3. LONG-TERM BUDGET OUTLOOK

The horizon for most numbers in this budget is 10 years. This 10-year horizon reflects a balance between the importance of considering both the current and future implications of budget decisions made today, and a practical limit on the construction of detailed budget projections for years in the future.

Nonetheless, it can be informative to look further into the future, despite the uncertainty surrounding the assumptions needed for such estimates. This chapter begins by discussing the fiscal outlook under current law over the next 25 years. The second section discusses the fiscal impact of the Administration's policies, finding they will cut deficits and debt, compared to the baseline. In the third section, alternative assumptions about the evolution of key variables and uncertainties in the projections are discussed, including the macroeconomic risks of climate change. The fourth section discusses the actuarial projections for Social Security and Medicare. The *appendix* to this chapter provides further detail on data sources, assumptions, and other methods for estimation.

Long-Run Projections under Continuation of Current Policies

The baseline long-term projections assume that current policy continues for Social Security, Medicare, Medicaid, other mandatory programs, and revenues.[1] Projections for all mandatory programs and revenues maintain consistency with other Federal agency projections. From 2033-2047, total mandatory spending grows by 0.4 percentage points as a share of GDP (Gross Domestic Product), while revenues increase by 0.4 percentage points. The Budget provides a specific path for discretionary spending over the next 10 years. Thereafter, the baseline long-run projections assume that real per-person discretionary funding remains constant, implying an average growth rate of 2.8 percent per year. The appendix provides additional detail on the methodology behind these projections.

The COVID-19 public health and economic crisis and measures taken to address them significantly increased deficits and debt for 2020 and 2021. The deficit was 15.0 percent of GDP in 2020, falling to 12.4 percent of GDP in 2021. The deficit is projected to fall sharply in 2022 and 2023 and then remain between 4.7 percent of GDP and 5.4 percent of GDP through the end of the 10-year window, assuming current policies. Debt fell to 99.7 percent

of GDP in 2021 and is projected to rise to 102.4 percent of GDP in 2022 before falling to 101.9 percent of GDP in 2023. Assuming current policies, debt rises to 109.6 percent of GDP in 2032.

Over the past several decades, interest rates have fallen even as debt has risen. This has been a widespread, persistent, and global phenomenon, and it has meant that the burden associated with debt has gone down. Under the baseline projections, despite interest rates being projected to rise, real net interest payments will remain at or below 0.9 percent of GDP over the 10-year window, below the approximately one percent average over the last four decades and well below the approximately two percent average level in the 1990s.

Beyond the 10-year horizon, Chart 3-1 shows that deficits continue to rise under the baseline projections, reaching 5.5 percent of GDP in 2035, before falling back to 4.9 percent of GDP by the end of the 25-year window. Chart 3-2 shows that debt under the baseline projections continues to rise as a share of GDP, with increases slowing in the 2040s. From 2032 to 2039, debt is projected to increase from 109.6 to 117.0 percent of GDP under the baseline projections, an increase of 1.1 percentage points per year. In contrast, from 2039 to 2047, debt is projected to increase from 117.0 to 121.7 percent of GDP under the baseline projections, an increase of 0.6 percentage points per year. By the end of the 25-year window, debt as a share of GDP in the baseline projections plateaus. Similarly, real net interest rises from 0.9 to 1.0 percent of GDP between 2032 and 2039 under the baseline projections, and then to 1.1 percent of GDP in 2047.
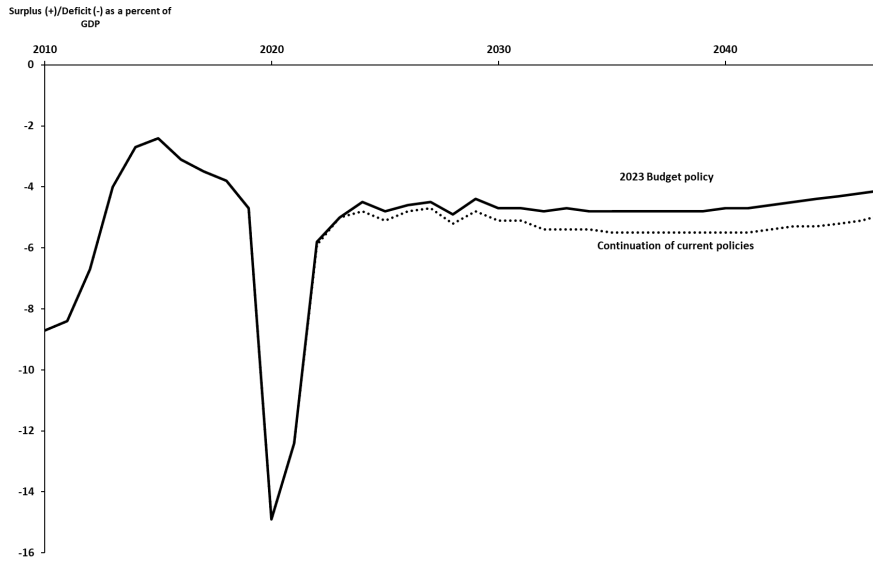
Impact of 2023 Budget Policies on the Long-Term Fiscal Outlook

The Budget proposes major investments in education, public health preparedness, infrastructure, and other areas, coupled with major reforms to both corporate and individual taxation. Because the Budget proposes extensive reforms to the tax system, the Budget improves the long-term fiscal outlook. Moreover, the Budget includes a reserve fund for legislation to reduce costs for families, expand the productive capacity of the economy, and reform the tax system. While the President has said that this legislation should reduce the deficit, the Budget estimates treat it as deficit neutral—a conservative assumption reflected in both the 10-year and long-term budget projections.

The Budget's policies lower annual deficits compared to the baseline projections in every year, beginning immediately. To assess long-run impact, this chapter develops more detailed 25-year projections for the impact of the Administration's policies on the budget, as described in

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[1] The long-run baseline projections are consistent with the Budget's baseline concept, which is explained in more detail in Chapter 22, "Current Services Estimates," in this volume. The projections assume full payment of scheduled Social Security and Medicare benefits without regard to the projected depletion of the trust funds for these programs. Additional baseline assumptions beyond the 10-year window are detailed in the appendix to this chapter.

Chart 3-1. Comparison of Annual Surplus/Deficit

Surplus (+)/Deficit (-) as a percent of GDP

(chart showing annual surplus/deficit as a percent of GDP from 2010 to 2040, with lines labeled "2023 Budget policy" and "Continuation of current policies")

the appendix. The resulting projections show that the revenue increases in the President's Budget more than offset spending increases in every year while generating additional savings over the long run. In total, all Budget proposals are projected to reduce deficits by more than $3 trillion in the second decade and improve the fiscal outlook over the long run.

Charts 3-1 and 3-2 illustrate the improvement in deficits and debt. The plans improve the fiscal outlook over the short and long term, with lower deficits throughout the 25-year window. Similarly, the Budget's policies significantly flatten the projected debt increase compared to the baseline, with debt as a percent of GDP rising by less than 0.3 percentage points per year between 2032 and 2047. Budget proposals would result in further improvement in the fiscal outlook after 25 years.

Debt as a share of GDP grows more slowly over time in part because of the projected slowdown in population aging on a given population path from 2022 forward. Consistent with the demographic assumptions in the 2021 Social Security Trustees' report (see chart 3-3 below), the elderly share of the U.S. population is projected to rise from 16.8 percent in 2020 to 21.2 percent in 2036 as baby boomers retire. This aging of the baby-boom cohorts into retirement reduces the rate of labor force growth and therefore the rate of economic growth. However, by the late 2030s, the elderly share of the U.S. population is projected to plateau. As a result, the demographic drag on economic growth of the working-age share of the population for a given population path is projected to subside from 2030 forward, which all-else-equal reduces debt as a share of GDP.

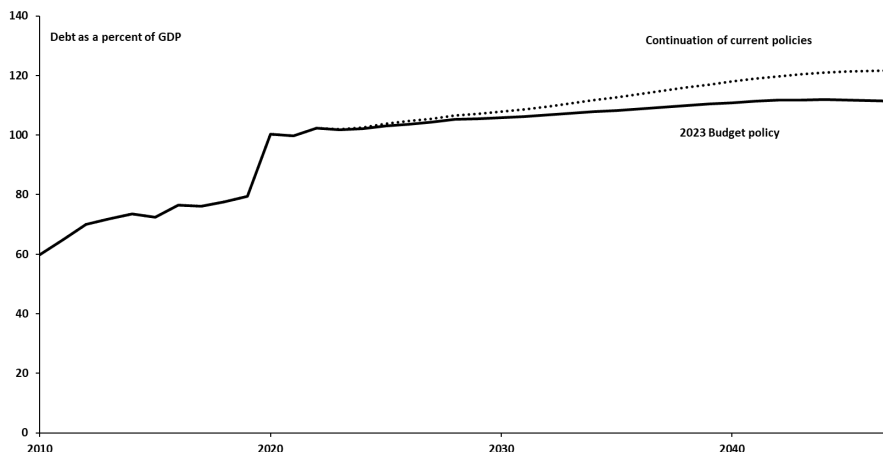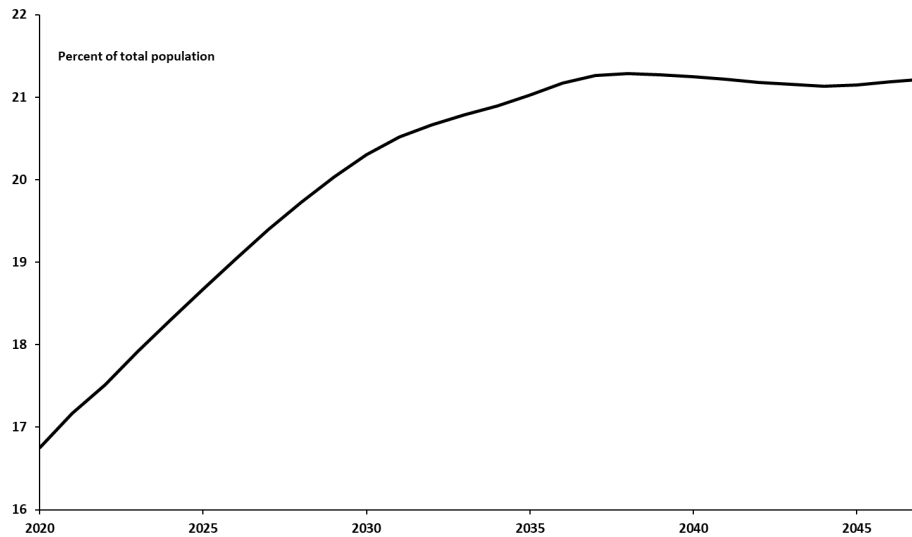**Chart 3-2. Comparison of Publicly Held Debt**

Debt as a percent of GDP

(chart showing publicly held debt as a percent of GDP from 2010 to 2040, with lines labeled "Continuation of current policies" and "2023 Budget policy")

Chart 3-3. Elderly (Age 65+) Share of the U.S. Population

Uncertainty and Alternative Assumptions

Future budget outcomes depend on a host of unknowns: changing economic conditions, unforeseen international developments, unexpected demographic shifts, and unpredictable technological advances. The longer budget projections are extended, the more the uncertainties increase. These uncertainties make even accurate short-run budget forecasting quite difficult. For example, the Budget's projection of the deficit in five years is 4.5 percent of GDP, but a distribution of probable outcomes ranges from a deficit of 10.7 percent of GDP to a surplus of 1.7 percent of GDP, at the 10th and 90th percentiles, respectively.[2]

This section considers some specific sources of uncertainty in the projections above which are summarized in Table 3-1.

Table 3–1. 25–YEAR DEBT PROJECTIONS UNDER ALTERNATIVE BUDGET SCENARIOS
(Percent of GDP)

2023 Budget Policy	111.3
Real Economic Growth:	
Climate reduces real GDP level by 4.5% in 2047	129.4
Health:	
Excess cost growth averages 0.5%	91.1
Excess cost growth averages 1.5%	114.2
Discretionary Spending:	
Grow with GDP	118.1
Grow with inflation only	108.8

Real economic growth is highly uncertain. Going forward, real GDP growth is projected to be below its lon-

ger-run historical average of 2.5 percent per year as the slowdown in population growth and the increase in the population over age 65 reduce labor supply growth. In these projections, real GDP growth averages 2.1 percent per year for the period following the end of the 10-year budget window.
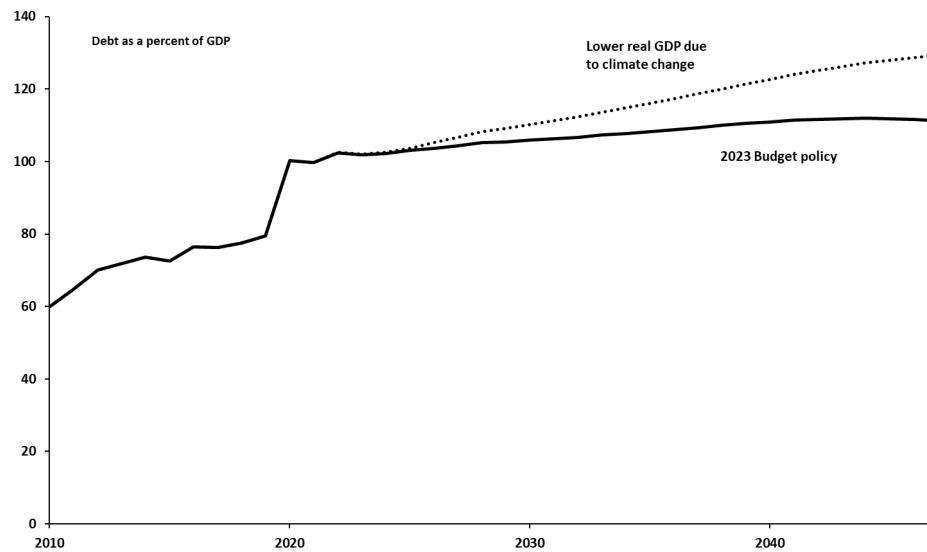
Over the long run, the path of real GDP is subject to significant downside risk from climate change. Absent further action to slow the rate of greenhouse gas emissions, the world remains on pace to increase over 2°C above pre-industrial average temperatures by the end of this century. Warming on this scale may have profound impacts on the American economy.

Climate change can create physical changes that impact the economy through a variety of pathways. Acute physical risks from an increased rate and severity of natural disasters can harm the productivity of American farms, factories, offices and infrastructure. Chronic risks like sea level rise have the potential to do the same. Combined with increased global temperatures, the overall effect has been estimated to be lower output.

An analysis by the Network for Greening the Financial System (NGFS) suggests that U.S. GDP will be nearly 2.5 percent lower by the middle of the century under current policies relative to a no-further-warming counterfactual, with losses accelerating in the second half of the century. Like the budget projections themselves, this projected path of real GDP impacts is highly uncertain. The 90 percent confidence interval ranges from a level of GDP that is 1.3 lower than the counterfactual at the 5th percentile likelihood to 4.5 percent lower at the 95th percentile. Further evidence and analysis can reduce that uncertainty.

To illustrate the potential risk, we examine federal budget impacts under the NGFS 95th percentile scenario for outcomes under current policy. Chart 3-4 shows an alternative scenario for the debt-to-GDP path based on

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[2] These estimates are derived in Chart 2-1 of Chapter 2, "Economic Assumptions and Overview," in this volume.

Chart 3-4. Climate Risk Alternative

the NGFS 95th percentile projection of the level of real GDP being 4.5 percent lower by the end of the 25-year window and assuming GDP impacts begin immediately. Compared to the base case policy projection of debt being 111.3 percent of GDP at the end of the 25-year window, the risk scenario's negative shock from climate change could result in a debt ratio of 129.4 percent of GDP. GDP and fiscal impacts would be smaller under the NGFS 50th percentile scenario, but would also be expected to grow over time. These impacts are one of many reasons why there is an urgent need for action on climate change and why the 2023 President's Budget proposes significant investments to reduce the Federal Government's long-term fiscal exposure to climate-related financial risks and reduce future risks for all Americans.[3]

A future pandemic could also have a large impact on both the economy and the U.S. balance sheet. While these impacts are not quantified here, during the current pandemic, the U.S. Government has supported the American taxpayer with over $5 trillion in expanded unemployment benefits, small business cash infusions, payments to families to cover child related expenses, and checks to over 170 million Americans. In spite of these well-targeted investments, the lost economic output due to the pandemic could be as high at $1.5 trillion as of the end of 2021. Globally, the estimated direct effect of a pandemic-induced economic slowdowns range from between 0.5 to 2.0 percent of global GDP. While harder to calculate, we also saw increased indirect costs due to increased mortality and lost human capital.

To address this risk, the Budget includes transformative investments in pandemic preparedness. These investments are intended to reduce harm to lives and livelihoods. But they also could lead to better long-term economic and fiscal outcomes than what we would expect if these investments were not made.

Another significant source of uncertainty is healthcare cost growth. As noted above, the baseline projections follow the Medicare Trustees in assuming that Medicare per-beneficiary costs grow an average of about 1.0 percentage points faster than GDP per capita ("excess cost growth") over the next 25 years, starting at high excess growth rates that steadily approach zero. A primary input to these projections is overall national health expenditures, the sum of all private and government health expenditures. In the past, especially prior to 1990, national health expenditures grew even more rapidly. For example, throughout the 1980s, national health per-beneficiary costs grew 3.2 percentage points faster than GDP per capita. However, on average since 2010, per-enrollee healthcare costs have grown roughly in line with GDP, with particularly slow growth in federal health expenditures for Medicare and Medicaid.

Chart 3-5 shows the debt ratio in 25 years if healthcare cost growth were to average a different growth rate, reflecting the variability of recent trends in healthcare cost growth. If healthcare cost growth equals 1.5 percentage points faster than real GDP per capita growth in every year, which is in line with the period from 2005-10, (versus starting at a higher level but then falling) the debt ratio in 25 years would increase from 111.3 percent of GDP under the base case Budget policy to 114.2 percent of GDP, with larger deviations every year thereafter. In contrast, if healthcare cost growth in every year was similar to that observed from 2010-15, 0.5 percentage points faster than real GDP per capita growth, the debt-to-GDP ratio would peak in 2028 and debt would fall to 91.1 percent of GDP by the end of the 25-year period.

Policy choices will also have a large impact on long-term budget deficits and debt, as evident from the discussion of the 2023 Budget proposals. Small permanent changes can

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[3] For more information, please see Chapter 21, "Federal Budget Exposure to Climate Risk," in this volume.

Chart 3-5. Alternative Healthcare Costs
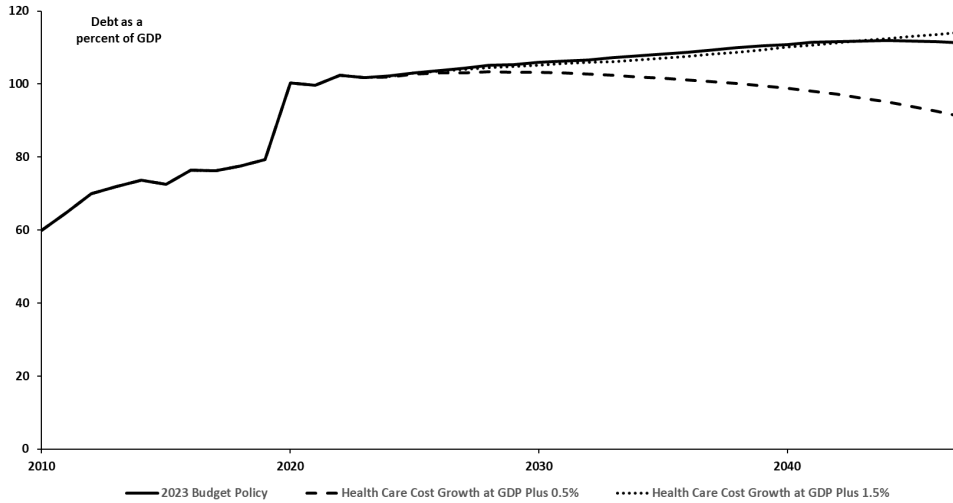
have significant long-term impacts. In the base case policy projections, revenues gradually increase with rising real income, as real bracket creep--the change in average tax rates as taxpayers' incomes rise faster than tax bracket thresholds--increases individual income taxes as a share of GDP. If receipts remain a constant percent of GDP after the budget window, the debt ratio would be expected to increase compared to the base case.

The base case policy projections for discretionary spending assumes that after 2032, discretionary outlays grow with inflation and population (see Chart 3-6). Alternative assumptions are to grow discretionary spending with GDP or with inflation only. At the end of the 25-year horizon, the debt ratio ranges from 108.8 percent

of GDP in the inflation-only case to 118.1 percent of GDP in the GDP case, with the base case falling in the middle.

A final major source of uncertainty is interest rates. A rise in real interest rates would increase the burden of debt, forcing the Federal Government to raise additional revenue, reduce spending, or increase borrowing in order to pay off old debt. Over the last two decades, interest rate projections have been, on average, too high. Chart 3-7 shows the path of actual 10-year Treasury rates from 2000 to 2021 along with previous Administration forecasts for the 10-year Treasury rate. Chart 3-8 shows the equivalent chart for CBO forecasts. Table 2-5 of Chapter 2, "Economic and Budget Analyses," shows the average forecast errors in economic projections from past Federal

Chart 3-6. Alternative Discretionary Assumptions
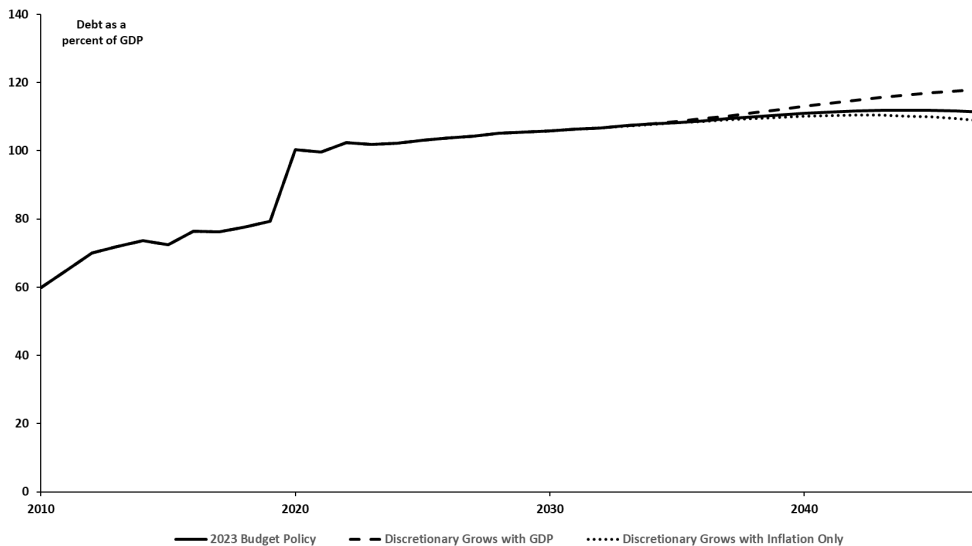
Chart 3-7. Historical Values and Budget Projections for 10-Year Treasury Rates
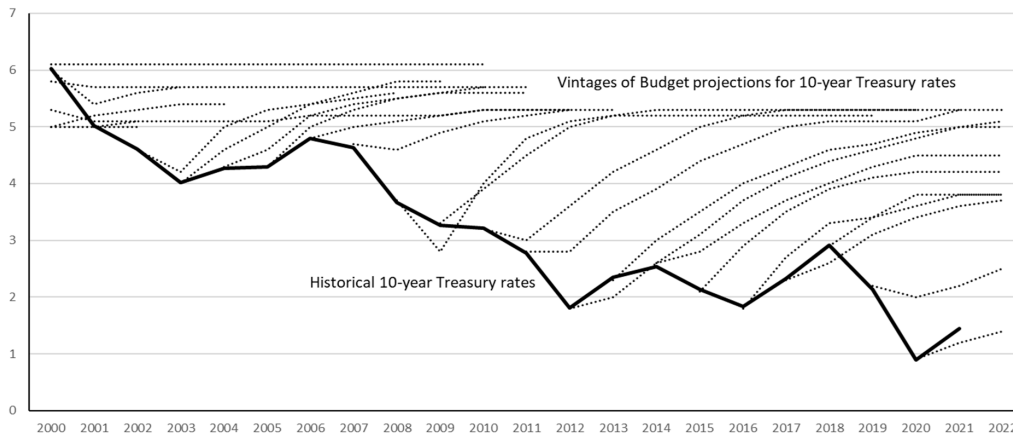
budgets, CBO, and the Blue Chip panel of professional forecasters. On average, all three groups of forecasters have been 0.5 percentage points too high in projecting the 3-month Treasury rate two years into the future and 2.1 percentage points projecting the same rate six years out.

The Administration's forecast for interest rates over the next decade show the 10-year Treasury note rate rising to 3.3 percent in 2032. Beyond 2032, this chapter's projections assume interest rates stay constant at the 2032 level. If the actual interest rate path were lower, this would result in a lower debt-to-GDP ratio over the long run. Alternatively, as CBO projects, interest rates could continue to rise after the 10-year budget window, which would result in a higher debt-to-GDP ratio over the long run. While rates have risen recently, the Blue Chip panel of professional forecasters, as of March 2022, continues to forecast a 2032 10-year Treasury note rate of 3.0 percent, lower than the Administration forecast.

Actuarial Projections for Social Security and Medicare

While the Administration's long-run projections focus on the unified budget outlook, Social Security Old-Age and Survivors Insurance and Disability Insurance and

Medicare Hospital Insurance benefits are paid out of trust funds financed by dedicated payroll tax revenues. Projected trust fund revenues fall short of the levels necessary to finance projected benefits over the next 75 years.

The Social Security and Medicare Trustees' reports feature the actuarial balance of the trust funds as a summary measure of their financial status. For each trust fund, the actuarial balance is calculated as the magnitude of change in receipts or program benefits (expressed as a percentage of taxable payroll) that would be needed to preserve a small positive balance in the trust fund at the end of a specified time period. The estimates cover periods ranging in length from 25 to 75 years.

Table 3-2 shows the projected income rate, cost rate, and annual balance for the Medicare HI and combined OASDI trust funds at selected dates under the Trustees' intermediate assumptions in the 2021 reports. There is a continued imbalance in the long-run projections of the HI program due to revenues that do not match costs over time. According to the 2021 Trustees' report, the HI trust fund reserves are projected to become depleted in 2026; in that year, dedicated revenues would be expected to be able to cover 91 percent of scheduled payments.

The 2021 Social Security Trustees' report projects that under current law, there is a long-term mismatch between

Chart 3-8. Historical Values and CBO Projections for 10-Year Treasury Rates
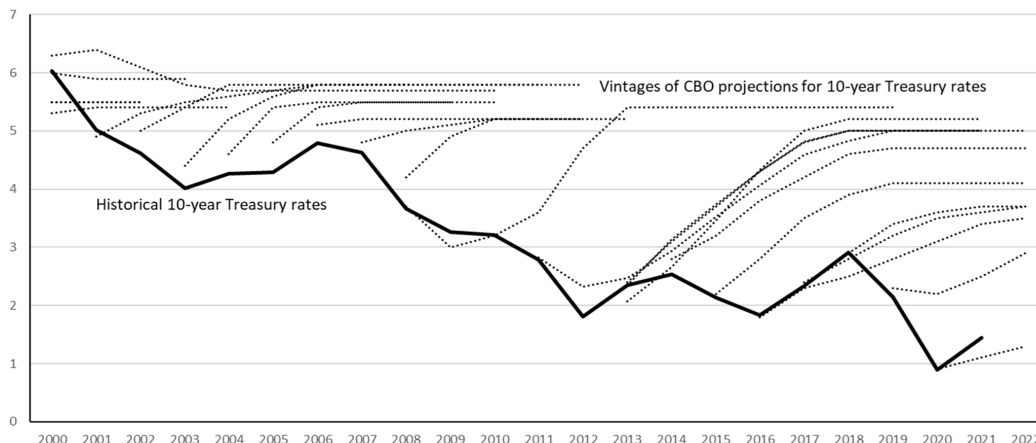
Table 3–2. INTERMEDIATE ACTUARIAL PROJECTIONS FOR OASDI AND HI, 2021 TRUSTEES' REPORTS

	2020	2021	2030	2040	2090
	Percent of Payroll				
Medicare Hospital Insurance (HI):					
Income Rate	3.4	3.4	3.6	3.8	4.4
Cost Rate	3.5	3.6	4.2	4.8	4.8
Annual Balance	−0.2	−0.3	−0.6	−1.0	−0.4
Projection Interval:			25 years	50 years	75 years
Actuarial Balance			−0.8	−0.8	−0.8
	Percent of Payroll				
Old Age Survivors and Disability Insurance (OASDI):					
Income Rate	13.5	12.3	13.2	13.3	13.4
Cost Rate	14.4	14.1	16.1	17.0	17.8
Annual Balance	−0.8	−1.8	−2.9	−3.7	−4.4
Projection Interval:			25 years	50 years	75 years
Actuarial Balance			−2.4	−3.1	−3.5

program revenue and costs. Social Security is currently drawing on its trust fund balances to cover current expenditures. Over time, as the ratio of workers to retirees falls, costs are projected to rise further while revenues excluding interest are projected to rise less rapidly. In the process, the Social Security trust fund reserves, which were built up since 1983, would be drawn down and eventually become depleted in 2034, based on the projections in the 2021 report. At that point, the dedicated revenues could pay for 78 percent of program expenditures for the rest of 2034, declining to 74 percent for 2095.

The long-term budget projections in this chapter assume that benefits would continue to be paid in full despite the projected depletion of the trust fund reserves to show the long-run cost of maintaining current benefit formulas.

TECHNICAL NOTE: SOURCES OF DATA AND METHODS OF ESTIMATING

The long-run budget projections are based on actuarial projections for Social Security and Medicare as well as demographic and economic assumptions. A simplified model of the Federal budget, developed at OMB, is used to compute the budgetary implications of these assumptions after the 10-year budget window.

Demographic and Economic Assumptions.— For the years 2022-2032, the assumptions are drawn from the Administration's economic projections used for the 2023 Budget. The economic assumptions are extended beyond this interval by holding the inflation rate, interest rates, and the unemployment rate constant at the levels assumed in the final year (2032) of the budget forecast. Population growth and labor force growth are extended using the intermediate assumptions from the 2021 Social Security Trustees' report. The projected rate of growth for real GDP is built up from the labor force assumptions and an assumed rate of productivity growth. Productivity growth, measured as real GDP per hour, is assumed to equal its terminal annual rate of growth in the Budget's economic assumptions: 1.8 percent per year.

The CPI inflation rate is held constant at 2.3 percent per year, the unemployment rate is held constant at 3.8 percent, the yield to maturity on 10-year Treasury notes is held constant at 3.2 percent, and the 91-day Treasury bill rate is held constant at 2.3 percent. Consistent with the demographic assumptions in the Trustees' reports, U.S. population growth slows from an average of just under 0.6 percent per year during the budget window to about three-quarters of that rate by the end of the 25-year projection period. Real GDP growth is projected to be less than its historical average of around 2.5 percent per year because the slowdown in population growth and the increase in the population over age 65 reduce labor supply growth. In these projections, real GDP growth averages 2.1 percent per year for the period following the end of the 10-year budget window. The economic and demographic projections described above are set exogenously and do not change in response to changes in the budget outlook.

Baseline Projections.— For the period through 2032, receipts and outlays in the baseline and policy projections follow the 2023 Budget's baseline and policy estimates respectively. Outside the budget window, discretionary spending grows at the rate of inflation and population growth. Long-run Social Security spending is projected by the Social Security actuaries using this chapter's long-run economic and demographic assumptions. Medicare benefits are projected based on a projection of beneficiary growth and excess healthcare cost growth from the 2021 Medicare Trustees' report current law baseline. Excess cost growth for private health insurance is assumed to grow at a rate that averages the excess cost growth assumed in the Medicare actuarial assumptions and provided in their Illustrative Alternative. In these projections,

private health insurance excess cost growth averages 1.0 percent after 2032. Medicaid outlays are based on the economic and demographic projections in the model, which assume average excess cost growth of approximately 0.8 percentage points above growth in GDP per capita after 2032. Other entitlement programs are projected based on rules of thumb linking program spending to elements of the economic and demographic projections such as the poverty rate. Individual income tax revenues are projected using a microsimulation model that incorporates real bracket creep. Corporate tax and other receipts are projected to grow with GDP.