

January 14, 2021



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Technical documentation for Washington state economic analysis

In December 2020, the projections of various public policy actions on the Washington state economy for fiscal years 2022 and beyond were sent to the Washington State Budget & Policy Center. These projections were produced by Michael Petko, the Senior Researcher/Policy Analyst at the National Education Association, using a standard economic model from Regional Economic Models Inc. (REMI).

About the REMI model

The REMI model is a computable general equilibrium model designed to simulate state and regional economic and policy changes.¹ Founded in 1980, REMI has developed and upgraded the model over time. Current REMI users include state legislatures, state agencies, universities, regional planning agencies, national consulting firms, utility companies, the U.S. Environmental Protection Agency, and the National Institute of Standards and Technology.

The model contains the economic linkages within the state's economy and allows the depiction of the consequences of a wide range of policies and events for the economy. It incorporates state-specific data along with national economic trends and relationships to produce a mathematical reproduction of the state economy. Full technical documentation of the model and estimation procedures embedded within it are available on [REMI's website](#).

How the REMI model was used for this analysis

The National Education Association utilized an instantiation of the REMI model known as "Tax-PI v. 2.4.3" to project the impacts of the various fiscal policy scenarios in Washington state for fiscal years 2022 through 2030 described below.

The baseline budget and economy

The enacted 2019-21 state budget serves as the baseline for the projected impacts of the various fiscal policy scenarios examined in this analysis. Total state-only operating expenditures and the number of Full-time Equivalent (FTE) state employees by state agency and functional area were added to the model to create this baseline. The expenditure and FTE data were obtained from the state Legislative Evaluation and Accountability Program (LEAP) Committee's [online database](#).

To incorporate the impact of the COVID-19 recession, the model included adjustments, a national "shock" to Gross Domestic Product (GDP) using July 2020 projections from the Congressional Budget Office (CBO).² The CBO projected a reduction in GDP of 5.08% in 2020, and an increase of 4.7881% for 2021.

Impacts of state budget cuts

To estimate the impact of a 5% reduction in state spending on public schools, data on salaries, benefits, and staffing levels for teachers, administrators and other classified employees, and education support professionals (ESPs) were obtained from the Washington State Office of the Superintendent of Public Instruction. These data were used to estimate the average and aggregate impacts on compensation for teachers and other K-12 public school employees, which were then incorporated into the model. The total costs to teacher compensation were estimated to be \$422,100,158 per year. The total costs to ESP compensation were estimated to be \$213,451,754 per year.

¹ Note: some descriptions of the REMI model are taken or adapted directly with permission from material supplied by REMI (see, e.g., REMI Web site, <http://www.remi.com/overview/structure.html>).

² Historical Data and Economic Projections, July 2020, Annual CY 2020 data: <https://www.cbo.gov/data/budget-economic-data#11>

Spending adjustments were made to the baseline budget to model the impact of several other budget cuts scenarios in the 2021-23 budget cycle. The impacts of a 10% annual cut to higher education were estimated, along with a 4.75% reduction in compensation for state employees, which would be equivalent to enacting 13 furlough days. The impact of a 5% reduction to annual state spending for the Department of Social and Health Services was also estimated.



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Impact of a \$3.2 billion tax increase on the wealthiest households

Two tax changes were modeled as part of this analysis: a \$3.319 billion annual tax increase on the highest income households in Washington state (the top 1% of Washington state residents earn a minimum of \$660,000 per year, according to estimates from the Institute on Taxation and Economic Policy); and a \$138 million annual tax reduction for lower- and middle-income households. Revenues from this net \$3.181 billion annual tax increase were distributed across all functional areas of the state budget, according to their respective shares of the total state budget.

The version of the REMI model used in this analysis does not allow the user to differentiate the impacts of tax increases by income level. As a result, initially, the \$3.319 billion annual tax increase was spread among residents of all income levels in the model. To estimate the impact of limiting the tax increase to the highest income households, \$320 million in consumer spending was then added back into the model. This adjustment is in accordance with [mainstream economic theory](#), which holds that highly progressive state tax increases have only a negligible impact on aggregate consumer spending. The large stimulative effects of heightened state and local government expenditures on public services and benefit payments to individuals is backed up by recent analysis from the [Congressional Budget Office](#), [Moody's Analytics](#), and [economic forecasting firms and think tanks](#). And during the Great Recession, states that enacted progressive tax increases and preserved or expanded public services [experienced faster economic recoveries](#) than those that cut public expenditures during that time.

To estimate the impacts of a tax reduction targeted at lower- and middle-income households, \$138 million per year, the amount of the tax reduction included in this analysis, was added to spending categories that represent large portions of annual spending among these households. The \$138 million in added consumer spending was distributed as follows: Fuel oil and other fuels (\$15 million), utilities (\$10 million), healthcare (\$5 million), household items (\$15 million), clothing (\$10 million), rental/housing (\$38 million), food (\$30 million), telecommunications (\$5 million), and vehicle transportation (\$10 million). The results of this analysis are illustrative of the impact of funding Washington state's Working Families Tax Credit program at 15% of the federal Earned Income Tax Credit, which would cost about \$138 million per year before administrative expenses, according to the preliminary estimates from the Institute on Taxation and Economic Policy.