COVID-19 Case Rates During the Delta Variant Surge in Biden-leaning Versus Trump-leaning California Counties

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Executive Summary

This paper is an investigation of COVID-19 case rates in Biden-leaning California counties, and in Trump-leaning California counties, during the Delta variant surge. Our questions of interest are: what are the underlying case rates during the time period of interest for these two county groups? And is the COVID-19 case rate in the top Biden-leaning counties significantly less than the case rate in the top Trump-leaning counties? We used Bayesian methods to analyze case rates, in cases per 100 people per year. We found that the Biden group had a significantly lower case rate than the Trump group.

Introduction

Cases of the novel coronavirus, or COVID-19, were first observed in California early in 2020 [1]. Effective vaccines were developed and tested, and the first COVID-19 vaccines were administered outside of clinical trials in the United States in January of 2021 [2]. By the summer of 2021, COVID-19 vaccines were widely available to the general U.S. population aged 18 and over, just as the highly contagious Delta variant became prevalent [3].

It has been widely reported that attitudes toward COVID-19 vaccination and mask wearing are highly correlated with political affiliation [4,5]. We are interested in how these differences along political divides might impact case rates. The time period of interest for our analysis was the 123 days period from July 1, 2021, to October 31, 2021. The surge in risk of infection during this period would accentuate the impact of these differences on infection rates.

We defined two groups of counties: counties with the highest percent of votes cast for Joe Biden (the Biden group), and counties with the highest percent of votes cast for Donald Trump (the Trump group).

Data Sources

County-level COVID-19 case counts were obtained from the California Health and Human Services Open Data Portal [6]. Counts of laboratory-confirmed COVID-19 cases by county are updated daily; we downloaded the file to be used for this project on November 12, 2021. Cases are each assigned to an “episode date”. This is defined as the earliest date of: date reported, date of diagnosis, date of symptom onset, date of specimen collection date or date of death. We were able to calculate the total counts of COVID-19 cases, by county, for our 123 day period of interest.

The CHHS data set also includes county populations, a statistic obtained from the California Department of Finance 2020 county population estimates. We used these to standardize the case counts by population; case counts were converted to cases per 100 people per year.