

The slide features several decorative icons. In the top left, there is a purple icon of two hands shaking. Scattered around the title are several light blue and green virus-like icons with spikes. In the bottom right corner, there is a purple icon of a car with a white rectangular area on its side, and a light blue cloud-like shape next to it.

# **A Regression Analysis of the Spread of Covid-19**

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# Research Problem

Is the length of sheltering in place and political party affiliation in each state associated with the spread of covid-19?

# Variables



Cases per 100k

- Number of positive cases per 100,000 individuals



Sheltering in Place

- Duration of shelter in place order
- Number of days



Political Party

- Political party affiliation of current state governor in office
- Indicator variable with 0 representing Democratic and 1 representing Republican



% Below Poverty Line

- Percentage of the state population that lives below the poverty line
- Percentage represented as a decimal

# Variables



% White Cases



% Black Cases



% Hispanic Cases



% "Other" Cases

- Percentage of the positive cases for individuals identifying as a certain race
- Percentage represented as a decimal

# Statistical Modeling

Measured by Cases per 100k



## Baseline

Length of  
shelter in place  
+  
State's political  
party



## Improvement (v1)

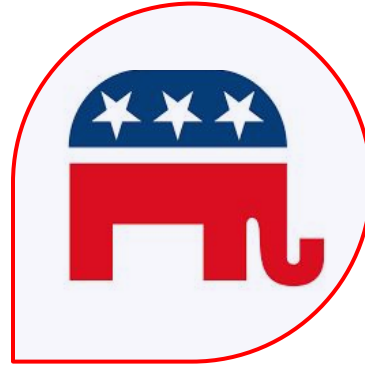
Baseline  
+  
% Under the  
poverty line  
+  
% White cases



## Improvement (v2)

Improvement  
(v1)  
+  
% Black cases  
+  
% Hispanic  
cases  
+  
% Other cases

# Baseline Model



**Republican**

+451.062 cases per 100K

**Shelter in Place**

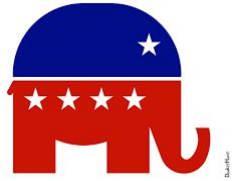
-8.477 cases per 100K per  
one additional day



**Intercept**

In Democratic states with 0 days of  
sheltering in place there is 2785.850  
additional cases per 100K

# Improvement (v1) Model



**Republican**



**Pop. under  
Poverty Line**



**Shelter in  
Place**



**% Cases  
White**

+395.490 cases per  
100K in Repub  
states

+129.629 cases  
per 100K for  
each additional  
%

-9.062 cases per  
100K for each  
additional day

-809.667 cases  
per 100K per  
additional %

## Intercept

The baseline value  
is 1660.463 number  
of cases per 100K

# Improvement (v2) Model

Measured by Cases per 100k



## Baseline

Length of shelter  
in place \*  
(-9 cases)  
+  
State's political  
party

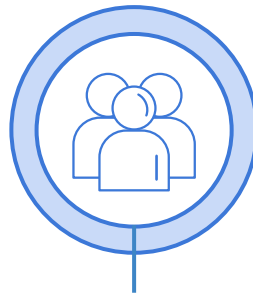
+



## Improvement (v1)

Baseline  
+  
% Under the  
poverty line \*\*  
(+175 cases)  
+  
% White cases

+



## % Black Cases

+



## % Hispanic Cases

+



## % Other Cases



# Conclusion

## Shelter in Place

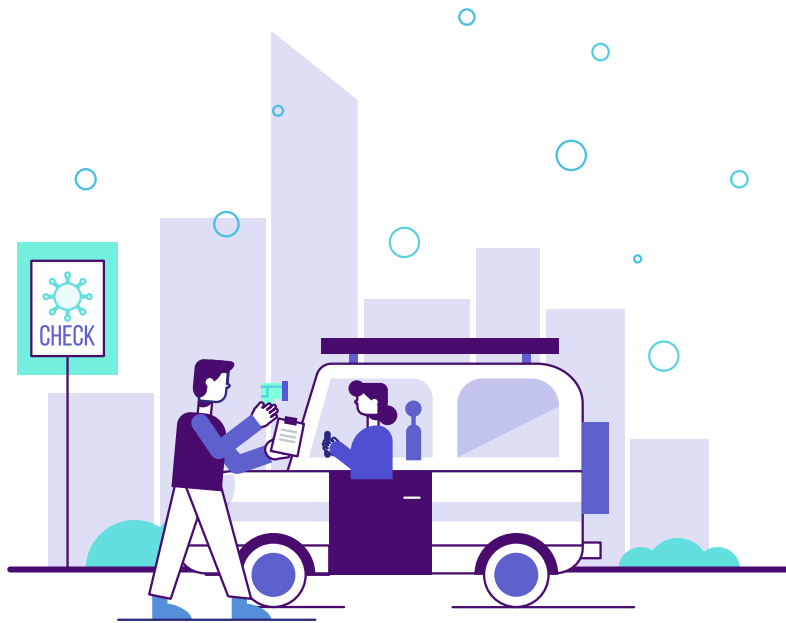
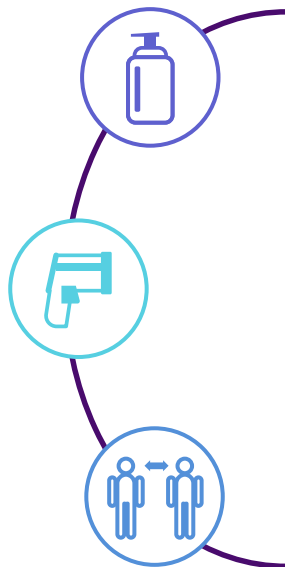
Sheltering in place  
correlates with lower cases

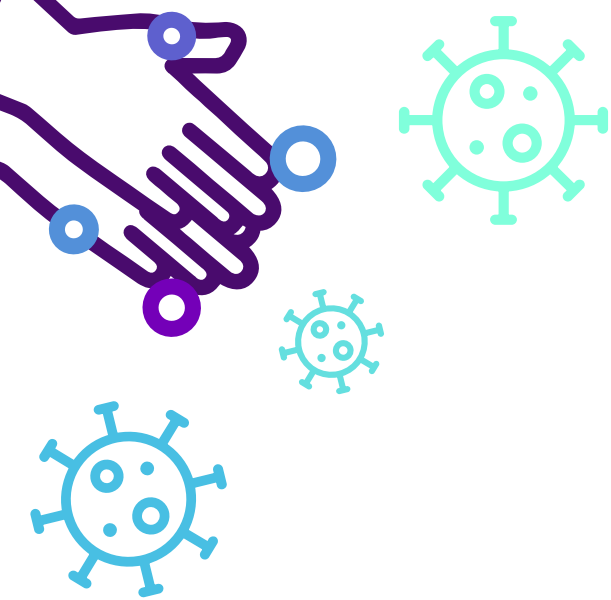
## Confounding Factors

Multiple variables at play  
complexify national situation

## Keep Modeling

Continue studying trends to  
better understand Covid-19's  
impact





# Thank you!

Any questions?

