Lumiere Research Scholar Program: Research Paper Draft 1

Summer Cohort 2021 - Akshita Anant Badkundri

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**INTRODUCTION**

Large-scale loss of life, serious health complications, global unemployment, crashing of world’s economies, the threat of extreme poverty and social disruption are some of the ramifications caused by the covid-19 pandemic. This instability in our environment introduced by covid is majorly because of its diffusion rate. In such unprecedented times, governments across the globe have been trying to implement different kinds of restrictive policies as well as conduct vaccine drives to mitigate the risk of community transmission. Policies such as travel bans, lockdowns and mask mandates have been enforced globally to curb the spread of the pandemic. Policies have restricted people from going to restaurants and bars, and at a point, had limited them to offer only pickup or takeout services. Mask mandates have been enforced to lessen the risk of transmission during contact. These restrictive policies enforced to curb the spread of the pandemic are termed as NPIs, i.e., Nonpharmaceutical Interventions. Nonpharmaceutical Interventions (NPIs) are actions, apart from getting vaccinated and taking medicine, that people and communities can take to help slow the spread of illnesses like pandemic influenza (flu).

According to previous research, such policies have been highly effective. Small gathering cancellations and travel bans have been highly effective and a suitable combination of NPIs is necessary to curb the spread of the virus(N Haug 2020)([Vincenzo Alfano](https://www.ncbi.nlm.nih.gov/pubmed/?term=Alfano%20V%5BAuthor%5D&cauthor=true&cauthor_uid=32495067) and [Salvatore Ercolano](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ercolano%20S%5BAuthor%5D&cauthor=true&cauthor_uid=32495067) 2020). These papers have conducted research on the efficacy of NPIs but haven’t examined how NPIs affect different races differently. Ethnic and racial inequality persists in almost all strata of society. Along with facing discrimination and exclusion, minority groups are underrepresented and lack equal access to the most basic amenities like education, medical/health care. In times like these, one should consider the impact of covid on minority groups, who may be impacted by the virus more than other groups. Thus, analysing data on the difference in the impact of covid-related policies on whites and minority groups can help guide policy decisions to make more inclusive, specific changes benefitting all. Furthermore, identification of why some groups get impacted more or less can be studied: the reasons why one group has the lowest death rates/infection rates can be applied for the betterment of the others. Identifying possible solutions will be viable once made aware of the current circumstance.

 The policies I’ll be considering for my research will include these NPIs such as lockdowns, curfews, banning large gatherings, closing of indoor businesses like restaurants, bars, and nail salons and mask-mandates. My hypothesis is that restrictive policies benefit Caucasians more than minority groups, hardly impacting Latinos, and that reopening policies lead to a spike in cases of Latinos/Hispanics and other minority groups and comparatively, lead to a minor rise in cases of Caucasians.

The goal is to assess changes(rise/dip) in the infection/death rates of each group as a consequence of covid related policy changes. To do this, I will be using time series, regression analysis. Specifically, we will conduct a lagged regression of covid cases on policy changes. The goal is to model the relationship between covid related policy changes and death rates of different minority groups.

**METHODS**

**Data Sources**

* Santa Clara data set
* San Francisco data set
* California data set

**Variables**

Dependant Variables: (new cases, virus reproduction rate/transmissibility)

* Filling in missing data
  + mean of cases between days

**Separate Data analysis**

* Santa Clara data set
* San Francisco data set
* California data set

**Analysis: Calculation of policy effectiveness**

* take policy, and compute drop in number of cases
* base measurement

**PRELIMANARY RESULTS**

**N Haug 2020 Replication**

* "We find that the DV (e.g., number of cases) reduces significantly (statistically) after the implementation of a non-pharmaceutical intervention (NPI), similar to the results of Haug 2020"

**Data sets**

* Santa Clara data set
* San Francisco data set
* California data set

**Race and number of cases or transmissibility**

* we find that the transmissibility of covid virus is significantly greater for blacks and Latinos vs Asians or whites.

**Data sets**

* Santa Clara data set
* San Francisco data set
* California data set

**Main Findings/Hypothesis Related**

Impact of policies on Transmissibility of covid for different races

* Vaccine policies
* NPI Policies

**Data sets**

* Santa Clara data set
* San Francisco data set
* California data set

**CONCLUSION**