W203 Spring 2021 | Lab 2 Research Proposal

Members: Team RBGs (Ruby Han**,** Aditya **B**ajaj**, G**errit Lensink**, S**umedh Shah**)**

Background

With minimal federal restrictions in place to control the spread of the virus, state policymakers commonly adopted stay-at-home policies during the early months of the pandemic in the US. These stay-at-home orders ranged from one to ten months, with the intent to reduce spread amongst communities, by limiting mobility to only necessary activities. We have the unique opportunity to measure the efficacy of these policies across a wide range of geographies in the United States, from February 2020 to March of 2021.

Research Question

Are stay-at-home orders effective in reducing non-essential travel? *[Question for Alex: We realize we don't have the mechanism to make a true causal claim here, is it still reasonable to frame this in a causal way?]*

So What?

Both national and state policy-makers are facing increasingly difficult challenges in reducing further risks of COVID-19 spread, and their decisions to impose stay-at-home orders. In some states, legislators face backlash for not imposing harsh enough restrictions, while others are criticized for shutting down the economy for too long. We think this research will better help us understand how seriously certain soft laws, like the initial stay-at-home order in March 2020, are followed by citizens or whether citizens are still doing what is convenient for them. Based on this study, we could potentially see whether similar future restrictions would warrant similar behaviors from citizens.

Variables Operationalized

- Dependent Variable: Non-essential mobility
    - Measured as the average in change (relative to baseline) in retail/recreational mobility
- Independent Variable: in_quarantine - binary variable to measure the average change in mobility during stay-at-home order, vs. when order is not in place
- Possible Control Variables:
    - Number of new cases (day n): isolate the effect of sensitivity to statewide COVID prevalence
    - Number of days under stay-at-home order (day n): will isolate the effect of that length of the stay-at-home order has on mobility

[*Question for Alex: how many variables is too many, can you help us understand when to stop adding controls?*]

Dataset

Our primary sources of data are the CUSP dataset, the Google Mobility dataset, and the NYT COVID cases dataset. All data and analysis will be aggregated to the state level, and observations will be left at the daily level.

Action Plan

Time Period	Task
Spring Break (March 23 - 29)	- Research Question Formation - Exploratory Data Analysis - Process Data: Raw -> interim, interim -> Processed
Week 12 (March 30 - April 5)	- Run Regression (simple, semi-full, full) - Evaluate CLM assumptions/requirements - Start final report
Week 13 (April 6 - 12)	- Finalize final report - Create powerpoint for final presentation
Week 14 (April 13)	- Final Presentation - Publish all materials to Repo