution of household income differs from the Census Bureau's method for calculating the OPM. The examination involves a step-by-step reconciliation of the two methods. (For a summary of the steps and their effects on the percentage of people with income below the poverty threshold from 1979 to 2021, see Figure 1.)

Measures of Income

The largest effects stem from differences in what counts as income. The income measure in CBO's distributional analysis of income includes benefits from in-kind transfers (that is, transfers in the form of goods or services rather than cash), whereas the income measure (called money income) used to calculate the OPM does not. Including those benefits—particularly benefits from health-related in-kind transfers—increases income among low-income households and therefore reduces the number of people whose income falls below the poverty threshold. (Throughout this report, results that include those transfers should be interpreted with caution because the income thresholds that the Census Bureau uses to calculate the OPM are not designed to include such transfers.)

Data and Units of Analysis

Other significant effects stem from differences in the data and the units of analysis that CBO and the Census Bureau use. CBO's income measure matches data from tax records with data from the Annual Social and Economic Supplement of the Current Population Survey (CPS) and uses households as the unit of analysis. To develop the OPM, the Census Bureau relies solely on survey data from the CPS and uses families as the unit of analysis. Incorporating data from tax records and using households as the unit of analysis leads to a lower percentage of people with income below the poverty threshold, on average.
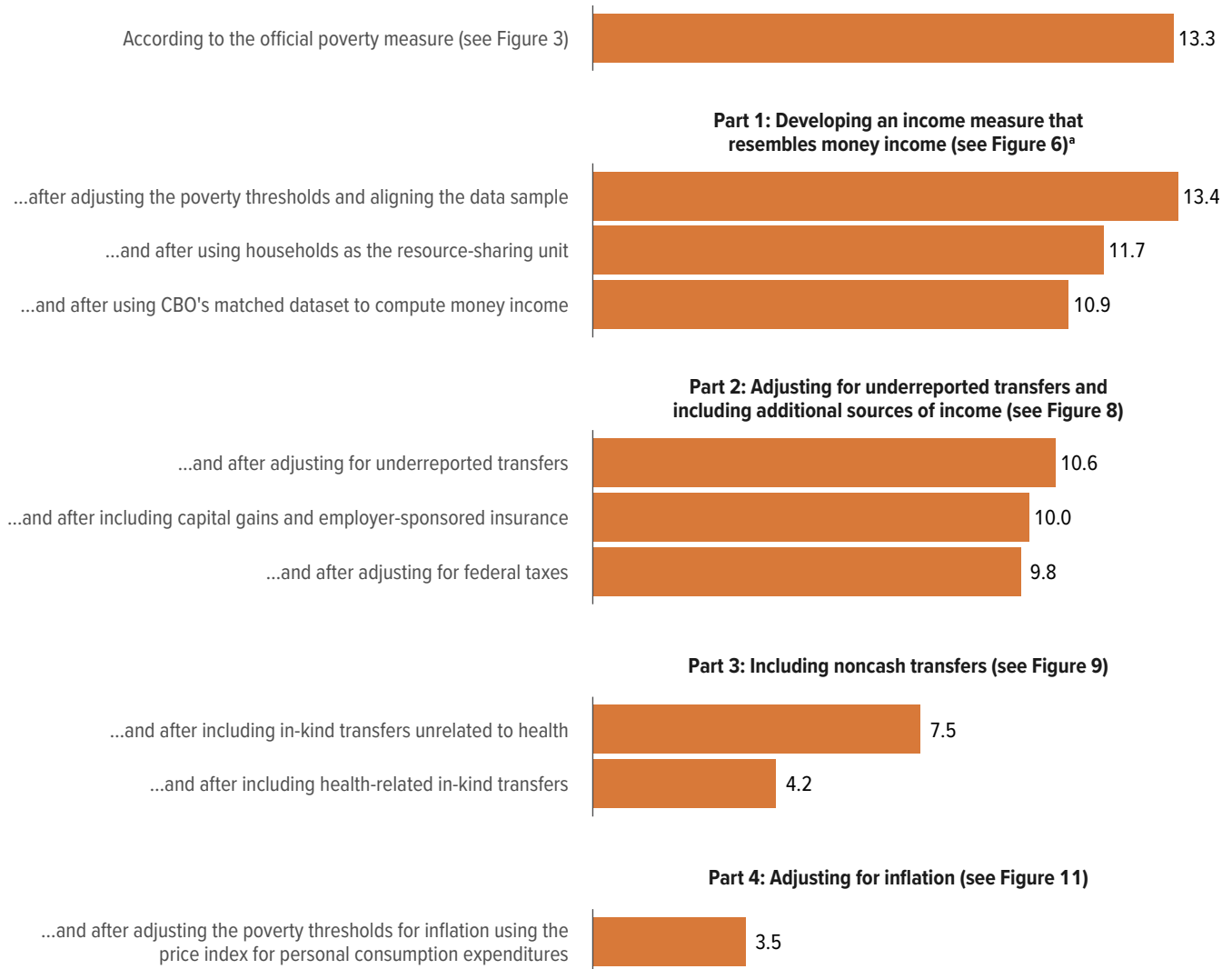
Before- and After-Tax Income

CBO uses after-tax income in its distributional analysis, whereas the Census Bureau uses before-tax income to calculate the OPM. Including federal taxes in the income measure increases the percentage of people with income below the poverty threshold before the mid-1990s. In more recent years, refundable tax credits decrease that percentage—especially in 2020 and 2021. In most other years, though, incorporating taxes in the income measure used to calculate the percentage of people with income below the poverty threshold has only a small effect.

Figure 1.

Share of People With Income Below the Poverty Threshold, on Average, 1979 to 2021

Percent

According to the official poverty measure (see Figure 3) — **13.3**

Part 1: Developing an income measure that resembles money income (see Figure 6)ᵃ

...after adjusting the poverty thresholds and aligning the data sample — **13.4**

...and after using households as the resource-sharing unit — **11.7**

...and after using CBO's matched dataset to compute money income — **10.9**

Part 2: Adjusting for underreported transfers and including additional sources of income (see Figure 8)

...and after adjusting for underreported transfers — **10.6**

...and after including capital gains and employer-sponsored insurance — **10.0**

...and after adjusting for federal taxes — **9.8**

Part 3: Including noncash transfers (see Figure 9)

...and after including in-kind transfers unrelated to health — **7.5**

...and after including health-related in-kind transfers — **4.2**

Part 4: Adjusting for inflation (see Figure 11)

...and after adjusting the poverty thresholds for inflation using the price index for personal consumption expenditures — **3.5**

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To reconcile the Census Bureau's method for calculating the official poverty measure and CBO's framework for analyzing the distribution of household income, CBO used the four-part multistep process shown in this figure. Throughout the reconciliation process, the effects are cumulative: The result of each successive step includes the combined results from all previous steps.

a. Money income is the measure of income that the Census Bureau uses to calculate the official poverty measure. Money income includes most forms of cash income available to a family, such as wages and Social Security benefits, but does not include taxes or in-kind transfers.

Other Considerations

CBO includes capital gains and employer-sponsored insurance in its income measure, whereas the Census Bureau does not. And CBO uses the price index for personal consumption expenditures (PCE) to adjust income after transfers and taxes for inflation, whereas the Census Bureau uses the consumer price index for all urban consumers (CPI-U) to adjust the poverty thresholds used to calculate the OPM for inflation. In CBO's assessment, each of those factors reduces the percentage of people with income below the poverty threshold.

Poverty Trends Among Certain Demographic Groups

After adjusting for differences between CBO's and the Census Bureau's methodologies, CBO estimated the percentage of people with income below the poverty threshold within certain demographic groups. The agency also estimated the composition of income among people with income below the poverty threshold. CBO found that the percentage of people with income below the poverty threshold was highest among unmarried households with children. And over time, health-related in-kind transfers have become the largest source of income for people in households with money income below the poverty threshold.

Background

In its most recent report on the distribution of household income, CBO estimated that from 1979 to 2021, real income (that is, income adjusted to remove the effects of inflation) among households in the lowest quintile of the distribution increased by 132 percent, after the effects of transfers and taxes were included (see Figure 2).[1] Yet according to the Census Bureau's official poverty measure (developed in the mid-1960s), the poverty rate did not decrease during that period but instead fluctuated between 11 percent and 15 percent (see Figure 3).[2] To reconcile that seeming disparity, in this report, CBO analyzes the differences between its method for estimating the distribution of household income and the Census Bureau's method for calculating the OPM by comparing those methods and the income measures used in each.

When CBO calculated income growth among households at the bottom of the distribution using a measure of income that closely approximates the measure used to calculate the OPM—otherwise referred to as money income—the growth in real income for households in the lowest quintile of the income distribution decreased (see Figure 4 on page 6). Similarly, the percentage of people with income below the poverty threshold was lower when CBO calculated the poverty rate using the framework for its distributional analysis of household income.

How Poverty Is Measured

Poverty measures are statistical tools that attempt to determine the level of economic hardship in a population by estimating the minimum income or resources needed to meet basic living standards. The measures can be used to assess changes in financial well-being and resources over time. (Although CBO regularly analyzes the distribution of household income, the agency does not regularly analyze or measure poverty.)
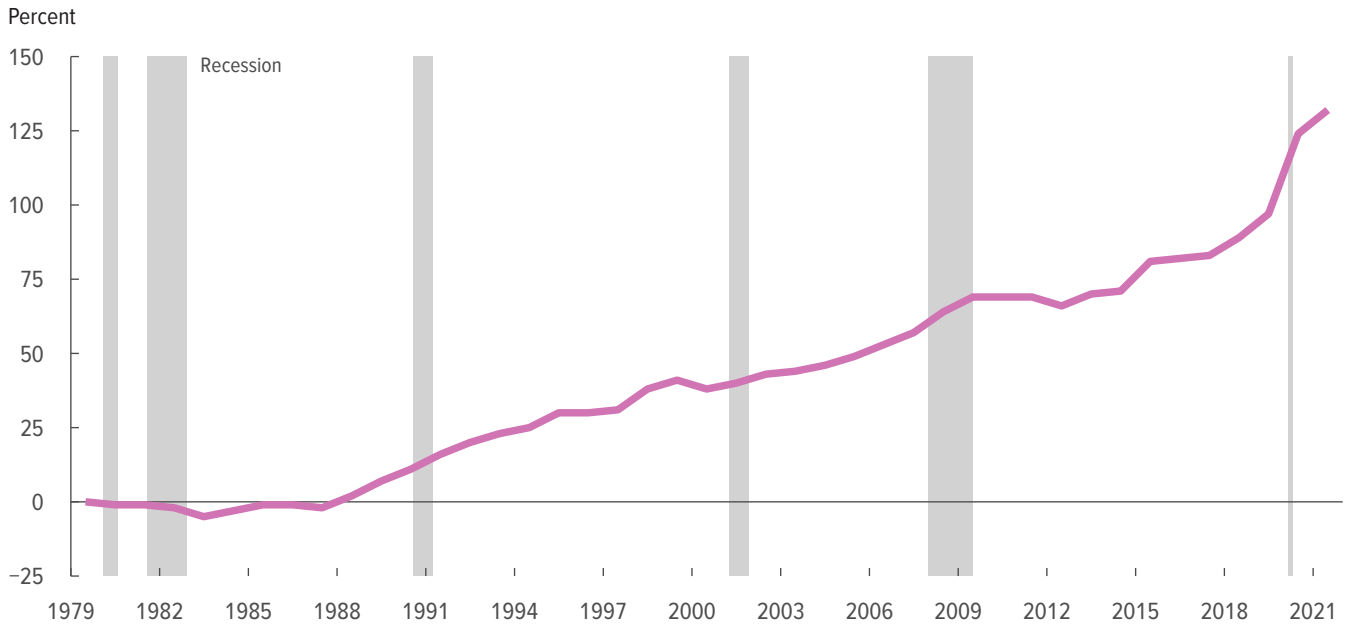
In this report, the percentage of people with income below the poverty threshold is calculated by first combining the income from all members of a family or household and then comparing that income with the relevant poverty threshold. The number of people for whom that income falls below the threshold is then divided by the total number of people in the United States.

There are many ways to measure poverty, each with its specific criteria and methods. Those criteria include:

- **Measures of Income.** Various measures of income are used to assess poverty. Sometimes, for example, income includes capital gains and in-kind transfers (both health-related transfers and those unrelated to health), but sometimes not. In its distributional analysis of household income, CBO uses two main measures of income: income before transfers and taxes and income after transfers and taxes.

- **Resource-Sharing Units.** When income is calculated for a group of people who share resources (such as a family with multiple wage earners), the rules that define the resource-sharing unit must be determined. For example, groups may represent households (people who share an address), tax units (people listed on a single tax return), or families (people who are legally related). When CBO analyzes the distribution of household income, the agency uses households as the resource-sharing unit.

1. Congressional Budget Office, "Trends in the Distribution of Household Income From 1979 to 2021" (September 2024), www.cbo.gov/publication/60342, and *The Distribution of Household Income in 2021* (September 2024), www.cbo.gov/publication/60341.

2. Emily A. Shrider, *Poverty in the United States: 2023* (Census Bureau, September 2024), www.census.gov/library/publications/2024/demo/p60-283.html.

Figure 2.

Cumulative Growth of Income After Transfers and Taxes Among Households in the Lowest Quintile of the Income Distribution

Percent

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To calculate growth rates, CBO first converted all dollar amounts to 2021 dollars.

The shaded vertical bars indicate recessions, which begin just after a peak in economic activity and run through the subsequent trough. Recessions are plotted using monthly data; all other data are annual averages plotted at the midpoint (July 1) of each year.

- **Poverty Thresholds.** A poverty threshold is the amount of income below which a resource-sharing unit is defined as being in poverty, given a particular measure of income. (The poverty threshold is not a factor in CBO's distributional analysis of household income.)

- **Data Sources.** Information about people's income can come from many sources, such as survey data or administrative data. When analyzing the distribution of household income, CBO uses a dataset that matches administrative tax data from the Internal Revenue Service with survey data from the CPS.

In addition to using the OPM, the U.S. government uses the supplemental poverty measure (SPM), introduced by the Census Bureau in 2011. Each measure has its own approach for defining income and evaluating economic hardship (see Table 1). Both measures use the family as the resource-sharing unit (with some differences in how a family is defined) and rely on data from the CPS.

The OPM is derived using *money income*. Money income includes most forms of cash income available to a family, such as wages and Social Security benefits, but does not include taxes, tax credits, or in-kind transfers, such as benefits from Medicare, Medicaid, and the Supplemental Nutrition Assistance Program (SNAP). The amount of a family's money income is compared with a poverty threshold originally derived from the cost of a basic food diet in 1963. The poverty threshold varies according to family size and composition, but not according to where families live. Each year, the poverty threshold is adjusted for inflation using the CPI-U.

The SPM is derived using *money income from all sources*, which expands on the concept of money income by incorporating taxes and some in-kind transfers, such as SNAP benefits and housing assistance. Moreover, when calculating money income from all sources, certain living expenses, such as medical costs, work-related expenses, and child care, are subtracted from the income measure. The poverty thresholds used to calculate the OPM differ from those used to calculate the SPM. Unlike the

Figure 3.

Share of People With Income Below the Poverty Threshold According to the Official Poverty Measure

Percent
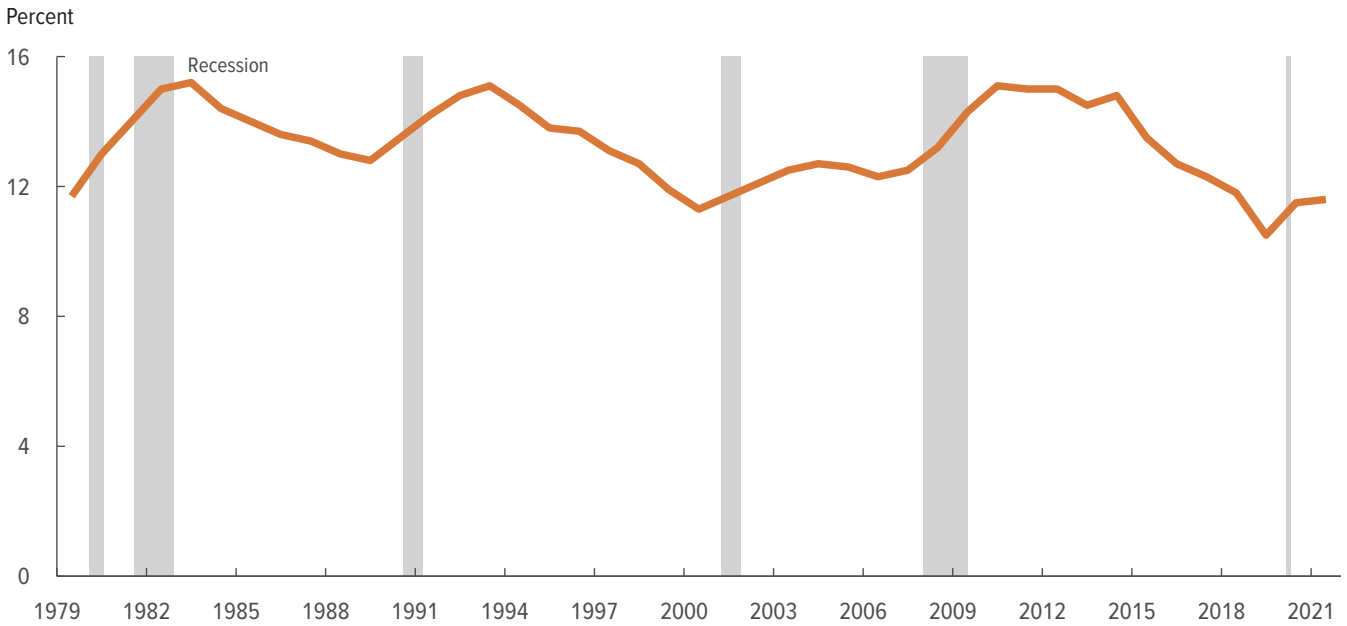
Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

The shaded vertical bars indicate recessions, which begin just after a peak in economic activity and run through the subsequent trough. Recessions are plotted using monthly data; all other data are annual averages plotted at the midpoint (July 1) of each year.

OPM—which is calculated using a fixed income threshold—the SPM is calculated using poverty thresholds that are tied to the median family's current expenditures on several basic needs, such as food, clothing, shelter, and utilities. (The median family refers to a family whose spending falls in the middle of all families' spending.) In addition, the poverty thresholds used to calculate the SPM are adjusted to account for variations in housing costs in different regions of the country.

The first year for which the Census Bureau estimated poverty rates using the OPM is 1959; the first year for which poverty rates were estimated using the SPM is 2009. In most years, the percentage of people with income below the poverty threshold was higher according to the SPM than it was according to the OPM. But the opposite was true in 2020 and 2021, largely because temporary refundable tax credits increased income for low-income households in those years (see Figure 5 on page 8).

Because the OPM and SPM rely on survey data from the CPS, they are affected by nonresponses (when people do not respond to the survey) and misreporting of income.

- **Nonresponses.** Nonresponse rates for the CPS have increased over time, especially after the coronavirus pandemic began in 2020.[3] Households with higher income are more likely to respond to the survey than households with lower income, which could contribute to an underestimate of the poverty rate.

- **Misreporting of Income.** Certain sources of market income (which comprises wages and other forms of labor, capital, and business income) tend to be underreported in the CPS when compared with income reported in administrative records.[4] Moreover, respondents to the CPS tend to underreport
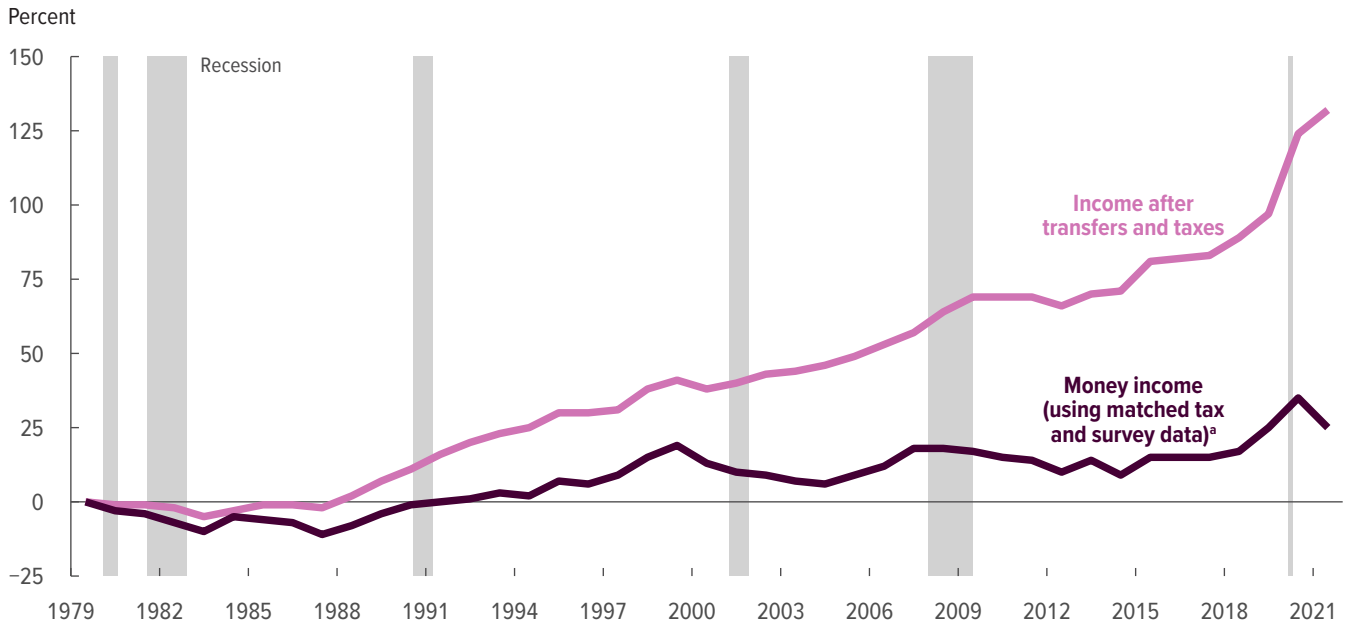
3. Jonathan Rothbaum and Adam Bee, *How Has the Pandemic Continued to Affect Survey Response? Using Administrative Data to Evaluate Nonresponse in the 2022 Current Population Survey Annual Social and Economic Supplement* (Census Bureau, September 2022), https://tinyurl.com/kxznkk5w.

4. One study found that income reported by elderly people in the CPS is 30 percent lower than is suggested by administrative records linked to the relevant income. That finding translates to a 3 percentage-point decrease in the elderly poverty rate. See Adam Bee and Joshua Mitchell, *Do Americans Have More Income Than We Think?* SEHSD Working Paper 2017-39 (Census Bureau's Social, Economic, and Housing Statistics Division, July 2017), https://tinyurl.com/3cr99d8m.

Figure 4.

Cumulative Growth of Income Among Households in the Lowest Quintile of the Income Distribution, by Type of Income

Percent

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To calculate growth rates, CBO first converted all dollar amounts to 2021 dollars.

The shaded vertical bars indicate recessions, which begin just after a peak in economic activity and run through the subsequent trough. Recessions are plotted using monthly data; all other data are annual averages plotted at the midpoint (July 1) of each year.

a. Money income is the measure of income that the Census Bureau uses to calculate the official poverty measure. Money income includes most forms of cash income available to a family, such as wages and Social Security benefits, but does not include taxes or in-kind transfers.

their receipt of means-tested transfers, and that underreporting has increased over time. Those factors could contribute to an overestimate of the poverty rate. The Census Bureau does not adjust the data it uses to calculate the OPM or the SPM to reflect the underreporting of income in the CPS. That practice has prompted recent calls for the use of administrative or tax data to correct for the underreporting of income in the poverty measures.[5]

In 2023, a panel convened by the National Academies of Sciences, Engineering, and Medicine recommended the use of the SPM instead of the OPM. The panel also recommended that health insurance be included in both the poverty threshold and the measure of income used

to calculate poverty rates.[6] An interagency technical working group formed in 2019 recommended exploring expanded poverty measures that could include some in-kind transfers, taxes, and health insurance.[7]

Reconciling the Official Poverty Measure and CBO's Framework for Analyzing the Distribution of Household Income

In this analysis, CBO examines the difference between the percentage of people with income below the poverty threshold used to calculate the OPM and the percentage below that threshold as estimated using CBO's framework for analyzing the distribution of household income. The examination involves a step-by-step reconciliation

5. Richard V. Burkhauser and others, "Evaluating the Success of the War on Poverty Since 1963 Using an Absolute Full-Income Poverty Measure," *Journal of Political Economy*, vol. 132, no. 1 (January 2024), pp. 1–47, www.journals.uchicago.edu/doi/abs/10.1086/725705.

6. National Academies of Sciences, Engineering, and Medicine, *An Updated Measure of Poverty: (Re)Drawing the Line* (National Academies Press, 2023), https://doi.org/10.17226/26825.

7. Interagency Technical Working Group on Evaluating Alternative Measures of Poverty, *Final Report of the Interagency Technical Working Group on Evaluating Alternative Measures of Poverty* (January 2021), https://tinyurl.com/yebypd9a.

Table 1.

Components of Income and Other Criteria Used in Measures of Poverty and in CBO's Distributional Analysis of Household Income

	Official poverty measure	Supplemental poverty measure	CBO's distributional analysis of household income
Resource-sharing unit	Family based on birth, marriage, or adoption	Family plus unrelated coresident children and unmarried partners	Household
Income measure	Money income (before taxes)	Money income from all sources	Income after transfers and federal taxes.
Cash benefits from the government (Social Security benefits, unemployment insurance, TANF, and SSI)	✓	✓	✓
Capital gains			✓
Employer-sponsored insurance			✓
Federal income and payroll taxes		✓	✓
State income taxes		✓	
Corporate and excise taxes			✓
Refundable tax credits		✓	✓
Housing subsidies		✓	✓
SNAP		✓	✓
Health-related in-kind transfers (such as Medicaid and Medicare)			✓
Deduction of necessary expenses (such as medical costs, work-related expenses, and child care)		✓	
Data sources	CPS	CPS	CPS and tax data
Adjustments for underreported transfers			✓
Poverty threshold adjustment	CPI-U	Adjusted average FCSUti[a]	Not applicable
Income adjustment for inflation	Not applicable	Not applicable	PCE price index
Geographic variation in poverty threshold		✓	Not applicable
First year for which estimates are available	1959	2009	1979

Data source: Congressional Budget Office. See www.cbo.gov/publication/60809#data.

CPI-U = consumer price index for all urban consumers; CPS = Current Population Survey; FCSUti = expenditures for food, clothing, shelter, utilities, telephone, and internet; PCE = personal consumption expenditures; SNAP = Supplemental Nutrition Assistance Program; SSI = Supplemental Security Income; TANF = Temporary Assistance for Needy Families.

a. For more information about the poverty threshold adjustment used in the calculation of the supplemental poverty measure, see Bureau of Labor Statistics, "Research Poverty Thresholds" (October 1, 2024), www.bls.gov/pir/spmhome.htm.

of methods in a four-part process. First, CBO developed an income measure that closely resembles the money income used to calculate the OPM and then used that measure to calculate the percentage of people with income below the poverty threshold. Second, CBO accounted for the underreporting of transfers in the CPS and included additional sources of income from its broader measure of income in stages: capital gains, employer-sponsored insurance, and federal taxes. Third, CBO included in-kind transfers as a component

of income. And finally, the agency adjusted the poverty thresholds for inflation using the PCE price index instead of the CPI-U. The change attributable to each step of the reconciliation process depends on the steps before it; if the steps were implemented in a different order, the magnitude of change attributable to each step could differ.

Figure 5.

Share of People With Income Below the Poverty Threshold According to the Official Poverty Measure and the Supplemental Poverty Measure
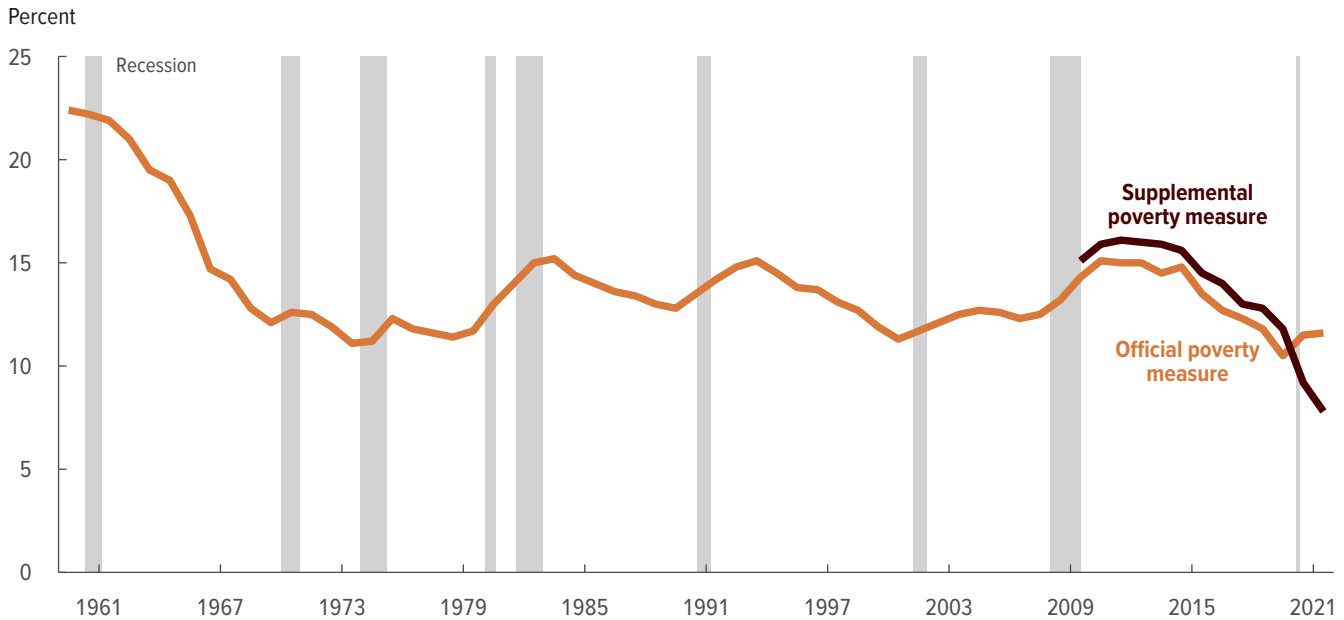
Percent

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

The shaded vertical bars indicate recessions, which begin just after a peak in economic activity and run through the subsequent trough. Recessions are plotted using monthly data; all other data are annual averages plotted at the midpoint (July 1) of each year.

Developing an Income Measure That Resembles Money Income

In this analysis, CBO used the data from its most recent reports on the distribution of household income to estimate the percentage of people with income below the poverty threshold used to calculate the OPM.[8] To begin that process, the agency reconciled money income—the type of income used to calculate the OPM—as reported in the CPS with the corresponding measure of income in the data that CBO uses for its distributional analysis.

Adjusting the Poverty Thresholds and Aligning the Data Sample. The starting point in reconciling the definition of money income in the CPS with the income reported in CBO's data is to make three adjustments to the calculation of the OPM. That way, the OPM can be more easily compared with the percentage of people with income below the poverty threshold as calculated using

CBO's income measures. First, the agency used weighted average poverty thresholds instead of the thresholds used to calculate the OPM, which vary according to the number of children, elderly adults, and nonelderly adults in each family. The weighted average poverty thresholds, which are also developed by the Census Bureau, are computed according to family size and the number of related children under age 18. As a result, those thresholds are more easily applied to households. Second, in its estimates, CBO included group quarters as reported in the CPS. (Group quarters are places where unrelated people live together, such as student housing, nursing facilities, and prisons.) And finally, the agency removed families with negative income from the data.[9] Those three adjustments aligned the CPS data sample used for measuring poverty with the data sample that CBO uses in its distributional analysis. Together, the adjustments had little effect on the percentage of people with income below the poverty threshold (see Figure 6, panel 1).

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8. Congressional Budget Office, "Trends in the Distribution of Household Income From 1979 to 2021" (September 2024), www.cbo.gov/publication/60342, and *The Distribution of Household Income in 2021* (September 2024), www.cbo.gov/publication/60341.
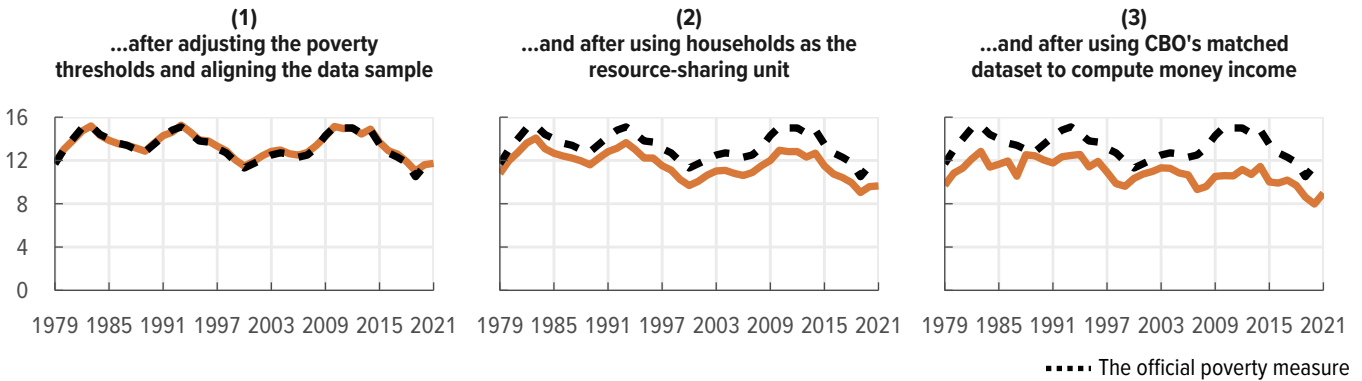
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9. Negative family income in the CPS is typically the result of business losses.

Figure 6.

Share of People With Income Below the Poverty Threshold: Developing an Income Measure That Resembles Money Income

Percent

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To reconcile the Census Bureau's method for calculating the official poverty measure and CBO's framework for analyzing the distribution of household income, CBO used a four-part multistep process. This figure shows results from the first part of that process, in which CBO developed an income measure that resembles money income. (Results from the other parts of the process are shown in Figures 8, 9, and 11.) Throughout the reconciliation process, the effects of the steps are cumulative: The result of each successive step includes the combined results from all previous steps.

Money income is the measure of income that the Census Bureau uses to calculate the official poverty measure. Money income includes most forms of cash income available to a family, such as wages and Social Security benefits, but does not include taxes or in-kind transfers.

Using Households as the Resource-Sharing Unit. To estimate poverty rates, the Census Bureau uses families—legally related people living together—as the resource-sharing unit. All family members' income is combined, and the result is then compared with the poverty threshold. In CBO's distributional analysis of income, however, households, which can include unrelated adults and children who reside in the same home, are the resource-sharing unit. The next step in reconciling the measurement of money income in the CPS involves combining income at the household level rather than at the family level. Because households typically include more earners than families do, household income tends to be higher than family income. Moreover, poverty thresholds do not increase linearly—that is, the poverty threshold for a four-person household is less than twice that of the poverty threshold for a two-person household. As a result, using households instead of families as the resource-sharing unit (and using the relevant poverty threshold based on the number of people in the household) reduced the percentage of people with income below the poverty threshold (see Figure 6, panel 2). That reduction amounted to about 1 percentage point in 1979 and grew to 2 percentage points in 2021.

Using CBO's Matched Dataset to Compute Money Income. The data on income used in CBO's distributional analysis of household income come from the Statistics of Income, a nationally representative sample of individual income tax returns collected by the Internal Revenue Service. Those data are statistically matched to data from the CPS.[10] To calculate the OPM, the Census Bureau relies on data from the CPS only. Using the closest equivalent to money income in CBO's matched dataset results in a lower percentage of people with income below the poverty threshold from 1979 to 2021, on average, than does calculating the OPM with households as the resource-sharing unit (see Figure 6, panel 3). However, in both cases, the general trends in the effects are similar over that period.
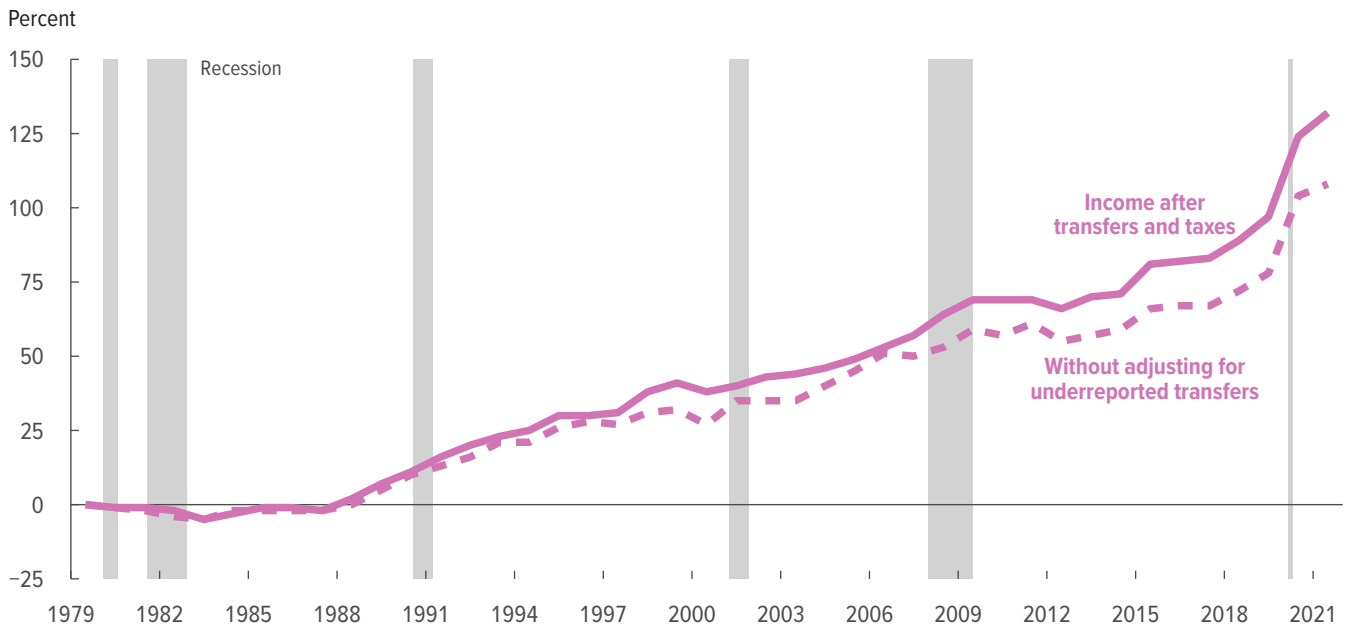
Although there are certain advantages to using tax data instead of survey data, the tax data have limitations. Some households do not file tax returns or may underreport or omit certain forms of income from their returns, and the amount of income reported can depend on tax law. CBO therefore supplements the tax data with survey data to capture some forms of nontaxable or nonreported income from the CPS.

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10. For details about the statistical matching process, see Kevin Perese, "Statistically Matching Administrative Tax Data With Household Survey Data" (presentation at a workshop organized by the Washington Center for Equitable Growth, July 21, 2017), www.cbo.gov/publication/52914.

Figure 7.

Effect of Adjusting for Underreported Transfers on the Cumulative Growth of Income After Transfers and Taxes Among Households in the Lowest Quintile of the Income Distribution

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To calculate growth rates, CBO first converted all dollar amounts to 2021 dollars.

The shaded vertical bars indicate recessions, which begin just after a peak in economic activity and run through the subsequent trough. Recessions are plotted using monthly data; all other data are annual averages plotted at the midpoint (July 1) of each year.

Adjusting for Underreported Transfers and Including Additional Sources of Income

In its analysis of the distribution of household income, CBO adjusts transfers to account for their being under-reported and includes more forms of income than are included in the calculation of the OPM. CBO includes capital gains and employer-sponsored insurance in its measure of market income. The agency also subtracts federal taxes from income, whereas the Census Bureau does not account for taxes in the measure of income it uses to calculate the OPM.

Adjusting for Underreported Transfers. Administrative data, collected by the agency administering a transfer program, and survey data, in which individuals are asked about their income from transfers, are the two main sources of information about who receives the transfers and the amount of the benefits. Administrative data contain more accurate estimates of how many people received transfers, but those data often have limited information about the recipients' characteristics. Survey data usually contain more information about those characteristics but can be incomplete because of underre-porting of transfers—that is, the total benefits from the transfers in the survey are lower than the benefits in the administrative data.

To represent the full amount of transfer benefits, CBO used an imputation method to assign transfer amounts to people or households in the CPS who did not report receiving transfers in that survey.[11] Calculating income (or measuring poverty) using only the transfers as reported in the CPS reduces income growth at the bottom of the distribution (see Figure 7). Moreover, allocat-ing income from transfers to people who did not report

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11. For details about how CBO imputes amounts of transfers, 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.

Figure 8.

Share of People With Income Below the Poverty Threshold: Adjusting for Underreported Transfers and Including Additional Sources of Income

Percent
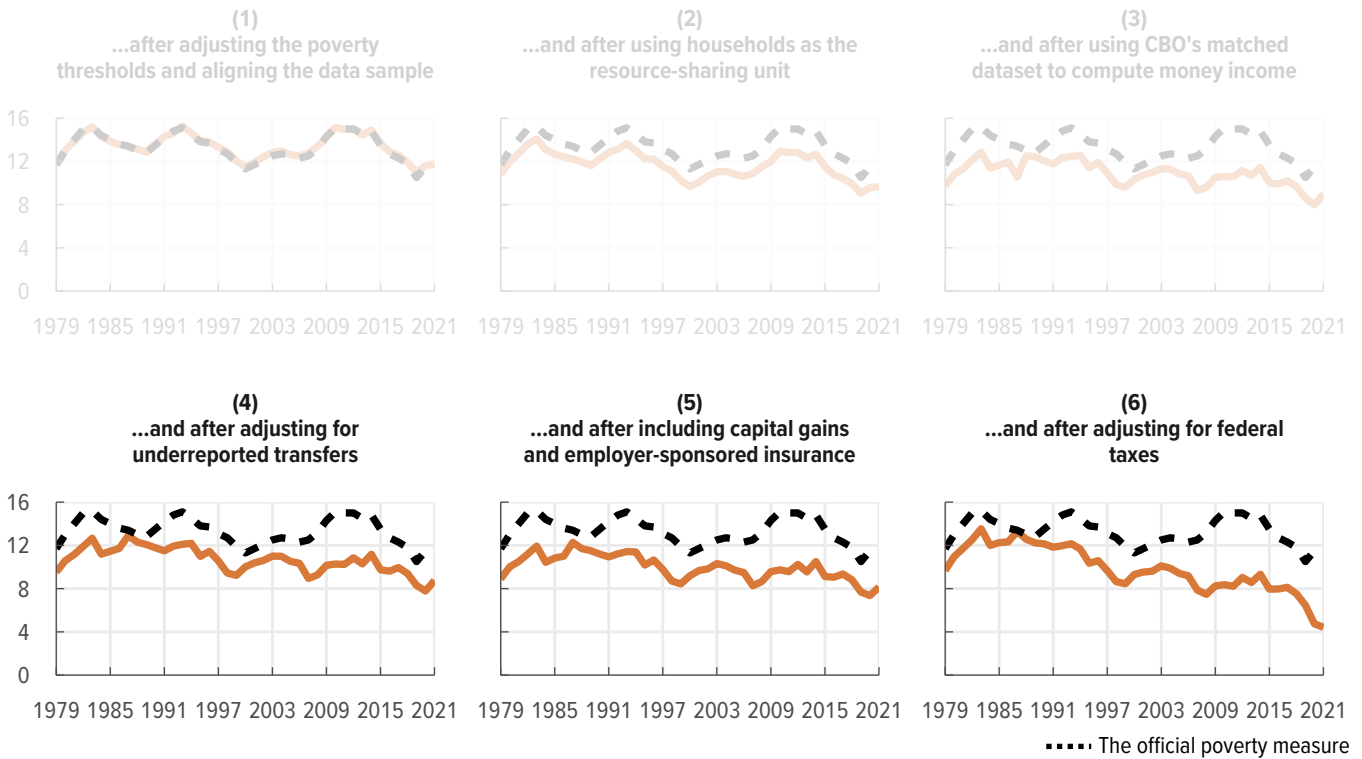
Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To reconcile the Census Bureau's method for calculating the official poverty measure and CBO's framework for analyzing the distribution of household income, CBO used a four-part multistep process. This figure shows results from the second part of that process, in which CBO adjusted its estimates to account for underreported transfers and included additional sources of income. (Results from the other parts of the process are shown in Figures 6, 9, and 11.) Throughout the reconciliation process, the effects of the steps are cumulative: The result of each successive step includes the combined results from all previous steps.

receiving the transfers reduces the percentage of people with income below the poverty threshold (see Figure 8, panel 4). The benefits included in money income that CBO adjusts to account for underreporting are cash transfers, the largest of which are benefits from Social Security, Supplemental Security Income, and, in 2020 and 2021, unemployment insurance.

In its distributional analysis of household income, CBO also imputes benefits for the largest means-tested transfer programs—Medicaid, SNAP, and federal housing subsidies (in addition to benefits from Supplemental Security Income). The underreporting of benefits from those programs has increased over time. For example, in 1979, about 70 percent of total spending on SNAP benefits

was accounted for in the CPS, whereas in 2021, about 39 percent was accounted for in that survey.

Social insurance transfers—specifically, benefits from Social Security, Medicare, and unemployment insurance—tend to be well reported in the data that CBO uses for its distributional analysis of income (that is, in the CPS alone or in CBO's matched dataset), especially after adjustments for benefits that do not fall into the CPS sampling frame (such as Social Security benefits for overseas recipients or Medicare benefits for institutionalized people). CBO does not adjust the number of Medicare recipients reported in the CPS. But because the cost of Medicare for each recipient is not indicated in the survey, CBO imputes Medicare benefits by assigning their average cost to people who report receiving benefits.

Moreover, when unemployment insurance was temporarily expanded in 2020 and 2021, the program grew much larger, and underreporting in the CPS was higher.[12] To analyze the distribution of household income for those years, CBO used an imputation method to adjust for the underreporting of unemployment insurance in the CPS. That method was complemented by better reporting rates in the tax data.

To measure poverty effectively, benefits must be estimated accurately at the household level. However, CBO's method for imputing amounts of transfers was designed with a degree of precision that is suited for estimating the distribution of income by quintiles—not by households. The method was tested against similar studies to gauge its performance in precisely that context—that is, whether it correctly placed households into large income-based groups. Therefore, CBO's imputation method may not be well-suited for accurately estimating whether specific households lie just above or below a given poverty threshold such as that used to calculate the OPM.[13]

Including Capital Gains and Employer-Sponsored Insurance. Two other sources of income are included in CBO's measure of income after transfers and taxes but not in the calculation of the OPM: capital gains and employers' payments for employer-sponsored insurance (ESI). Both of those income sources tend to accrue to higher-income households. Including them reduces the percentage of people with income below the poverty threshold (see Figure 8, panel 5). Including capital gains and ESI in income reduces that percentage in 2021 by 0.7 percentage points, CBO estimates.

Adjusting for Federal Taxes. In its distributional analysis of income, CBO subtracts federal taxes from income, whereas the Census Bureau does not account for taxes in its calculation of the OPM. To further reconcile

the Census Bureau's method and CBO's framework for distributional analysis, CBO subtracted individual income taxes and payroll taxes from its measure of money income after including capital gains and ESI.[14] Individual income taxes also include refundable tax credits, such as the earned income tax credit and the child tax credit. Refundable tax credits can result in net payments from the federal government, thus increasing the income available to many low-income households.

Including federal taxes slightly increased the percentage of people with income below the poverty threshold before 1996 (see Figure 8, panel 6). But in more recent years, refundable tax credits decreased that percentage. That was especially true for 2020 and 2021, when refundable tax credits were implemented in response to the economic disruption caused by the coronavirus pandemic. Adjusting the income measure to account for federal taxes typically reduced the proportion of people with income below the poverty threshold by fewer than 2 percentage points since the mid-1990s.

Including In-Kind Transfers
Income is a broad concept, and the measure of income used in a particular analysis is often based on the questions that are being examined. The way that CBO typically defines income reflects the agency's interest in examining the effects of federal tax and spending policies on the distribution of household income.[15] Because the agency examines a wide range of government programs, it includes a wide range of benefits from those programs in its measure of income.

Income after transfers and taxes includes in-kind social insurance and transfer programs such as Medicare, Medicaid, housing subsidies, and SNAP benefits. Those benefits are not included in the money income measure that the Census Bureau uses to calculate the OPM. Including a measure of in-kind transfers in the income measure used to estimate poverty but making no corresponding adjustment to the poverty threshold reduces the percentage of households with income below that threshold.

12. Jeff Larrimore, Jacob Mortenson, and David Splinter, "Unemployment Insurance in Survey and Administrative Data," *Journal of Policy Analysis and Management*, vol. 42, no. 2 (December 2022), pp. 571–579, https://doi.org/10.1002/pam.22463.

13. For example, CBO's method largely does not reflect the assumption that a household that receives benefits from one program is more likely than a household that does not to receive benefits from a different program; and yet that assumption is probably valid. As a result, program benefits may be concentrated among fewer households than CBO assigns benefits to in its imputation process. If, when measuring poverty, benefits from two separate programs are included in the measure of income, then CBO might incorrectly estimate the number of households below the poverty threshold.

14. In its distributional analysis of household income, CBO also includes taxes that people do not directly pay to the government, such as corporate taxes and excise taxes; but those taxes are not included in this analysis.

15. Kevin Perese, *CBO's New Framework for Analyzing the Effects of Means-Tested Transfers and Federal Taxes on the Distribution of Household Income*, Working Paper 2017-09 (Congressional Budget Office, December 2017) www.cbo.gov/publication/53345.

To make the OPM easier to compare with the results of CBO's distributional analysis of income, CBO estimated the number of people with income, inclusive of in-kind transfers, below the poverty threshold. However, the results should not be interpreted as a measure of the percentage of people who face economic hardship. As discussed earlier, measurements of poverty typically compare income with a corresponding poverty threshold that is used to determine economic hardship. For the current analysis, CBO has added sources of income to the income measure but has not adjusted the poverty threshold itself.

Including In-Kind Transfers Unrelated to Health.
In-kind transfers unrelated to health are not included in the money income used to calculate the OPM, but they are included in CBO's measure of income after transfers and taxes (including adjustments for underreporting, as discussed earlier). Like cash transfers, in-kind transfers help people with low income meet their basic needs, such as food and housing. Unlike cash transfers, however, in-kind transfers cannot be used for other purposes.

The two largest federal in-kind transfers unrelated to health are benefits from SNAP and housing subsidies. Because the value of those benefits is determined according to a formula based on family characteristics and location, CBO can estimate the benefit amounts that accrue to households in its dataset. Moreover, the value of SNAP benefits is reported in the CPS, and, for earlier years of the survey, the value of housing subsidies is imputed by the Census Bureau.

Including in-kind transfers unrelated to health in the measure of income reduced the proportion of people with income below the poverty threshold in 2021 by about 1.5 percentage points (see Figure 9, panel 7). Including those transfers reduced the poverty rate by about 2.3 percentage points per year, on average—a difference that was relatively constant over the 1979–2021 period.

Including Health-Related In-Kind Transfers. One key decision in measuring poverty involves the treatment of government-provided health benefits—specifically those provided through Medicare and Medicaid. Conceptually, it is not obvious whether or how to account for such benefits when measuring income and establishing poverty thresholds.

The Census Bureau excludes health-related in-kind transfers from the income measure used to calculate the OPM. Unlike cash transfers, health-related in-kind transfers are not fungible—that is, they cannot be used to meet households' needs other than health care, such as food or housing. Moreover, the poverty thresholds are not designed to include the costs of health care services.

The Census Bureau does attempt to account for health care costs in its calculation of the SPM, however. Although the Census Bureau does not directly include health benefits in the measure of income used to calculate the SPM, it subtracts out-of-pocket health expenses from that measure. Households with access to health insurance have lower out-of-pocket health expenses than households without such access, so households that receive Medicare and Medicaid benefits are less likely to have income below the poverty thresholds used to calculate the SPM.

The recent recommendations from the National Academies call for adding the cost of a basic health plan to poverty thresholds when measuring poverty. They also call for adding a capped value of health insurance benefits or subsidies (received from an employer or from the government) to the measure of income.

CBO's measure of income after transfers and taxes includes both Medicare and Medicaid benefits, measured as the average cost to the government of providing those services and adjusted for underreporting (as discussed earlier). Children, nonelderly adults, elderly adults, and disabled adults who receive Medicaid benefits are assigned the average cost of the benefits (costs to the federal government and state governments) within each of those respective categories. Not only are the Medicare and Medicaid programs large (taken together, the benefits from those two programs totaled over $1.3 trillion worth of income in 2021 in CBO's distributional analysis of household income), but their costs have also tended to grow faster than the costs of other goods and services. CBO's including health-related in-kind transfers in its measure of income is a main reason why income for low-income households has grown over time in the agency's distributional analysis of income while the OPM has remained relatively unchanged.

CBO includes health-related in-kind transfers in its broad measure of income for two main reasons. First, the agency's reports on the distribution of income focus on the effects of tax and transfer programs on household

Figure 9.

Share of People With Income Below the Poverty Threshold: Including In-Kind Transfers

Percent
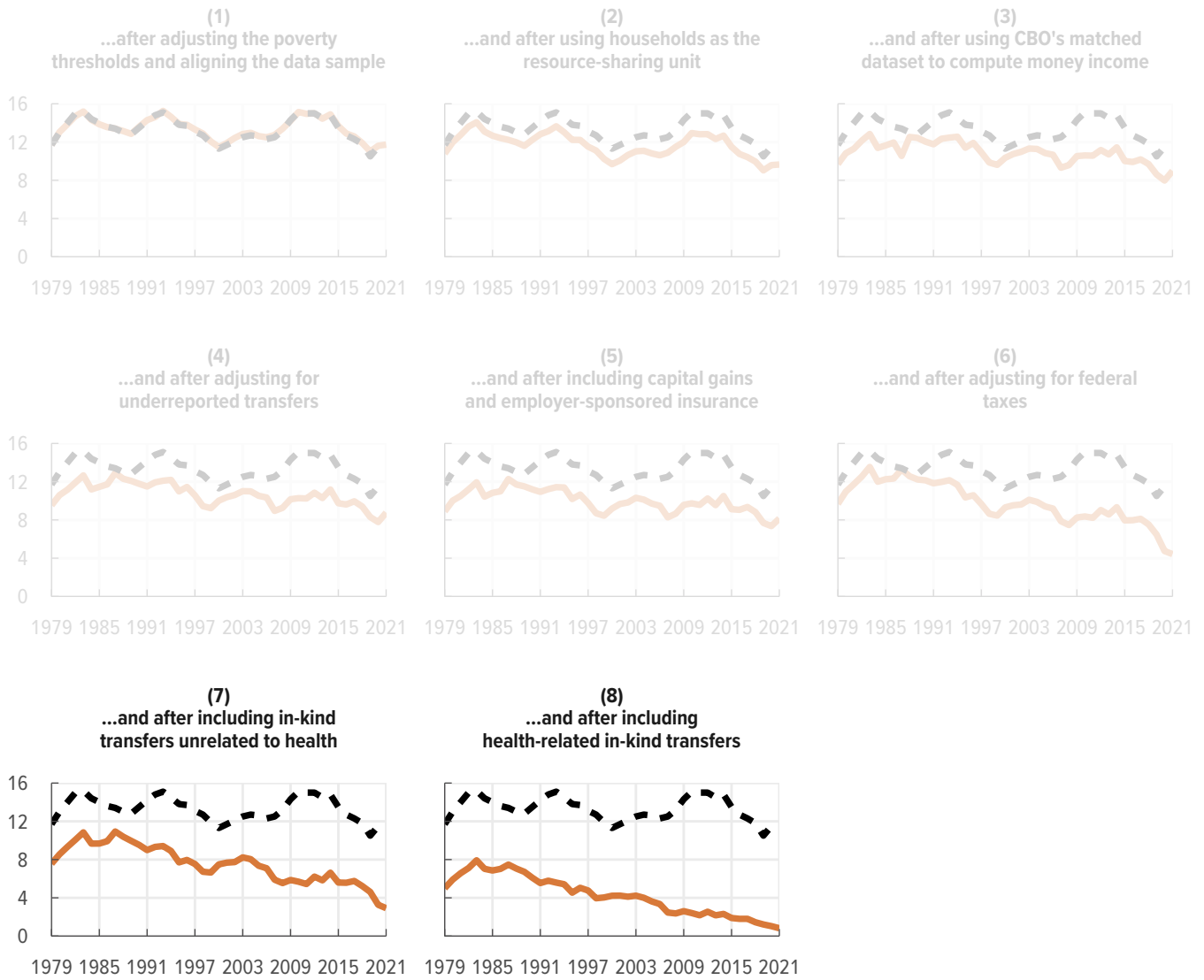
Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To reconcile the Census Bureau's method for calculating the official poverty measure and CBO's framework for analyzing the distribution of household income, CBO used a four-part multistep process. This figure shows results from the third part of that process, in which CBO adjusted its estimates to include in-kind transfers. (Results from the other parts of the process are shown in Figures 6, 8, and 11.) Throughout the reconciliation process, the effects of the steps are cumulative: The result of each successive step includes the combined results from all previous steps.

income, and Medicaid and Medicare are among the largest and fastest-growing federal programs. Second, receiving health insurance increases households' resources, enabling them to use health services without forgoing other goods or services.

Using CBO's measure of income, which includes health-related in-kind transfers, in conjunction with a poverty threshold that is not designed to account for health care costs (as is the case with the poverty thresholds used to calculate the OPM) would not determine whether income is sufficient to meet basic needs; in some cases, it could produce unintuitive results. For example, a household consisting of two people age 65 or older with no money income would nonetheless have income above the poverty threshold if only the average cost of Medicare in 2021 was included in their income. Also, a household with a nondisabled Medicaid recipient and income below the poverty threshold could potentially have its income raised above that threshold if the Medicaid recipient became disabled—because the correspondingly larger average cost of Medicaid would be included in that household's income. Moreover, the portion of the cost of a health-related transfer that accrues to its recipient and the portion that accrues to health care providers and other parties is uncertain.[16]

From 1979 to 2021, health care costs have tended to increase faster than the costs of other goods and services. As a result, any measure of income that includes a standardized set of health care benefits would increase faster over time than a measure of income that did not include those benefits. When an income measure increases more quickly over time, poverty as measured by that income measure tends to decrease more quickly. Thus, when CBO uses its broad measure of income after transfers

and taxes to estimate the percentage of people with income below the poverty thresholds used to calculate the OPM, that percentage decreases significantly. But that outcome stems in part from the relatively faster growth in health care costs and should not be interpreted as a decrease in the percentage of the population unable to meet their basic needs.

To be consistent in reconciling the OPM and CBO's framework for analyzing the distribution of household income, some of the estimates in this report include the average value of health-related in-kind transfers. But the use of that average value is not well-suited for measuring poverty. The agency estimates that in 2021, benefits from Medicaid and Medicare among households in the lowest quintile averaged about $16,200, which is nearly 60 percent of the poverty threshold used to calculate the OPM in that year for a family of four with two children.[17] As a result, including health-related in-kind transfers in the measure of income substantially reduces the percentage of people with income below the poverty threshold (see Figure 9, panel 8). That reduction ranged from a minimum of 2.1 percentage points in 2021 to a maximum of 4.3 percentage points in 2014. CBO estimates that after 1996, the proportion of people with income (including health-related transfers) below the poverty threshold would remain below 5 percent. By 2021, that rate would be 0.8 percent.

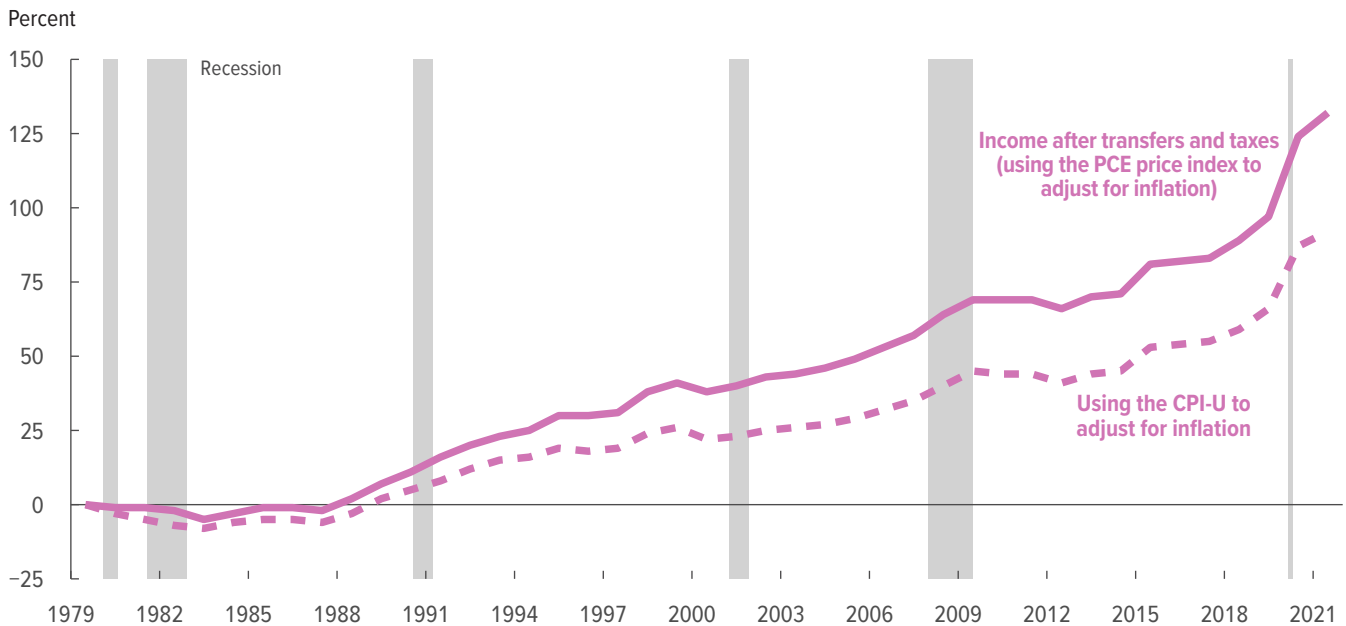### Adjusting the Poverty Thresholds for Inflation
As prices change over time, poverty thresholds are adjusted to reflect changes in the cost of living. The Census Bureau adjusts the thresholds for inflation using the CPI-U, produced by the Bureau of Labor Statistics. In its reports on trends in the distribution of household income, however, CBO uses the PCE price index, produced by the Bureau of Economic Analysis, to adjust incomes for comparison over time. The agency uses that index for two main reasons: First, its scope includes health care services purchased by third parties on behalf of people (services that are included in the measures of income used in this report); and second, the PCE price index accounts more fully for the adjustments

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16. For a discussion about how additional research on the allocation of health-related transfers could enhance CBO's analysis, see John McClelland, "A Call for New Research in the Area of Taxes and Transfers," *CBO Blog* (July 25, 2023), www.cbo.gov/publication/59297. For a discussion about the allocation of Medicaid, see Bilal Habib and Rebecca Heller, *Current Work on the Distributional Analysis of Household Income Resulting From Policy Changes*, Working Paper 2022-09 (Congressional Budget Office, September 2022), www.cbo.gov/publication/58508. For some evidence that a significant portion of Medicaid transfers accrue to health care providers, see Amy Finkelstein, Nathaniel Hendren, and Erzo F. P. Luttmer, "The Value of Medicaid: Interpreting Results From the Oregon Health Insurance Experiment," *Journal of Political Economy*, vol. 127, no. 6 (December 2019), pp. 2836–2874, https://doi.org/10.1086/702238.

17. The number cited here is the average of both programs among *all* households in the lowest quintile of the income distribution— that is, it includes households in the lowest quintile that do not receive benefits from either program. About 73 percent of households in the lowest quintile receive Medicaid benefits that average $17,300 per household, and about 30 percent receive Medicare benefits that average $12,000 per household.

Figure 10.

Effect of Adjusting for Inflation, Using the CPI-U, on the Cumulative Growth of Income After Transfers and Taxes Among Households in the Lowest Quintile of the Income Distribution

Percent

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To calculate growth rates, CBO first converted all dollar amounts to 2021 dollars.

The shaded vertical bars indicate recessions, which begin just after a peak in economic activity and run through the subsequent trough. Recessions are plotted using monthly data; all other data are annual averages plotted at the midpoint (July 1) of each year.

CPI-U = consumer price index for all urban consumers; PCE = personal consumption expenditures.

that consumers make to their spending patterns as some prices change relative to other prices.[18]

The CPI-U tends to grow more quickly than the PCE price index. As a result, using the CPI-U instead of the PCE price index to adjust for inflation in CBO's estimates of income after transfers and taxes among households in the lowest quintile leads to lower real income over time (see Figure 10). Because more of the growth in nominal income is attributed to inflation, real income grows less.

When measuring poverty, income is measured in nominal terms and compared with poverty thresholds, which

are adjusted for inflation. Using the PCE price index to adjust those thresholds instead of the CPI-U produces lower income thresholds over time, which reduces the number of people whose income falls below poverty thresholds.[19]

The size of the effect of using an alternative price index depends on the income measure used. Switching from the PCE price index to the CPI-U has a greater effect on the share of people with income below the poverty threshold if that share is higher, because that share is calculated using a narrower income measure. As this report shows, using a narrower income measure results in more people with income below the poverty

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18. For a broader discussion of the differences in using the two price indexes for adjusting the poverty thresholds, see Richard V. Burkhauser and others, "Evaluating the Success of the War on Poverty Since 1963 Using an Absolute Full-Income Poverty Measure," *Journal of Political Economy*, vol. 132, no. 1 (January 2024), pp. 1–47, www.journals.uchicago.edu/doi/abs/10.1086/725705.

19. Another option for calculating the changes in poverty thresholds over time could be the chained CPI-U, which is also produced by the Bureau of Labor Statistics. The Census Bureau uses the chained CPI-U to adjust incomes in its series of reports *Income in the United States*. However, that index is not available for years before 2000 and tends to produce results that are similar to those produced by the PCE price index, which CBO uses in its distributional analysis.

Figure 11.

Share of People With Income Below the Poverty Threshold: Adjusting for Inflation

Percent
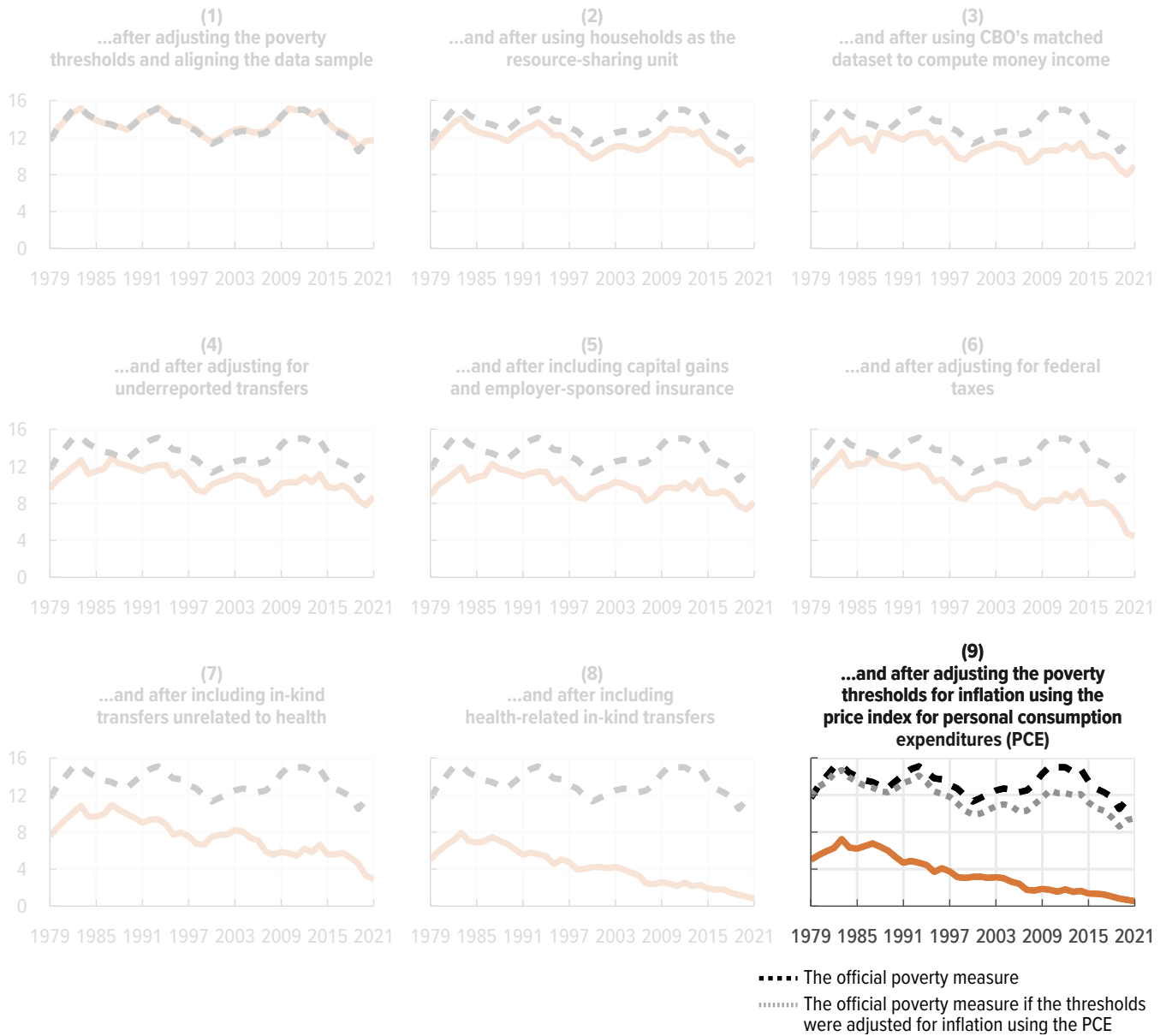
Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

To reconcile the Census Bureau's method for calculating the official poverty measure and CBO's framework for analyzing the distribution of household income, CBO used a four-part multistep process. This figure shows results from the third part of that process, in which CBO adjusted its estimates to include in-kind transfers. (Results from the other parts of the process are shown in Figures 6, 8, and 9.) Throughout the reconciliation process, the effects of the steps are cumulative: The result of each successive step includes the combined results from all previous steps.

threshold, and expanding the income measure results in more people with income above the poverty threshold. For example, when measuring poverty using money income as reported in the CPS, switching to the PCE price index reduces the proportion of people with income below the poverty threshold in 2021 by 2.2 percentage points, from 11.7 percent to 9.5 percent (see Figure 11 on page 17). But measuring poverty using CBO's measure of income after transfers and taxes has an effect of only 0.3 percentage points: The proportion of people with income below the poverty threshold changes from 0.8 percent to 0.5 percent.

CBO uses average inflation measures to adjust income for all households, but inflation can vary across the income spectrum because of differences in spending patterns. CBO has found that households in the lowest income quintile spend a larger portion of their income on energy and food—categories with relatively high inflation rates—than higher-income households do.[20] As a result, inflation may affect lower-income households more than higher-income households. Using an average inflation rate for households in all income groups could overstate the change in poverty as a result of inflation.

Variations in Poverty Trends, by Household Type

Trends in poverty vary among different types of households. Within the framework of CBO's distributional analysis, all households are grouped into four mutually exclusive categories: married households with children (defined as those under age 18); unmarried households with children; nonelderly-headed households without children; and elderly-headed households without children. (An elderly-headed household is one in which the head of the household or their spouse is age 65 or older.) Using CBO's framework for distributional analysis, the agency examined trends in different poverty measures among those four household types.

Percentage of People With Income Below the Poverty Threshold, by Household Type

Among elderly-headed households without children, the proportion of people with money income below the poverty threshold fell from 15 percent in 1979 to 8 percent in 2021 (see Figure 12). When in-kind transfers (including health-related transfers) were included in income, that proportion was close to zero percent in 2021, in

large part because nearly all elderly-headed households receive Medicare benefits. For example, a household comprising a married elderly couple who are both eligible for Medicare would receive over $20,000 in Medicare benefits in 2021 (net of premiums, as measured using the average cost per person). Those benefits alone would move that household above the poverty threshold ($17,529, using the weighted average thresholds) even if the household received no cash income or cash transfers.

Among married households with children, the percentage of people with money income below the poverty threshold increased during the early 1980s and then decreased in the late 2010s. In 2021, about 7 percent of people in married households with children had money income below the poverty threshold. When the measure of income included in-kind transfers, however, that percentage began to decrease in the early 2000s. In 2020 and 2021, temporary transfer programs—including the expanded child tax credit—helped decrease that percentage further. When the measure of income included all in-kind transfers (including health-related transfers), less than 1 percent of people had income below the poverty threshold.

Among nonelderly-headed households without children, the proportion of people with income below the poverty threshold remained relatively steady throughout the 1979–2021 period. In 2021, that proportion was 7 percent when measured using money income. When in-kind transfers (including health-related transfers) were added to the income measure, the proportion was 2 percent that year.

Of the four types of households examined, unmarried households with children had the highest percentage of people with money income below the poverty threshold. That percentage decreased throughout the 1990s and then remained relatively steady—at around 15 percent—from 2000 onward. Those percentages were lower when taxes and in-kind transfers unrelated to health were included. When the measure of income included all in-kind transfers, close to zero percent of people had income below the poverty threshold since around 2010.

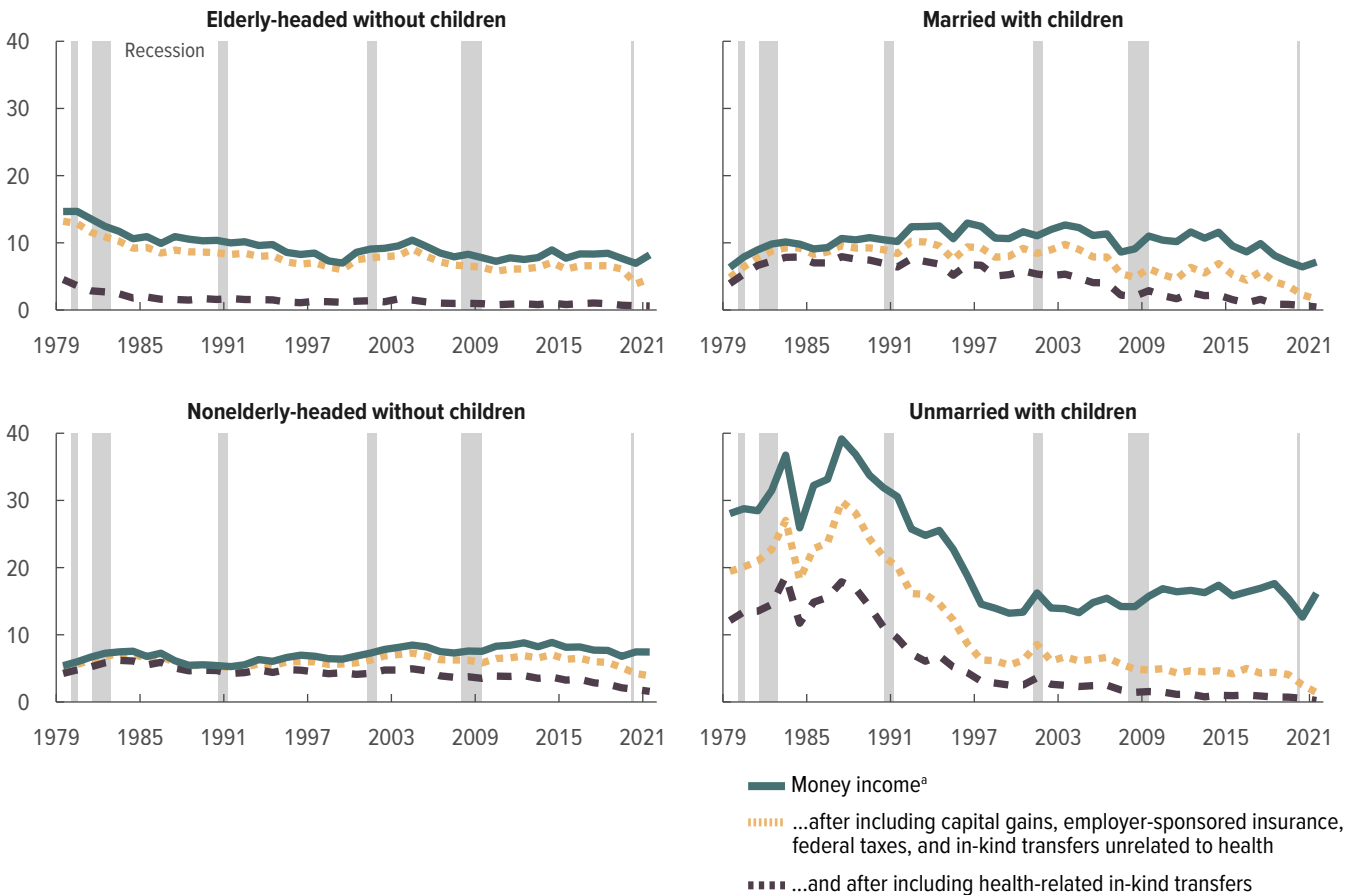### Household Types Among People With Money Income Below the Poverty Threshold

Another useful measure of the variation of poverty trends by type of household is the composition of households among people with income below the poverty threshold (see Figure 13). People in households (both married and unmarried households) with children constituted

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20. Congressional Budget Office, *How Inflation Has Affected Households at Different Income Levels Since 2019* (September 2022) www.cbo.gov/publication/58426.

Figure 12.

Share of People With Income Below the Poverty Threshold as Calculated Using Selected Measures of Income, by Household Type

Percent

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

The shaded vertical bars indicate recessions, which begin just after a peak in economic activity and run through the subsequent trough. Recessions are plotted using monthly data; all other data are annual averages plotted at the midpoint (July 1) of each year.

a. Money income is the measure of income that the Census Bureau uses to calculate the official poverty measure. Money income includes most forms of cash income available to a family, such as wages and Social Security benefits, but does not include taxes or in-kind transfers.

a smaller percentage of people with income below the poverty threshold in 2021 than they did in 1979. Conversely, the share of people with income below the poverty threshold living in nonelderly-headed households without children nearly doubled from 1979 to 2021. The share of people with income below the poverty threshold living in elderly-headed households without children remained roughly the same at the start and end of the period, although it was smaller in the middle of the period.

Household Types Among Income Groups Used in CBO's Distributional Analysis of Income

In CBO's distributional analysis of household income, the agency divides the population into quintiles of the income distribution.[21] Examining the household types that comprise those quintiles provides additional insight about demographic characteristics across the distribution of household income (see Figure 14). The composition

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21. Income quintiles are created by ranking households by their size-adjusted income before transfers and taxes. Quintiles contain approximately the same number of people but slightly different numbers of households. If a household has negative income (that is, if its business or investment losses exceed its other income), it is excluded from the lowest income group but included in totals.

Figure 13.

Household Composition of People With Money Income Below the Poverty Threshold

Percent
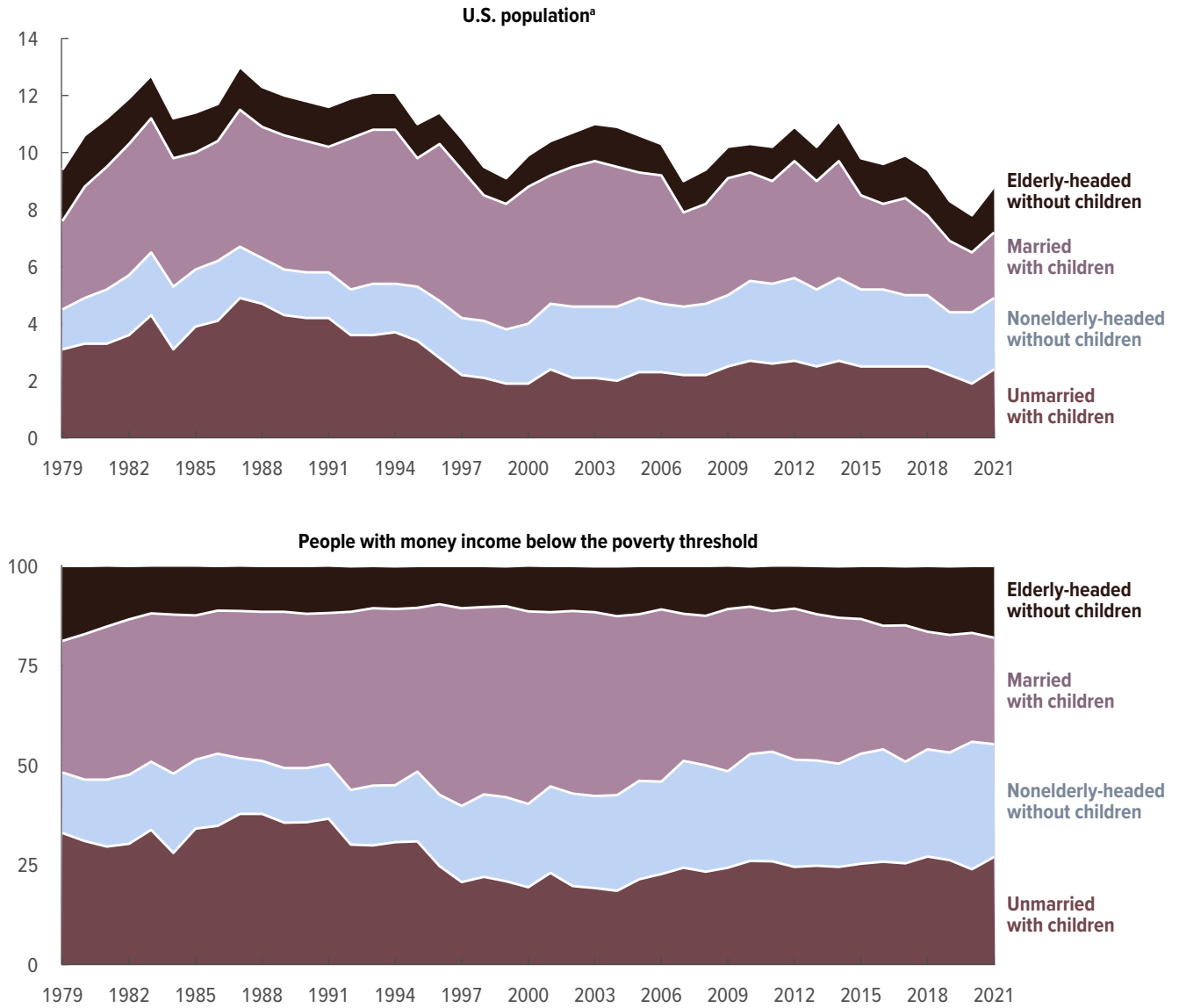
U.S. population[a]

People with money income below the poverty threshold

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

Money income is the measure of income that the Census Bureau uses to calculate the official poverty measure. Money income includes most forms of cash income available to a family, such as wages and Social Security benefits, but does not include taxes or in-kind transfers.

a. In this analysis, the U.S. population excludes members of the armed forces on active duty and people in institutions (such as prisons or nursing homes).

Figure 14.

Composition of Income Groups, by Household Type
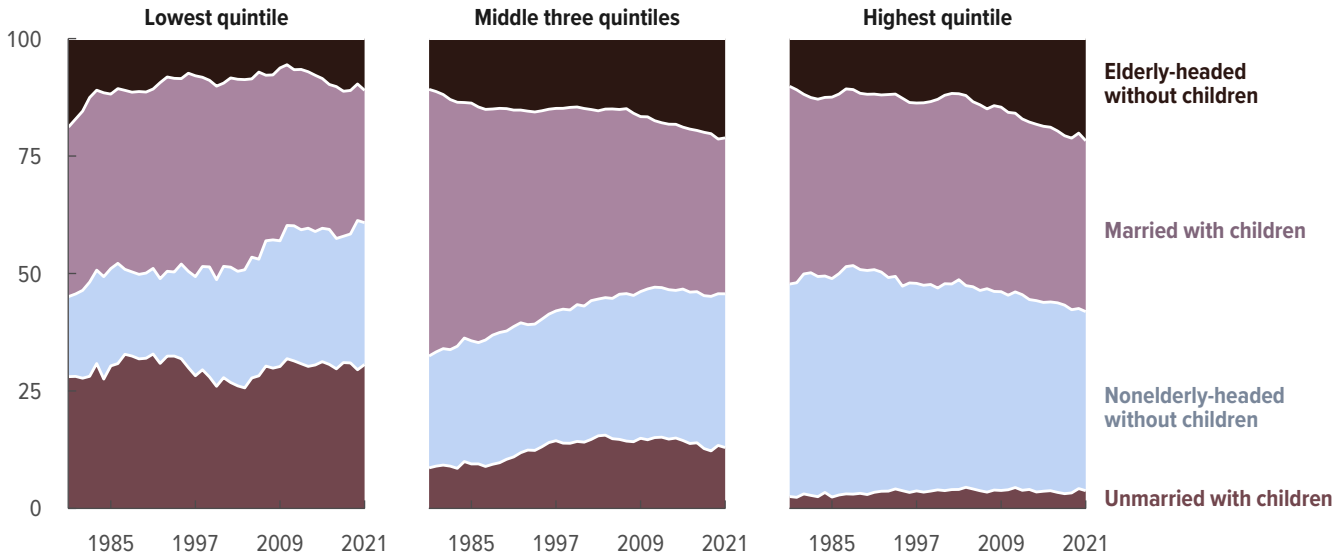
Percent

Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

of households in the lowest quintile resembles that of households with income below the poverty threshold because there is considerable overlap between those two groups. Among households in the middle three quintiles, the percentage of married households with children decreased from 1979 to 2021 (from 57 percent to 33 percent), and the percentage of elderly-headed and nonelderly-headed households without children increased (from a combined 35 percent to a combined 54 percent) over that period. In the highest quintile, the percentage of nonelderly-headed households without children and married households with children fell slightly, whereas the share of elderly-headed households more than doubled (from 10 percent to 22 percent).

### Income Sources of Households Below the Poverty Threshold

Examining the composition of income for households with money income below the poverty threshold provides additional information about the differences between CBO's measure of household income and the income measure used to calculate the OPM.

For people in households with money income below the poverty threshold, the composition of that income has changed over time (that is, when that money income is computed using the same data that CBO uses in its analysis of the distribution of household income). In particular, the percentage of total income that is accounted for by money income decreased from 1979 to 2021, whereas the percentage of health-related in-kind transfers increased during that period, largely because of the rapid growth in the cost of health care benefits (see Figure 15).

In 1979, money income accounted for nearly two-thirds of total income, and in-kind transfers (both health-related transfers and those unrelated to health) accounted for about one-third. In 2021, money income accounted for about one-quarter of total income, and in-kind transfers accounted for more than half. Moreover, in 2020 and 2021, several new temporary transfer programs were implemented in response to the economic disruption caused by the coronavirus pandemic: recovery rebate credits, expanded unemployment compensation, and expanded child tax credits. Those programs accounted for a substantial share of income for people in households with income below the poverty threshold.

Figure 15.

Composition of Income Among People With Money Income Below the Poverty Threshold
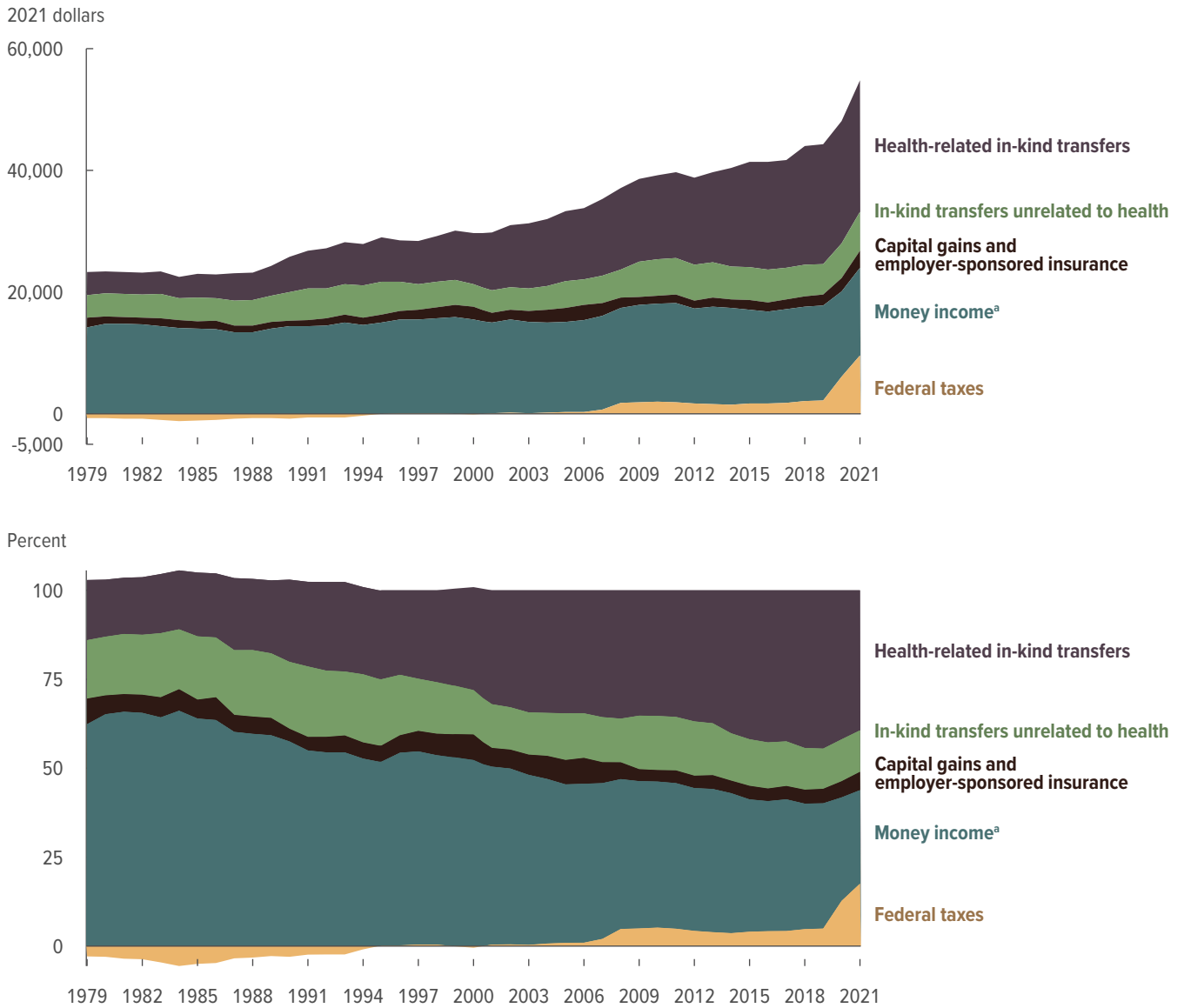
Data source: Congressional Budget Office, using data from the Census Bureau. See www.cbo.gov/publication/60809#data.

a. Money income is the measure of income that the Census Bureau uses to calculate the official poverty measure. Money income includes most forms of cash income available to a family, such as wages and Social Security benefits, but does not include taxes or in-kind transfers.