EAS - 503 Final Project Report

Politics and Vaccination in America

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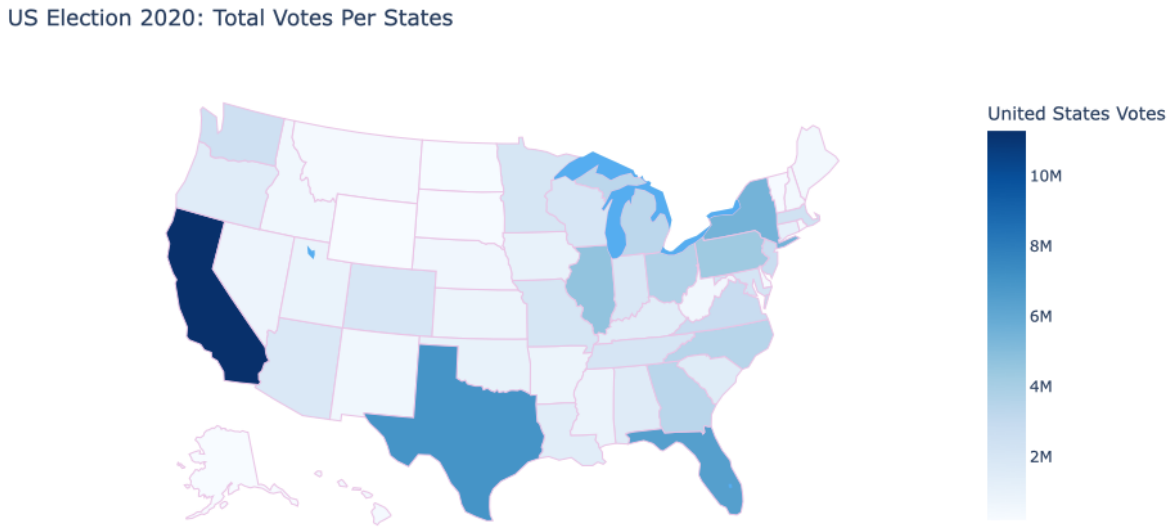
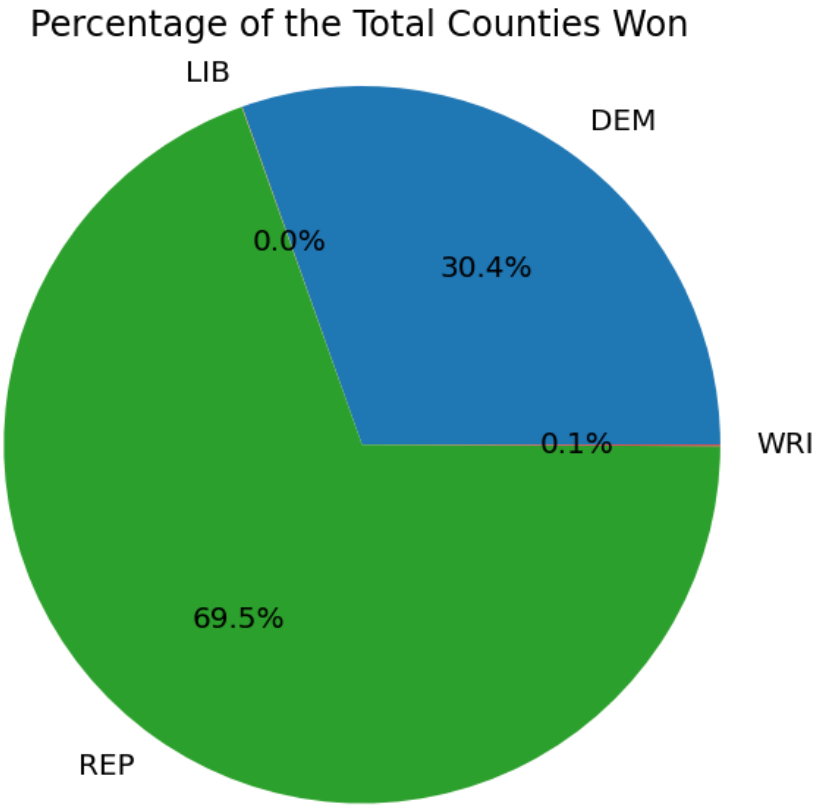
Due to the global impact of COVID-19, vaccinations have been a hot topic in America. The topic of politics quickly entered the vaccine conversation, and they have been tied together ever since. We are interested in seeing if there is any connection in between the average American's stance on vaccination and political orientation.

To compare the two concepts, we needed to simplify how we define political orientation. We decided to generalize the overall political views of America on a state-by-state basis. The simplest way to do this was to use the popular vote data from the 2020 election. Each state could then be labeled by its overall political orientation. We used the US Election 2020 dataset, which contains the voting information for every county in America. We also looked at the major political parties involved, as well as which states voted the most.

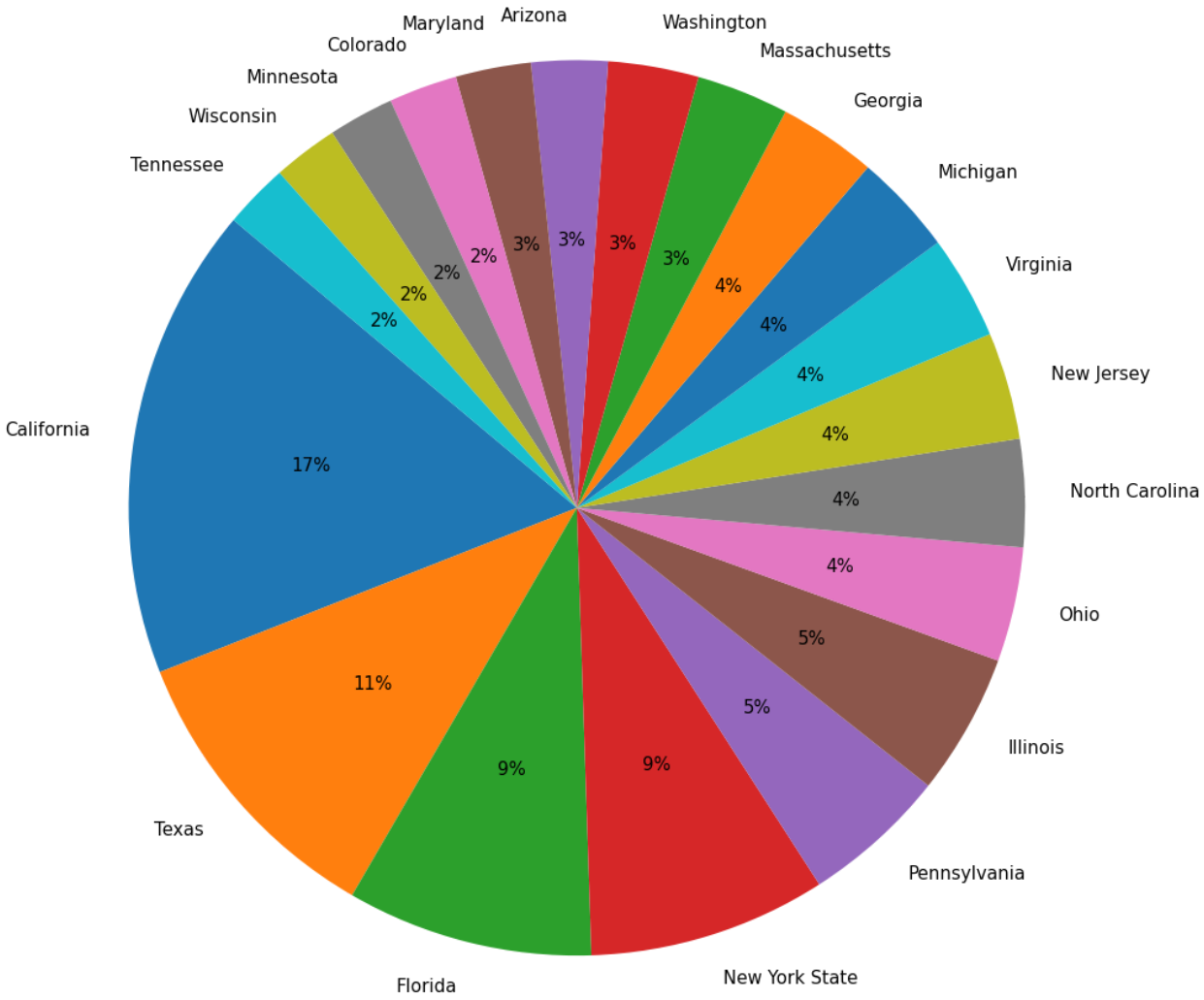
We will compare our findings from the election dataset with vaccination data for each state. We used the USA COVID-19 Vaccinations dataset, which had vaccination information for each state including the number of vaccinations distributed, the number of vaccinations actually used, and the number of people fully vaccinated.



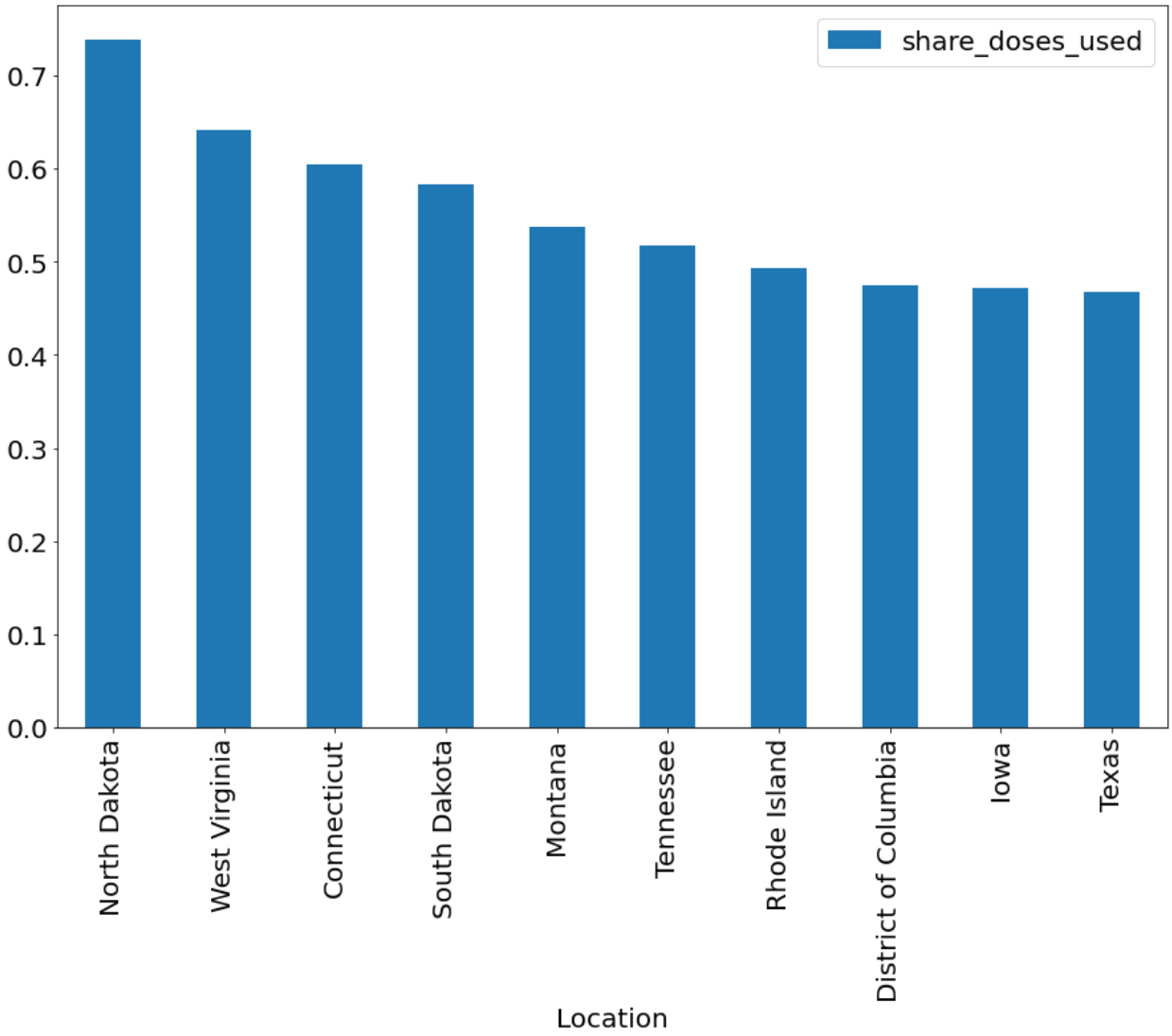
This map details the total 2020 election votes per state. As you might expect, California, Texas, Florida, and New York submitted the most votes.



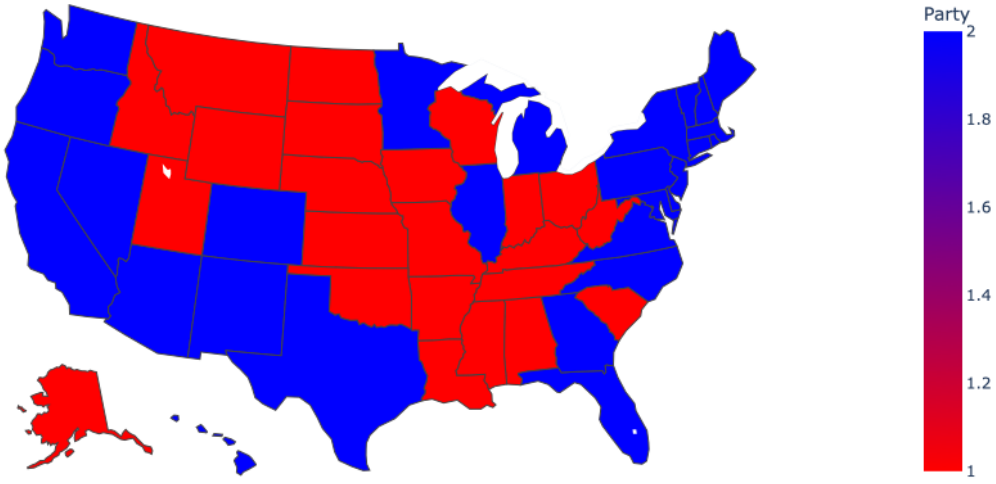
The election dataset contained voting information by county, which we then grouped into their respective states. This graph highlights the major political parties of the 2020 election, showing the percentage of counties won by each political party. While the republican party won more total counties, they still lost the overall election. This is due to the fact that some counties are more populated than others.



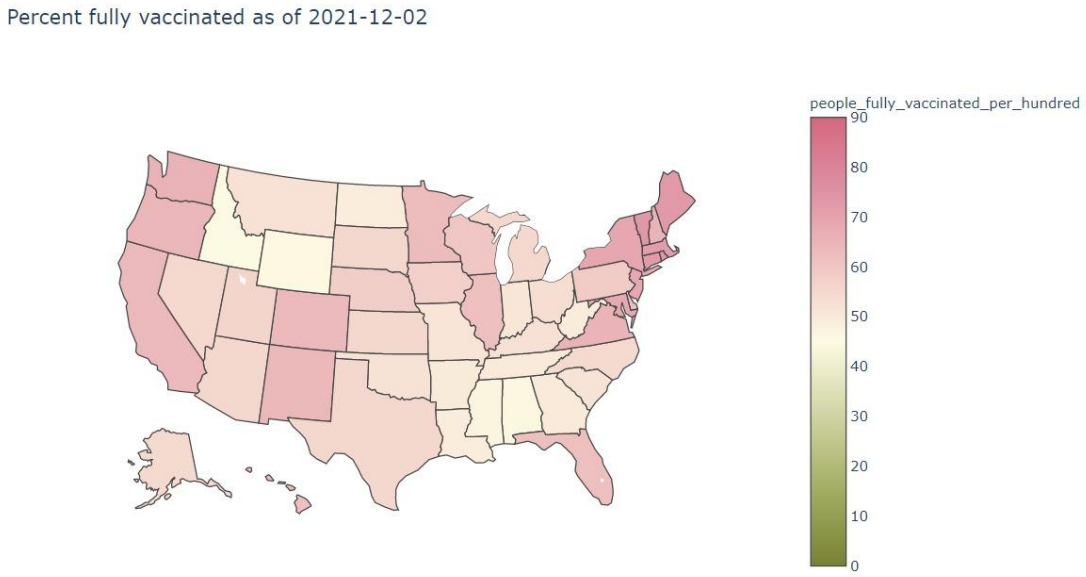
The graph above shows the total vaccinations distributed for the top 20 states. Interestingly, the top 4 states in this graph were also the states with the most total votes for the election. This makes sense considering these are the most populated states in America.



This graph shows the vaccination efficiency for each state. The y-axis, share_doses_used, is the number of vaccinations used per the number of vaccinations distributed. North Dakota had the highest efficiency by far. The other states hovered around .5 or lower, meaning that they use half or less than half of the vaccinations that they are given.

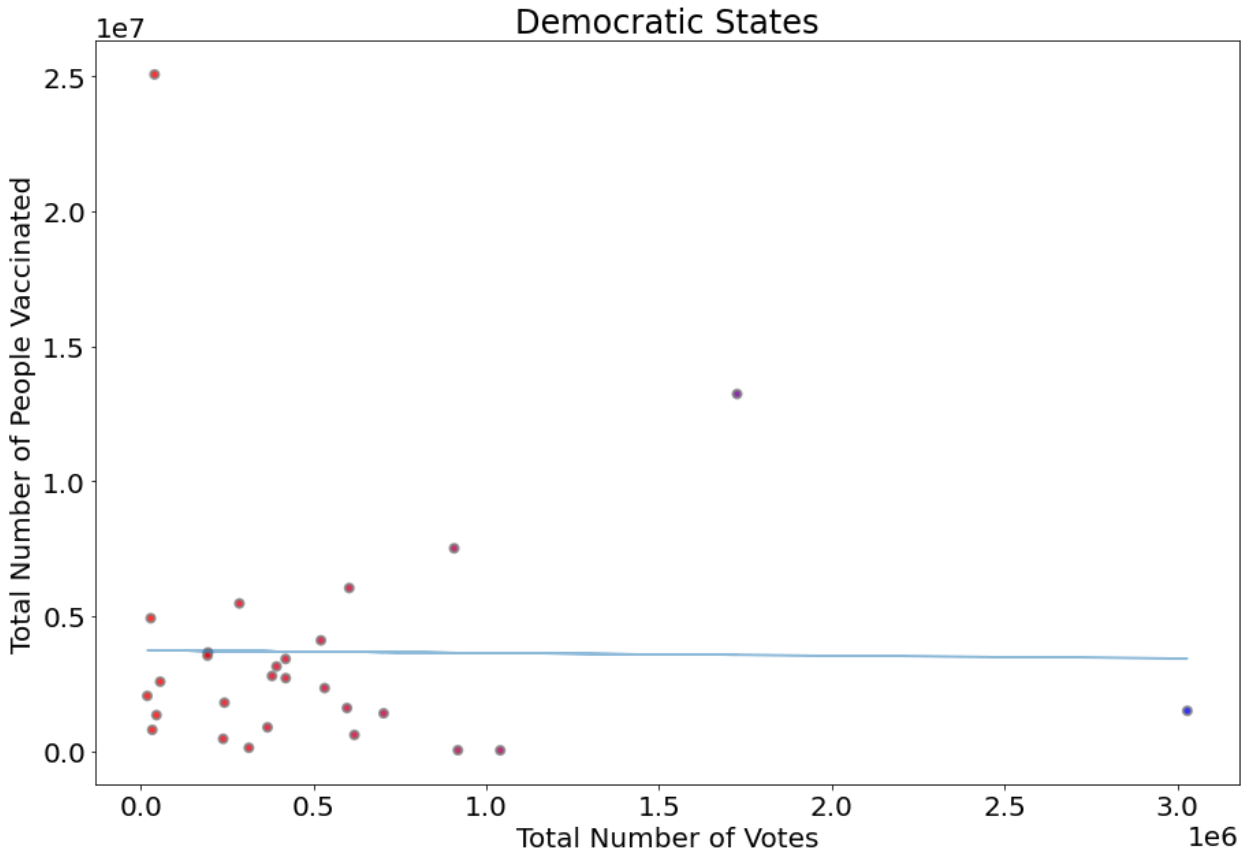


This map shows the overall political orientation of each state, calculated by which party won the majority vote in the election. The red states are republican states, and the blue states are democratic states. The coastal states seem to be more democratic, while the middle states are mainly republican.

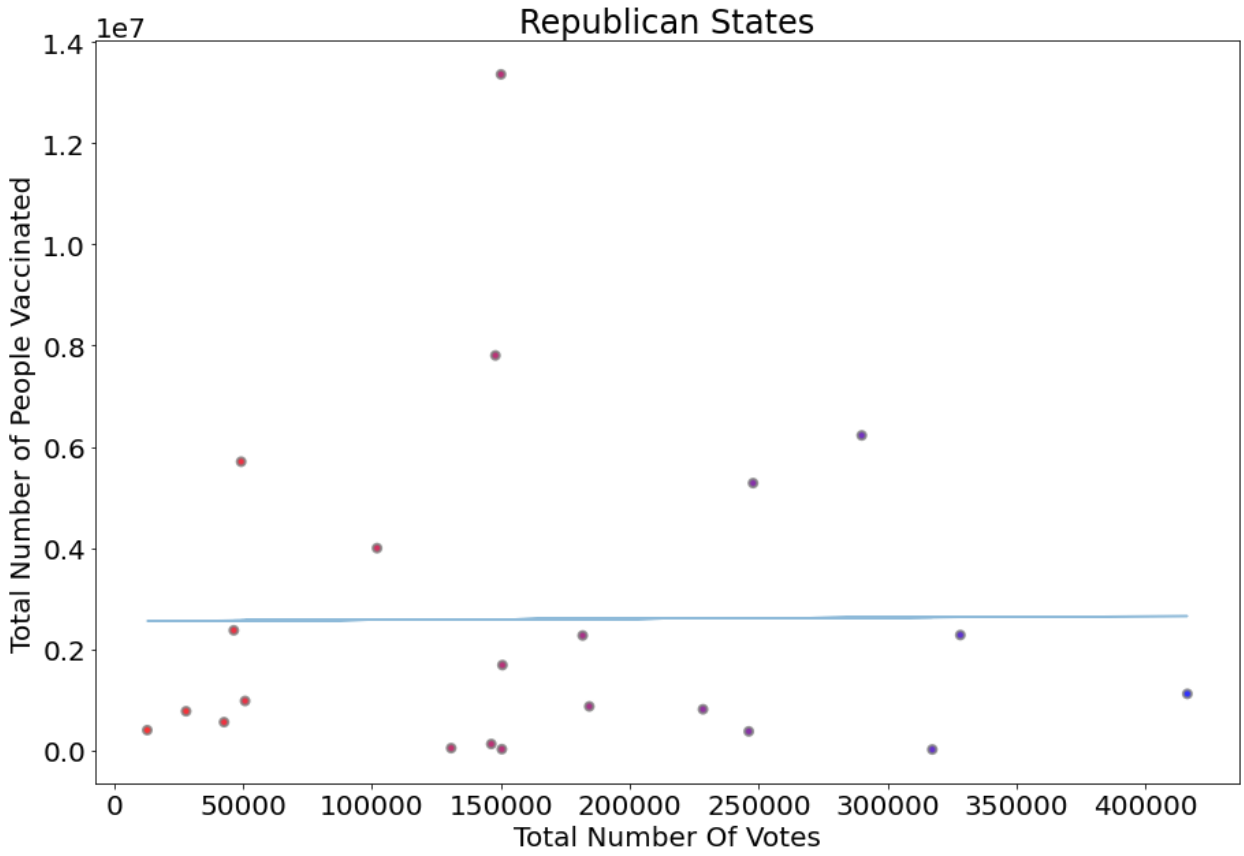


The map above shows the general percentage of people fully vaccinated for each state. The darker the color the higher the percentage. The coastal states seem to have more fully

vaccinated people than the middle states. Comparing this map with the previous map, we can see that the democratic states generally have a higher vaccination percentage than the republican states.



This graph shows the relation between the total number of people fully vaccinated and the total number of votes, explicitly for the democratic states. The slope of the graph is essentially 0, meaning that there is no correlation between these two factors.



This graph shows the relation between the total number of people fully vaccinated and the total number of votes, explicitly for the republican states. Again, the slope of the graph is essentially 0, meaning that there is no correlation between these two factors either.

In conclusion, there is a small correlation between political orientation and stance on vaccinations. When comparing the two choropleth maps above, it is clear that the democratic states in general have a higher vaccination rate than the republican states. From the scatterplots, we determined that there is no correlation between the number of people fully vaccinated and the total number of state votes for the 2020 election. This indicates that there may still be some hidden correlation between political views and vaccination stance that our datasets and analysis did not support. For future studies, it would be good to find a better way to identify political orientation. The 2020 election was a polarizing one, and individual votes do not necessarily reflect true political stance.

References

https://www.kaggle.com/unanimad/us-election-2020?select=president_county_candidate.csv
https://www.kaggle.com/paultimothymooney/usa-covid19-vaccinations