An Analysis of the Correlation between Coronavirus and Trump Support

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Background

The Presidential election in the United States and the COVID-19 global pandemic are the two events that have defined 2020. Coronavirus spreads from one person to another through respiratory droplets which can live on surfaces for hours after they land. The virus spreads with relative ease from one person to the next with some people showing severe flu like symptoms and others that are asymptomatic (despite carrying the virus). Due to the novel nature of this illness, there are currently no sure medical interventions that combat the virus or vaccinations that prevent contraction.

As a result of alarming fatality and hospitalization rates, multitudes of public health officials have been insistent on the importance of maintaining social distancing measures and the usage of face masks in order to diminish the spread of the virus. Some public officials have gone as far as to mandate mask usage and temporary closure of businesses where coronavirus could best spread, such as restaurants and gyms. These public health policies have become a divisive issue along partisan lines as a result of comments made by the President of the United States, Donald Trump. Many of these comments have downplayed the severity of the virus and diminished public trust in advice from public health experts. Because of these comments, ardent supporters of the President have been hesitant to comply with these policies. Refusal to wear masks and maintain social distancing may increase the spread of coronavirus within communities across the United States.

Research Question

Is there a correlation between a county's electoral support of President Trump and the number of coronavirus cases?

As a result of the President's sustained downplay of COVID-19's danger, I seek to determine whether there is a correlation between support for President Trump and the spread of COVID-19. I hypothesize that his supporters heeded President Trump's advice, rather than the Center for Disease Control's recommendations, and disregarded the dangers associated with not wearing a face mask and socializing in crowded areas. As a result, I believe that areas with a high volume of Trump supporters will have a higher number of coronavirus cases.

Data Methodology

In order to determine this correlation, I utilized ArcGIS software to deposit all relevant data and construct the maps seen here (**Figures 1, 2, 3, and 4**). I included data which does not directly to pertain to the election as a means of controlling for confounding variables which might be correlated with the spread of the coronavirus. These are the average median household income and population density of each county. Evidence already exists showing an increase in likelihood of contracting COVID-19 as a result of low income. Some have suggested that this may be a result of low wage earners being unable to work remotely because of the nature of their employment. Coronavirus is also shown to spread more easily in areas with a high concentration of individuals, thus high population density areas are more likely to have an increase in number of coronavirus cases.

Figure 1 utilizes the total number of reported coronavirus cases in each county as of October 31, 2020. This map shows the strongest hotspots of coronavirus cases (normalized by each county's population).

Figure 2 shows the population density of each county. These figures were derived by dividing the population of each county by its land area (measured in kilometers).

Figure 3 is a choropleth map that shows the median household income in each county in the continental United States

Finally, in order to determine the regions that support President Trump, I utilized data from the 2016 presidential election. Sourced from the New York Times, **Figure 4** delineates the percentage of the total number of votes each county's electorate submitted for President Trump. Counties that are red show that the president received a majority of the votes. Blue counties did not see a majority of people voting for President Trump.

With this data I performed an ordinary least squares (OLS) regression to see if there was any positive relationship between coronavirus cases and support for President Trump. The number of COVID-19 cases (normalized by population) was my dependent variable while my explanatory variables included Trump's electoral support, median household income and county population density.

OLS Regression of COVID-19 Cases

Variable	Coefficient	Standard Error	t-Statistic	P-Value
Intercept	0.016	0.013	1.228	0.219
Population Density	0.643	3.036578	0.212	0.833
Trump Support Percentage	0.0312	0.13217	2.364	0.018*
Median Household Income	-0.000	0.000	-0.061	0.952

* An asterisk next to a number indicates a statistically significant p-value (p>0.01).

Findings

Much of the initially apparent findings illustrated in all four maps are to be expected. President Trump, indeed, received overwhelming electoral support in the southern states and in the mid west, as seen in **figure 4**. In **figure 3**, high median household income is apparent along the northeast coast and the California coast. **Figure 2** shows high population density in coastal counties while many land locked areas are more sparsely populated. **Figure 1** shows that while there are areas with hotspots and no hotspots, there are no areas with cold spots. This entails that there are no areas in the continental United States with a noticeably small number of coronavirus cases.

The above table shows the output of the OLS regression I conducted utilizing ArcGIS software and the data seen in figures 1 through 4. With regard to support of the president and coronavirus cases, the regression shows that every percentage point increase in presidential support is correlated with an increase of 0.031 coronavirus cases. While many of the listed variables have high p-values (rendering them statistically insignificant), the variable "Trump Support Percentage" has a p-value at 0.018. This entails that the results in measuring the impact of this variable on the number of coronavirus cases is statistically significant at approximately the 1% level.

Future Research Recommendations

There are some limitations in these findings, most notably in the usage of only three explanatory variables in the OLS regression. A stronger study would control for income inequality, age, and accessibility to healthcare facilities. A stronger study would also utilize data from both the 2020 census and the 2020 U.S. presidential election. Including this data in an OLS regression would provide a more accurate portrayal of the relationship between President Trump's support and the spread of COVID-19.

Policy Recommendations

These findings show how influential the U.S. President is with the public's perception of health mandates. The correlation between the President Trump's supporters and the volume of COVID cases illustrate the necessity for policy changes to be made to diminish coronavirus prevalence. Some means to accomplish this include more investment in public health measures and stronger COVID-19 public awareness campaigns issued by federal and local government institutions.

Sources

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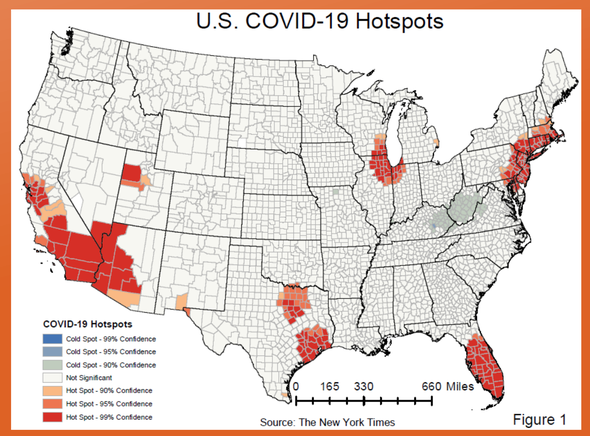

Figure 1

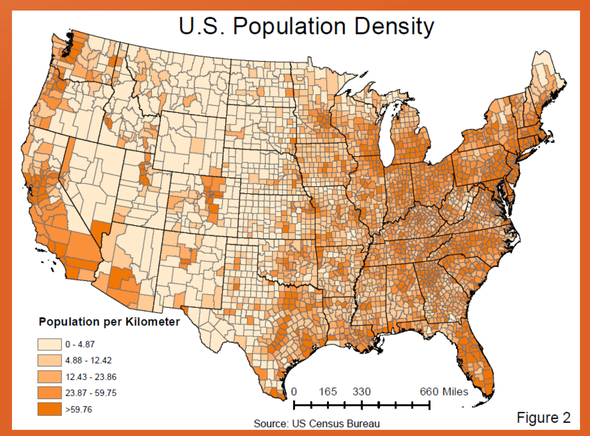

Figure 2

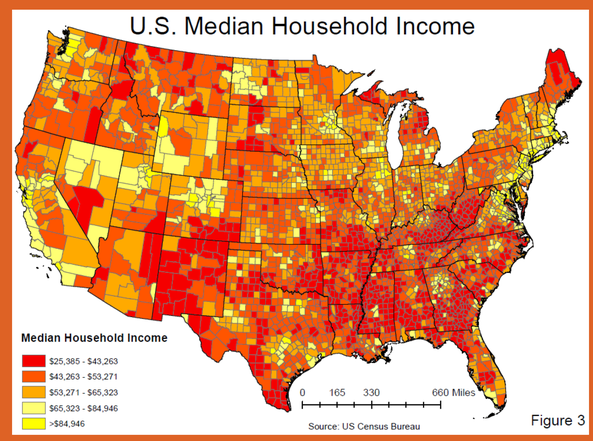

Figure 3

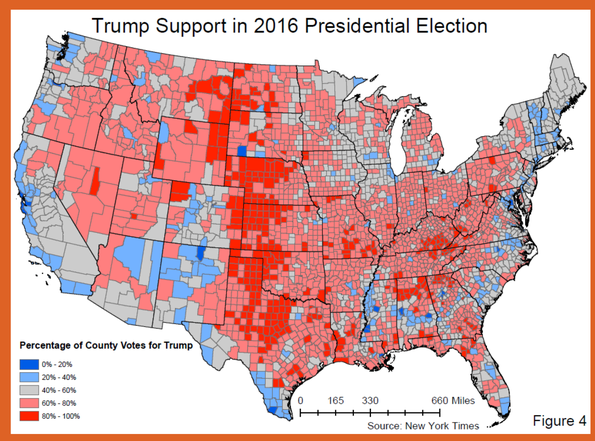

Figure 4