

STATE-LEVEL INDUSTRIAL IMPACTS OF COVID-19

REMI WEBINAR
MAY 28, 2020

Agenda



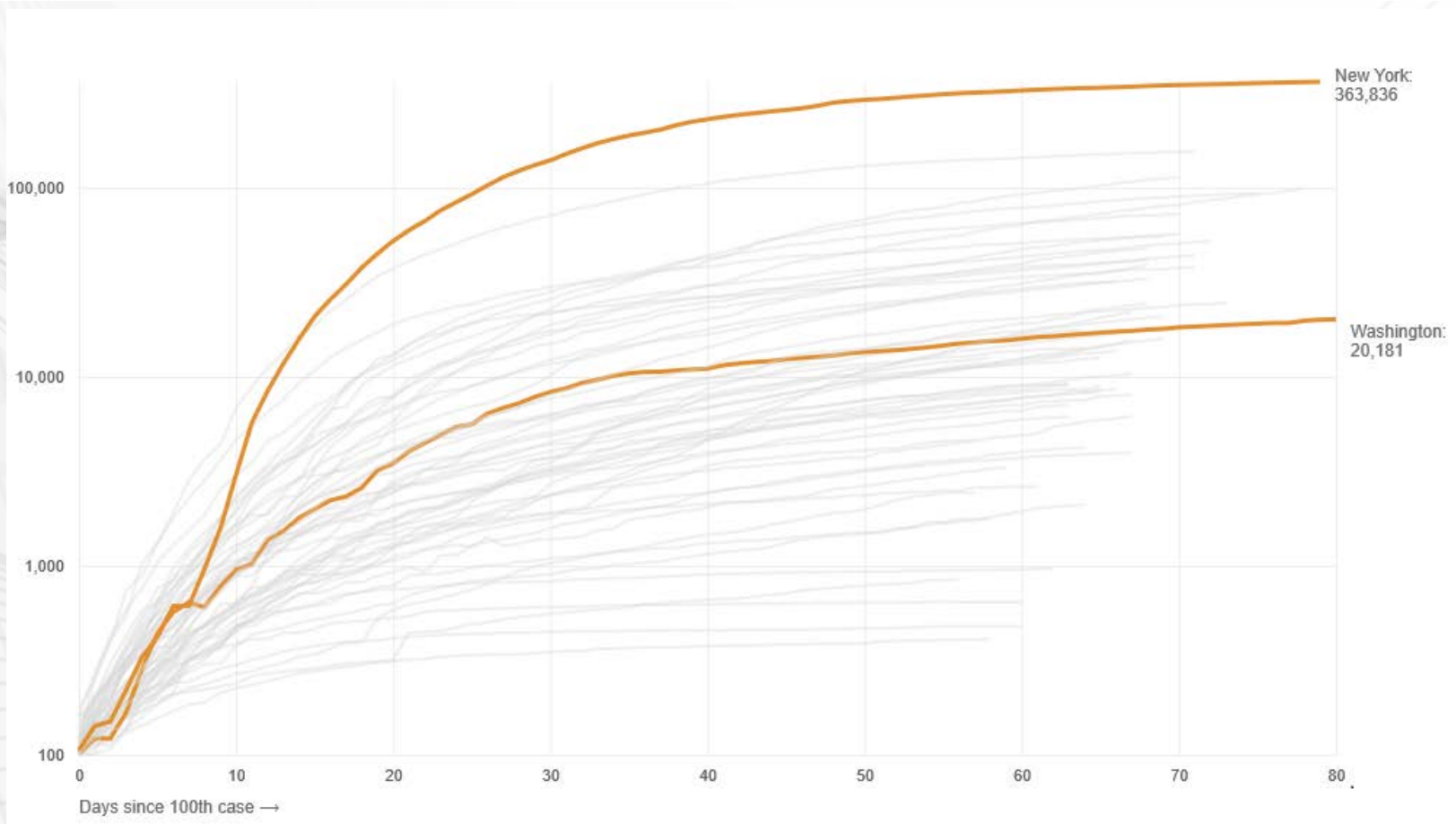
- Impact of COVID-19 on States
- REMI Model
- REMI Example Study
- REMI Model Demonstration

COVID-19 Affected States Differently



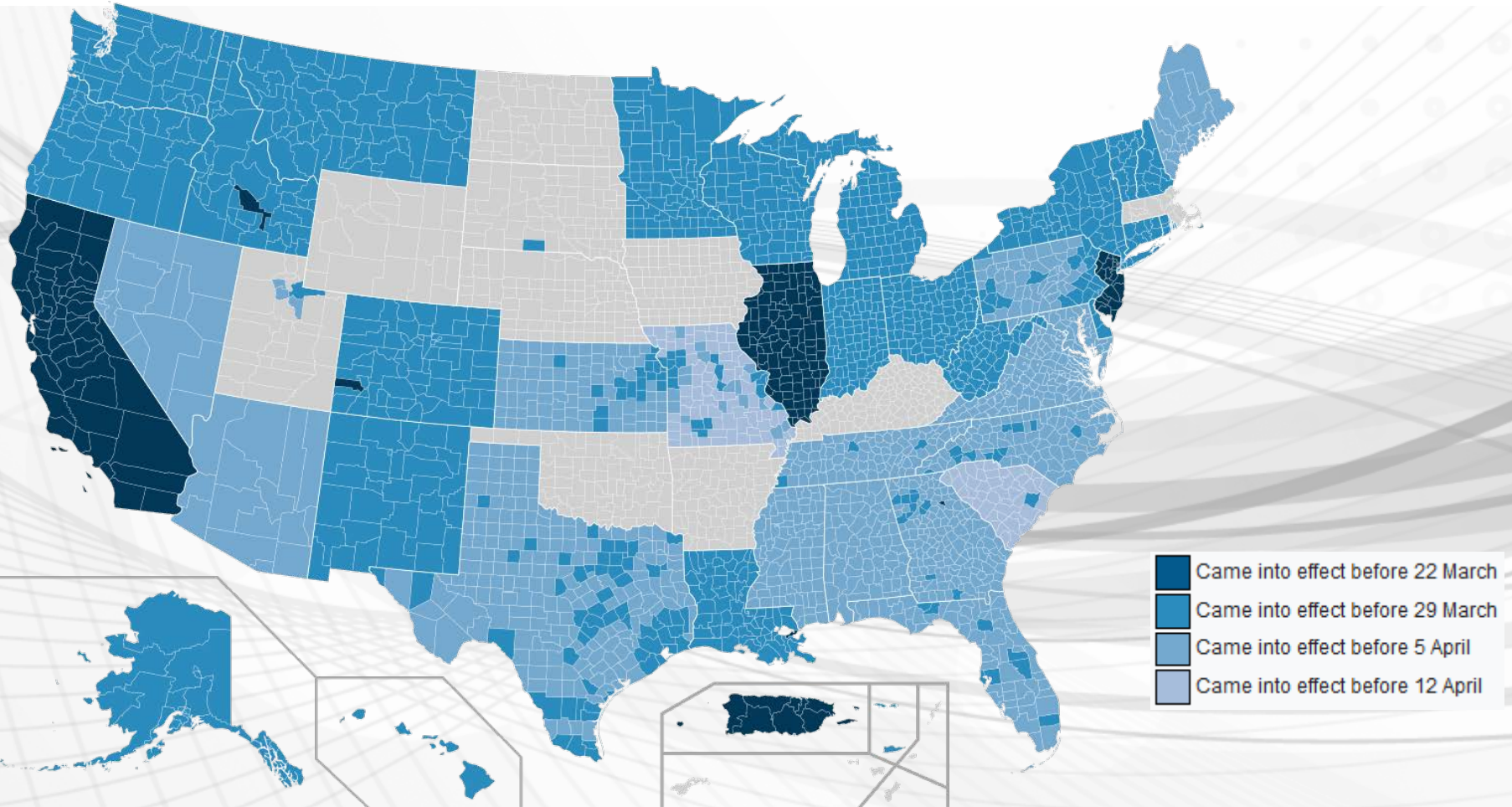
- Many reasons why different states had different responses to COVID-19
 - ▣ Population densities and amount of incoming air travel affected infection rates
 - ▣ State governments implemented lockdowns at different times
 - ▣ States have more or less presence of industries that are more or less vulnerable to COVID-19

State Infection Timelines



Source: Center for Systems Science and Engineering at Johns Hopkins University
what does REMI say?sm

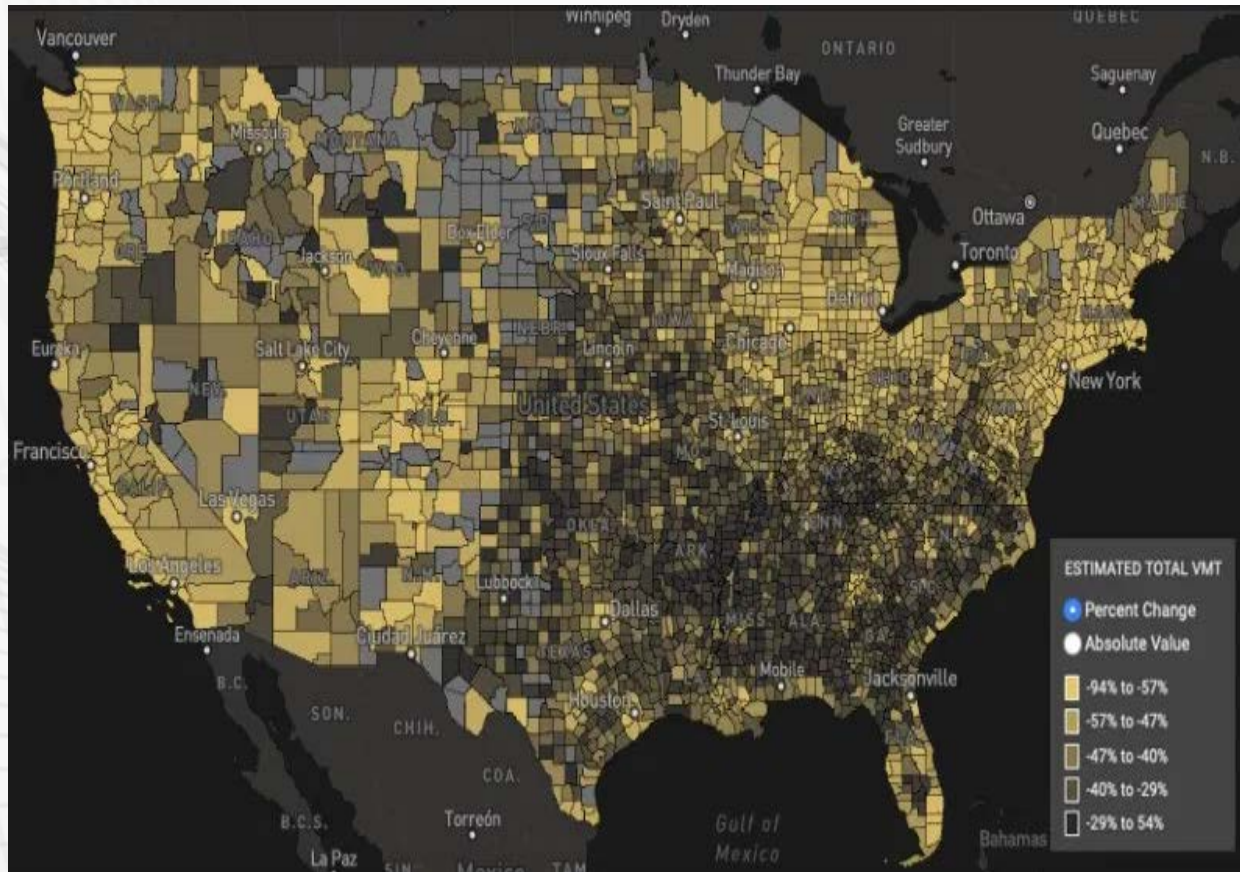
State Lockdown Timeline



Source: Minh Nguyen
*what does REMI say?*sm

COVID-19 and Vehicle Travel

March 2 – March 27



Source: StreetLight Data and Cuebiq

San Francisco, CA
83% decrease

New York City, NY
67% decrease

Chicago, IL
67% decrease

Jacksonville, FL
46% Decrease

Montgomery, AL
32% decrease

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Industry Vulnerability



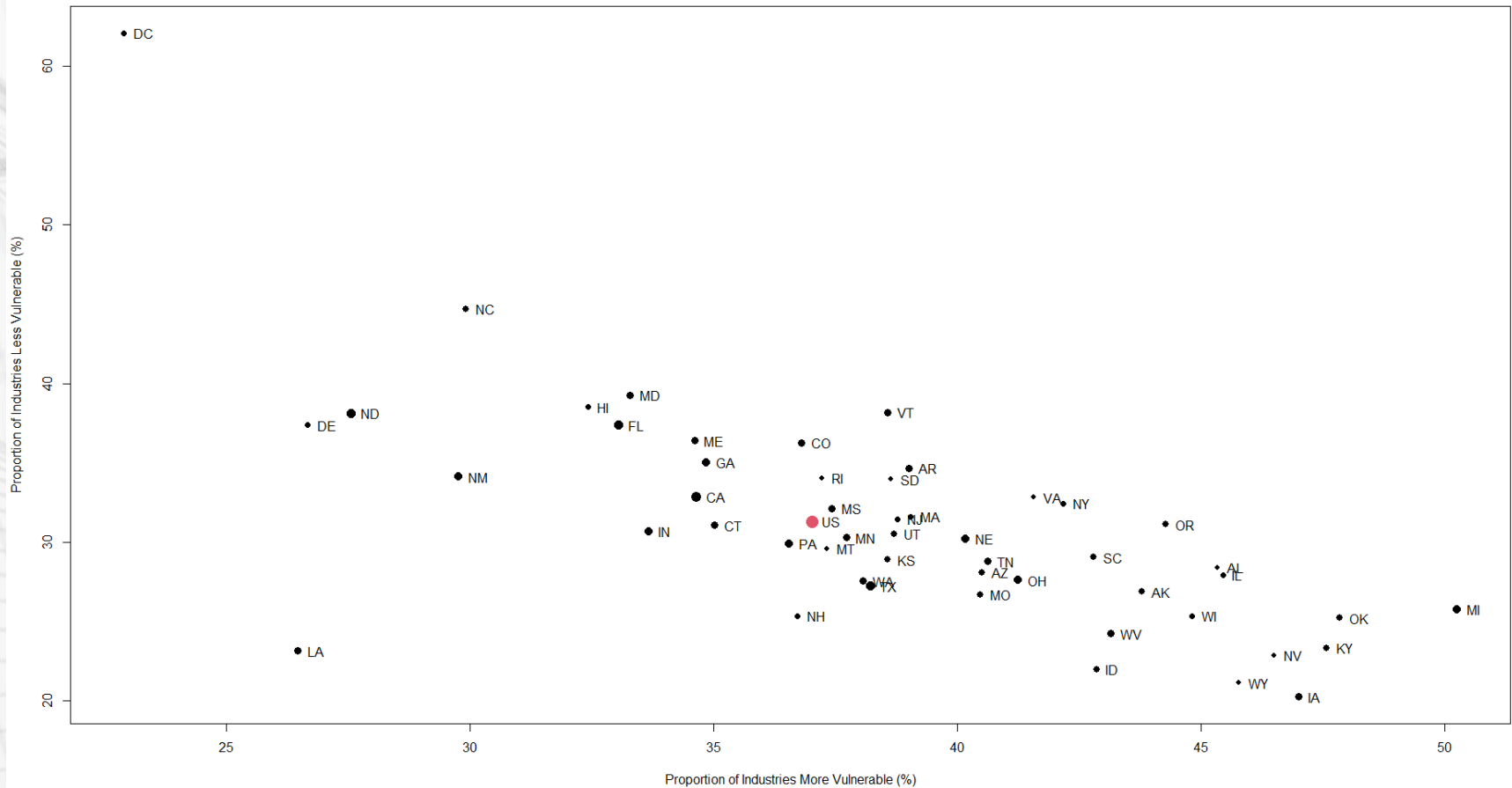
- Industries have faced different degrees of disruption as a result of COVID-19
 - Severe:
 - Tourism (transportation, accommodation, entertainment, restaurants/bars)
 - Retail (outside grocery stores), other in-person service
 - Manufacturing
 - Mild/Positive:
 - Essential services
 - Non-essential services w/ WFH (e.g., professional services)
 - Finance (largely through loan activity, e.g., PPP)

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State Output Vulnerability



Vulnerability of State Output to COVID-19



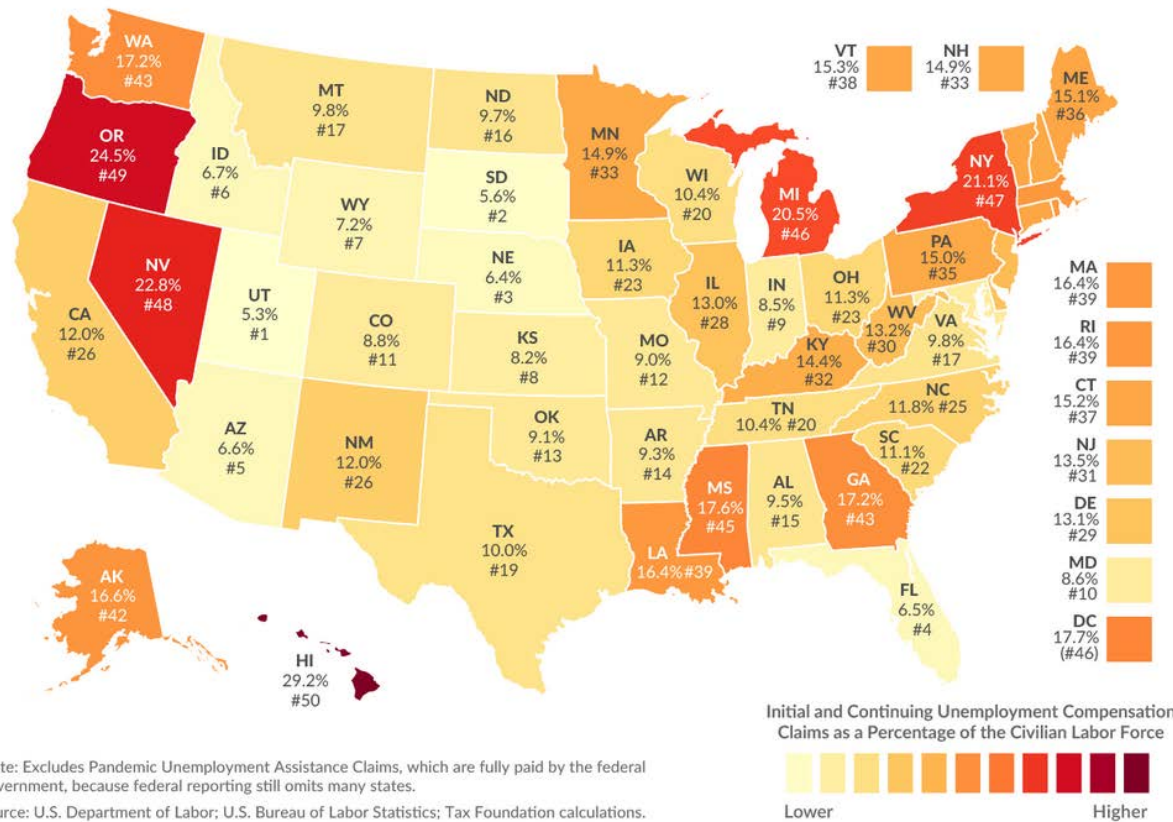
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Industry Composition and Unemployment



Unemployment Compensation Claims as a Percentage of the Civilian Workforce

Initial and Continuing Regular Unemployment Claims as a Percentage of the Civilian Labor Force, May 23, 2020



Note: Excludes Pandemic Unemployment Assistance Claims, which are fully paid by the federal government, because federal reporting still omits many states.

Source: U.S. Department of Labor; U.S. Bureau of Labor Statistics; Tax Foundation calculations.

12.7% of US civilian labor force applied/receiving unemployment compensation benefits
(18.1% when including self-employed & gig workers who qualify for pandemic insurance relief)

Source: "A Visual Guide to Unemployment Benefit Claims" (Tax Foundation, 2020)

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COVID-19 Continues to Affect States Differently

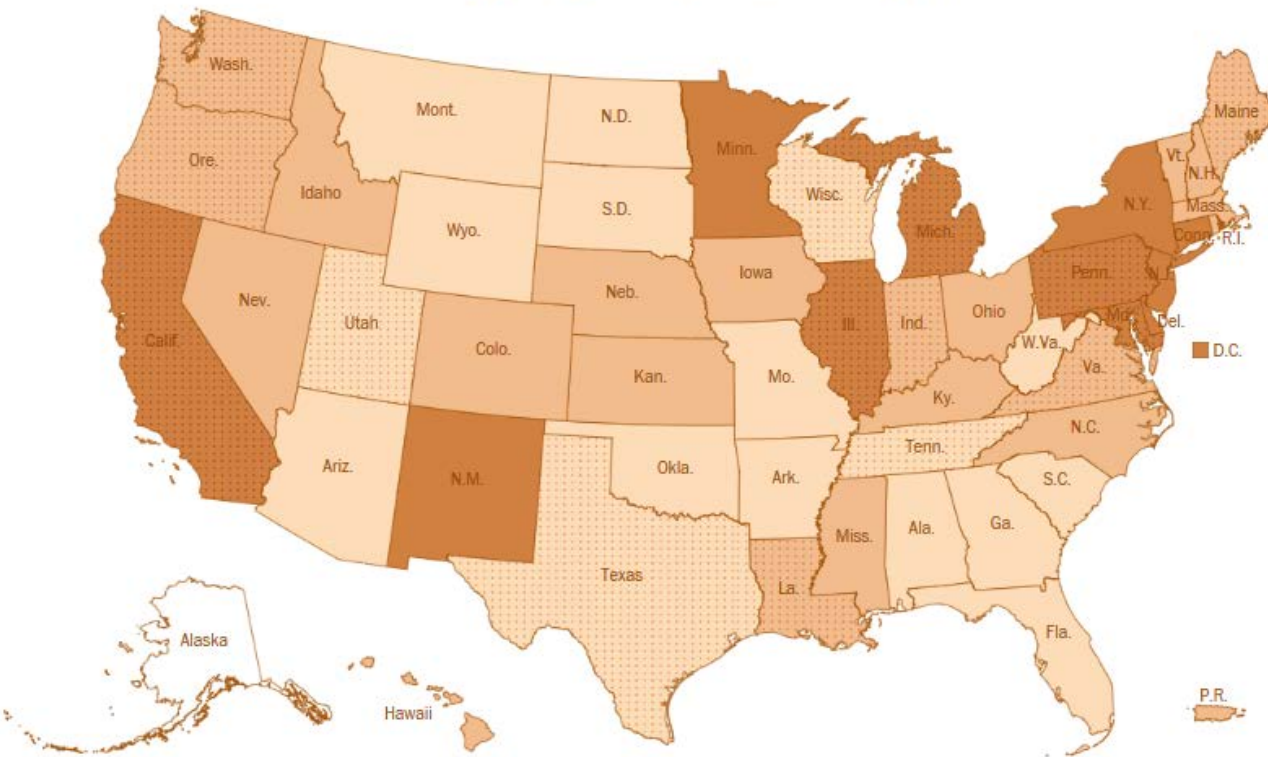


- Many reasons why different states will continue to have different responses to COVID-19
 - ▣ Different timelines for re-opening
 - ▣ Even after official reopening, some states have industries that will struggle to get going

Reopening Timelines



State restrictions: Major Moderate Minor None Vary by region



Updated May 27, 2020

Major: Personal care businesses (e.g., salons, barbers), gyms, most non-essential businesses closed. Restaurants and bars may not seat patrons. Face coverings, social distancing are required. Public gatherings larger than ten are not permitted.

Moderate: Many above businesses may reopen with limited capacity, while bars and gyms remain closed.

Minor: Bars, theaters, casinos or concert halls may reopen, with larger groups permitted.

Source: Washington Post
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Modeling COVID-19's Impact On States



- In terms of infection rates, lockdowns, and re-openings, COVID-19 affected states differently
- The different situations of each state affects how vulnerable their economies are to COVID-19
- It is important to take into account these regional differences when modeling the impact of COVID-19

REMI Model



REMI's 40-year history of rigorous academic research and software development has led to the development of the the industry standard in macroeconomic research methodology:

Input-Output

Regionalized inter-industry relationships

General Equilibrium

Understanding how supply and demand affects markets over time

Econometrics

Behavioral responses to a changing economy

Economic Geography

Effects of geographic concentration of labor and industry

Integrated REMI economic modeling approach



State of Connecticut
Department of Economic and
Community Development



Bank of North Dakota



Iowa Department of
REVENUE



Wyoming Department of
Administration & Information

LOUISIANA
DEPARTMENT of REVENUE



Division of
the Budget



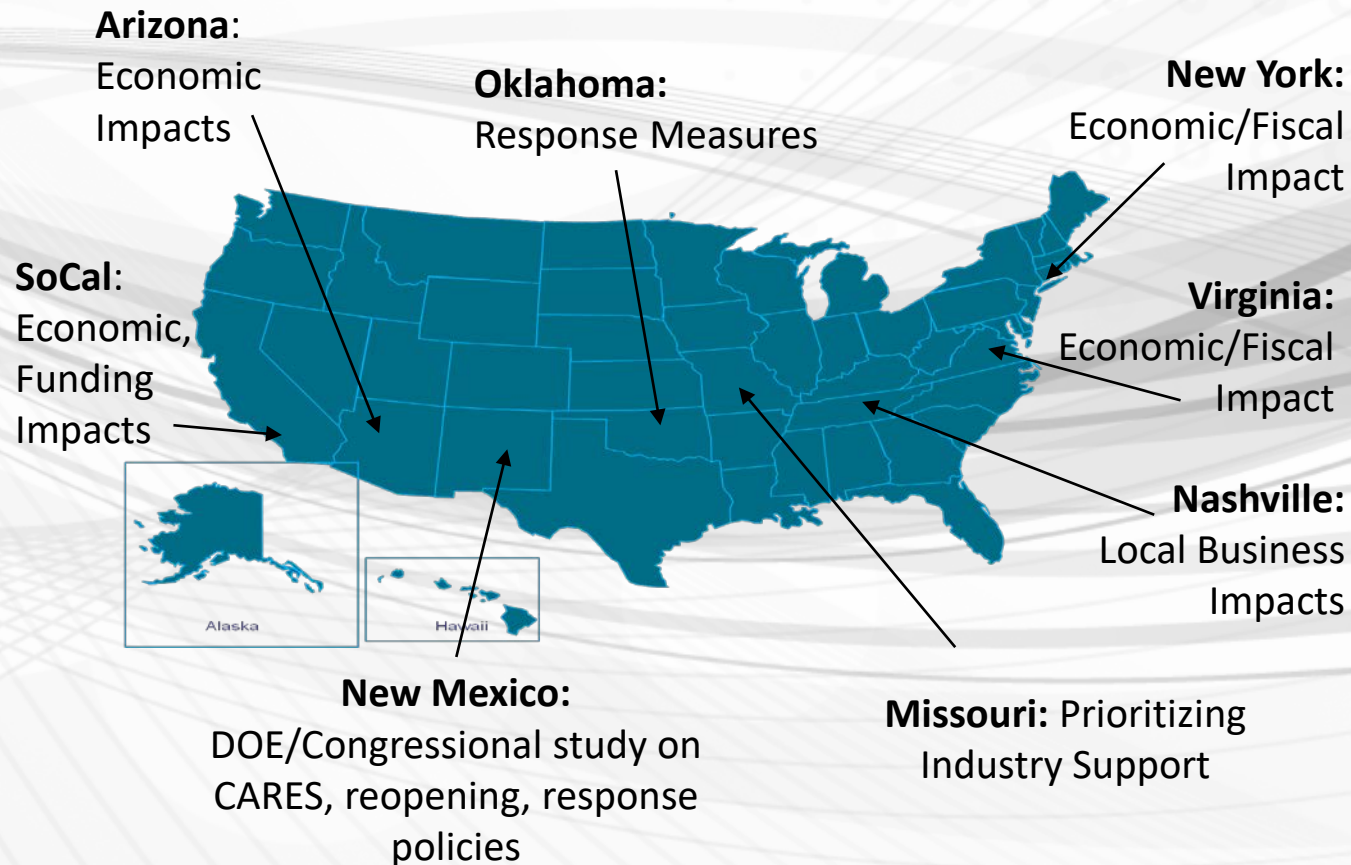
Selected REMI COVID-19 Modeling Strategies & Analyses



REMI has been at the front lines of rapidly responding to and understanding the economic implications and response strategies to the novel coronavirus COVID-19.

COVID-19 Modeling Strategies

- Implication on states' economies/budgets
- Industry-specific impacts
- Federal, state, local response strategies
- Timing for re-opening



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Virginia Impact Study



- UVA study utilized top-down approach, U.S. GDP update, regionalized effects for Virginia (webinar)

TABLE 2: COVID-9 Economic impact on Virginia, employment and GDP relative to baseline, 2020-2025

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|-------------------|-----------|-----------|-----------|-----------|-----------|----------|
| -6 Percent | | | | | | |
| Total Employment | -503,918 | -332,586 | -249,143 | -222,762 | -195,348 | -168,049 |
| GDP (\$ Billions) | -\$40.764 | -\$33.109 | -\$22.180 | -\$17.757 | -\$13.275 | -\$8.746 |
| -2 Percent | | | | | | |
| Total Employment | -298,779 | -126,205 | -45,115 | -21,977 | 3,314 | 29,335 |
| GDP (\$ Billions) | -\$17.898 | -\$9.864 | \$1.543 | \$6.280 | \$11.203 | \$16.307 |

Model Demonstration