



Relieving Stress Through Stress-Testing Revenues

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This presentation represents the views of the presenters only and not necessarily the views of the Maine Department of Administrative and Financial Services or the State of Maine

Outline of Presentation

- Background on Maine's economic and revenue forecasting process
- Stress-Test legislation
- Recession scenarios
- Stress-Test Results



Economic and Revenue Forecasting

- Consensus Economic Forecasting Commission (CEFC)
 - Typically meets each January (March in odd-numbered years) and October in advance of the Revenue Forecasting Committee
 - Five independent economists from academia and/or private sector
 - Statute requires the Governor, Speaker of the House, and President of the Senate to make appointments
- Revenue Forecasting Committee (RFC)
 - Typically meets each February (April in odd-numbered years) and November
 - Members are State Budget Officer, Associate Commissioner of Tax Policy, State Economist, Director of Office of Fiscal and Program Review (OFPR), Analyst from OFPR, and University of Maine Economist
 - Must use recommendations from CEFC
- Meet jointly each year in September



Stress-Test Legislation

MRS, Title 5, Chapter 151-B, Sections 1710-B

- No later than February 1st of each even-numbered year the commission shall provide to the State Budget Officer, the State Economist and the Associate Commissioner for Tax Policy at least 2 additional economic forecasts that assume potential economic recession scenarios of varying levels of severity. These additional forecasts must include economic assumptions for the current fiscal biennium and the next 2 fiscal biennia. In each report the commission shall fully describe the methodology employed in reaching its recommendations.

MRS, Title 5, Chapter 151-B, Sections 1710-G

- No later than October 1st of each even-numbered year the commission and committee shall jointly issue a report to the Governor, the Legislative Council and the joint standing committee of the Legislature having jurisdiction over appropriations and financial affairs that uses the alternative economic scenarios recommended by the commission in accordance with section 1710-A, subsection 4. The report must include analyses and findings that detail the stress impact such potential economic recession scenarios would have on the current General Fund revenue projections of sales and income tax revenues. The report must include an analysis of the sufficiency of the current level of the Maine Budget Stabilization Fund and an estimate of the reserves in the Maine Budget Stabilization Fund necessary to offset the declines in revenue as a result of potential economic recessions of varying levels of severity.



Stress-Testing GF Revenues & Reserves FY19-FY23

- Joint report of the CEFC and RFC
- Impact of two recession scenarios on sales and individual income tax revenues relative to Feb/Mar 2018 baseline forecast
 - Moderate recession
 - Severe recession
- Sufficiency of current level of the BSF to maintain spending limitation
- BSF necessary to maintain spending limitation in each recession scenario
- October 1st date coincides with September 30th due date of structural gap analysis by Bureau of the Budget



Resources

Primary staff support for the CEFC comes from the Office of the State Economist. Key resources for the forecasting process are:

- Moody's Analytics US and state forecast and scenario studio (including alternative scenarios)
- IHS Markit US Monitor with state forecasts
- In-house population projections (State Economist) and employment outlook (Maine Department of Labor)



Selection Method

- CEFC first established their traditional consensus forecast, which was used as the baseline scenario for the stress test
- CEFC members reviewed alternative scenarios from Moody's Analytics and selected 2 that represented a moderate ("S7 – Next-Cycle Recession") and severe ("S4 – Protracted Slump") recession
- Clarified in report narrative that CEFC was not predicting a recession and did not ascribe to the specifics of the two scenarios; they selected scenarios that would provide plausible "moderate" and "severe" recession growth rates



Moody's S7 – Next-Cycle Recession

Description of scenario from CEFC report:

- Full year recession (comparable to the postwar average of recessions)
- National unemployment rate peaks at 8 percent
- Real gross domestic product declines around 2 percent
- Inflation rises to 4 percent
- Employment in Maine declines around 2.5 percent
- Wage and salary income in Maine declines around 2 percent, while total personal income continues to grow but at a slower pace



Moody's S4 – Protracted Slump

Description of scenario from CEFC report:

- Deep recession lasts over a year and a half
- National unemployment rate peaks near 10 percent
- Real gross domestic product declines around 4.5 percent
- Inflation is negative in the first year
- Employment in Maine declines around 5.5 percent
- Wage and salary income in Maine declines around 6 percent and total personal income declines around 2.5 percent



Process

- Used the S4 and S7 scenarios to provide Maine Revenue Services-Office of Tax Policy (MRS/OTP) with annual growth rates for key variables in revenue model
- Several iterations were needed: State Economist provided growth rates; MRS/OTP reviewed and asked questions; State Economist made modifications and resubmitted; MRS/OTP reviewed and requested further modifications; etc.



Modifications

- The forecasts were adjusted so that the starting period for all recessions was 2019Q1
 - Originally, recession scenarios from Moody's Analytics had different start dates
 - Decided on 2019Q1 to give enough time for recession to play out (2018 forecast was baseline from CEFC; 2019-2023 were recession/recovery years)



Modifications

- The recession scenarios were compared to the Moody's baseline from the same month (January 2018) to create ratios that were then applied to the CEFC baseline forecast
 - This eliminated any differences that were resulting from differing baselines



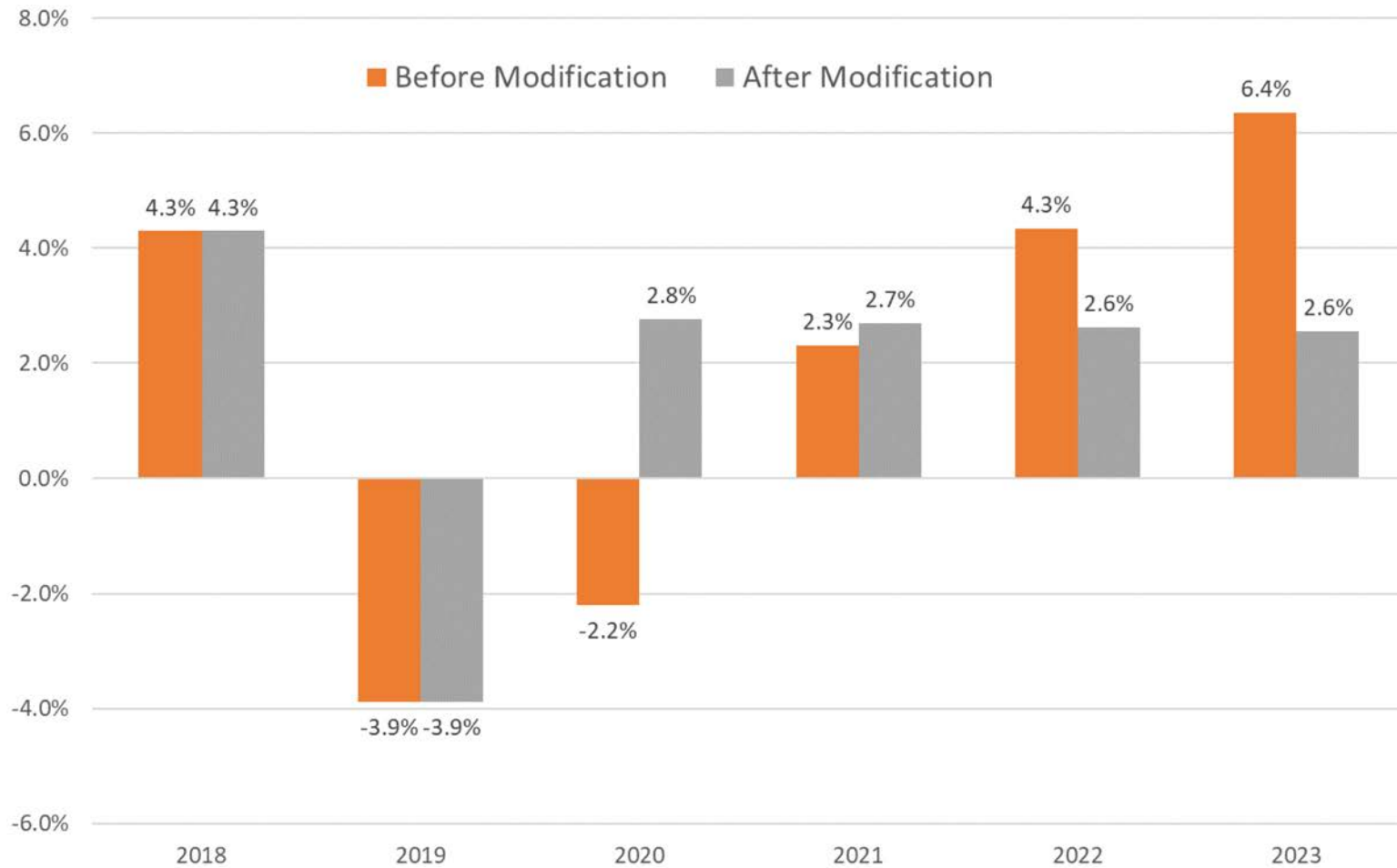
Personal Income Modifications

- Personal income was adjusted further in the severe recession scenario because of unreasonable swings in the growth rates (a steep drop-off followed by a sharp increase)
 - For wages and salaries and supplements to wages and salaries, 2019 and 2023 were used as the two endpoints and the intervening years marked along a trendline
 - These were then combined with the other components to create a modified top-line total personal income



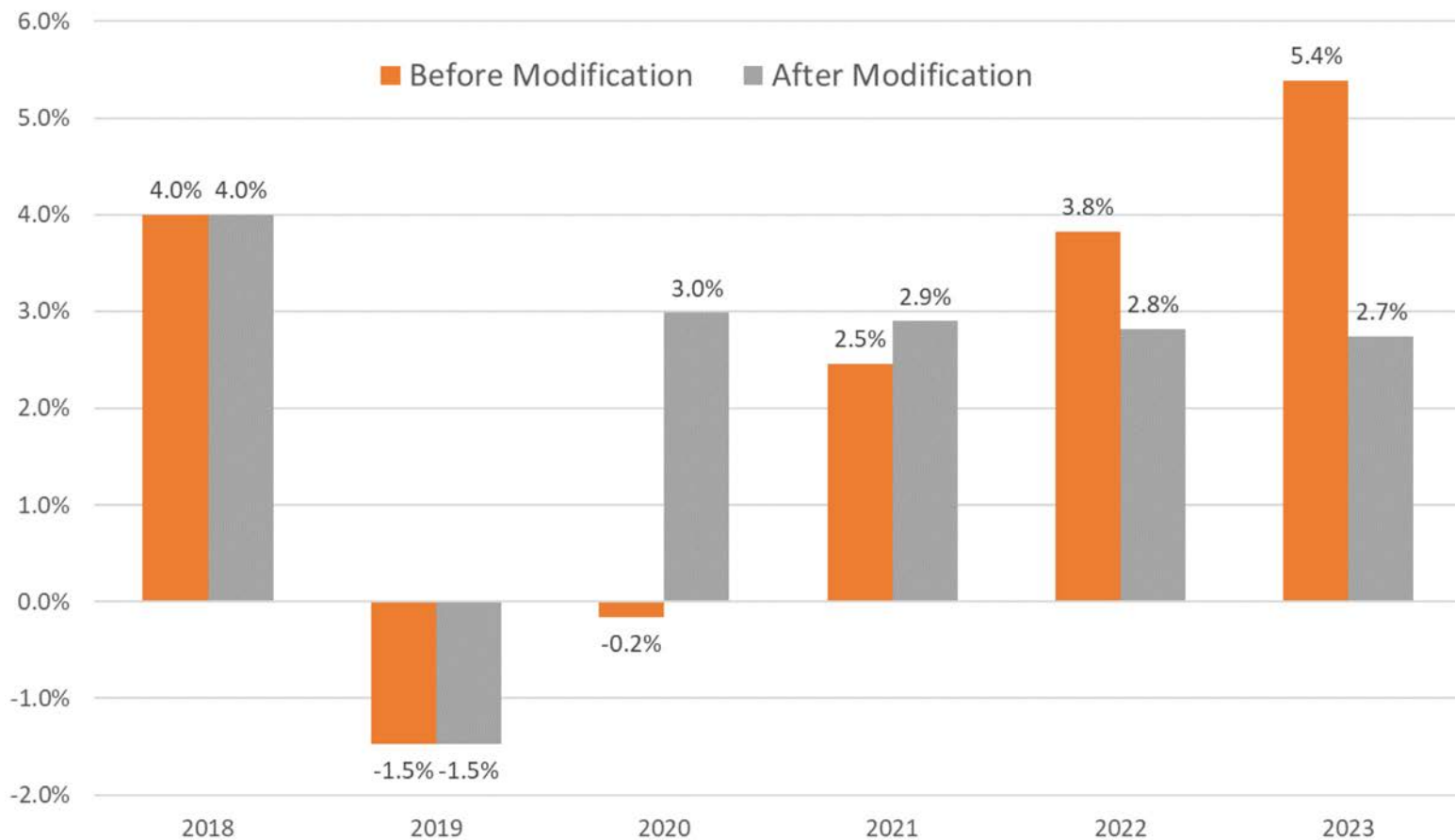
Modified Growth Rates for Wages and Salaries (Severe Recession)

Wage and Salary Income Annual Growth Rates

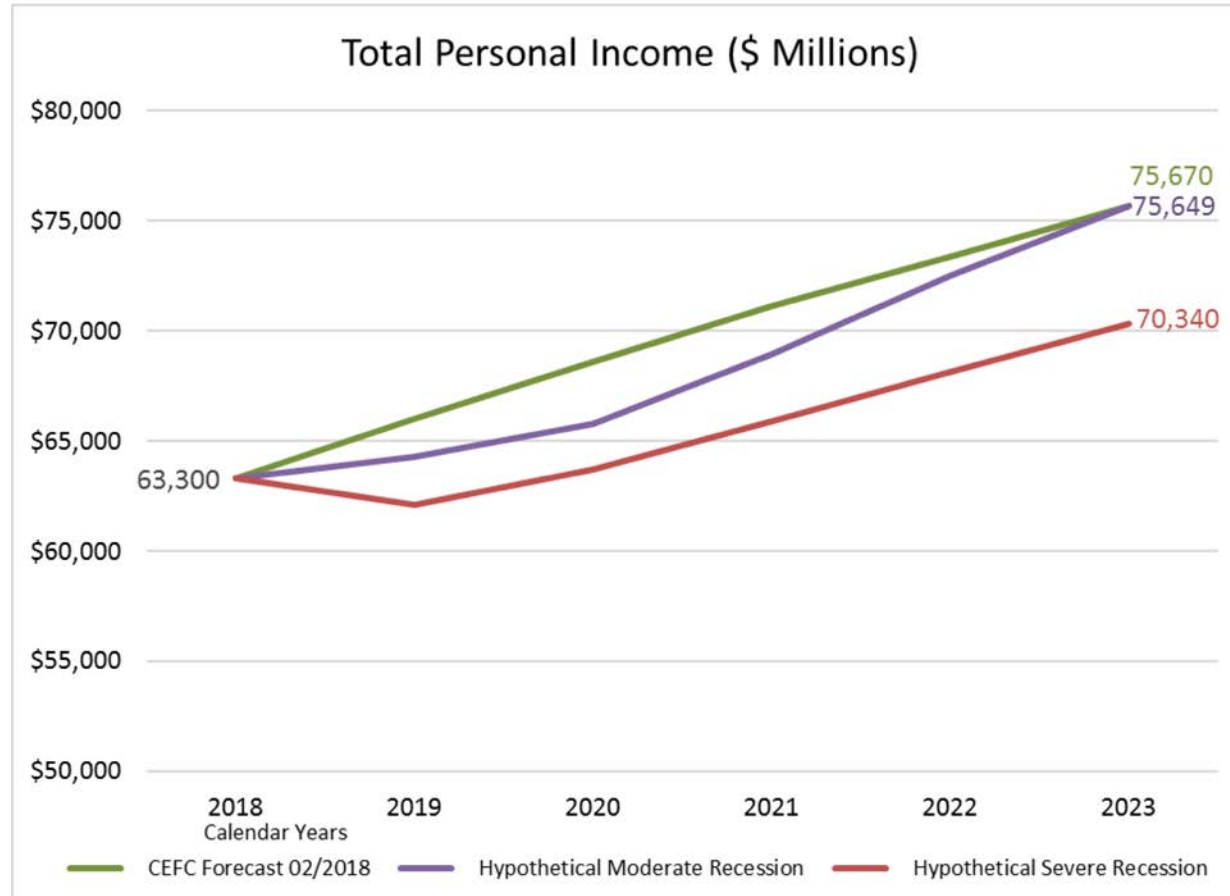


Modified Growth Rates for Supplements to Wages and Salaries (Severe Recession)

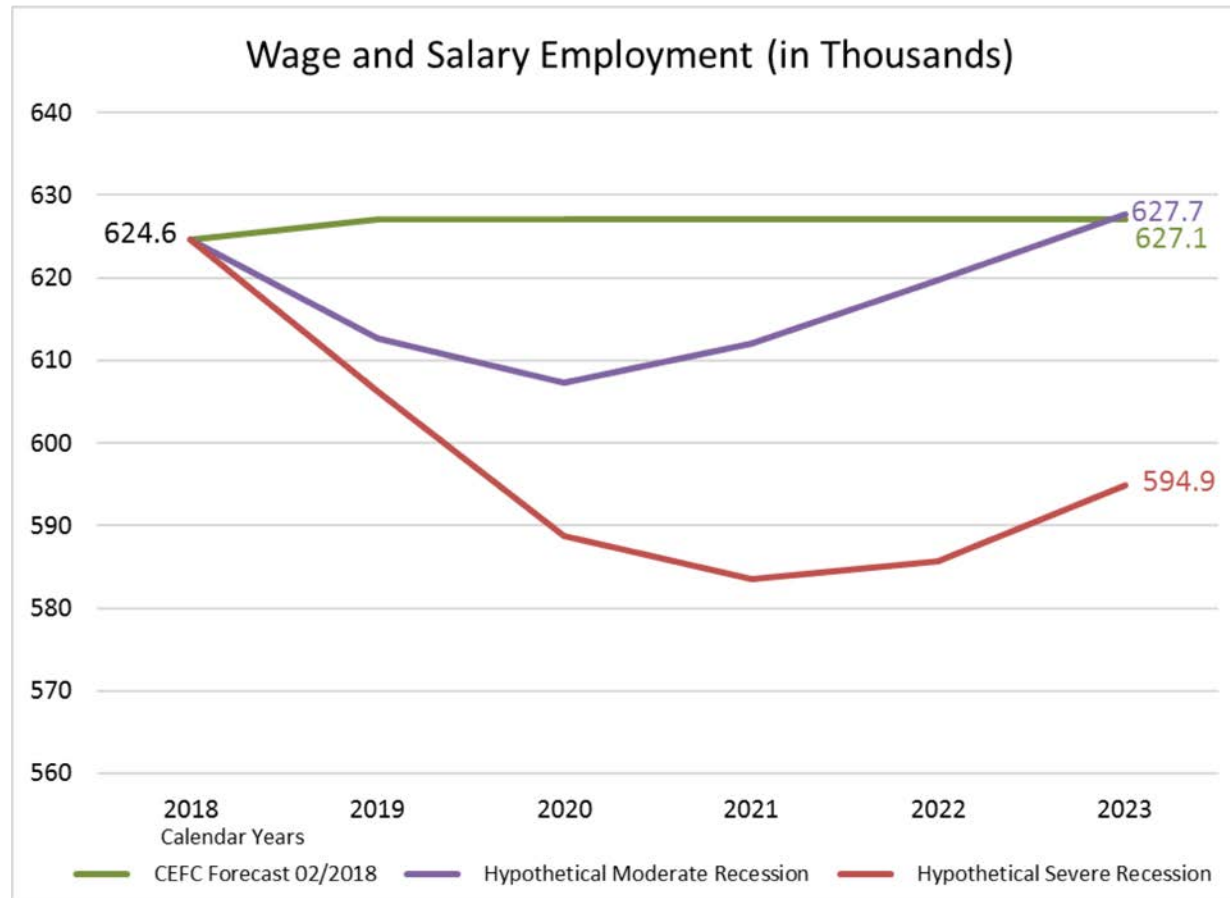
Supplements to Wage and Salary Income Annual Growth Rates



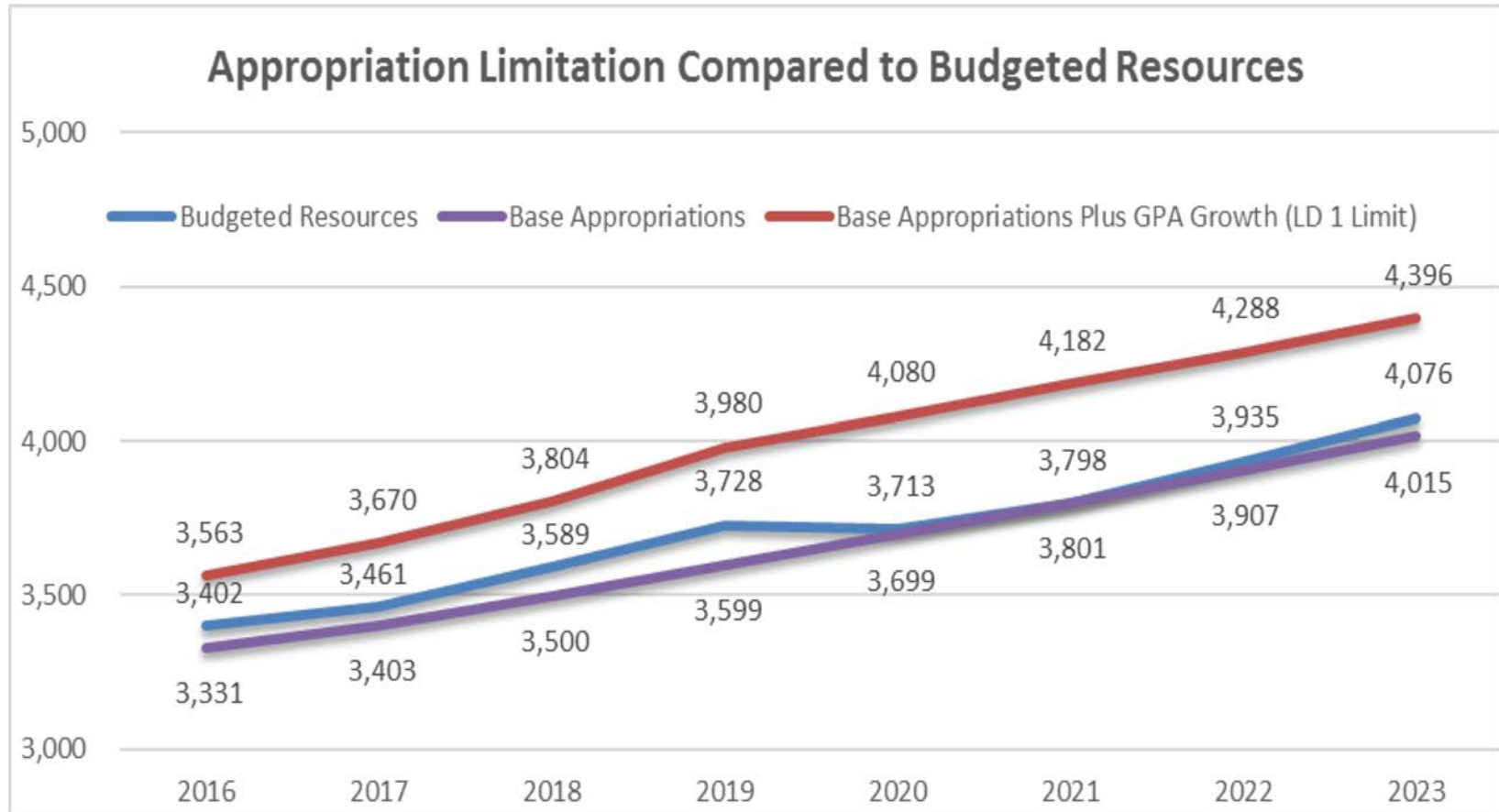
Recession Scenarios: Total Personal Income



Recession Scenarios: Wage & Salary Employment

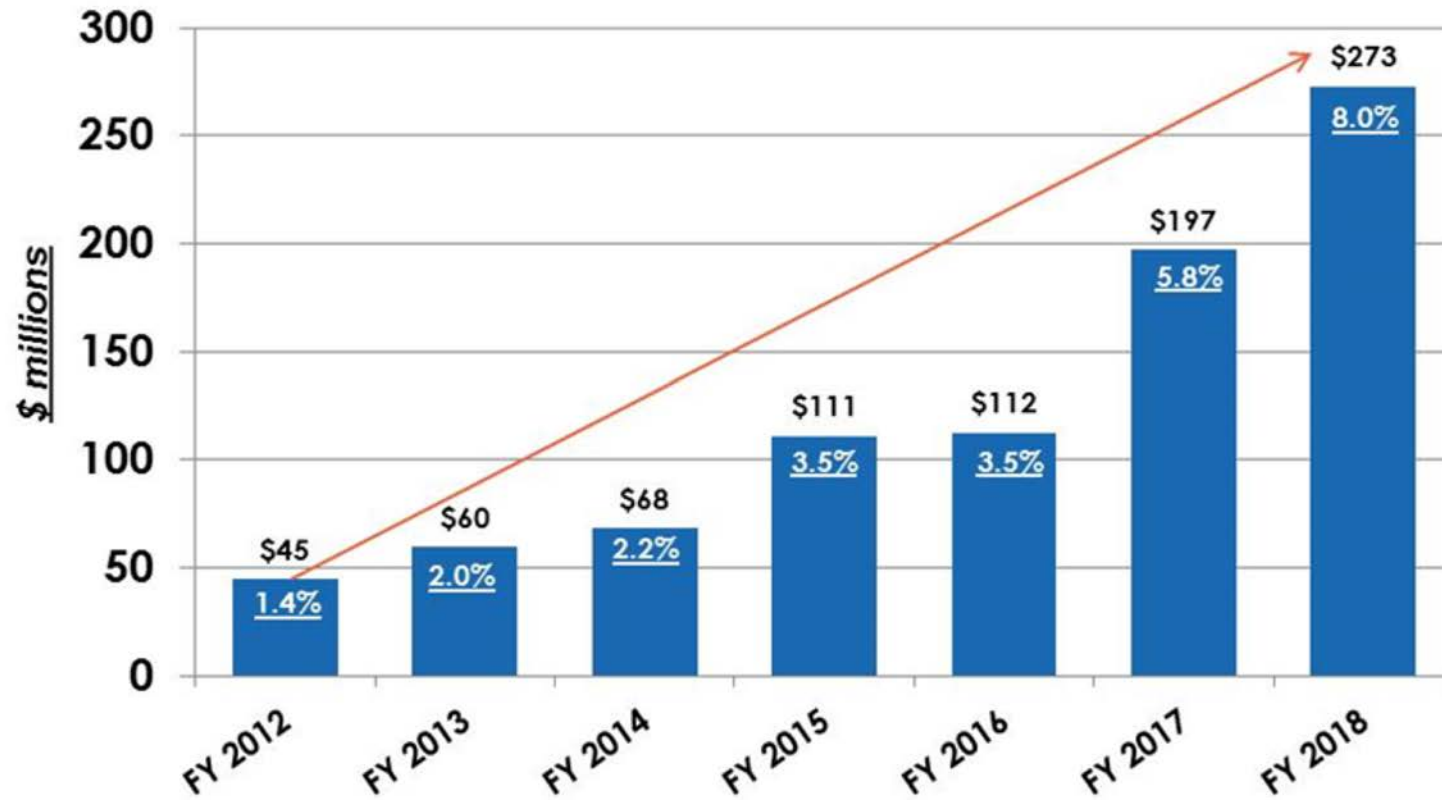


Spending Limitation



Budget Stabilization Fund

\$ Budget Stabilization Fund / % of GF



Estimated Impact of Moderate Recession

Total General Fund							
Fiscal Years							
			2019	2020	2021	2022	2023
March 2018 RFC Forecast			\$3,668.2	\$3,686.0	\$3,798.0	\$3,934.7	\$4,076.3
Next Cycle Recession Forecast			\$3,587.0	\$3,463.7	\$3,564.3	\$3,801.6	\$4,022.8
Variance			(\$81.2)	(\$222.3)	(\$233.7)	(\$133.0)	(\$53.5)
Percent Change			-2.2%	-6.0%	-6.2%	-3.4%	-1.3%

- Approximately 4% decline in sales tax and 10% in individual income tax
- Moody's estimates a tax revenue shortfall of 7.7% of FY18 GF revenue and a fiscal shock (Medicaid spending) of 10%
- 2001 moderate recession experienced a 7% and 12% decrease in sales and individual income taxes relative to forecast, respectively



Sufficiency of Current BSF – Moderate Recession

General Fund Appropriation Limitation and Sufficiency of the Maine Budget Stabilization Fund (Moderate Recession)

Fiscal Years	2018	2019	2020	2021	2022	2023
Base Appropriations Limitation as of 10/1/18		\$3,701.0	\$3,699.0	\$3,801.0	\$3,907.0	\$4,015.0
Revenues/Resources Minus Appropriations Limitation		(\$54.4)	(\$235.3)	(\$236.7)	(\$105.4)	\$7.8
Budget Stabilization Fund at Fiscal Year End	\$272.9	\$218.5	\$0.0	\$0.0	\$0.0	\$7.8



BSF Necessary to Offset Moderate Recession Shortfall

- Estimate that a moderate recession scenario will require \$632 million of BSF resources to offset a revenue shortfall over the FY2019-22 budget period.
- A BSF at its maximum level of 18 percent of prior year revenues (\$646 million) would provide enough resources to supplement annual revenues to maintain General Fund spending at base spending limitation levels over the FY2019-22 period.
- At the end of FY2022 \$14 million would remain in the BSF and would begin to be rebuilt by almost \$8 million in FY2023.



Estimated Impact of Severe Recession

Total General Fund							
Fiscal Years			2019	2020	2021	2022	2023
March 2018 RFC Forecast			\$3,668.2	\$3,686.0	\$3,798.0	\$3,934.7	\$4,076.3
Protracted Slump Forecast			\$3,525.9	\$3,287.9	\$3,293.5	\$3,412.8	\$3,570.6
Variance			\$ (142.3)	\$ (398.1)	\$ (504.5)	\$ (521.9)	\$ (505.7)
Percent Change			-3.9%	-10.8%	-13.3%	-13.3%	-12.4%

- Approximately 14% decline in sales tax and 17% in individual income tax
- Moody's estimates a tax revenue shortfall of 13% of FY18 GF revenue and a fiscal shock (Medicaid spending) of 16%
- 2007 severe recession experienced a 12.5% and 10.5% decrease in sales and individual income taxes relative to forecast, respectively



Sufficiency of Current BSF – Severe Recession

General Fund Appropriation Limitation and Sufficiency of the Maine Budget Stabilization Fund (Severe Recession)

Fiscal Years	2018	2019	2020	2021	2022	2023
Base Appropriations Limitation as of 10/1/18		\$3,701.0	\$3,699.0	\$3,801.0	\$3,907.0	\$4,015.0
Revenues/Resources Minus Appropriations Limitation		(\$115.4)	(\$411.1)	(\$507.5)	(\$494.2)	(\$444.4)
Budget Stabilization Fund at Fiscal Year End	\$272.9	\$157.5	\$0.0	\$0.0	\$0.0	\$0.0



Stress-Test Conclusions

- The economic scenarios are the most difficult and time consuming part of the exercise; **IMPORTANT TO MAKE CLEAR TO POLICYMAKERS THAT YOU ARE NOT FORECASTING A RECESSION**
- Environment leading up to the start of the recession makes it difficult to use previous recessions as a guide
- Iterative process between economic forecaster and revenue forecaster
- Previous pilot stress-tests and the first statutorily required stress-test consistently show Maine would need a BSF equal to 15%-20% of GF revenues to sustain programs during moderate recession.

