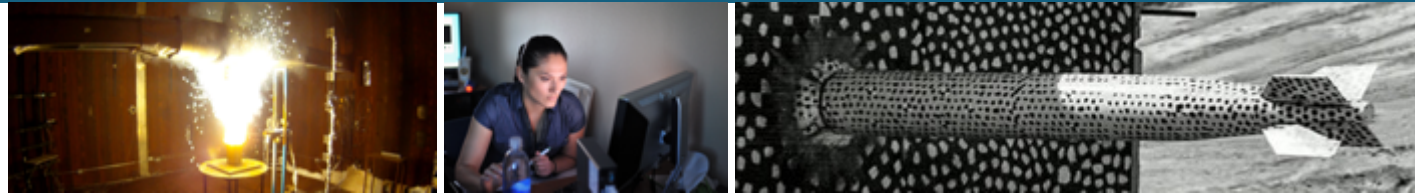




Sandia
National
Laboratories

Cumulative Economic Impacts of COVID-19



Presentation by Julia Potter



Sandia National Laboratories is a multi-mission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

What can economic modeling accomplish?



State-by-state impacts

- Essential vs non-essential businesses
- Staged return to work
- Other mitigation or intervention policies

Temporal adjustments

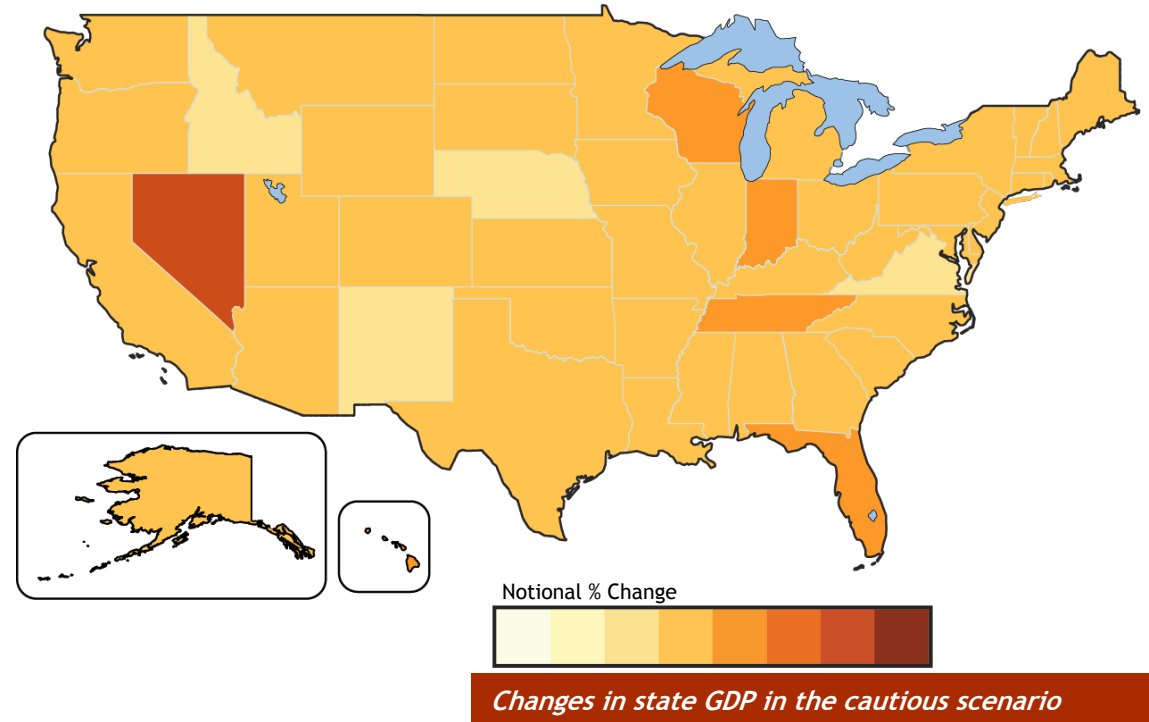
- Scaling of short-term to annual adjustments
- Continuous data mining

Integrate other modeling efforts

- Output from epidemiological models
- Health resource models

Psychosocial effects

- Consumption switching
- Avoidance behavior
- Work from home policies
- Demand elasticities



Economics at Sandia Laboratories

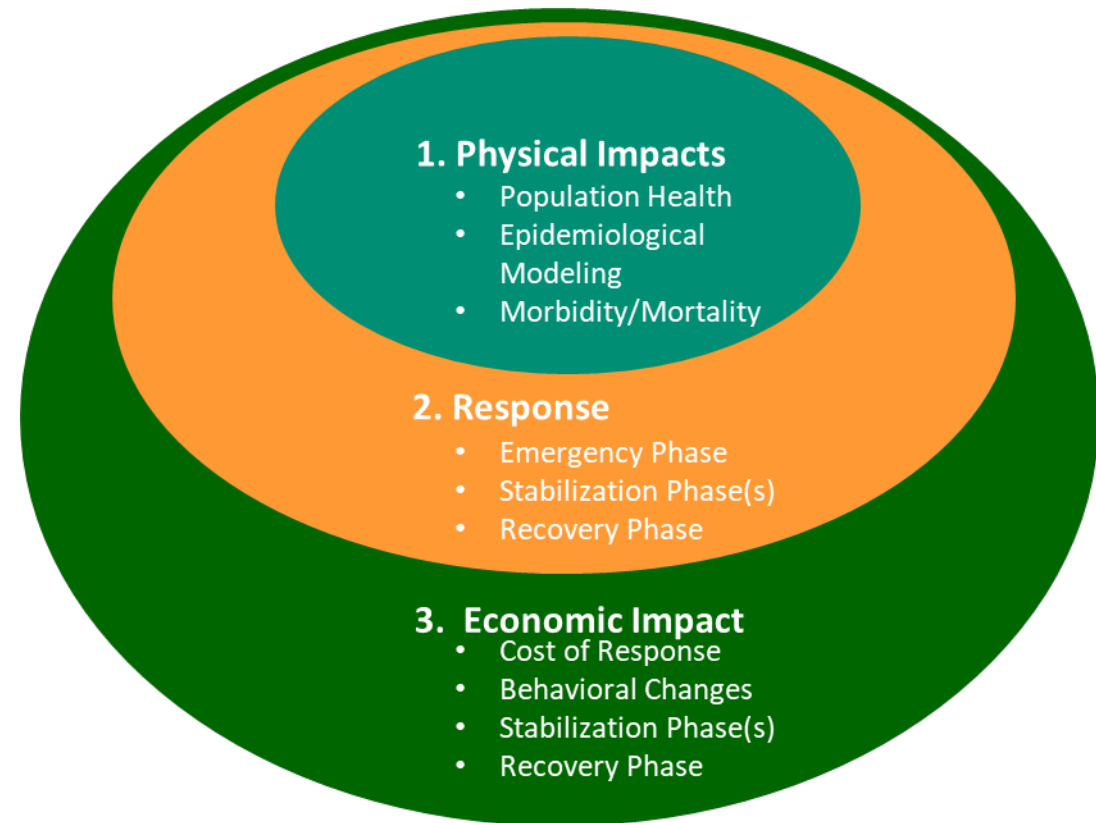


What does an economics intern at Sandia do?

- Data collection
- Mathematical Modeling
- Data organization
- Research

Range of Projects

- National Security
- Pandemic Research
- Natural Disasters
- Energy



Gathering Data

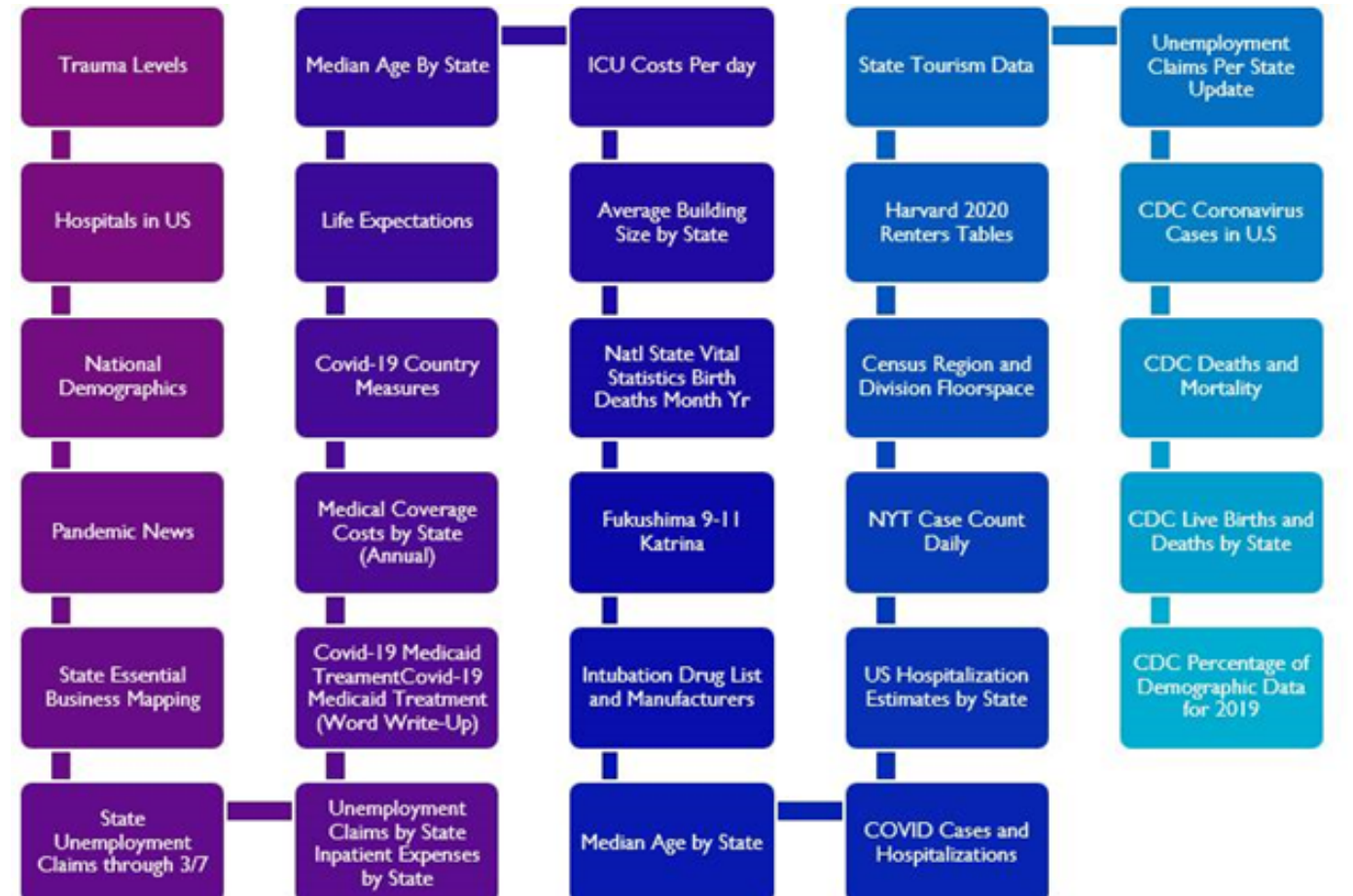


Sources

- Peer reviewed and non-peer reviewed
- State/local government
- Industry reports
- Network of peers
- Professional associations
- Lobbying groups

Challenges

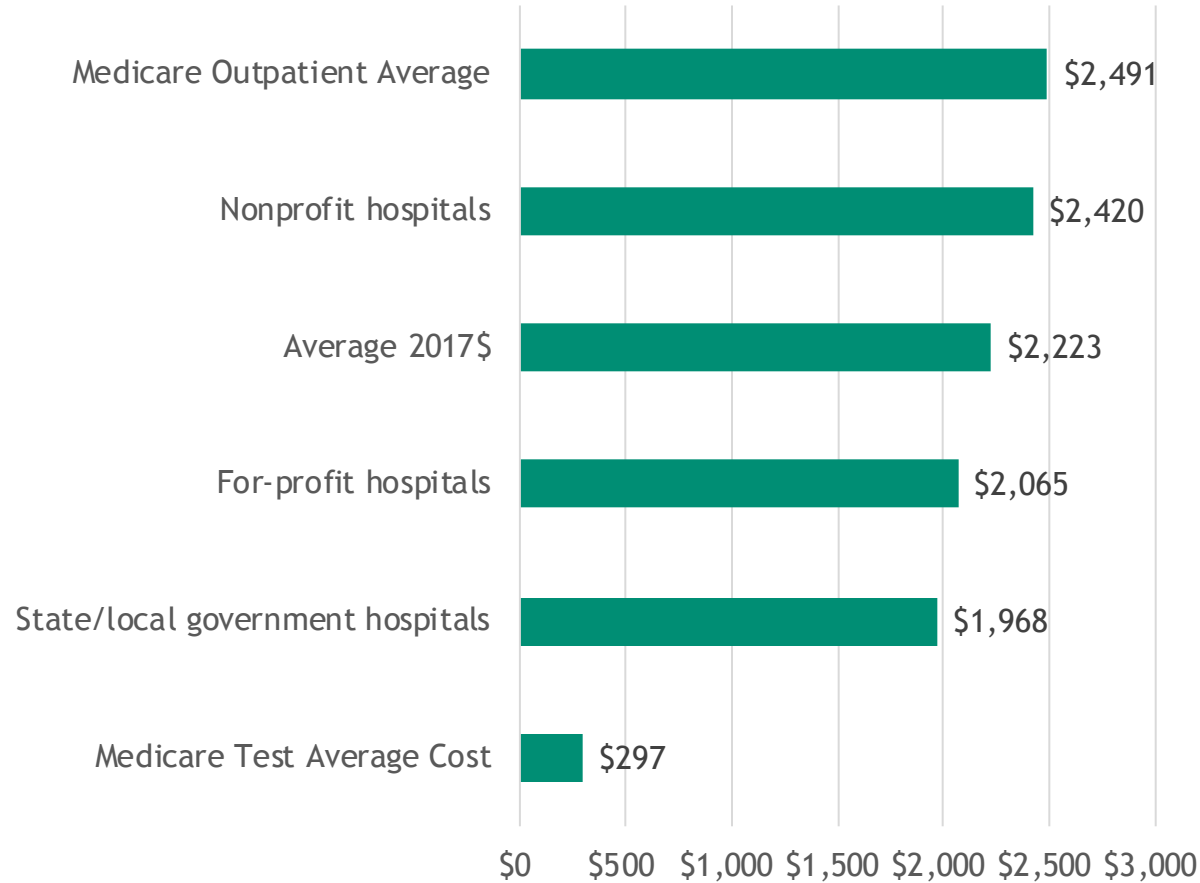
- Unreliable data
- Economic data runs on a lag
- Differences in reporting
- “Ground truth” will be too late



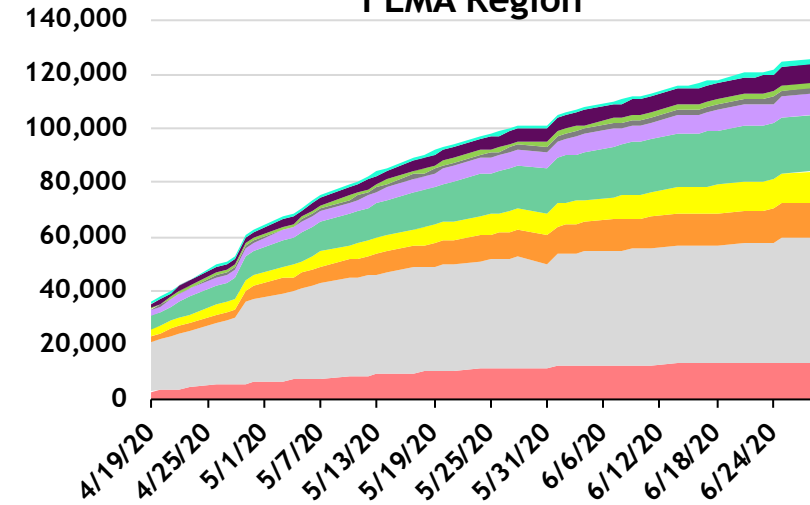
Data Collections: Health Tracking



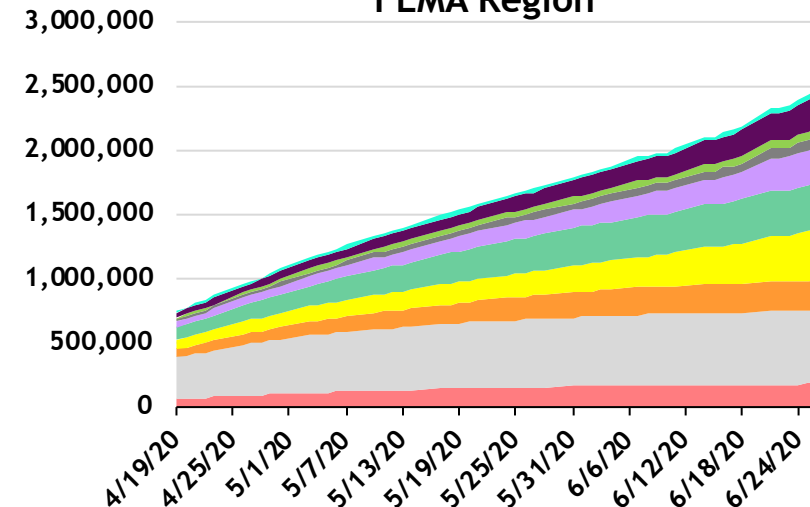
ICU Treatment Costs



Cumulative Daily Covid-19 deaths, by FEMA Region

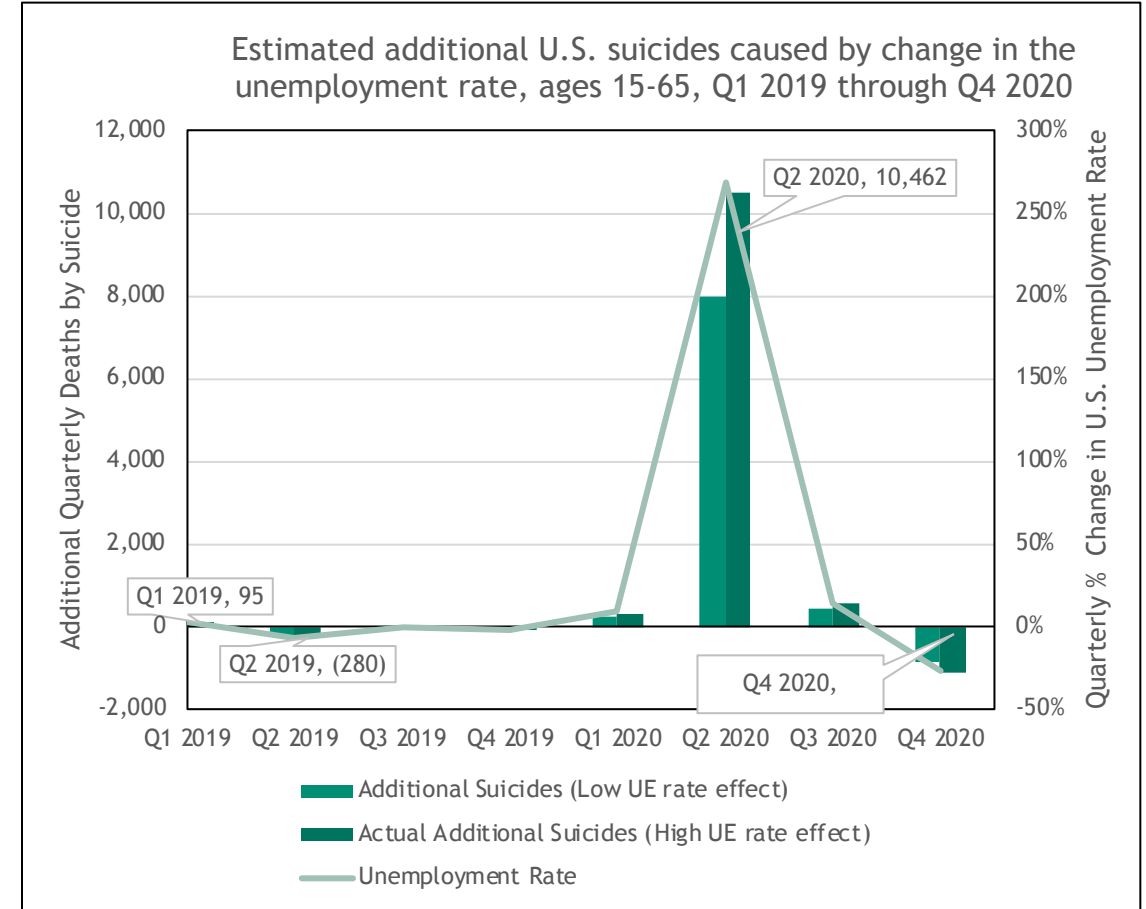
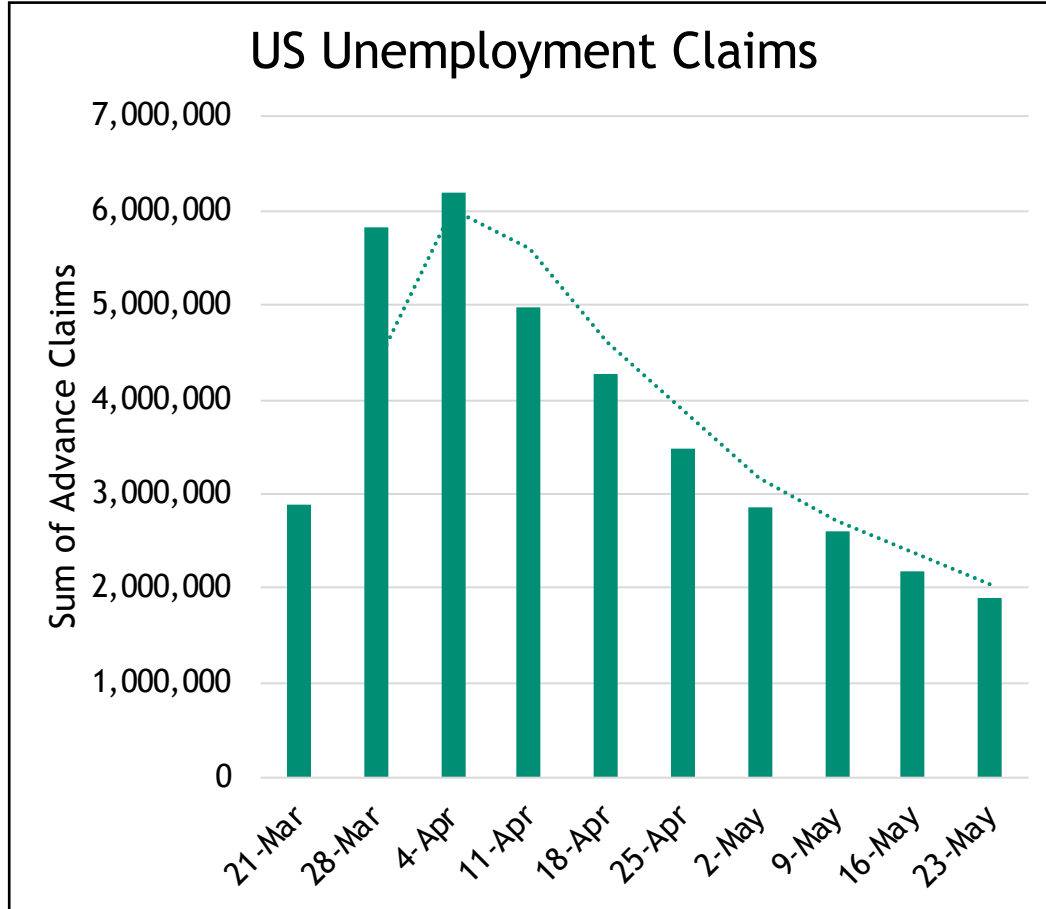


Cumulative Daily Covid-19 cases, by FEMA Region



Estimated Covid-19 ICU Cost: \$17,411 for an 8-day average stay

Data Collections: Unemployment and Suicide

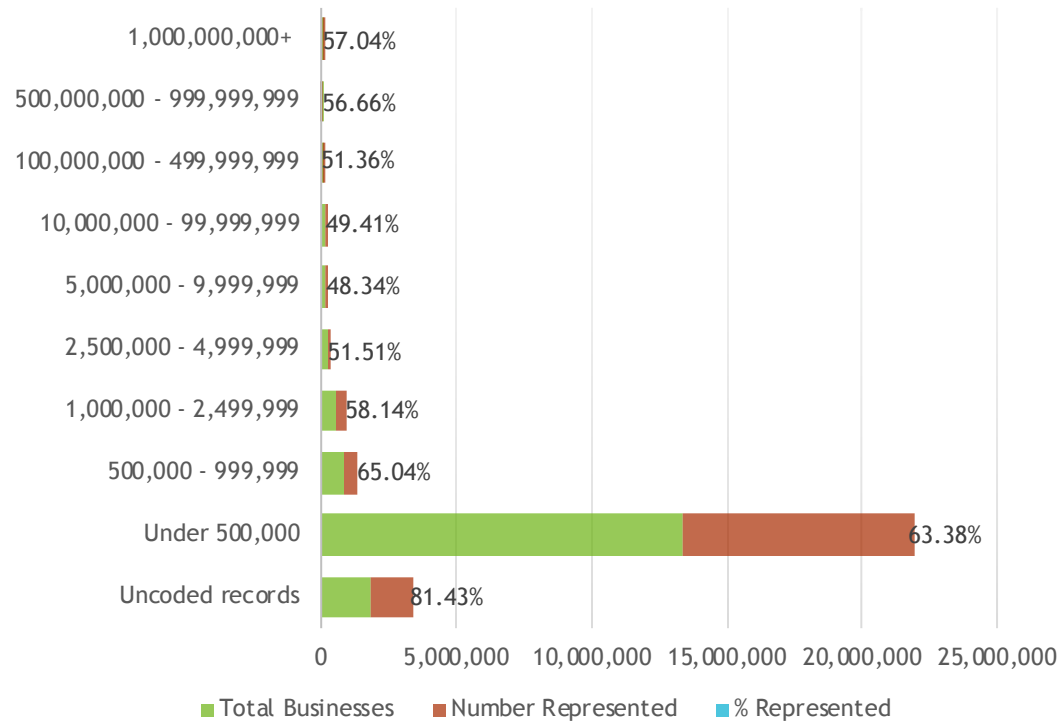


Transactions data

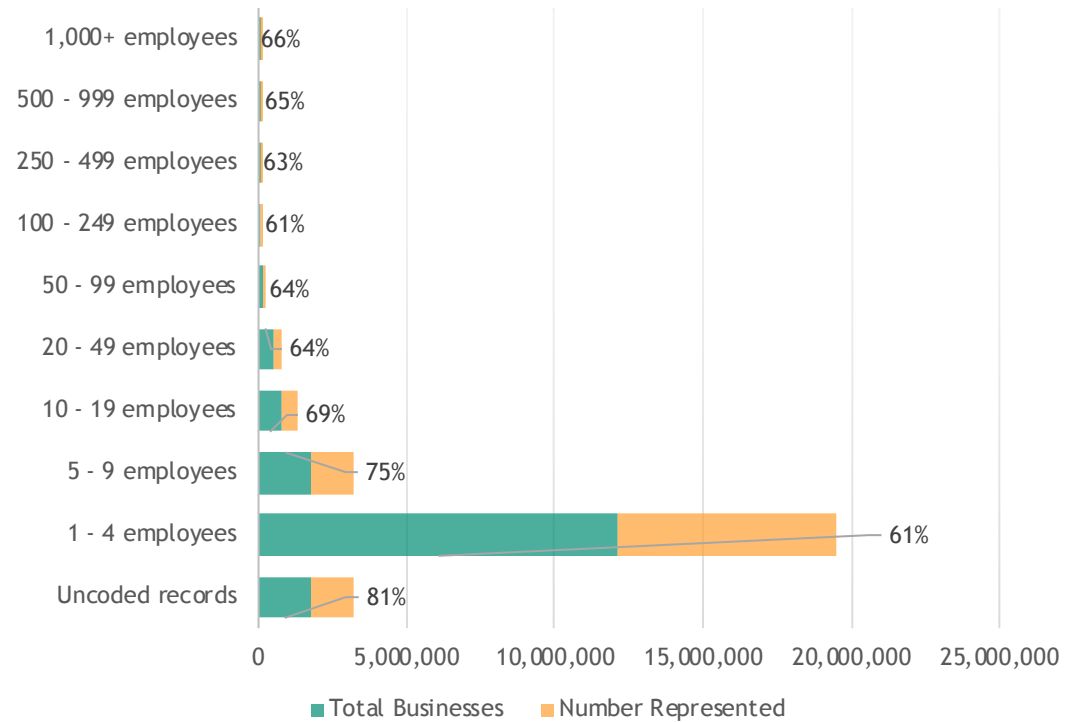


COVID-19 economic analysis also extends to cutting down sources. Before using data as representative of a population, we test how much that data actually covers.

BUSINESSES REPRESENTED BY SALES



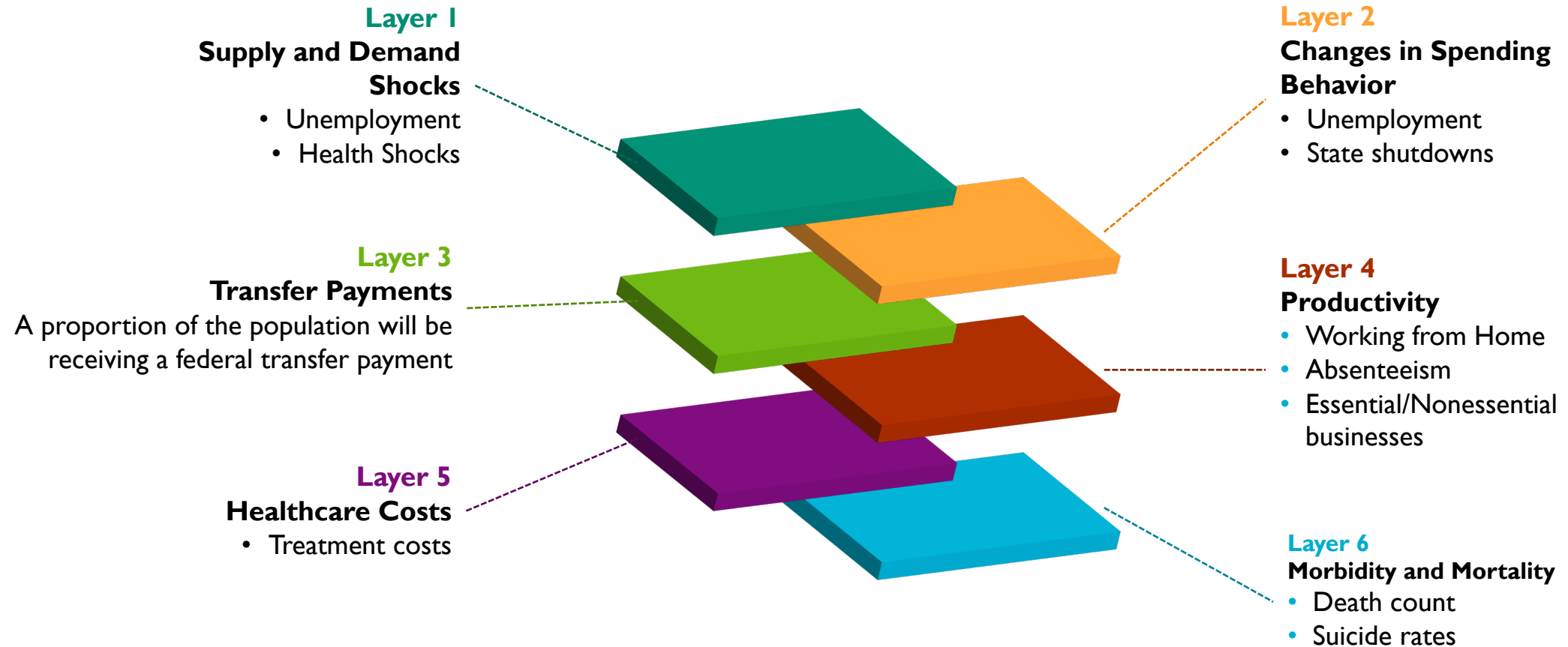
BUSINESSES REPRESENTED BY EMPLOYEES



Building a Model



Translation of physical, real-world observations, estimations, and hypotheticals into economic impact is accomplished in a layered approach



What did you learn?



Data Collection

- Organization
- A fundamental part of the modeling process

Modeling

- Efficiency
- Accuracy

Quick Turn

- Quick turnaround
foundational to crisis modeling

Informative

- Informs modeling
- Provides foundation



Thank you for your attention

Julia Potter

Sandia Labs

Contact information: jpotter@sandia.gov,
5052057239