



Budget Stress Testing 2022

Utah Office of the Legislative Fiscal Analyst | Governor's Office of Planning and Budget

Summary

State budget stress tests measure the effects of various hypothetical economic scenarios on long-term revenue and budget estimates. They then compare those scenarios to a more realistic baseline and measure potential value at risk. Finally, the tests inventory budget buffers and judge whether the buffers are adequate. In this latest stress test, we conclude that Utah's easy-to-access and moderately-easy-to-access budget contingencies alone are nearly enough to cover maximum five-year value at risk of \$5.6 billion, without dipping into buffers that are difficult to access.

Overview

In 2016, the Utah Office of the Legislative Fiscal Analyst (LFA) and the Governor's Office of Planning and Budget (GOPB) conducted their first stress testing exercise, following the passage of the Dodd-Frank Act of 2010 during the Great Recession that required banks to conduct stress tests. The utility of this exercise resulted in the passage of 2018's [H.B. 452, "Legislative Fiscal Analyst Amendments,"](#) which required LFA to conduct state budget stress testing every three years. Thus, Utah became the first state to adapt financial industry stress testing to state budgets and require such a process regularly. Utah has since conducted two additional tests: a formal test in 2019, as well as a special stress test in 2020 following the onset of the COVID-19 pandemic. This report is the second formal cycle of the statutorily required analysis.

The stress test consists of three components: analysis of Utah's primary revenue sources, including sales and use tax, individual income tax, corporate income tax, and all other state revenue sources (Section III); analysis of select expenditure categories that are either primary budget drivers and/or countercyclical to the economy, including public education, higher education, Medicaid, and retirement (Section IV); and a cataloguing of available budget buffers, should Utah experience an economic downturn (Section VI). The revenue and expenditure analyses are conducted under various economic scenarios, to determine the effects of such scenarios on the state budget.

I. Scenarios

In the 2022 budget stress test, state economists tested four economic scenarios, purchased from Moody's Analytics: baseline, moderate recession, severe recession, and stagflation. The assumptions for those scenarios are as follows:

Baseline

This scenario assumes no imminent recession. It assumes the national economy reaches full employment, or an unemployment rate around 2.6 % and a prime-age employment-to-population ratio of at or above 80%, soon, and moderating Federal Reserve rate hikes until inflation approaches the Federal Reserve target of 2.5%. There is roughly a 50% chance that the economy performs better than this baseline, and a 50% chance that it performs worse.



Moderate Recession

This scenario assumes the U.S. economy falls into a moderate recession in the first quarter of 2023, triggered by still-high inflation and increasing interest rates. The recession lasts three quarters, with a peak-to-trough decline in output of 1.4%. The unemployment rate peaks at 4.4% in late 2023, and the economy returns to full employment by the first quarter of 2025. There is a 75% chance that the national economy performs better than this scenario and a 25% chance that it performs worse.

Severe Recession

This scenario assumes the U.S. economy falls into a severe recession in the first quarter of 2023, lasting through the first quarter of 2024, due to inflation, high interest rates, and the potential for higher oil prices and additional supply chain issues. The peak-to-trough decline in gross domestic product (GDP) is roughly 4.2%. The unemployment rate peaks at 6.3% in mid-2024, and the national economy does not return to full employment until 2032. There is a 96% probability that the economy performs better than this scenario, and a 4% probability that it performs worse.

Stagflation

This scenario assumes that inflation accelerates in the U.S. economy, while never reaching full employment. It assumes either weak growth or slight declines in output through 2023, and an unemployment that rises to above 5% by the end of 2023. Due to higher-than-expected inflation and resulting Federal Reserve rate hikes, the economy goes into recession in 2024, with a peak-to-trough decline in GDP of 3.3% and a peak unemployment rate of 6.5% by the end of 2024. The economy begins to recover in 2025, but reduced business investment lowers productivity, such that real GDP remains below the baseline indefinitely.

II. Methodology

Once the economic scenarios are determined, LFA and GOPB each forecast the effects of those scenarios on the aforementioned revenues and expenditures over a five-year period, starting with the current fiscal year – in this case, FY 2023 through FY 2027.

Revenues

On the revenue side, economists use the consensus revenue estimates for the current fiscal year and out fiscal year (FY 2023 and FY 2024) in the baseline scenario and hold the FY 2024 figure constant for the remaining three years to complete the baseline scenario. They then re-forecast a baseline scenario for the full five-year time horizon and forecast the remaining three scenarios for the five-year period, and then use the differential rates of change between the baseline scenario forecasts and downturn scenario forecasts to benchmark the final results to the consensus estimates. The difference between aggregate five-year revenue in the baseline scenario compared to aggregate five-year revenue in each of the downturn scenarios is considered the revenue at risk.



Expenditures

For each expenditure category, expenditures for the current and out fiscal year (FY 2023 and FY 2024) are estimated using a combination of known data and forecasts. Then, for each category, the FY 2024 estimated expenditure is held constant for the remaining three years of the time horizon in the baseline scenario. This captures the assumption that baseline expenditures would never fall below the already-obligated level as represented by FY 2024 estimated expenditures. Then, expenditures in each of the three downturn scenarios are aggregated and compared to total expenditures in the baseline scenario to determine the expenditures at risk over the five-year period.

Public Education

The public education expenditure forecast has a new methodology in this year's report, due to the changes to public education spending implemented through [H.B. 357, "Public Education Funding Stabilization."](#) This bill guarantees that public education is funded each year at a level that includes enrollment growth and inflation¹.

For the analysis, economists forecasted public education headcount for each year of the five-year period, applied a factor of 1.32 to convert the headcount number to the number of weighted pupil units (WPU), and multiplied the resulting number by that year's estimated WPU value, which was increased by inflation each year according to each scenario to comport with H.B. 357.

Higher Education

Economists forecasted the annualized full-time equivalent enrollment (FTE) at all institutions of higher education (degree-granting and technical) and multiplied the resulting number by an average amount of state tax funds spent on budget-related annualized FTEs to estimate higher education expenditures.

Medicaid

State Medicaid programs are paid for with a mix of state and federal dollars. Each state's share is determined based on a calculation known as the Federal Medical Assistance Percentage (FMAP), which compares a state's per capita personal income to the national per capita personal income; states with higher personal incomes are responsible for a greater share of their Medicaid program costs.

Thus, for this analysis, economists forecasted Medicaid enrollment in each enrollment category, as well as the FMAP in each year based on assumptions related to each economic scenario. The forecasted FMAP values were used to calculate a per-member, per-month (PMPM) rate for each enrollment category, which was then applied to the enrollment forecast to get estimated aggregate expenditures. Increased expenditures for both traditional Medicaid and Medicaid expansion categories were aggregated to capture total risk, in spite of the fact that Medicaid

¹ Inflation is calculated as the five-year rolling average of the national September consumer price index less food and energy (core CPI).



expansion expenditures would be paid to the extent possible out of the Medicaid Expansion Fund.

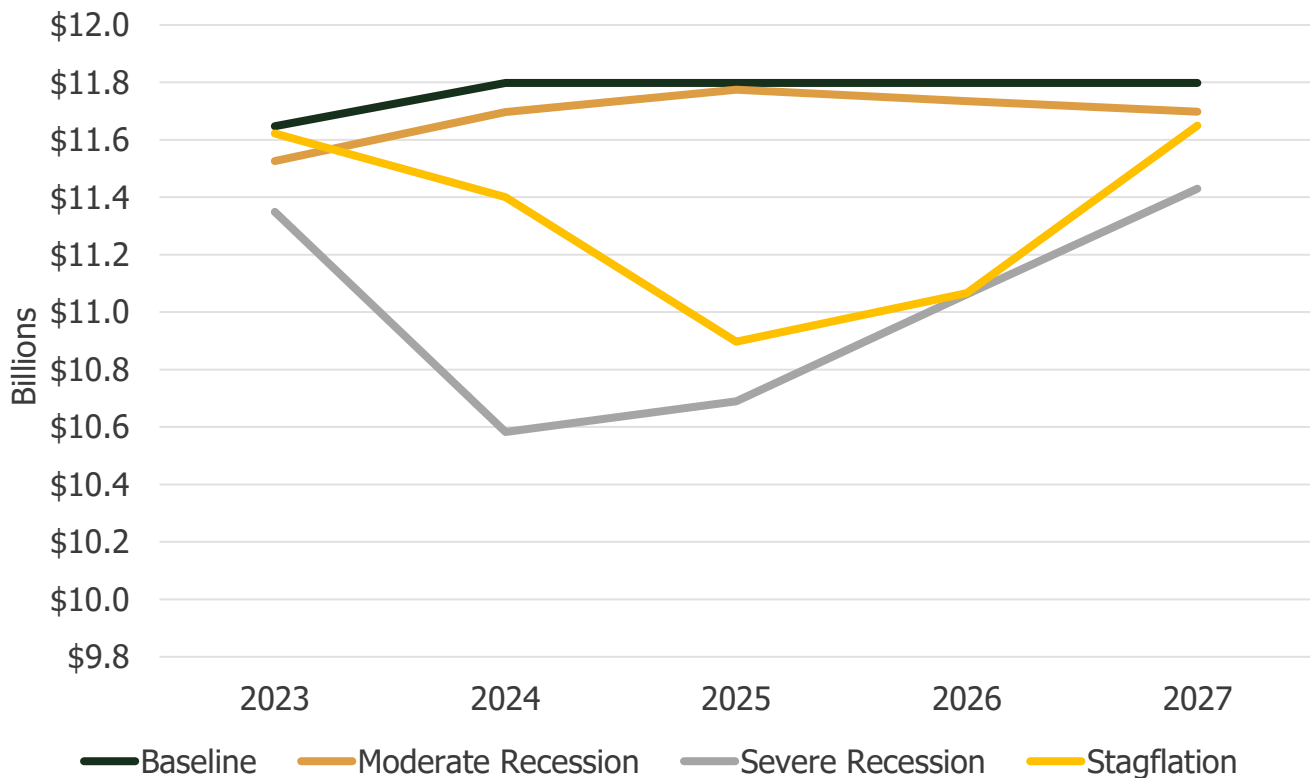
Retirement

To forecast state retirement contribution expenditures, economists modeled the relationship between past increases in the employer contribution and declines in equity markets, which affect investment income and thus can necessitate increases in the employer contribution. Because increases in the contribution rate have historically lagged economic downturns, a two-year lag was built into the models, such that increased contribution rates take effect in each scenario beginning in FY 2026.

III. Revenues

Economists estimate that between \$409 million and \$3.7 billion in total General Fund and Income Tax Fund revenue is at risk over the next five fiscal years in case of economic downturn.

Economic Scenario	Five-Year Revenue Value at Risk
Moderate Recession	\$409,100,000
Severe Recession	\$3,727,800,000
Stagflation	\$2,204,600,000

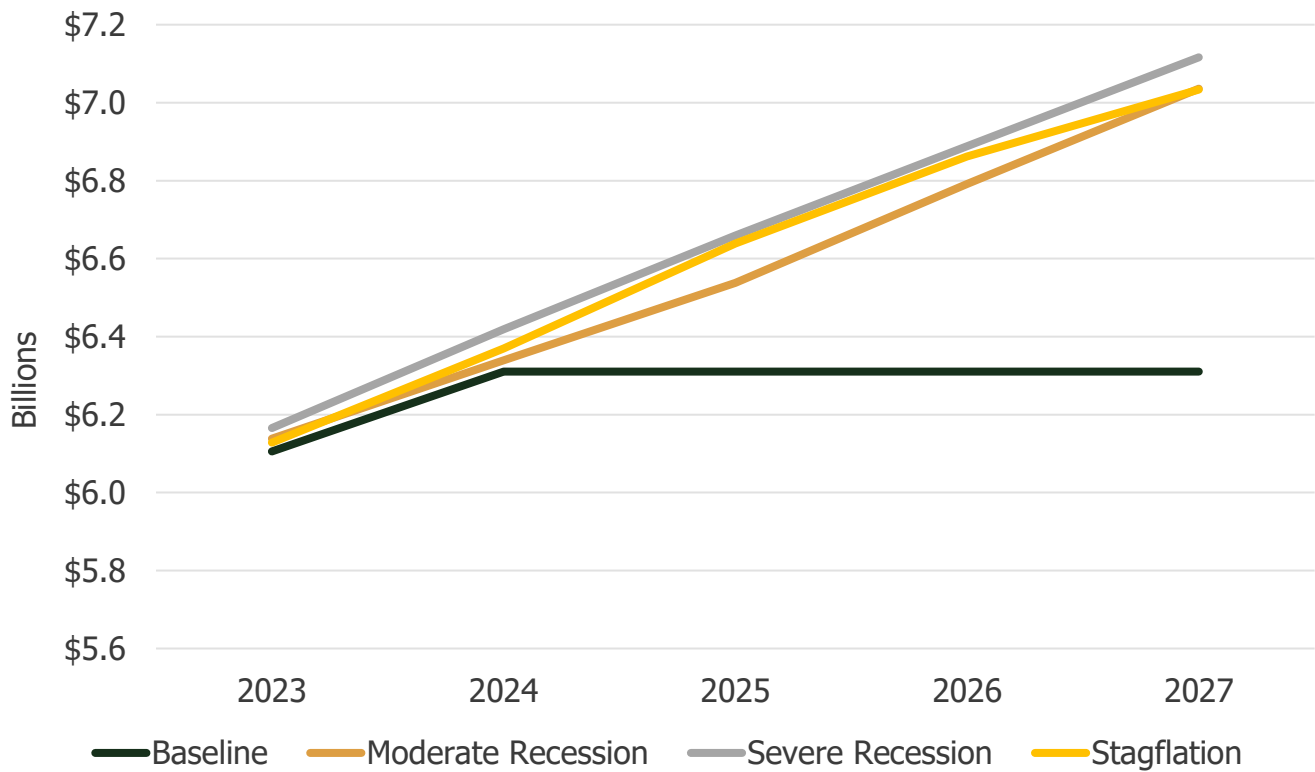




IV. Expenditures

Economists estimate that between \$1.5 billion and \$1.9 billion in expenditures is at risk over the next five fiscal years in case of economic downturn.

Economic Scenario	Five-Year Expenditure Value at Risk
Moderate Recession	\$1,496,200,000
Severe Recession	\$1,901,300,000
Stagflation	\$1,685,500,000

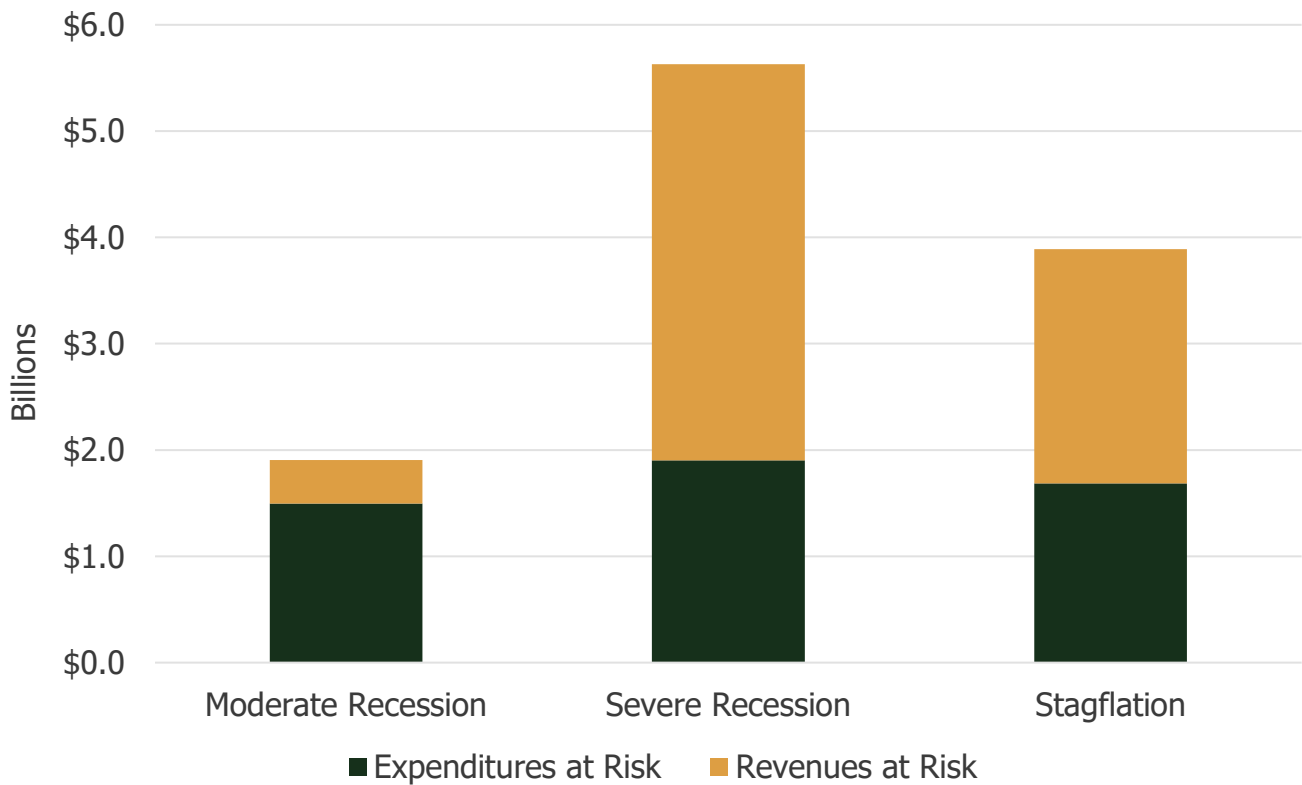




V. Total Five-Year Value at Risk

When combining both revenues and expenditures at risk over five years, economists estimate a total value at risk of between \$1.9 billion and \$5.6 billion.

Economic Scenario	Five-Year Total Value at Risk
Moderate Recession	\$1,905,300,000
Severe Recession	\$5,629,100,000
Stagflation	\$3,890,100,000





VI. Inventory of Buffers

Economists also calculate available budget reserves and buffers, categorized by ease of access, over the five-year time horizon, to determine whether the state has enough reserves to account for lost revenue and increased expenditures in case of economic downturn. This analysis includes additional buffers that have been added in the years since the last stress test, including General Fund infrastructure banks, the Public Education Economic Stabilization Restricted Account, and the Outdoor Recreation Infrastructure Account. It should be noted that, regardless of the way in which a reserve is classified in terms of ease of access, some reserves (such as the Medicaid Expansion Fund or the Public Education Economic Stabilization Restricted Account) have statutorily specified allowable uses.

Economists estimate that the state has a maximum total of approximately \$9.2 billion in budget buffers available for use over the next five years in case of an economic downturn.

Ease of Accessibility	Five-Year Total
Easy to Access	\$2,722,200,000
Moderately Easy to Access	\$2,670,600,000
Somewhat Difficult to Access	\$2,545,000,000
Difficult to Access	\$1,276,500,000
Total	\$9,214,000,000

VII. Conclusion

Economists conclude that, even in a worst-case recession scenario, the state’s five-year total of budget reserves would be more than sufficient to cover the five-year maximum value at risk.

