Congressional Budget Office
Nonpartisan Analysis for the U.S. Congress

An Update About How Inflation Has Affected Households at Different Income Levels Since 2019

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Summary

Inflation affects households differently depending on the mix of goods and services that they consume and the income that they have available to pay for that consumption. In this report, the Congressional Budget Office updates its prior work about how inflation and changes in income have affected households at different income levels since 2019.[1] For this report, CBO extended the analysis to compare 2023 with 2019 and incorporated more recent information about prices and incomes that is consistent with the agency's February 2024 baseline projections.[2]

CBO's analysis focused on households' 2019 consumption bundles—that is, baskets of goods and services representing consumption in a typical year before the coronavirus pandemic—to compare households' purchasing power in 2019 with that in 2023. The agency found that, on average, households' purchasing power based on those consumption bundles increased over the period but that the effects of inflation varied by income group. Specifically, using two measures of income, CBO found the following:

- For households in every quintile (or fifth) of the income distribution, the share of income required to pay for their 2019 consumption bundle decreased, on average, because income grew faster than prices did over that four-year period; and
- Households in the top income quintile had the largest decline, on average, in the share of income required to pay for their 2019 consumption bundle over that four-year period.

The changes in those shares reflect the combined effects of inflation on the cost of consumption and changes in the income available to pay for consumption—both of which are important contributors to households' purchasing decisions. The relative importance of those effects also differs by income. For example, prices of the typical 2019 consumption bundle increased by more for lower-income households than they did for higher-income households. Conversely, incomes available to pay for that consumption bundle increased by more for higher-income households than they did for lower-income households over the same period.

Because CBO focused on 2019 consumption bundles, this analysis does not reflect changes in consumption or incomes resulting from the pandemic. The share of consumer spending devoted to goods increased considerably during the pandemic. That share fell markedly in 2023, and CBO projects that it will continue to decline as a share of total consumption after 2023, as households gradually return to their prepandemic patterns of consumption.[3] In addition, because CBO compared incomes in 2023 with those in 2019, it did not consider the year-to-year income changes that resulted from pandemic relief measures (such as economic impact payments and more generous unemployment insurance) that were introduced starting in 2020 and that expired by 2023.[4]

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

2. Congressional Budget Office, *The Budget and Economic Outlook: 2024 to 2034* (February 2024), www.cbo.gov/publication/59710.

3. Congressional Budget Office, *The Budget and Economic Outlook: 2024 to 2034* (February 2024), Figure 2-2, www.cbo.gov/publication/59710.

4. For an analysis of the distributional effects of such pandemic relief measures, see Congressional Budget Office, *The Distribution of Household Income in 2020* (November 2023), www.cbo.gov/publication/59509.

Notes: All years referred to are calendar years. Numbers in the text and figures may not add up to totals because of rounding.

Effects of Inflation on the Share of Household Income Required to Purchase 2019 Consumption Bundles

CBO used 2019 consumption bundles to assess changes in the prices of goods and services commonly consumed by households. To assess the effects of inflation on households at different income levels, CBO estimated the change in the share of income required to purchase the 2019 consumption bundle for each income quintile; the agency used the same framework for those estimates that it regularly uses to measure the distribution of income as well as transfers and federal taxes.[5]

CBO's analysis focused on two measures of income: market income and income after transfers and taxes. Market income consists of labor income, business income, capital income, and other income from nongovernmental sources.[6] Income after transfers and taxes accounts for additional factors such as cash payments from the government (that is, transfers such as those for Social Security and unemployment benefits) and federal taxes. Both measures were adjusted to remove the cost of health care benefits that people receive from the government or their employer, because consumption of those benefits is not included in household consumption as measured by the consumer price index for all urban consumers (CPI-U).[7]

By CBO's estimate, adjusted income after transfers and taxes grew more than the price of consumption from 2019 to 2023 for all income groups.[8] As a result, the portion of household income required to purchase the same bundle of goods and services declined:

- For households in the lowest income quintile, CBO estimates, the share of their adjusted income after transfers and taxes required to purchase their 2019 consumption bundle decreased by 2.0 percent; and
- For households in the top income quintile, that share declined by 6.3 percent, the largest decline of any quintile.

The difference in those percentage changes reflects two factors: Price increases were greater for the typical consumption bundle purchased by lower-income households than they were for that purchased by higher-income households, and the income of households in the highest income quintile grew more in percentage terms than the income of other households did (see Figure 1).

The share of adjusted market income necessary for households in the lowest income quintile to purchase their 2019 consumption bundle also decreased by 2.0 percent in that four-year period, CBO estimates.[9] For households in all other income quintiles, that share fell by more in percentage terms than did the share of adjusted income after transfers and taxes necessary to purchase the 2019 consumption bundle.

Inflation and the Growth of Real Household Income Since 2019

The average annual increase in the CPI-U from 2020 to 2023 was 4.5 percent. The CPI-U increased by 1.2 percent in 2020, by 4.7 percent in 2021, by 8.0 percent in 2022, and by 4.1 percent in 2023. The prices of the noncore components of the CPI-U (namely, food and energy) rose more than those of the core components (such as shelter and other nonenergy services) since 2019 (see Figure 2). From 2020 to 2023, the average annual increase in the noncore CPI-U was 6.1 percent, and the average annual increase in the core CPI-U was 4.0 percent.

By CBO's estimate, aggregate incomes grew more than prices did between 2019 and 2023. Over that four-year period, the average annual growth of real adjusted income (that is, adjusted income with the effect of the increase in the CPI-U removed) after transfers and taxes

5. For details about the measures of household income that CBO uses in its analyses of the distribution of household income, see Congressional Budget Office, *The Distribution of Household Income in 2020* (November 2023), www.cbo.gov/publication/59509. For that report, CBO used a confidential sample of income tax returns that provided more detailed information than the public-use data used for this analysis.

6. Capital income is income that is derived from capital rather than labor. Examples include stock dividends, realized capital gains, an owner's profits from a business, and the interest paid to holders of debt.

7. Such in-kind health care benefits include employment-based health insurance, Medicare and Medicaid benefits, and the premium tax credit.

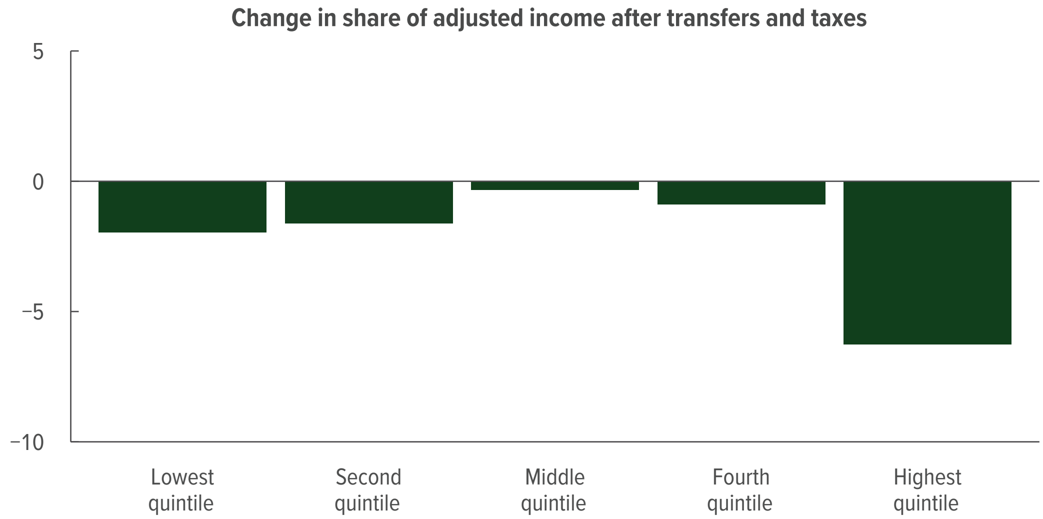
8. CBO defines adjusted income after transfers and taxes as income after transfers and taxes minus the cost of employment-based health insurance, Medicare and Medicaid benefits, and the premium tax credit.

9. CBO defines adjusted market income as market income minus the cost of employment-based health insurance.

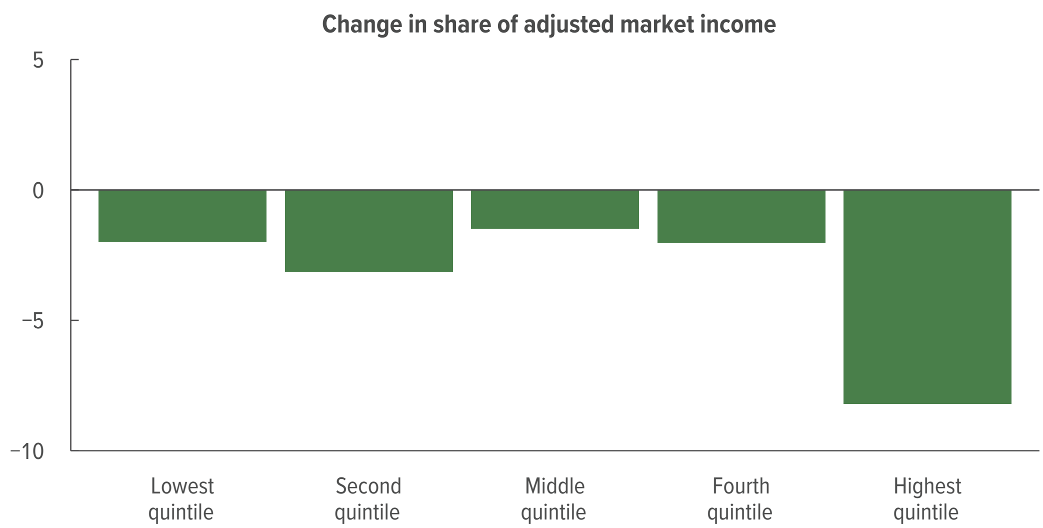
Figure 1.

Change Since 2019 in the Share of Household Income Required to Purchase a 2019 Consumption Bundle, by Income Quintile

Percent



In 2023, the average household in each income group could purchase the same bundle of goods and services that it purchased in 2019 with a smaller portion of its adjusted income after transfers and taxes because such income increased more than prices did from 2019 to 2023.



For all households, adjusted market income also increased more than prices did; the average household in each income quintile could spend a smaller portion of its market income in 2023 than it did in 2019 to purchase the same consumption bundle.

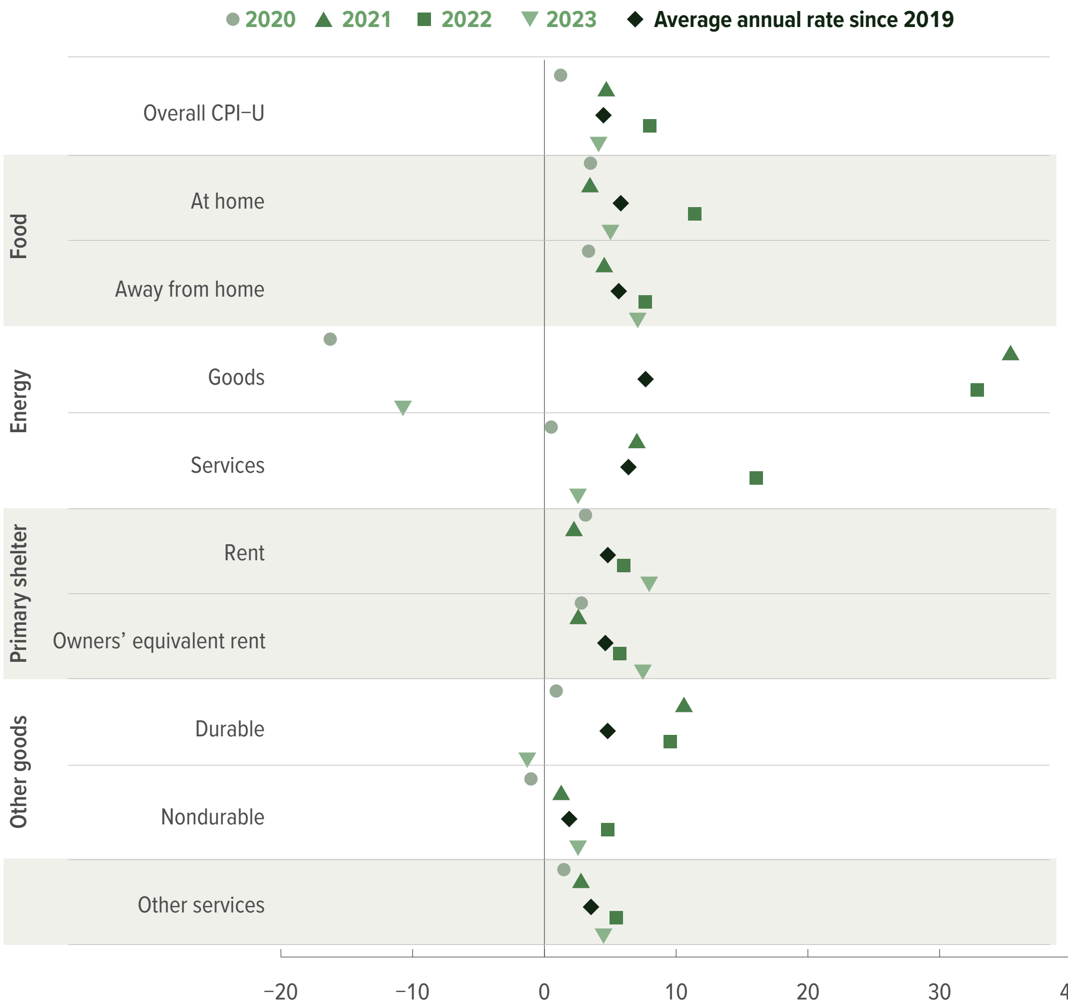
Data source: Congressional Budget Office. See www.cbo.gov/publication/60166#data.

Market income consists of labor income, business income, capital income, and other income from nongovernmental sources. Income after transfers and taxes accounts for additional factors such as cash payments from the government and income taxes. Both measures were adjusted to remove the cost of health care benefits that people receive: Adjusted market income does not include employers' cost for employment-based health insurance, and adjusted income after transfers and taxes does not include employers' cost for employment-based health insurance, the cost of Medicare or Medicaid benefits, or premium tax credits. Income groups were created by ranking households by income after transfers and taxes, adjusted for household size. Each quintile (fifth) contains approximately the same number of people. The lowest quintile does not include households with negative income.

Figure 2.

Annual Change in the Consumer Price Index Since 2019, by Type of Good or Service

Percent



Inflation as measured by the CPI-U was highest in 2022. Prices of food and energy rose at the fastest rates over the 2020–2023 period.

Data source: Congressional Budget Office, using data from the Bureau of Labor Statistics. See www.cbo.gov/publication/60166#data.

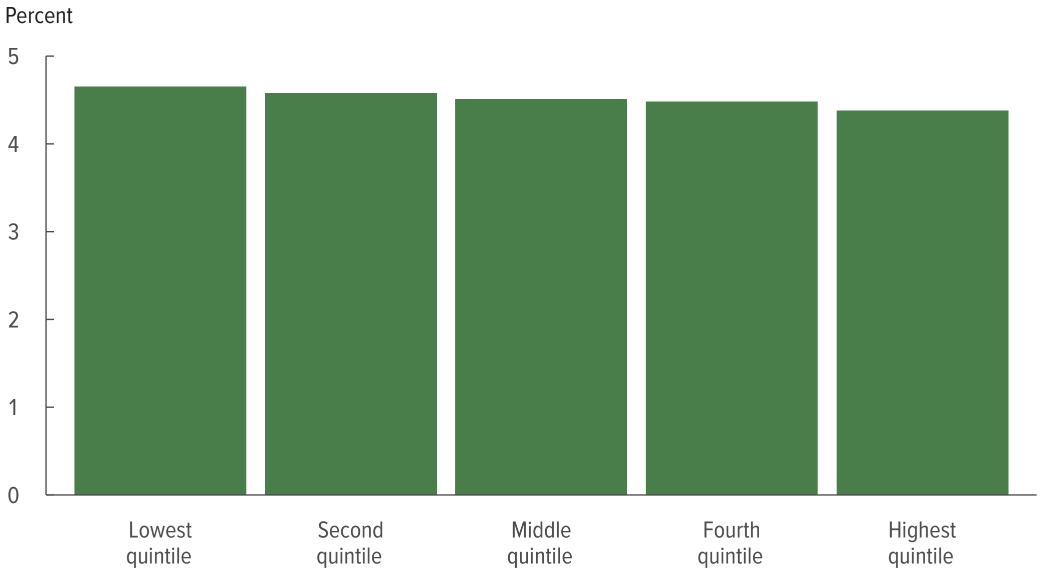
CBO used historical average annual CPI-U indexes published by the Bureau of Labor Statistics (BLS) to calculate annual growth rates in the CPI-U; when those series were unavailable, CBO used series of several components of the CPI-U and the weights assigned by BLS to those components. Some of the weights that CBO used to construct indexes for nondurable goods and other services in this analysis differ from those published in CBO's September 2022 report *How Inflation Has Affected Households at Different Income Levels Since 2019* (www.cbo.gov/publication/58426).

Energy services include electricity and utility gas service. Primary shelter includes the rent and the owners' equivalent rent (OER) of primary residences. Other goods include durable and nondurable goods other than food and energy goods; alcoholic beverages, apparel, and personal care products are examples of such nondurable goods. Other services include services other than primary shelter and energy services, such as lodging away from home, the OER of secondary residences, transportation services, and motor vehicle maintenance and repair services.

CPI-U = consumer price index for all urban consumers.

Figure 3.

Average Annual Increase in the Price of a 2019 Consumption Bundle Since 2019, by Income Quintile



The price of the average bundles of goods and services purchased by households with less income increased more from 2019 to 2023 than did the price of bundles purchased by households with more income.

Data source: Congressional Budget Office. See www.cbo.gov/publication/60166#data.

Income groups were created by ranking households by income after transfers and taxes, adjusted for household size. Each quintile (fifth) contains approximately the same number of people. The lowest quintile does not include households with negative income.

was 2.1 percent, and that of real adjusted market income was 2.6 percent.[10]

Effects of Inflation on the Price of 2019 Consumption Bundles

Over the 2020–2023 period, inflation increased the price of households' 2019 consumption bundles. For example, the price of the consumption bundle of households in the middle income quintile increased at an average annual rate of 4.5 percent since 2019, by CBO's estimate, thereby reducing the purchasing power of those households by an average of roughly $3,000 annually. (Over the same period, CBO estimates, those households' adjusted income after transfers and taxes rose by an average of $3,100 annually, and their adjusted market income rose by an average of $3,300.)

The effect of inflation on the price of the 2019 consumption bundle varied by income group: From 2019 to 2023, the price of the bundle of lower-income households increased by more than that of higher-income households (see Figure 3). The average annual growth in the price of the lowest income quintile's 2019 consumption bundle over the 2020–2023 period was 4.7 percent by CBO's estimate, and the average annual increase in the price of the highest income quintile's bundle was 4.4 percent.

The varying effects on different quintiles reflect differences in the composition of their consumption bundles. Energy and food—categories whose prices rose by relatively large amounts over the period—account for larger shares of lower-income households' total consumption than they do of higher-income households' total consumption. By contrast, the prices of "other services"—those other than rent, owners' equivalent rent (their primary residence), food services, and energy services—rose by comparatively small amounts and account for smaller

10. Income growth followed a similar trend in the estimates that CBO produced by using historical data from the national income and product accounts through 2023. In those estimates, real personal income excluding transfers grew by 1.6 percent, on average, per year. Real disposable personal income—that is, income after accounting for transfers and taxes and for inflation—grew by 1.9 percent, on average, per year. See Bureau of Economic Analysis, *National Income and Product Accounts (NIPA)*, Table 2.1, https://apps.bea.gov/iTable/index_nipa.cfm. The Bureau of Economic Analysis adjusts for inflation by using the price index for personal consumption expenditures.

shares of lower-income households' consumption than they do of higher-income households' consumption.[11]

How CBO Conducted This Analysis

To estimate the effect of higher consumer prices on households at different income levels, CBO used a sample of income tax returns filed in 2014. That sample contained the most recent public-use data with detailed information about tax returns that was available when the agency began this analysis. CBO adjusted that sample to account for changes in the population and in the economy since 2014 by using its microsimulation tax model, which yielded samples of tax returns for each year from 2019 to 2023. Those samples reflect income and demographic characteristics of the population in each year that are consistent with CBO's February 2024 baseline projections.[12]

Because household consumption is not included in those samples, CBO imputed it by using the most recent information available from the Consumer Expenditure Survey, which the Bureau of Labor Statistics (BLS) uses to calculate the weights it assigns to the different components of consumption included in the CPI-U.[13] Thus, the consumption bundle that CBO used in this analysis included all the components of consumption that are measured in the Consumer Expenditure Survey and the CPI-U. That bundle does not include households' consumption of in-kind health care benefits.[14] CBO calculated year-to-year changes in consumer prices from 2019 to 2023 by using BLS's data on inflation as measured by the CPI-U.

When comparing households in different income quintiles, CBO relied on measures of income that it has regularly used in previous reports. For this analysis, CBO ranked households on the basis of quintiles of income after transfers and taxes, adjusted by household size. In CBO's assessment, that measure of income most closely captures the resources available for household consumption.

Changes Since the 2022 Report

For the report that CBO published in September 2022, the agency focused on how inflation affected households at different income levels from 2019 to 2022. For this report, CBO has extended the analysis through 2023 and has incorporated more recent information about incomes and prices.

CBO has updated its prior estimates in two main ways to reflect recently available information. First, CBO incorporated new information about wage earnings in 2022 that showed more growth in wage earnings at the bottom of the income distribution and less growth in wage earnings at the top of the income distribution than were reflected in CBO's May 2022 projections. Second, CBO incorporated new data on consumer price changes reported by the Bureau of Labor Statistics for both 2022 and 2023. The actual rate of inflation, as measured by the change in the CPI-U, was 8.0 percent for 2022—higher than the 7.5 percent estimate used in the 2022 report.

Effects Not Accounted for in the Estimates

The estimates in this report do not account for the effects of inflation on the price of consumption that is not measured by the CPI-U, such as in-kind health care benefits, financial services, and other services not associated with out-of-pocket expenditures by consumers.[15] Furthermore, because the analysis focuses on changes in the price of households' 2019 consumption bundles, the estimates do not account for changes in the composition of consumption or in the overall amount of consumption that have occurred since 2019.

11. Congressional Budget Office, *How Inflation Has Affected Households at Different Income Levels Since 2019* (September 2022), Table 1, www.cbo.gov/publication/58426.

12. For details about CBO's projections of household income, see Congressional Budget Office, *Projected Changes in the Distribution of Household Income, 2016 to 2021* (December 2019), www.cbo.gov/publication/55941. That report was based on a sample of income tax returns that contained more detailed information than the public-use data used for this analysis.

13. For details about CBO's imputation method, see Dorian Carloni and Terry Dinan, *Distributional Effects of Reducing Carbon Dioxide Emissions With a Carbon Tax*, Working Paper 2021-11 (Congressional Budget Office, September 2021), www.cbo.gov/publication/57399.

14. In-kind health care components of consumption are included in the price index for personal consumption expenditures. See Bureau of Labor Statistics, "Comparing Expenditures From the Consumer Expenditure Survey With the Personal Consumer Expenditures: Results of the CE/PCE Concordance" (March 19, 2019), www.bls.gov/cex/cepceconcordance.htm.

15. Chandler Lester, *How CBO Projects Inflation*, Working Paper 2024-01 (Congressional Budget Office, February 2024), www.cbo.gov/publication/59877.

In addition, this analysis does not account for inflation's effects on wealth, including the differential effect that inflation has on lenders and borrowers by changing the values of their assets and liabilities. For example, when inflation exceeds the rates that were anticipated when debt was issued at a fixed interest rate, some of the value of that debt (and its purchasing power) is transferred from lenders to borrowers. As a result, when borrowers' income rises with inflation, they can spend a smaller share of their income repaying money that they borrowed in the past.

Because this analysis is based on the average income and consumption bundle of households in each income quintile, the estimates presented here reflect the effects of inflation on an average household in each quintile rather than on individual households. If the composition of a household's income or consumption differed from that of an average household in its income quintile, the effects of inflation on that household would have differed from the estimate. For example, a household in the bottom quintile that consumed more energy goods than the average household faced a larger increase in the price of its consumption bundle than the average household did.[16]

Finally, although some state-level means-tested transfers are included in this analysis, most state and local fiscal policies are not.

16. Such differences in consumption bundles could, for example, relate to where households reside. CBO has previously estimated differential price and wage growth for households living in rural and urban areas. See Congressional Budget Office, letter to the Honorable Jason Smith regarding price and wage growth in rural areas (January 31, 2022), www.cbo.gov/publication/57794.

The Congressional Budget Office prepared this report at the request of the Chairman of the Senate Budget Committee. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

Dorian Carloni prepared the report with guidance from Edward Harris, John McClelland, and Joseph Rosenberg. Bilal Habib contributed to the analysis. Chandler Lester offered comments. Omar Morales fact-checked the report.

Mark Doms, Jeffrey Kling, and Robert Sunshine reviewed the report. Rebecca Lanning edited it, and Jorge Salazar created the graphics and prepared the text for publication. The report is available at www.cbo.gov/publication/60166.

CBO seeks feedback to make its work as useful as possible. Please send comments to communications@cbo.gov.

Phillip L. Swagel
Director