Research Proposal

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Research Proposal

After a week of work, the project team will produce a one page research-proposal that defines a research question, data sources, and a plan of action.

The research question should be informed by an understanding of the datasets that are available, and the variables that are available in those data sets. The team will need to do enough preliminary work to assess whether their research question is feasible. A motivated team might form their research question, and begin to build a functioning data pipeline as an investment in ongoing project success. This proposal is intended to provide a structure for the team to have early conversations; it will be graded credit/no credit for completeness (i.e. a reasonable effort by the team will receive full marks).

Research Proposal: How are state policies and population related to the state-wide spread of COVID-19?

Background

The COVID-19 pandemic is the first pandemic seen in a century, affecting each individual worldwide. While many countries issued lockdowns, travel quarantines, and other COVID-19 restrictions on a federal level, the US federal government placed the power with the governors to regulate the implementation of these restrictions on a state-by-state basis.

There has been increased skepticism on the true effectiveness of restrictions in slowing down the spread of COVID-19, especially due to the amount of economic impact resulting from these procedures. Evaluating how each state's population density, lockdown procedures, vaccine distribution, and facemask policies correlates to the spread of COVID-19 within that state helps citizens understand the importance of following these policies. Understanding the effectiveness of COVID-19 restrictions in slowing the spread of the disease also helps policy makers justify the implementation of these policies to their constituents. Additionally, this information might be of interest to public health officials who are looking for best practices to contain a future pandemic or infectious disease.

Data sources

1. COVID-19 US State Policy Database A database of state policy responses to the pandemic, compiled by researchers at the Boston University School of Public Health.

2. The American Community Survey A product from the US Census Bureau that contains state-level demographics and other indicators of general interest.

3. NY Times Covid-19 Data Repository A series of data files with cumulative counts of coronavirus cases in the United States, at the state and county level, over time.

From data source (1), we expect to get: - Closure and reopenings: Start and end dates of closures of public spaces - Stay at home: Start and end dates of stay at home policies - Vaccine distributions: Prioritize older

adults in earlier phase than essential workers - Face masks: Start and end date of face mask mandates

From data source (2), we expect to get: - Population data in each state

From data source (3) we expect to get: - Covid-19 case counts by state

Methodology and Expected outcome

We intend to use a linear model to investigate whether relationships between Covid-19 cases and the limiting measures taken by each state are related. We expect to either find or fail to find evidence that the measures have any relationship to Covid-19 cases.