THE ECONOMIC & FISCAL IMPACTS OF THE OIL & GAS GLUT

REMI Webinar
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Presented by
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About REMI

REMI's 39-year history of rigorous academic research and software development has led to the development of the state of the art model in macroeconomic research methodology:

Input-Output

Close analysis of inter-industry relationships

General Equilibrium

Estimate of long-run stability of the economy allows for analysis of policy decisions

Econometrics

Advanced statistical analyses underpinning the model

Economic Geography

Effects of geographic concentration of labor and industry

Integrated REMI economic modelling approach

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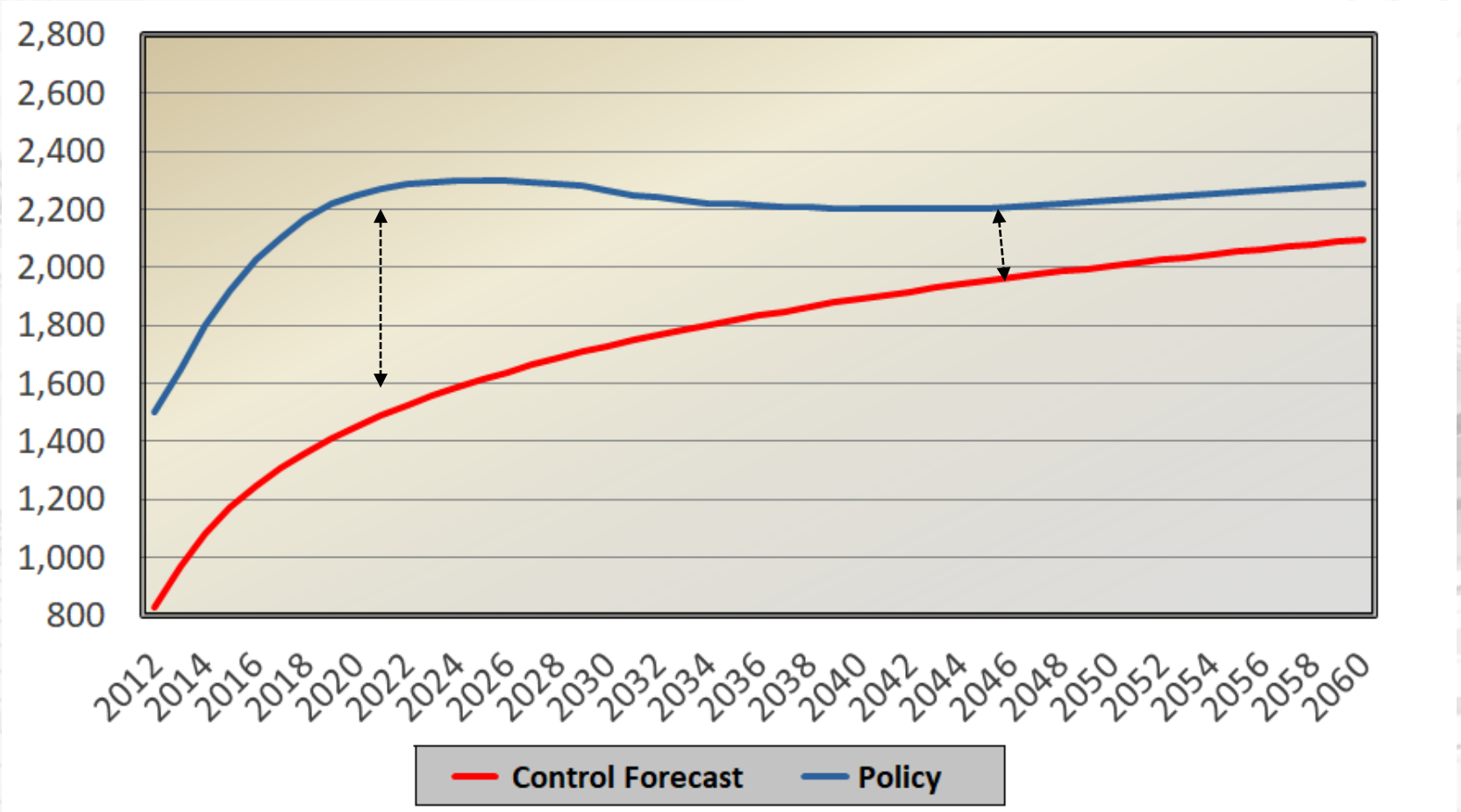
Dynamic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Control Forecast
Policy

Economic Impacts of Continued Low Oil Prices

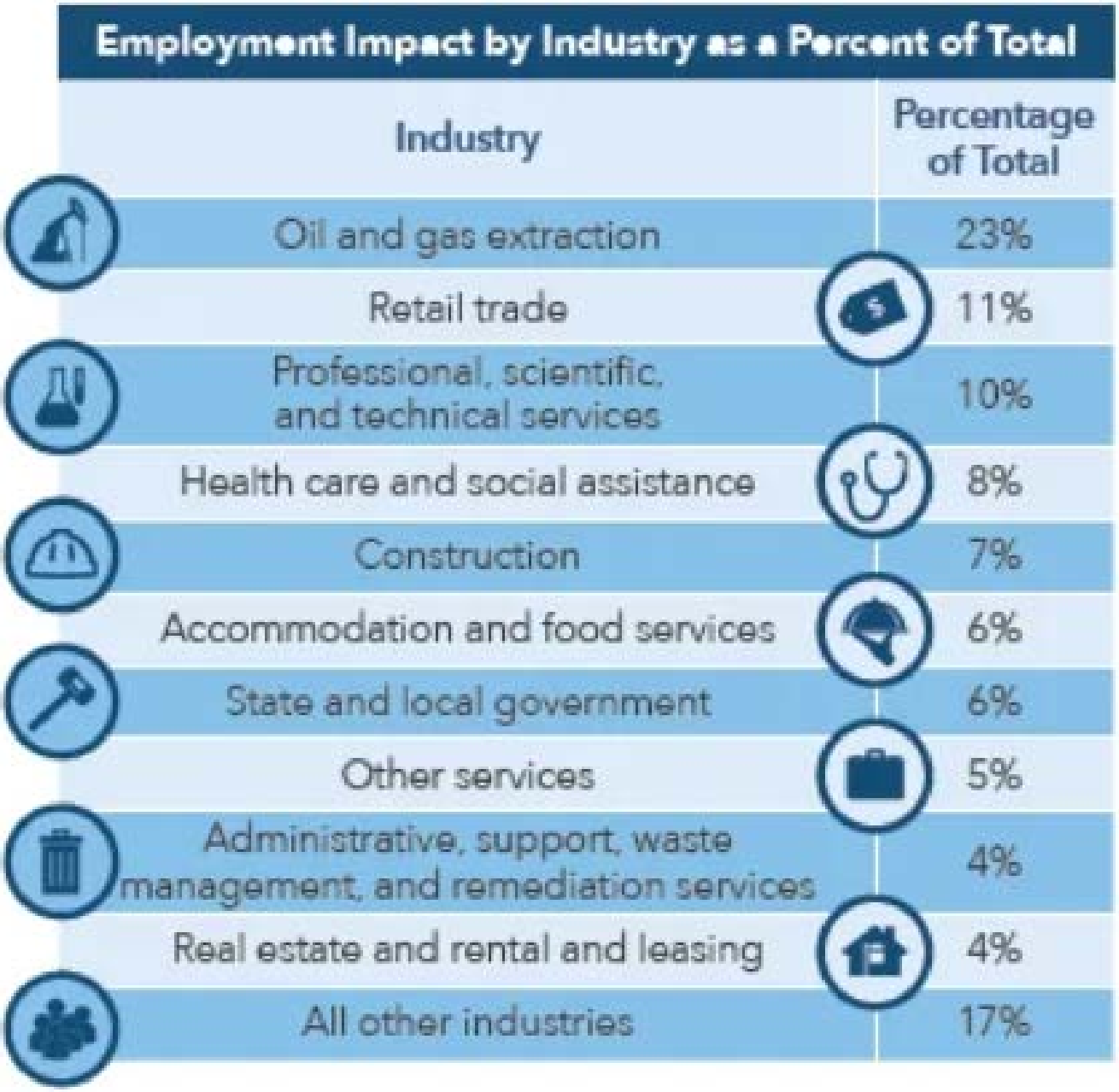
- Decrease in economic activity for in oil and gas production
  - Loss in regional and national tax revenues
  - Direct loss in oil/gas sector employment within producing economies
  - Supply chain and other demand responses spread across regional, state and national economies

Example Study – Oil & Gas Industry Output Reduction

Source: "Increasing the Oil and Gas Setback Requirement to 2,500-feet in Colorado" July, 2018 - Common Sense Policy Roundtable

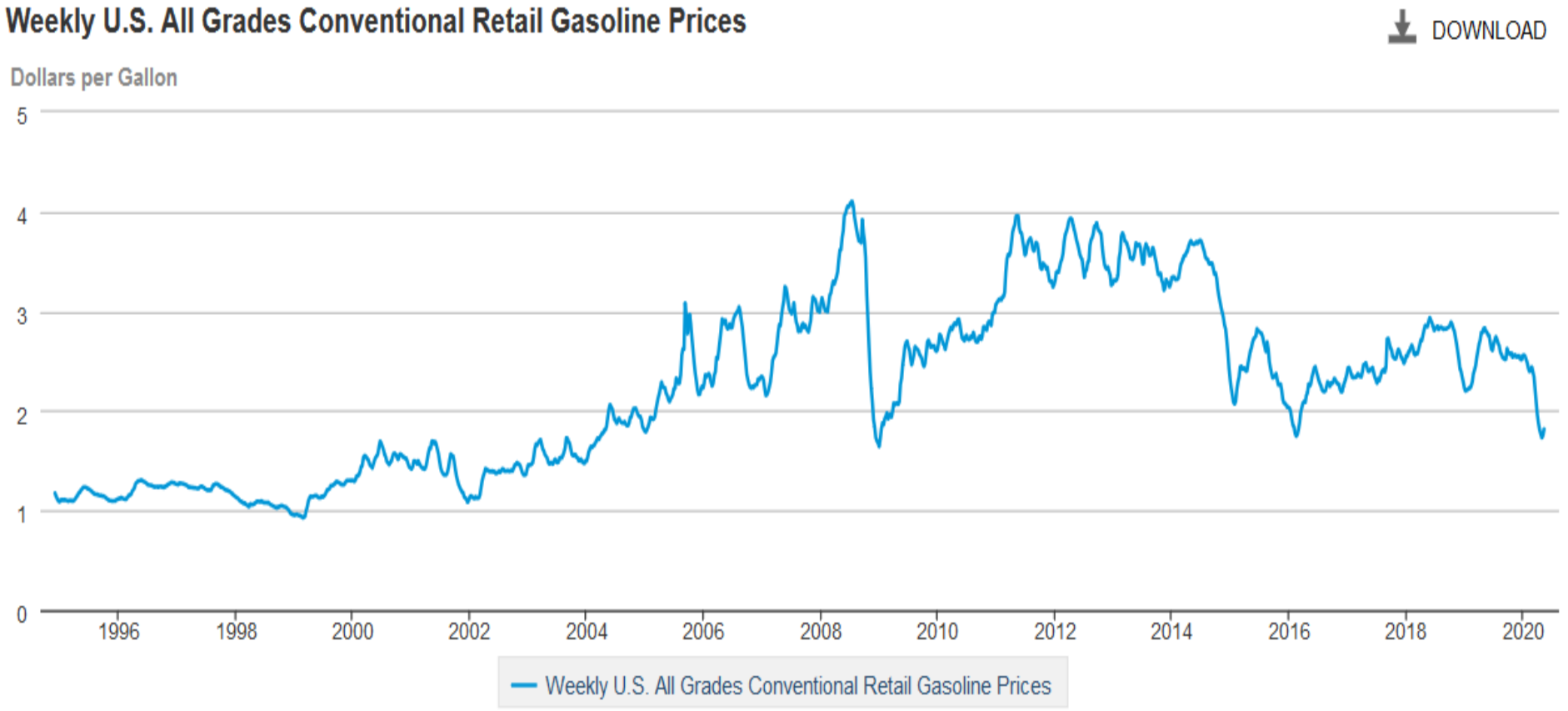
TABLE 1: SUMMARY RESULTS TABLE

Economic and Fiscal Impacts of Proposition 112 Summary Results Table			
10% Displacement	**2019**	**2030**	**2019-2030**
% of New Production Loss	-80%	-80%	80%
% of All Production Loss	-22%	-70%	57%
Employment (Units)	-43,000	-147,800	-109,500
GDP (Billion 2018$)	-$6.216	-$26.312	-$217.926
Tax Revenue (Million 2018$)	-$258.47	-$1,060.55	-$9,020.31
30% Displacement	**2019**	**2030**	**2019 - 2030**
% of New Production Loss	-62%	-62%	62%
% of All Production Loss	-17%	-54%	44%
Employment (Units)	-33,500	-115,000	-85,200
GDP (Billion 2018$)	-$4.836	-$20.462	-$169.486
Tax Revenue (Million 2018$)	-$201.03	-$824.87	-$7,015.80



Source: "Increasing the Oil and Gas Setback Requirement to 2,500-feet in Colorado" July, 2018 - Common Sense Policy Roundtable

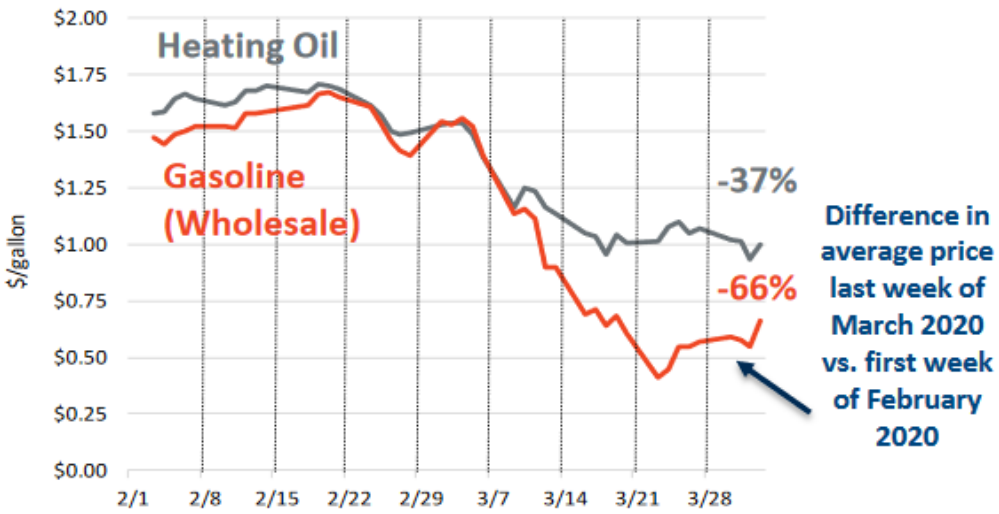
Average Price of Gasoline (Historic View)



Source: U.S. Energy Information Administration

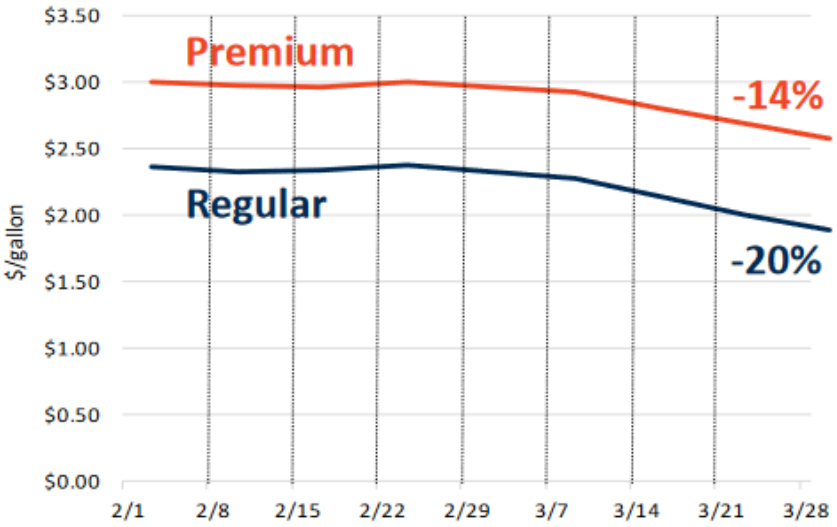
Gasoline Prices

Wholesale Oil Products[5]



Source: S&P Market Intelligence, as of April 3, 2020.

Retail US Gasoline[46]



Source: EIA, as of April 3, 2020

Source: "Impact of COVID-19 on the US Energy Industry, February/March Assessment" - The Brattle Group April, 2020

State Losses in Gas Tax Revenue

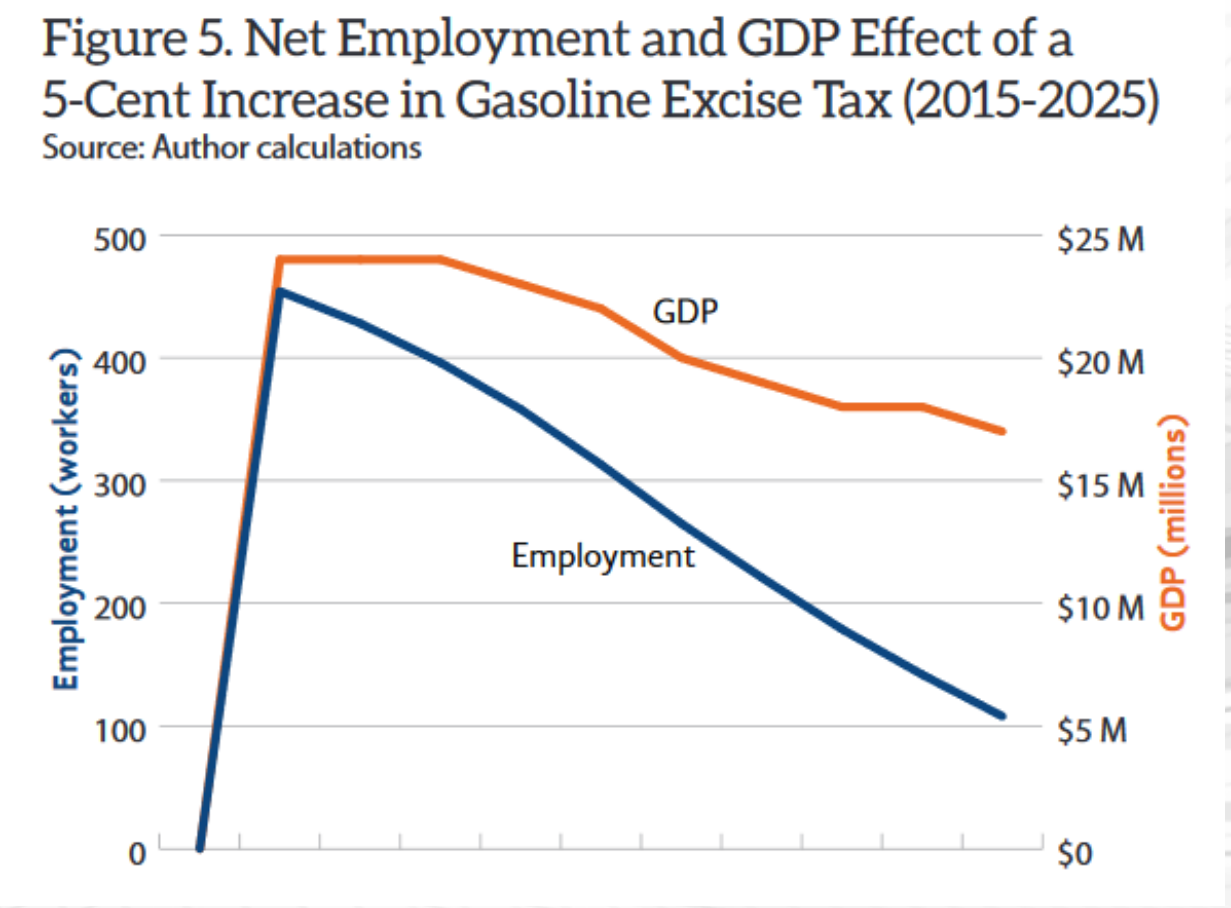
Rainy day funds and borrowing are intended to cover short-term losses in state funding. New sources of revenue most be considered, compared to loss in infrastructure maintenance and new investment.

Table 4: Selected States' Annual Fuel Tax Revenue, FY 17 (in $ thousands)

State	Revenue
Connecticut [1]	484,479
Delaware [2]	129,500
Maine [3]	253,176
Massachusetts [4]	770,984
New Hampshire [5]	124,477
New Jersey [6]	562,017
New York [7]	519,000
Pennsylvania [8]	1,732,660
Rhode Island [9]	151,910

Source: "Toll Revenue, Gas Taxes, and Gas Prices in Selected States" Connecticut Office of Legislative Research Objective Research for Connecticut's Legislature - January, 2018

Hypothetical Increase in Gasoline Taxes



Source: Ball State University, Center for Business and Economic Research Economic Brief, February, 2016.

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The Type of Financing Matters Stakeholders & KPIs Changes Preferences

***"The Economic Impact of RhodeWorks: An Accelerated Transportation Restoration Plan"* – REMI 10/2015**

S1 – Full 6/10 Highway and Transit Project, Bride Tolling only

S3 – Full 6/10 Highway and Transit Project, Bride Tolling and 50% Gasoline Tax

S5 – Full 6/10 Highway and Transit Project, Bride Tolling and 50% Diesel Tax

S7 – Full Project, 50% Bridge Tolling, 50% Gas and Diesel Tax

Table 1: Summary Results Total Impact 2015-2025 – Difference from Baseline

Metric	Units	S1	S2	S3	S4	S5	S6	S7	S8
Total Employment	Individuals	6,487	3,194	6,656	3,363	6,143	2,850	6,399	3,106
Gross State Product	Millions of Current $	$ 538	$ 225	$ 560	$ 247	$ 500	$ 187	$ 530	$ 217
Output	Millions of Current $	$ 963	$ 408	$ 1,010	$ 455	$ 908	$ 353	$ 959	$ 404
Personal Income	Millions of Current $	$ 521	$ 241	$ 510	$ 230	$ 485	$ 206	$ 498	$ 218
Real Disposable Personal Income	Millions of Current $	$ 344	$ 129	$ 263	$ 47	$ 287	$ 71	$ 275	$ 59
Population	Individuals	4,340	2,184	3,443	1,288	3,675	1,519	3,558	1,402

Labor Force Training May Be Necessary to Fill Gap

The National-Level Economic Impact of the Manufacturing Extension Partnership (MEP) - W.E. Upjohn Institute for Employment Research, March 2017

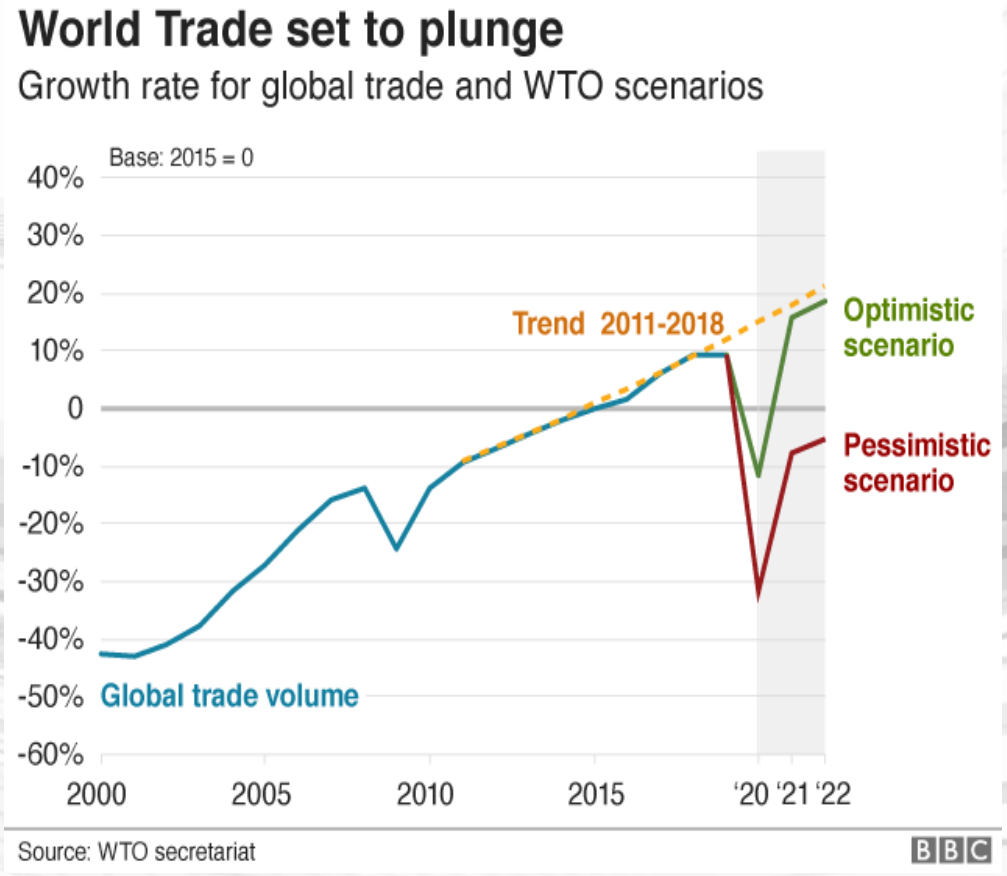
Forecast	Jobs	GDP	Output	Personal Income	Returns to Treasury	ROI Return on Investment
Unconstrained Model Using Industry Variables	575,870	$63.04*	$130.15*	$34.64*	$4.66*	35.8:1
Constrained Model Using Firm Variables	142,381	$15.40*	$29.89*	$8.44*	$1.13*	8.7:1
11.5% Solution Using Firm Variables	16,532	$1.79*	$3.46*	$.98*	$.132*	1:1

*Dollars in billions

Ran three different simulations in REMI to evaluate impacts on performance indicators. Sensitivity analysis provided: 1) best case scenario assuming no competition (unconstrained) net new growth; 2) constrained scenario assuming some crowding out would occur and 3) level of economic activity needed to breakeven.

Methods to Model Regional Effects of COVID-19

1. Change Employment, Output, Labor Productivity, by Industry
2. Consumer spending
3. Supply chain effects
4. Global demand impacts
5. Mortality rate impacts



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Model Demonstration

Potential Benefits to Sustainable Lower Oil/Gas Price Future

- Downstream industry production
- Increase in real disposable income
- Lower production costs, particularly for transportation sectors
- Excess regional capacity could be good for exports, i.e. LNG exports

Each negative and positive impact has dynamic ripple effects.