

# **A Presentation on the Budgetary Implications of Economic Scenarios With Higher or Lower Interest Rates**

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# About This Analysis

This presentation illustrates how the Congressional Budget Office's July 2021 baseline budget projections would have differed if the agency had used two alternative economic forecasts.

For more information about the analysis underlying this presentation, see CBO's Economic Scenarios and Budgetary Implications Team, *Budgetary Implications of Economic Scenarios With Higher and Lower Interest Rates*, Working Paper 2022-04 (Congressional Budget Office, March 2022), [www.cbo.gov/publication/57908](https://www.cbo.gov/publication/57908).

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# Overview

Each month, the *Blue Chip Economic Indicators* reports projections from private-sector economists. CBO regularly shows its forecast relative to the middle two-thirds of the range of those forecasts.

Differences among the *Blue Chip* forecasts reflect uncertainty about the economy. Forecasts of interest rates, in particular, have large effects on budget projections and are highly uncertain.

As of March 11, 2022, these are the forecasts for interest rates on 3-month Treasury bills for 2022:

- The highest one-sixth of *Blue Chip* forecasts, taken together, averages 1.1 percent.
- The lowest one-sixth of *Blue Chip* forecasts, taken together, averages 0.5 percent.

The forecasts also differ in their projections of gross domestic product (GDP), inflation, the unemployment rate, and other variables.

## Preview of Results

In short, if the economy followed a high-sixth scenario based on *Blue Chip* forecasts for interest rates and other variables rather than a low-sixth scenario, the federal budget would change in these ways:

- Projected **deficits would be larger by \$2.1 trillion** from 2022 to 2031 under the high-sixth scenario (totaling \$13.8 trillion) than under the low-sixth scenario (\$11.7 trillion).
- Despite a greater amount of debt under the high-sixth scenario, **federal debt held by the public as a percentage of GDP would total about 101 percent** at the end of 2031 under both scenarios. That outcome would occur because the ratio of the growth rate of debt to the growth rate of nominal GDP would be about the same in the two scenarios.

## Basis of the Projections for 2022 and 2023

CBO constructed those economic scenarios using this information from *Blue Chip* forecasters:

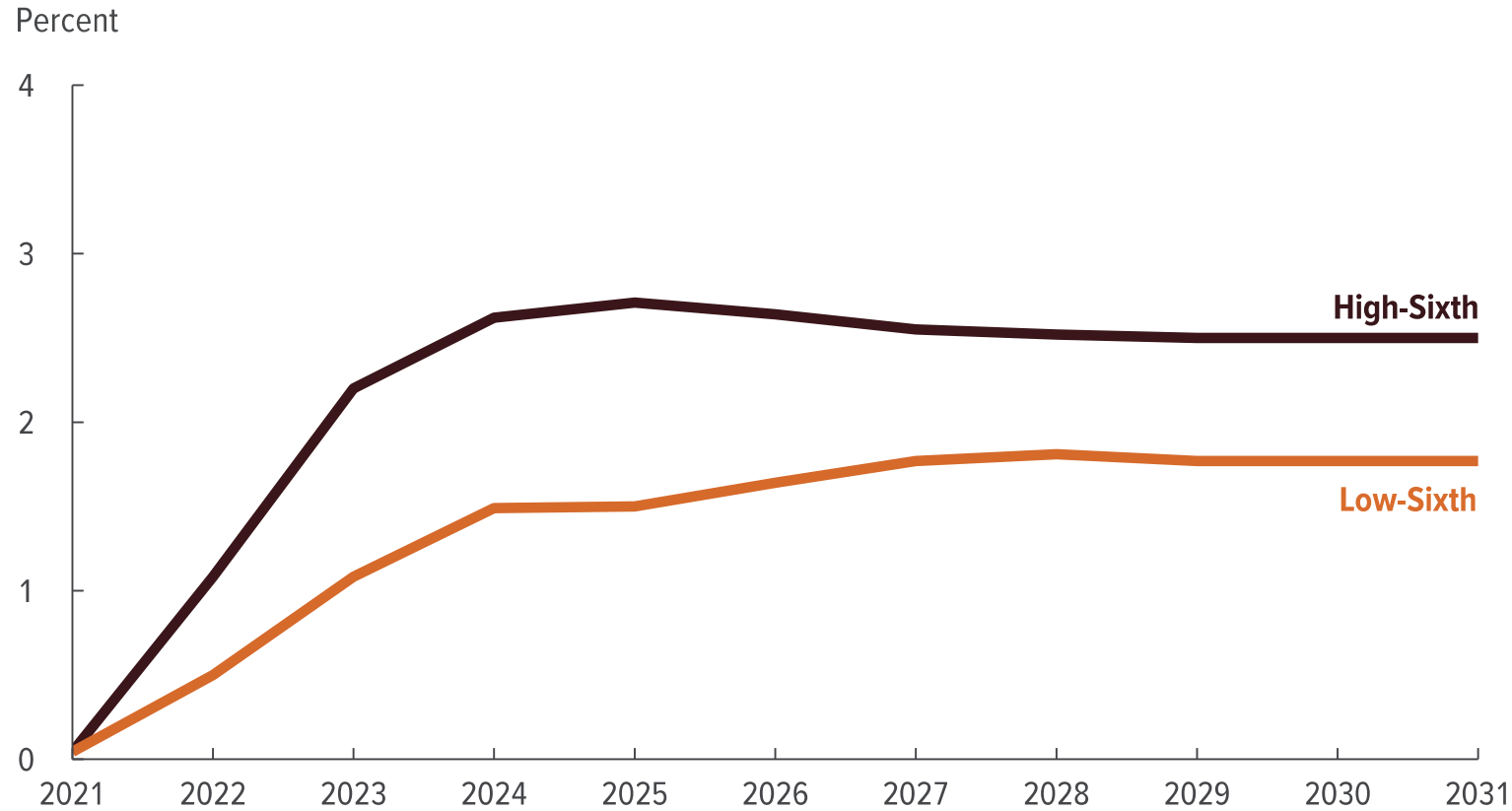
- The **high-sixth scenario** is based on the average values of projections for all variables of the six forecasters with the highest average interest rate projections for 2022 and 2023.
- The **low-sixth scenario** is based on the average values of projections for all variables of the six forecasters with the lowest average interest rate projections for 2022 and 2023.

## Basis of the Projections for Later Years

For projections for 2024 to 2031, CBO used the following information from the *Blue Chip* forecasters:

- For interest rates and inflation—the top 10 and bottom 10 projections for the high-sixth and low-sixth scenarios, respectively;
- For real GDP growth (adjusted to remove the effects of inflation) and the unemployment rate—the consensus (the average from all forecasters) for both scenarios.

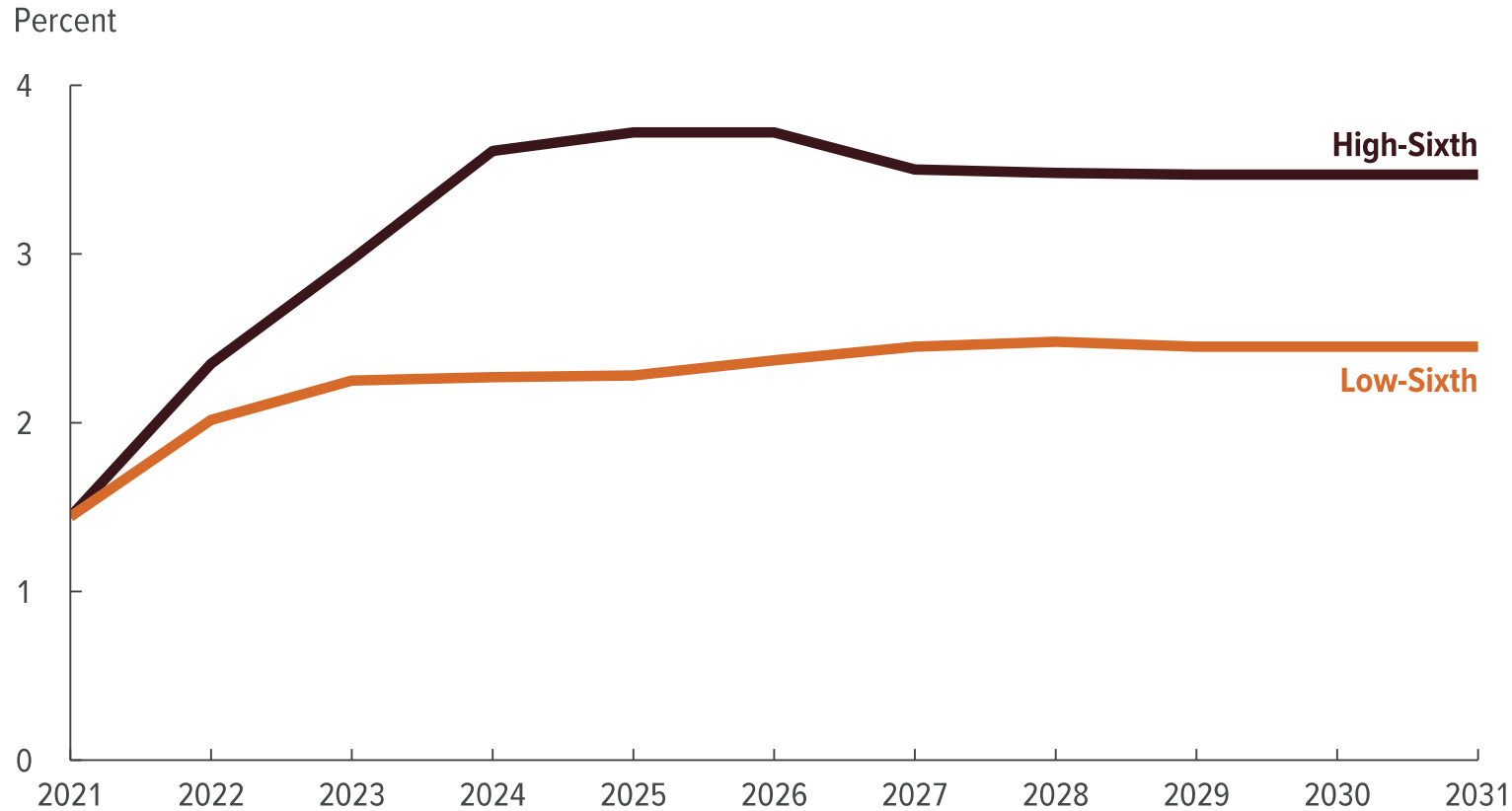
# Interest Rates on 3-Month Treasury Bills



CBO constructed the high-sixth and low-sixth scenarios based on the average values of projections from the six *Blue Chip* forecasters (about one-sixth of the total) with the highest and lowest average interest rate projections, respectively, for 2022 and 2023.



# Interest Rates on 10-Year Treasury Notes



CBO constructed the high-sixth and low-sixth scenarios based on the average values of projections from the six *Blue Chip* forecasters (about one-sixth of the total) with the highest and lowest average interest rate projections, respectively, for 2022 and 2023.

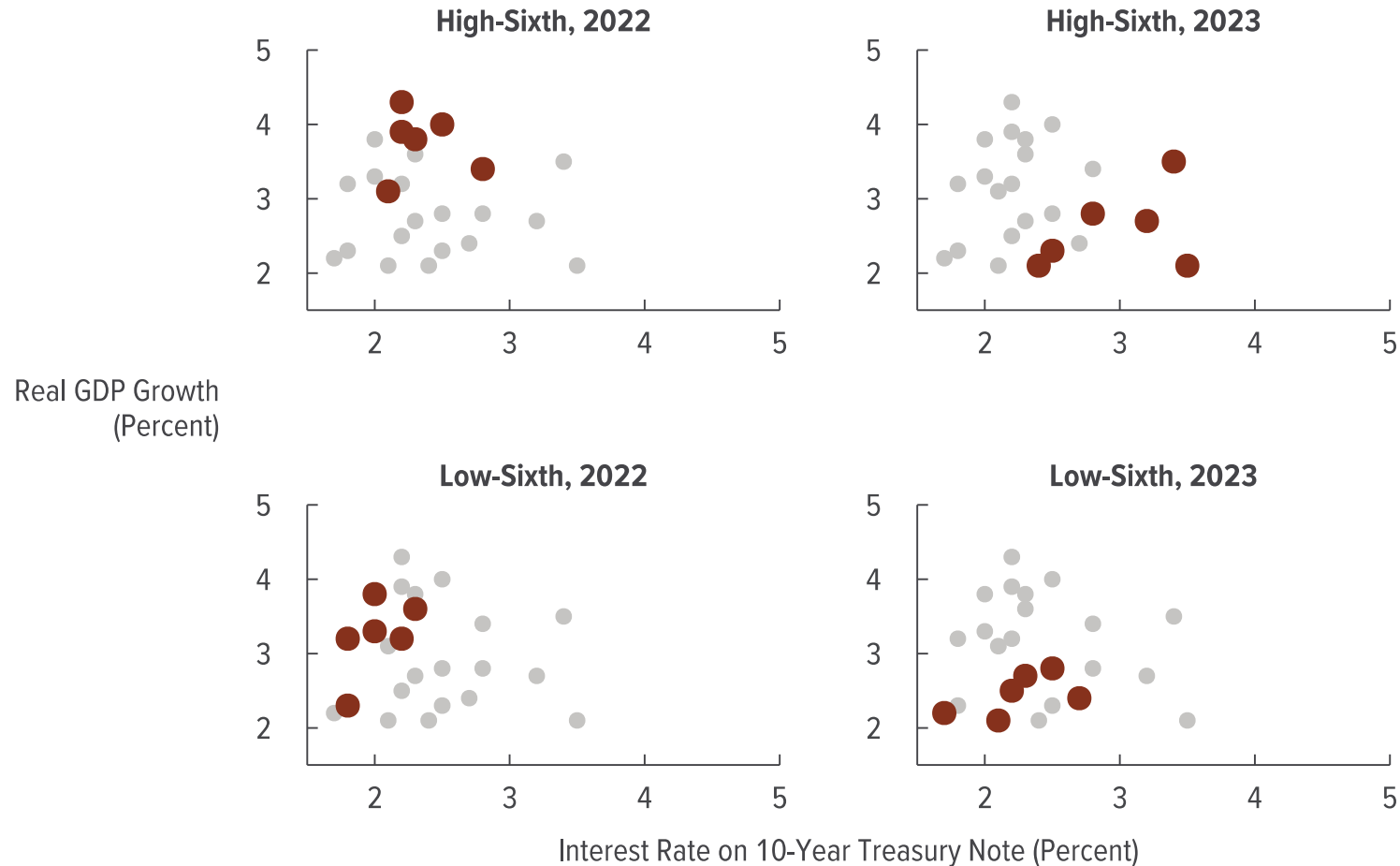


## Strength of the Economy

The scenarios group the forecasts with the highest and lowest projections of interest rates. Projections of some other variables, such as the unemployment rate, were similar, on average, from both groups. That similarity indicates that the differences in interest rate forecasts were not simply the result of differences in projected strength of the economy across the board.

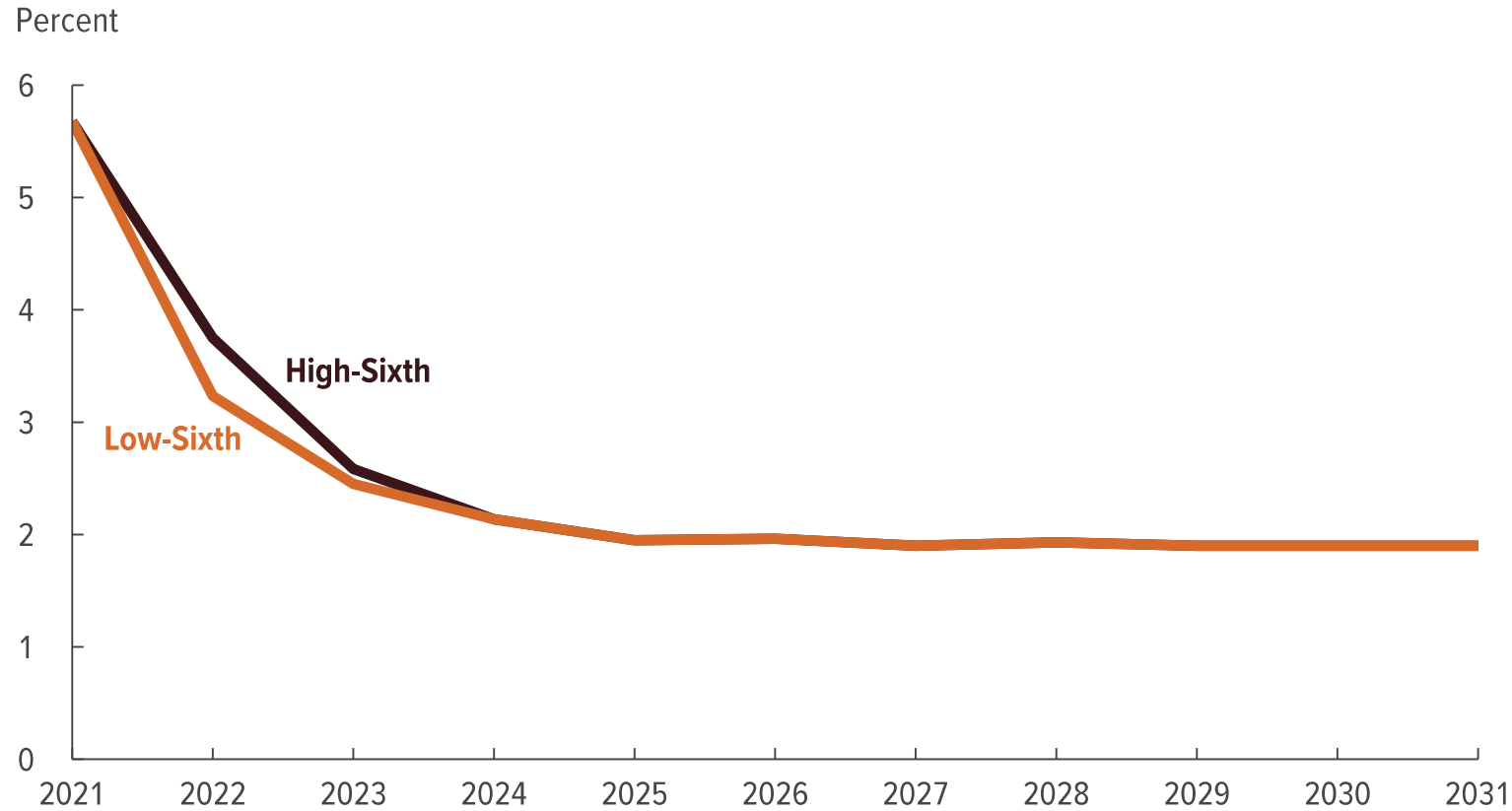
- Taken individually, projections from the *Blue Chip* forecasters that contributed to each scenario show a variety of relationships between interest rates and real GDP growth for 2022 and also for 2023.
- Taken together, the forecasts that constitute the high-sixth scenario project slightly faster GDP growth for 2022 and 2023 than those that make up the low-sixth scenario.

# Forecasts in the *Blue Chip Economic Indicators*



CBO constructed the high-sixth and low-sixth scenarios based on the average values of projections from the six *Blue Chip* forecasters (about one-sixth of the total) with the highest and lowest average interest rate projections, respectively, for 2022 and 2023. The data points represent forecasts by each *Blue Chip* forecaster.

# Projected Real GDP Growth



CBO constructed the high-sixth and low-sixth scenarios based on the average values of projections from the six *Blue Chip* forecasters (about one-sixth of the total) with the highest and lowest average interest rate projections, respectively, for 2022 and 2023.

## Data CBO Used From *Blue Chip* Forecasters

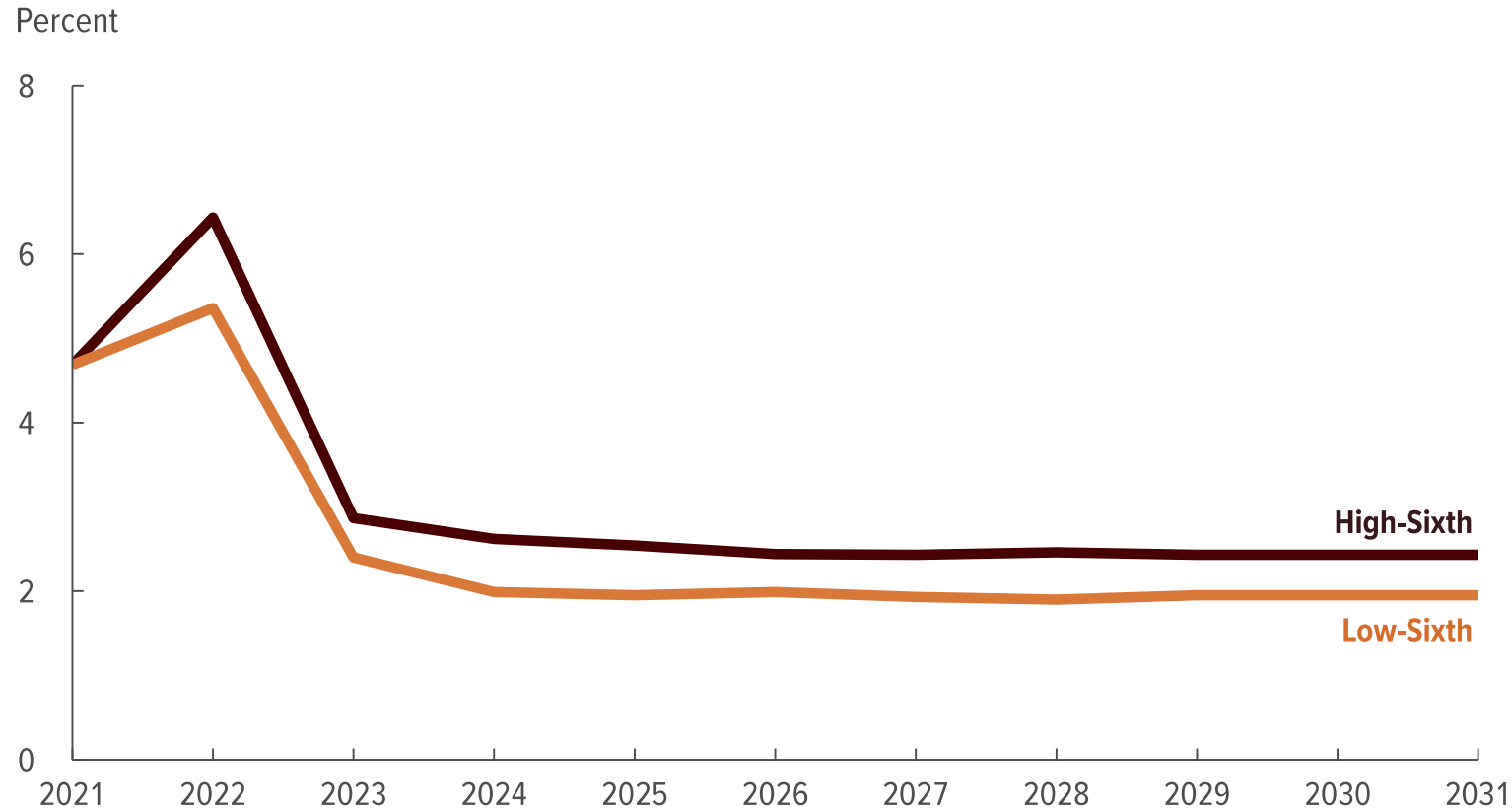
In this analysis, to project other economic variables needed for budget estimates, CBO used a statistical model (a Bayesian vector autoregression, or BVAR), which draws on historical correlations between macroeconomic variables.

As targets for the model, CBO used averages of projections made by *Blue Chip* forecasters for eight variables:

- The 3-month Treasury bill rate and the 10-year Treasury note rate.
- The unemployment rate.
- Real GDP, real personal consumption expenditures, and real nonresidential fixed investment.
- Inflation as measured by the GDP price index and the consumer price index for all urban consumers (CPI-U).



# Inflation as Measured by the CPI-U



CBO constructed the high-sixth and low-sixth scenarios based on the average values of projections from the six *Blue Chip* forecasters (about one-sixth of the total) with the highest and lowest average interest rate projections, respectively, for 2022 and 2023.

# How CBO Projected Additional Macroeconomic Variables From a Statistical Model

CBO then used its BVAR model to project 10 additional macroeconomic variables that were ultimately used by its budgetary feedback model.

- The federal funds rate.
- Payroll employment, the number of people in the labor force, and compensation of employees.
- Nominal gross national product and nominal private nonresidential fixed investment in equipment.
- Nominal and real potential GDP (the maximum sustainable output of the economy).
- Inflation as measured by the consumer price index for food at home and for medical care.

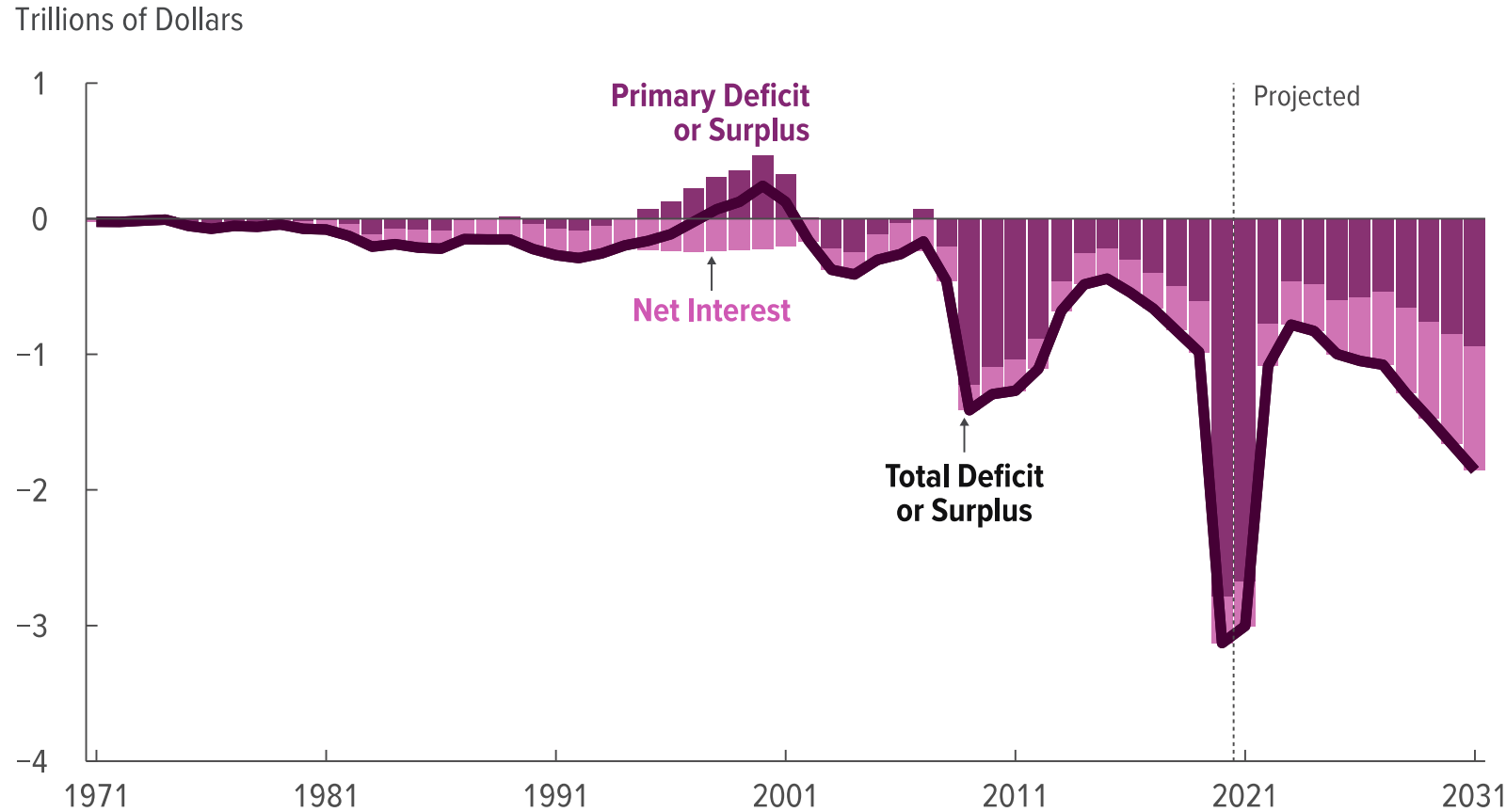
# How CBO Estimated the Effects of Macroeconomic Changes on the Federal Budget

For this analysis, CBO started with its July 2021 baseline projections. Using its budgetary feedback model (BFM), augmented with its baseline projection model for net interest costs, the agency then analyzed the effects of macroeconomic changes on the federal budget under the high-sixth and low-sixth scenarios relative to that baseline.

CBO's BFM approximates the budgetary feedback that would be arrived at by using a wider array of CBO's budgetary models. It was built to provide a unified framework to quantify changes in projected revenues and outlays relative to CBO's baseline budget projections.

A recent working paper describes how the BFM is constructed, how it is used in CBO's dynamic analyses, and the model's limitations.

# Deficits in CBO's July 2021 Baseline Budget Projections

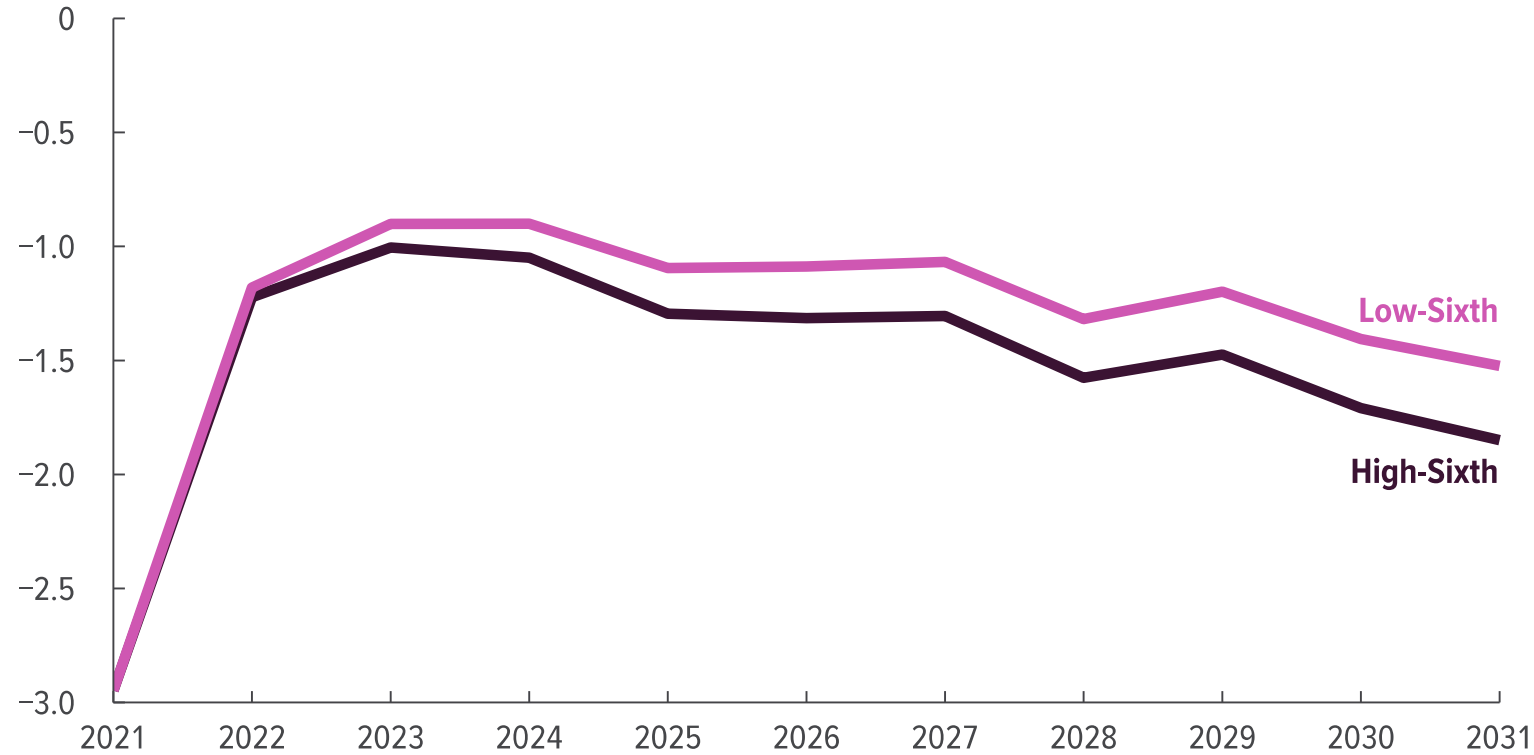






# Deficits Under the Two Scenarios

Trillions of Dollars



CBO constructed the high-sixth and low-sixth scenarios based on the average values of projections from the six *Blue Chip* forecasters (about one-sixth of the total) with the highest and lowest average interest rate projections, respectively, for 2022 and 2023.

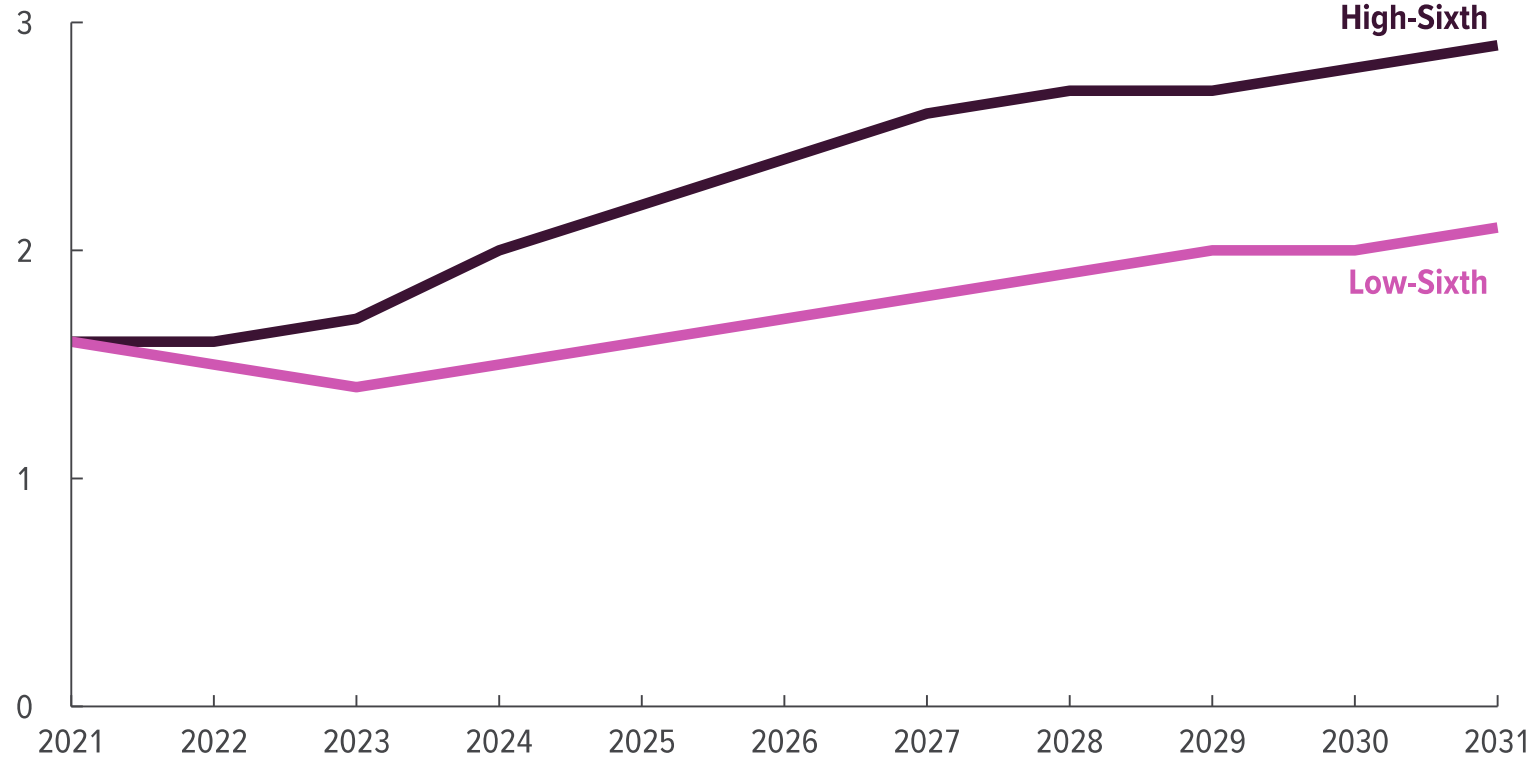
# Cumulative Budgetary Effects of the High-Sixth Scenario Relative to the Low-Sixth Scenario, 2022 to 2031

Trillions of Dollars

	Increase (-) or Decrease in the Deficit
Revenue Increases	1.6
Noninterest Spending Increases	-1.5
Net Interest Spending Increases	<u>-2.2</u>
<b>Total</b>	<b>-2.1</b>

# Net Interest Spending

Percentage of GDP



CBO constructed the high-sixth and low-sixth scenarios based on the average values of projections from the six *Blue Chip* forecasters (about one-sixth of the total) with the highest and lowest average interest rate projections, respectively, for 2022 and 2023.

# Debt and GDP Projections

	High-Sixth Scenario	Low-Sixth Scenario	CBO's July 2021 Baseline
<b>Debt as a Percentage of GDP</b>			
Debt in 2021	103	103	103
Debt in 2026	97	98	100
Debt in 2031	101	101	106
<b>Debt and GDP Growth</b>			
Growth in Debt From 2021 to 2031 (Percent)	63	54	56
Growth in GDP From 2021 to 2031 (Percent)	66	56	50
Ratio of the Debt Growth Rate to the GDP Growth Rate	0.96	0.96	1.11

# Debt Burden

Higher inflation affects not only the amount of debt but also how burdensome that debt is.

- When inflation exceeds the rates expected 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, borrowers can spend a smaller share of their income repaying money they borrowed in the past when income rises with inflation, as it does in this analysis.
- Similarly, the federal government, as a borrower, can use a smaller share of the revenues it collects to pay holders of Treasury securities that mature, without changing tax rates. In that sense, the debt burden to the government is smaller when inflation is higher.