Impacts of Tree Canopy Cover Percentage on the Rate of COVID Deaths per Positive Case in California

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What impact does the percentage of tree canopy cover have on the rate of COVID deaths (per confirmed positive case) in California?

This blog post will analyze the impact of tree canopy cover percentages on COVID-19 deaths (per confirmed positive case) at a county level in California.

Importance

This is an important and interesting environmental justice question to consider because tree canopy cover percentages and COVID-19 disproportionately impacted historically marginalized populations throughout the United States. Additionally, both are linked to respiratory and cardiovascular diseases. There is proven evidence (CITE) that areas with more urban tree canopy have increased public health indicators. This includes lower rates of disease such as asthma, strokes, and cardiac disease (CITE nature conservancy?). There is also evidence (CITE) that individuals with existing respiratory and/or cardiovascular disease are not only more likely to contract COVID-19, but also more likely to be sicker or die.

Data

Tree Canopy Data The tree canopy data used for this analysis is publicly available from the Public Health Alliance of Southern California (website). The data is available in CSV format, with a canopy cover percentages for each census tract within California.

COVID-19 Data The COVID-19 data used in this analysis was publicly available on the LA Times DataDesk GitHub repository. This data was

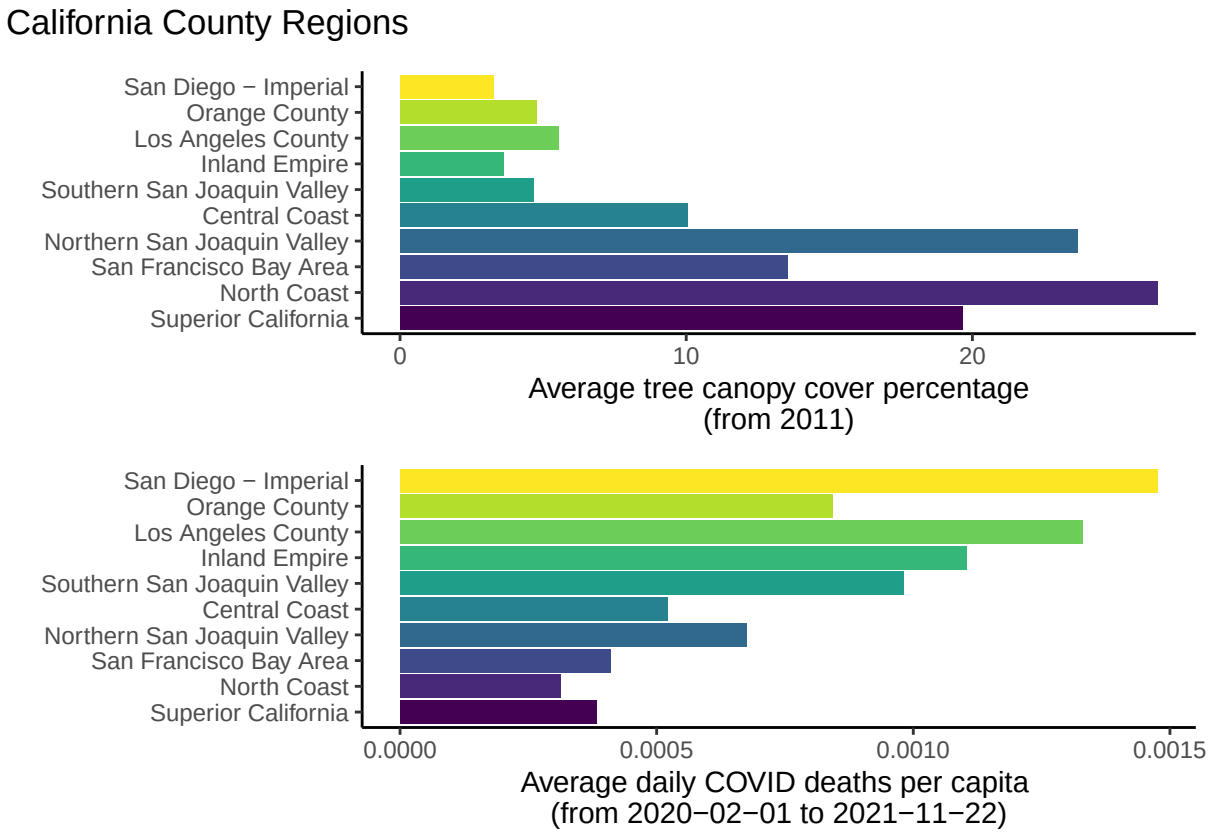
Basic Analysis

For my analysis I plan to conduct a simple linear regression. To begin, I did some basic data anlysis to create tree canopy and COVID-19 data that is at the same spatial and temporal resolution. (TALK ABOUT AGGREGATION DONE TO DATA)

Basic Data Visualization

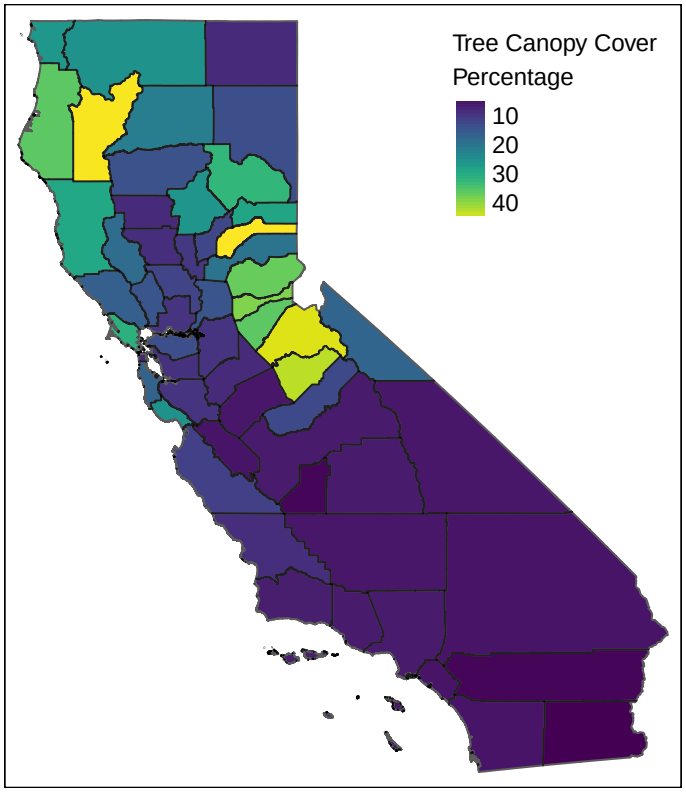
Before deciding to use a simpel linear regression, I decided to do some basic data visualization to explore the correlation between tree canopy and the rate of COVIE-19 deaths per positive case.

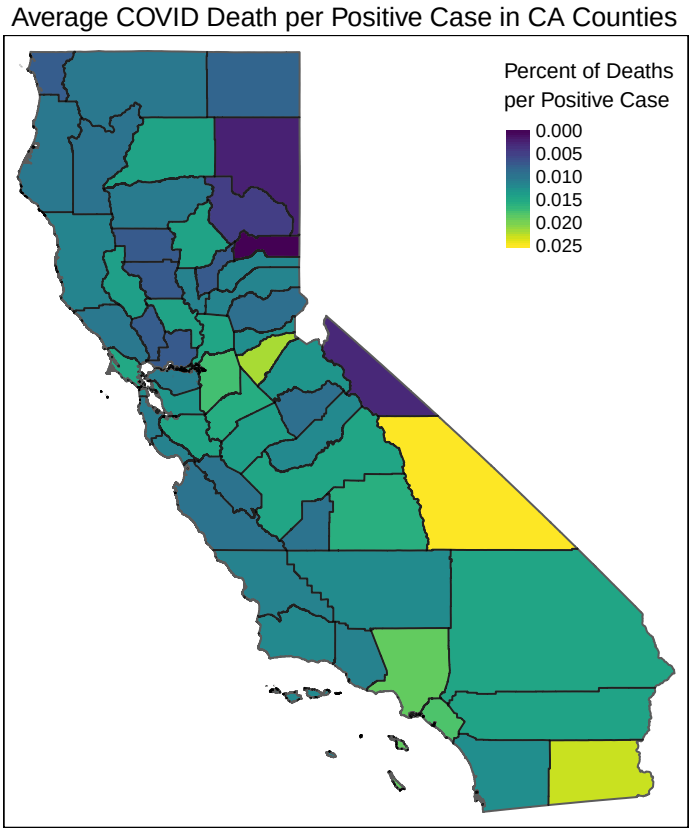
First, I aggregated the county data further into the 10 county regions as defined by the U.S. Census and plotted the



This exploration showed a potential correlation between lower canopied areas within California and COVID-19 deaths per capita. Next, I honed my exploration more closely in on my research questions.

Average Tree Canopy Cover in CA Counties





Simple Linear Regression

Null hypothesis: In California counties, the tree canopy cover percentage has no impact on the rate of COVID deaths per positive reported case.

Alternative hypothesis: In California counties, the tree canopy cover percentage has an impact on the rate of COVID deaths per positive reported case.

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## `geom_smooth()` using formula 'y ~ x'
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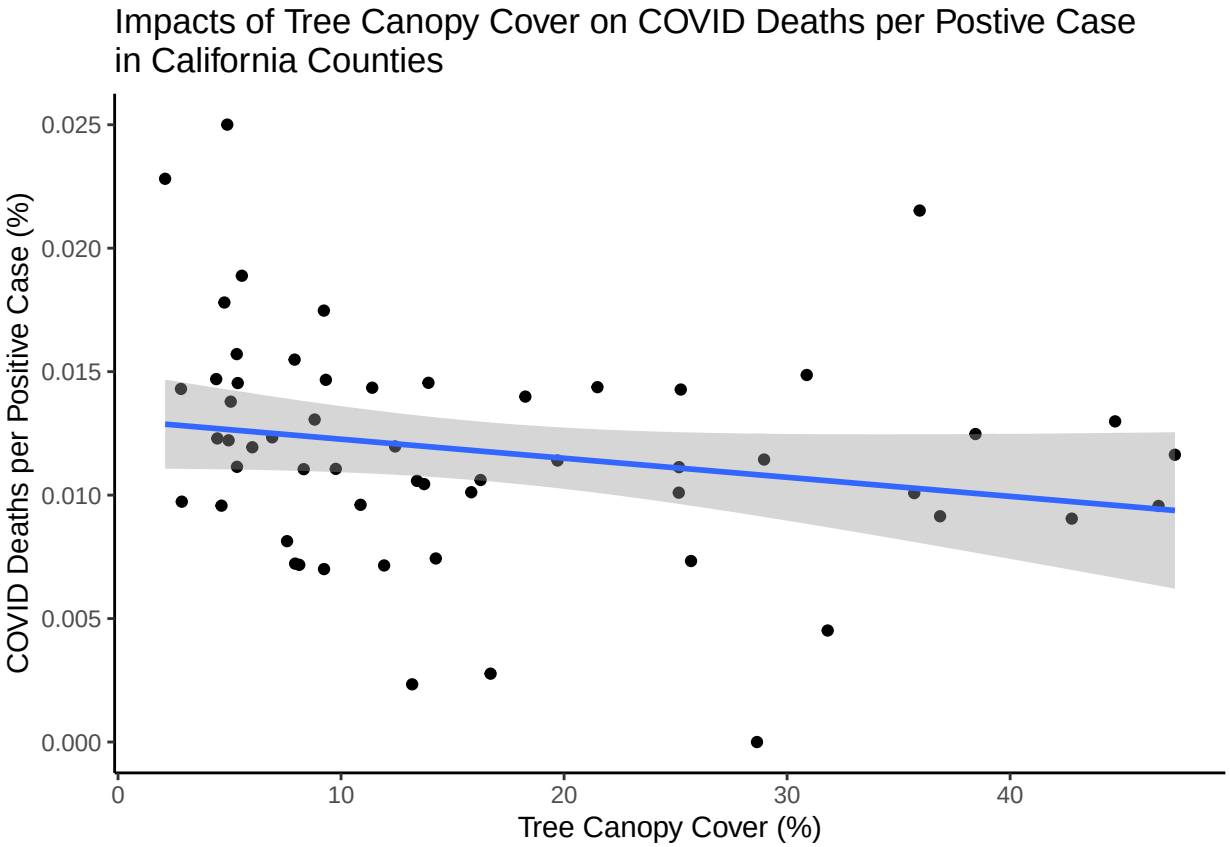

Conclusions

There is no

References

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