

Figure 5 K-Means Cluster and linear trend lines with Poverty Level and Registration Rate

Figure 5 shows the two clusters that were created when exploring the relationship between poverty level and registration rate. Though there are two distinct groups, the counties in these groups are consistent with the counties that were grouped together and provide little new information to the overarching analysis. In addition, the linear trend lines that were created as a result of the two clusters are not statistically significant. As a result of this, and

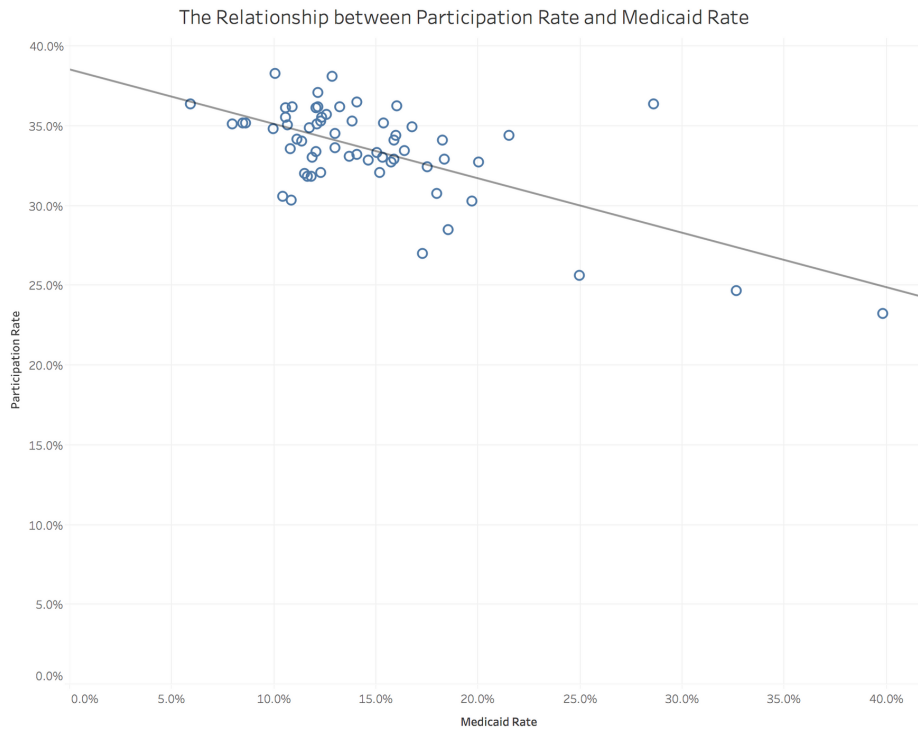


Figure 7 Linear Regression of Participation Rate and Medicaid Rate

The scatter plot shown in figure 7 is a visual representation of one of the linear regressions developed to determine the exact relationships between variables. This relationship is the significant relationship between participation rate and Medicaid rate. For every one percentage point increase in Medicaid rate for an individual county, we can expect the political participation rate to decrease by 0.66 percentage points.

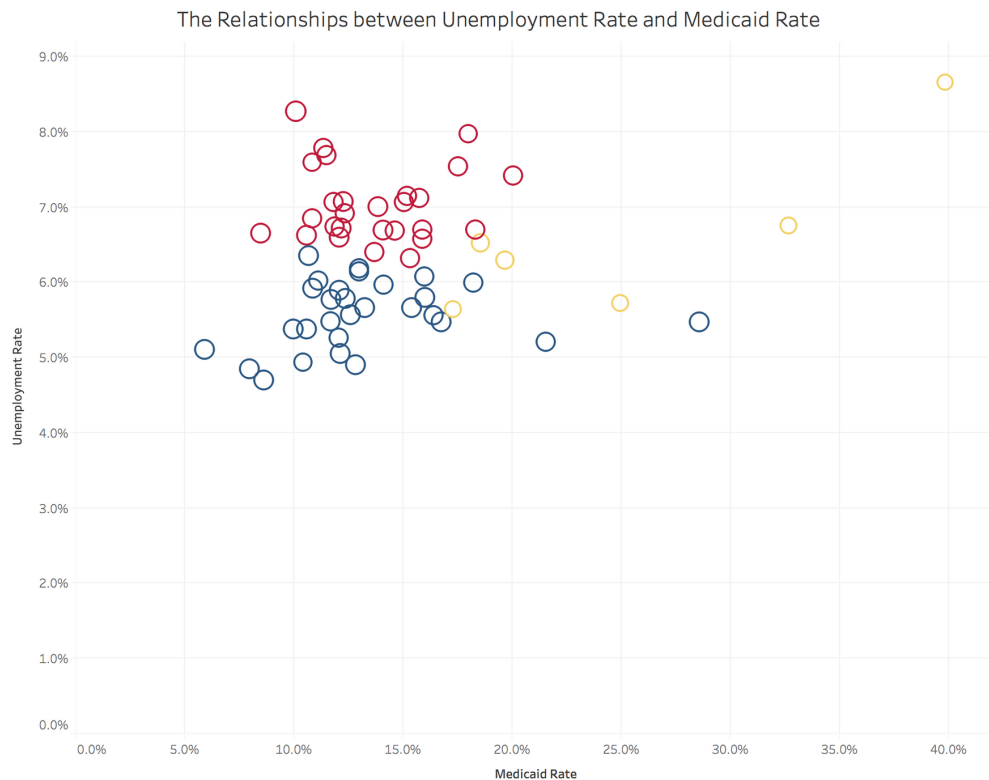


Figure 8 Clusters of New York Counties Based on Medicaid Rate, Unemployment Rate, and Political Participation Rate

In figure 8, there is an example of one of the multiple cluster analyses run throughout the study. It explores the relationship between unemployment rate, Medicaid rate, and political participation rate for each county for an average of all years of data. Through this, we found consistent outliers for the counties in the New York City metro area. These counties also break the significance of the relationship between the variables with very high p-values. The remaining 57 counties were nearly evenly distributed between two groups and created statistically significant trends. The two dominant groups split roughly along geographic lines between western and northern upstate New York and downstate and eastern New York.

Mitigating bias in policies and ensuring the voice of impoverished individuals in the state of New York is a key initiative for state government officials. To understand the problem of low political participation and identify potential solutions, this study focuses on economic and healthcare data. Through contextual analysis in the form of relevant research and articles, exploratory data analysis, linear regression, and clustering analysis, a statistically significant relationship was identified between unemployment rate, political participation rate in elections, and Medicaid enrollment rate. Specifically, as the unemployment rate goes up, Medicaid rate increases, and political participation rate decreases.

This study found that there is a direct relationship between increased unemployment rate, high levels of medicaid enrollment, and low voter registration and participation rate. Government officials looking to increase political participation in the state of New York should create programs that stabilize job security and augment job opportunities to decrease the unemployment rate and dependency on Medicaid. This effort should see an increase in political participation across all demographics and counties on average. In addition, increasing an individual's access to healthcare at all (Medicaid or private insurance) is an avenue to explore as this has a positive impact on political participation.

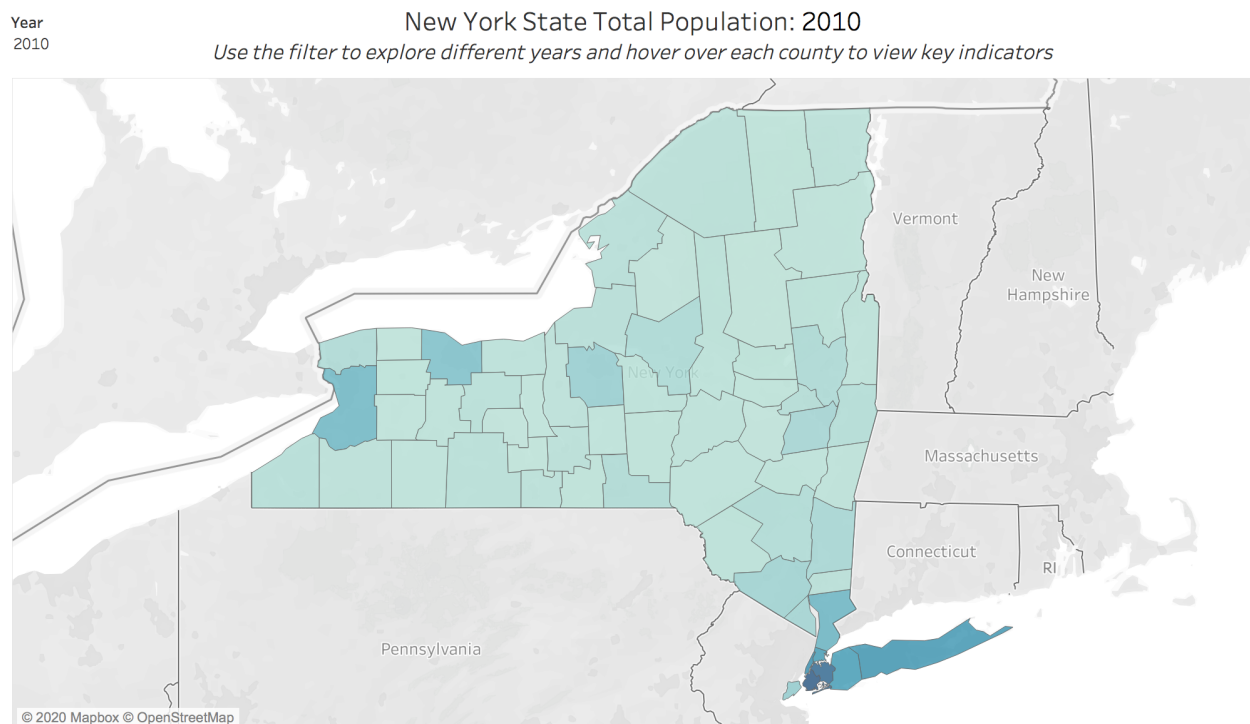
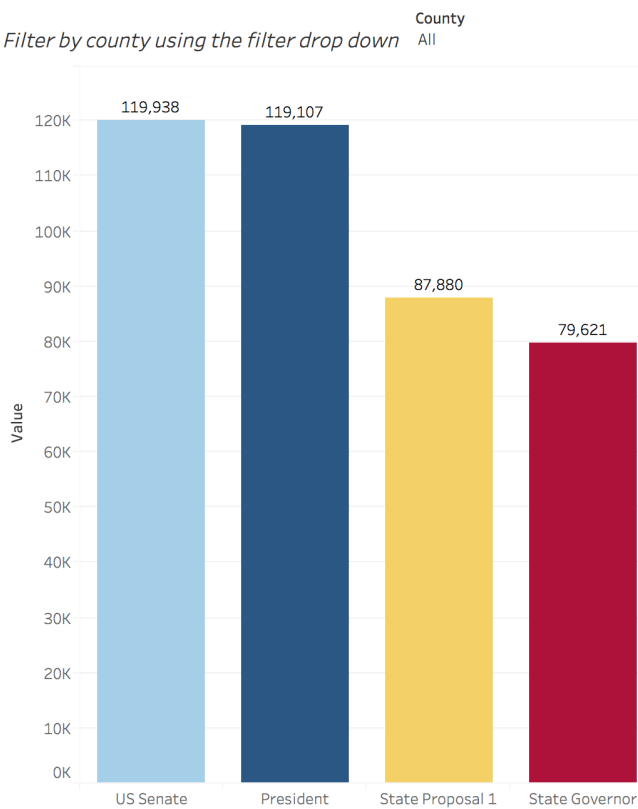


Figure 9 Overview Tab of Tableau Dashboard: Overall Population in New York State

The Political data displays the amount of voters who participated in a selection of elections over the years of 2010-2019 and the participation rate within the counties of New York State. There are significantly more voters who participate within the Presidential and Senate elections than the State Government and State proposal elections. The registration rate was determined by dividing the amount of registered voters by the population of each county. The top 5 and bottom 5 counties for registration rate are dispersed amongst the state and are not all located within one particular area. The participation rate was determined through dividing the number of votes casted in the election by the amount of registered voters in each county in the years 2010-2019. The lowest 5 participation rate average comes from all 5 counties within the New York City metro area. The highest 5 participation counties are all within suburbs just outside of New York City.

Average Number of Voters in Elections (2010 - 2019)



Top 5 and Bottom 5 Counties: Registration Rate

Nassau	72.9%
Columbia	72.0%
Saratoga	71.9%
Essex	70.9%
Warren	69.7%
Allegany	55.9%
Jefferson	54.6%
Franklin	53.9%
Bronx	52.5%
Queens	50.8%

Top 5 and Bottom 5 Counties: Participation Rate

Columbia	38.1%
Schoharie	37.1%
Greene	36.5%
Putnam	36.4%
Rensselaer	36.4%
Richmond	28.5%
New York	27.0%
Queens	25.6%
Kings	24.6%
Bronx	23.2%

Figure 10 Political Tab of Tableau Dashboard: Descriptive Analysis for Political Indicators

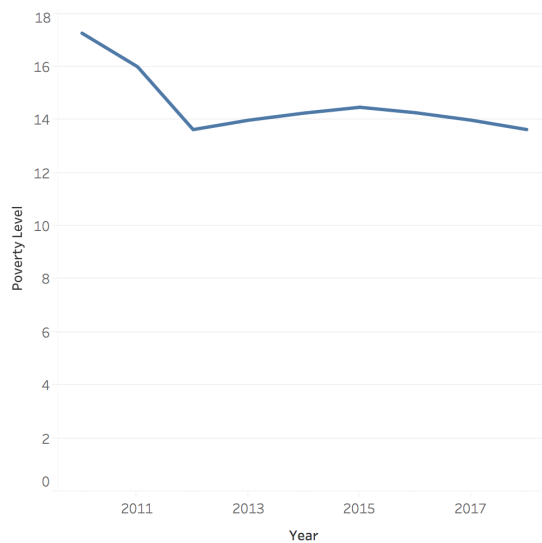
Top 5 and Bottom 5 Counties: Unemployment Rate

Tompkins	4.7%
Saratoga	4.8%
Columbia	4.9%
Nassau	4.9%
Albany	5.0%
Jefferson	7.6%
Lewis	7.7%
Steuben	7.8%
Oswego	8.0%
Bronx	8.7%

This economic data gathered is targeted towards the counties in the state of New York for the years 2010 to 2019. The charts below focus on the poverty levels, and unemployment rates to analyze the changes over the years. We can see that poverty levels reduced from 2010 - 2013 and from 2013 till now there isn't that much of a decline. The unemployment rate has reduced from 8.9% in 2010 to 4.2% in 2019 with a sharp decline between 2013 and 2016. To the right, we are focusing on the top 5 and bottom 5 counties with the highest or lowest unemployment rates in the state or New York with Bronx county having the highest unemployment rate and Tompkins county having the lowest in employment rate. We also noticed that the high unemployment rates does not have a direct correlation with high populated counties.

Filter the Line Graphs by County: All

Poverty Level in All (2010 - 2018)



Unemployment Rate in All (2010 - 2019)

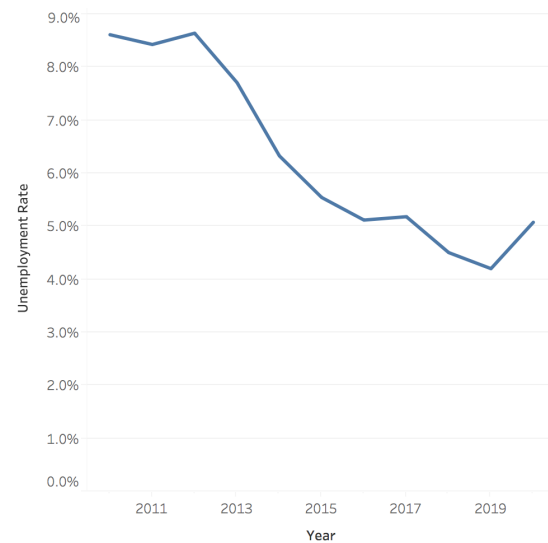
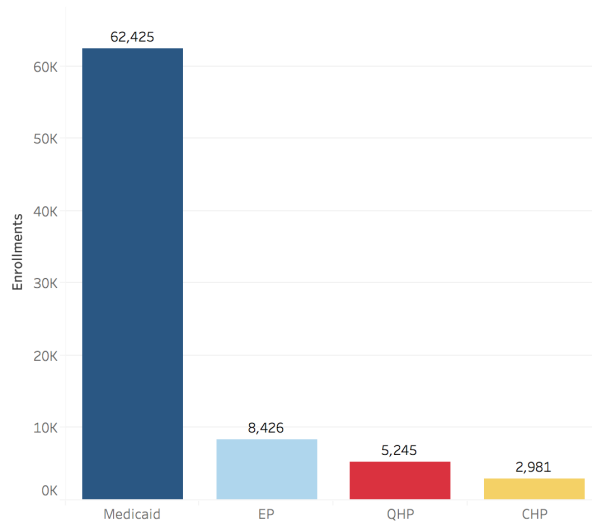


Figure 11 Economy Tab of Tableau Dashboard: Descriptive Analysis for Economic Indicators

Filter both graphs by county using the county filter County All

Average Enrollment Numbers by Insurance Type from 2010 - 2019 in All



The data below are drawn from averages across all the counties or in the case of the top and bottom 5 are averages for the county across the years 2010-2019. There are significantly more individuals on Medicaid than on other medical insurance plans (EP, QHP, CHP). The Medicaid rate is highest in the New York City metro area with all 5 counties comprising the top 5. The bottom 5 counties are significantly lower than the metro New York City counties. These counties are located in the suburbs outside New York City, Albany and in the rural area around Ithaca. The overall Medicaid rate is increasing.

Top 5 and Bottom 5 Counties: Medicaid Rate

Putnam	5.9%
Saratoga	8.0%
Wyoming	8.5%
Tompkins	8.6%
Dutchess	10.0%
Rockland	21.5%
Queens	24.9%
Rensselaer	28.6%
Kings	32.7%
Bronx	39.8%

Medicaid Rate in All (2010 - 2019)

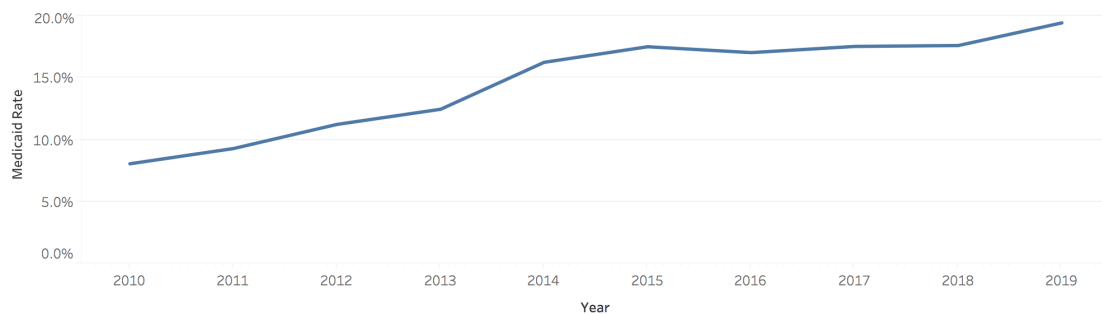
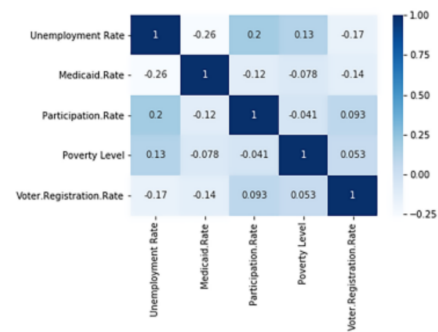


Figure 12 Healthcare Tab of Tableau Dashboard: Descriptive Analysis of Health Indicators

Figures 9 through 12 show some of the exploratory analysis and descriptive statistics used in this study. The tableau dashboard provides dynamic capabilities for further exploration to look into any specific county to answer additional questions. The dashboard has a landing page with overview information for the project as well as three individual tabs for each of the main three sectors of analysis. These three tabs (Political, Economy, and Healthcare) have overarching statistics that show the highest performing and lowest performing counties in New York for key indicators in addition to trends over time and comparative bar charts for different categories.

To determine the relationship between key variables a correlation matrix, scatter plot, and cluster analysis were performed. In the heatmap, the strongest relationship existed between Unemployment Rate and Medicaid Rate with a correlation of -0.26. To explore the relationships further, a scatter plot was created to illustrate the relationship between voter participation rate and Medicaid rates. Many counties fall in the 30-35% range, however, specific counties can be isolated using the drop-down below. Next, a cluster analysis between unemployment, Medicaid, and political participation rates were performed to explore county outliers and statistically significant trends.

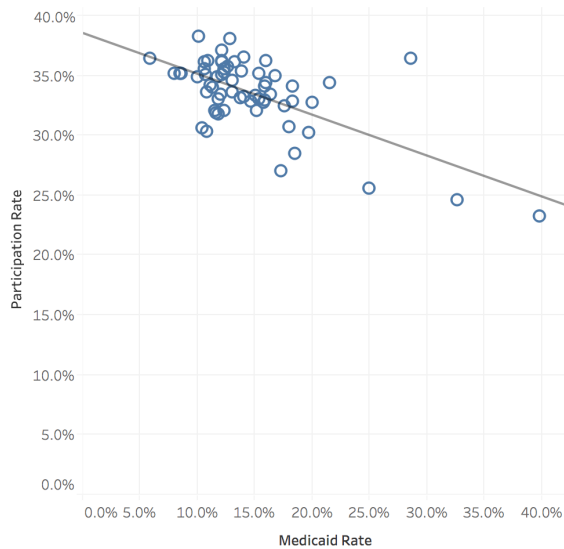


Highlight individual counties or metro areas using the filters | Explore individual years using the year filter

No items highlighted

No items highlighted

The Relationship between Participation Rate and Medicaid Rate



The Relationships between Unemployment Rate and Medicaid Rate

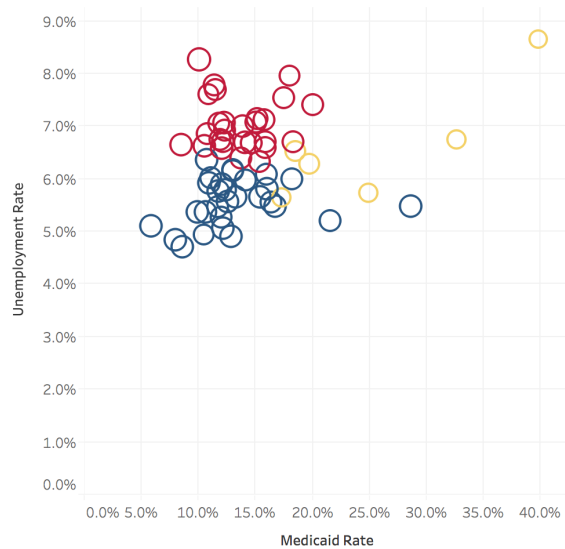


Figure 13 Comparative Analysis Tab of Tableau Dashboard: Correlation Matrix, Linear Regression, and Cluster Analysis

Figure 13 shows a static version of the interactive tab for the comparative analysis from which much of the observations and conclusions for this study originated. The tab shows the combination of figures 6 through 8 (a correlation matrix, a linear regression between political participation rate and medicaid rate, and a cluster chart for unemployment rate, medicaid rate, participation rate, and registration rate). The tab can be filtered by year to identify differences between years and highlight counties or metro areas for more in depth exploration when viewed on the interactive tool.