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Final Project Report

Unemployment in US

Introduction

Unemployment is a very significant marker for a country's economy. I chose this topic because unemployment creates an undue burden on an individual and their family and ultimately affects the country's overall economy. Through this project I try to understand what factors play a crucial role in driving unemployment and if there are nuances which are often not stated but can be found as trends when aggregated over a period.

Unemployment means individuals who are employable and actively seeking a job but are unable to find work. Unemployment serves as one of the indicators of a country's economic status thus a very important marker for a country's success and happiness index. Usually measured by the unemployment rate, which is dividing the number of unemployed people by the total number of people in the workforce. Unemployment rate is calculated as: **$(\text{Unemployed} \div \text{Labour Force}) \times 100$** . The term "unemployment" can be difficult to describe and understand, as it includes people who are waiting to return to a job after being discharged, yet it does not include individuals who have stopped looking for work in the past four weeks due to various reasons such as leaving work to pursue higher education, retirement, disability, and personal issues. Also, people who are not actively seeking a job but do want to work are not classified as unemployed.

The topic resonated very well with me as someone who is searching for a job and facing great hardships and rejections it drew my attention to this topic in a new light. I wish to understand the trend of what has been happening and how the data adds up.

There are broadly four types of unemployment,

- Demand deficient: biggest cause of unemployment. Happens during recession when companies face reduced demand for their goods and services.
- Frictional: Indicates workers who are in between jobs.
- Structural: This happens when there is a mismatch in skills set of in demand jobs and worker skills. Automation of jobs could lead to structural unemployment.
- Voluntary unemployment: When a person no longer wishes to pursue a job due to reasons like health, family, pay.

Causes of Unemployment

Unemployment is caused by various reasons that come from both the demand side, or employer, and the supply side, or the worker. Demand-side reductions may be caused by high interest rates, global recession, and financial crisis. From the supply side, frictional unemployment and structural employment play a great role.

Long-term Unemployment vs. Short-term Unemployment

Unemployment that lasts longer than 27 weeks even if the individual has sought employment in the last four weeks is called long-term unemployment. Its effects are far worse than short-term unemployment for obvious reasons, and the following are noted as some of its effects.

- Some 56% of the long-term unemployed reported a significant decrease in their net worth.
- Financial problems are not the only effects of long-term unemployment as 46% of those in such a state reported experiencing strained family relationships. The figure is relatively higher than the 39% percent who weren't unemployed for as long.
- Another 43% of the long-term unemployed reported a significant effect on their ability to achieve their career goals.
- Sadly, long-term unemployment led to 38% of these individuals losing their self-respect and 24% seeking professional help.

Research Questions

For my project I have decided to find the correlation between

- the party in power and what the employment rate was like under them.
- To understand the correlation between the demographics and the unemployment. Also include factors like education and race.

Data Source

For this project I have created visualizations using Tableau as the tool of choice and I have sourced the data from official sources to maintain quality of data. The data has been sourced from <https://www.bls.gov/data/>. This is official US Bureau of Labour website. The data related to the election results was sourced from <https://www.fec.gov/> federal election commission website. These data sources are official and so that data provided should be accurate.

The datasets could not be used as is and needed to be formatted based on date or structure so that it can be imported into Tableau for making visualizations. For all the datasets the dates had to be properly formatted and

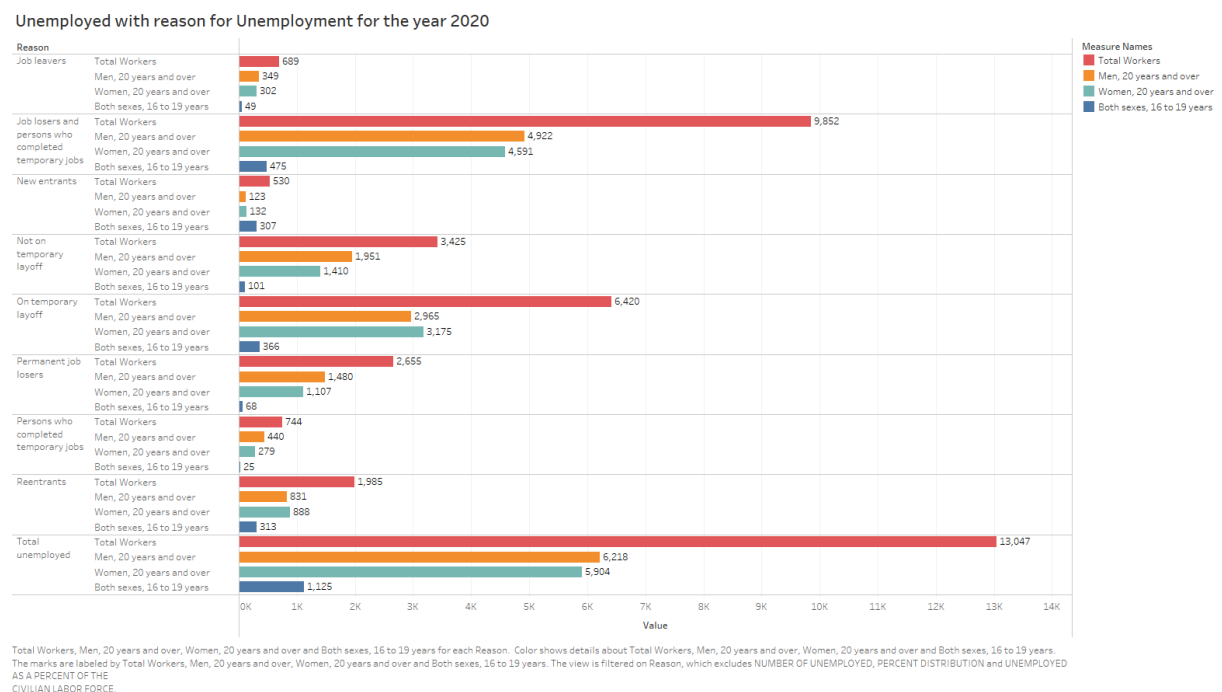
there was too much grouping of data in the classification data set. So I had to break down the grouping and merge two sheets and restructure the groups so that I could use them.

Analysis

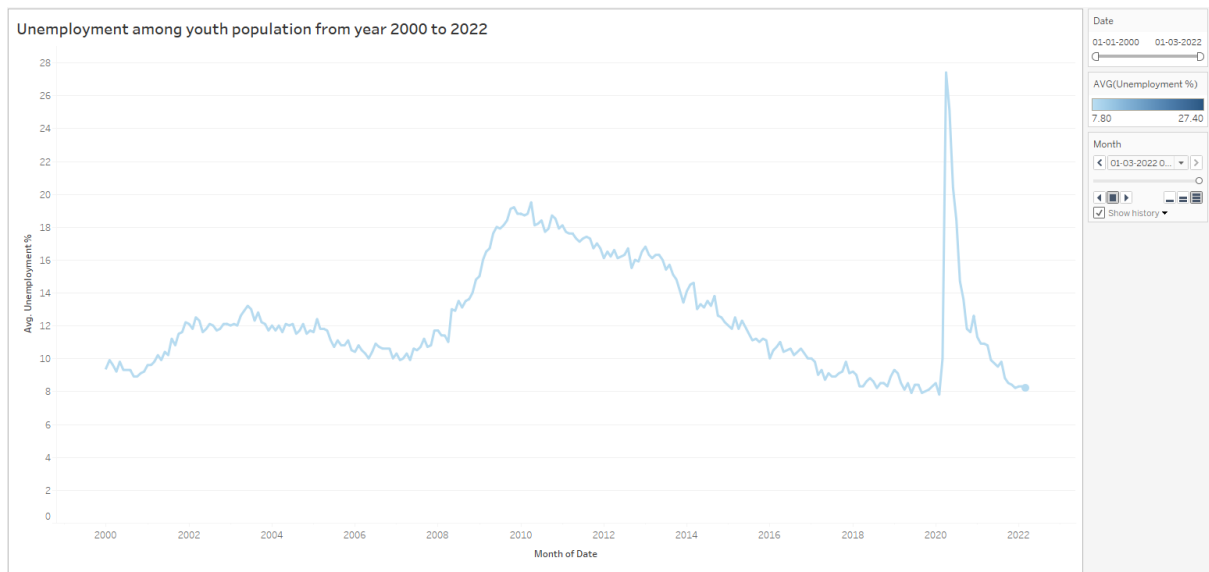
In the below graph I have broken the data based on the reason for unemployment. There are various reasons mentioned on the left as Job Leavers, Persons who completed temporary jobs, New entrants, Not on Temporary Layoff, On Temporary layoff, Permanent job losers, persons who completed temporary jobs, Reentrants, Total Unemployed. The dataset was generated by combining two separate sheets and transforming the data to allow for the combination and suitable for visualizing using Tableau.

We can clearly see that the Number of unemployed men is consistently higher across all the areas under reason.

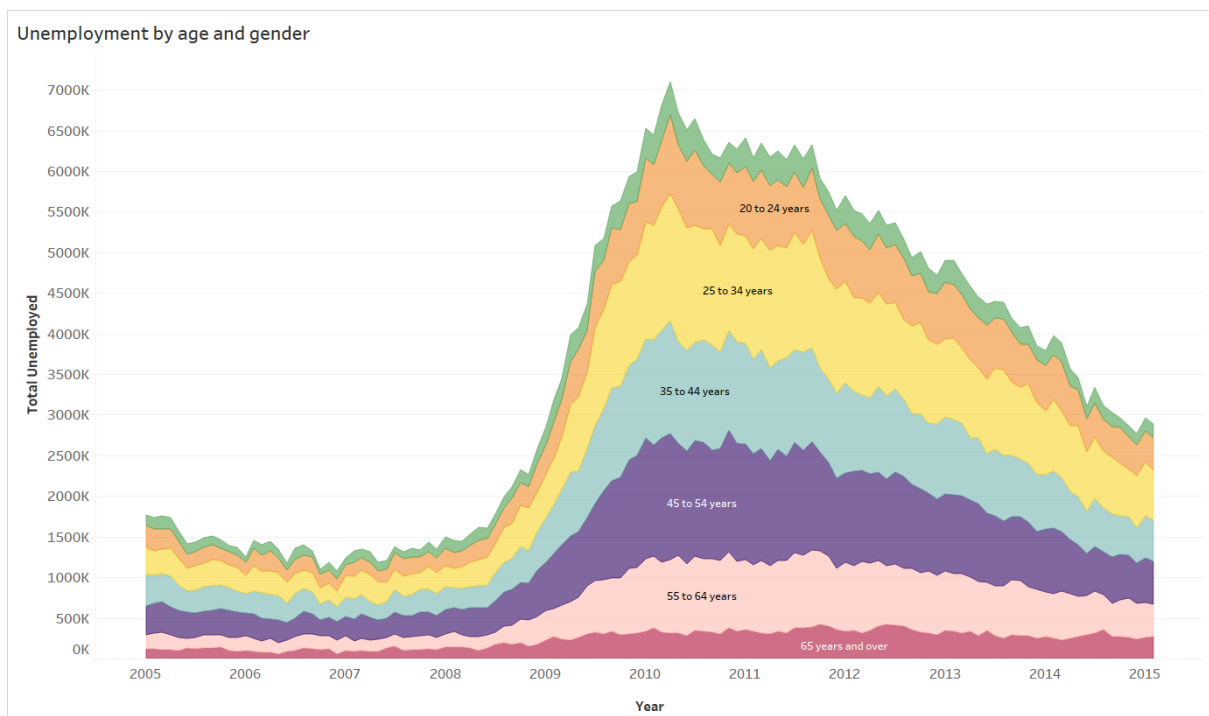
The data has been broken down into Total workers, men and women 20 years and above and 16-19 both sexes.



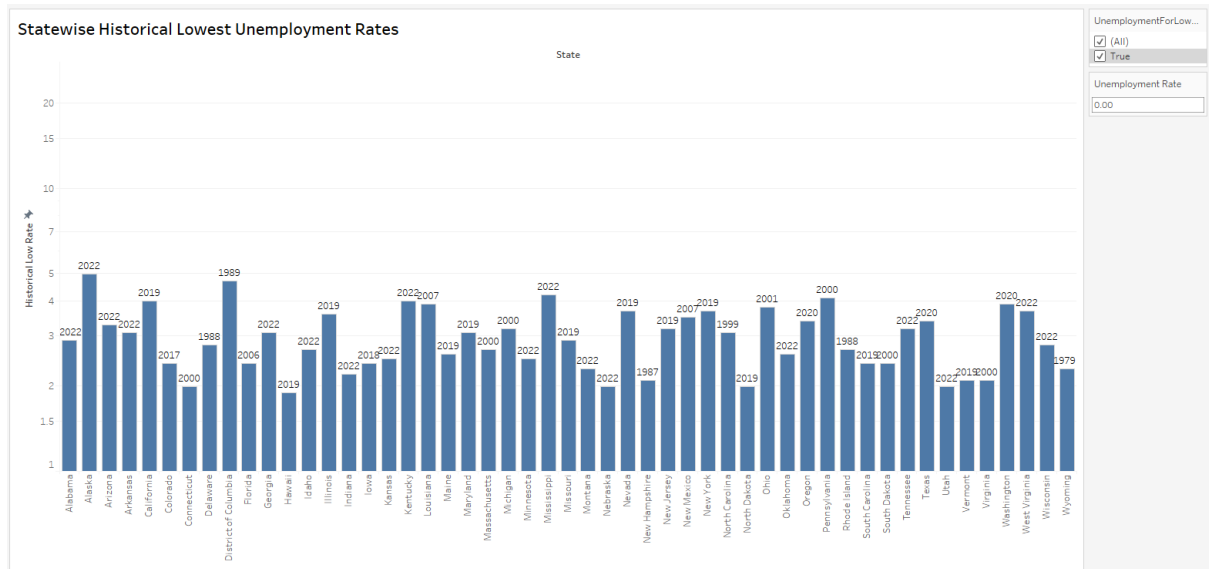
This is a plot for historical unemployment among the youth population over the age of 25 this graph ahs been animated to show the values over the years from 2000 to 2022.



The below plot shows the employment rate among the different age groups and genders Over the course of 10 years.

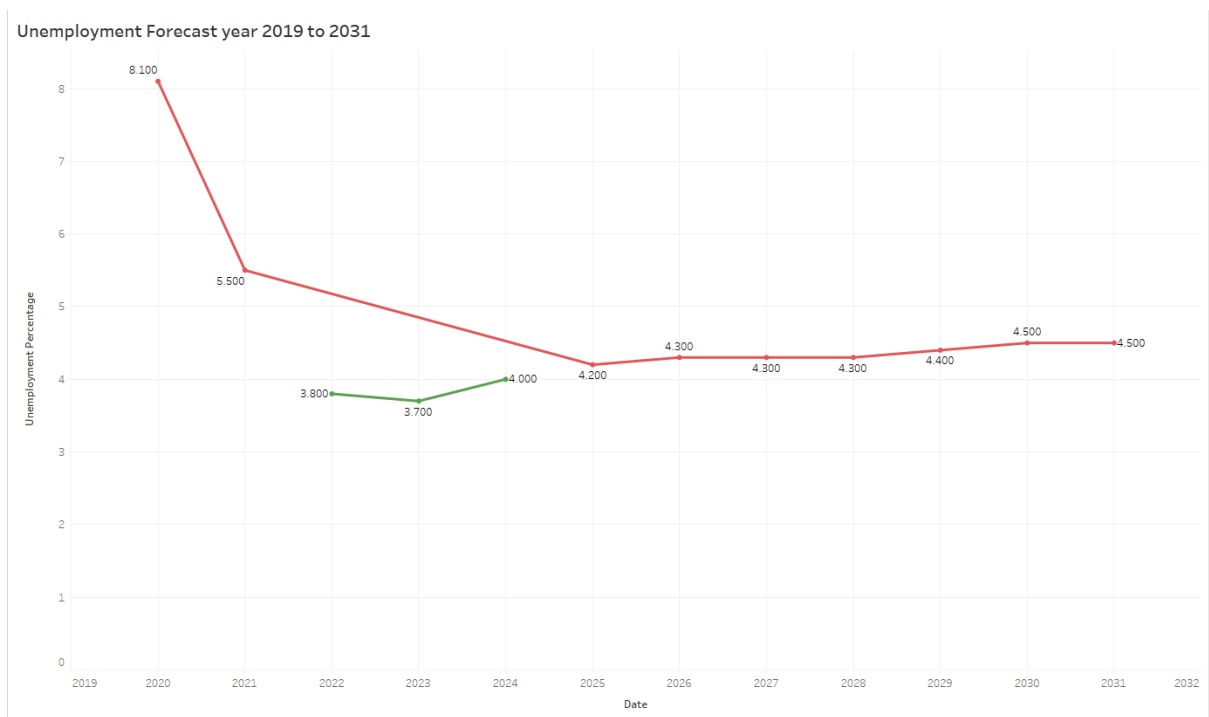


The below plot shows the rates among the states till 2022. Here I have created a parameter that allows you to select an unemployment rate and states and a calculate field which matches whether it is true or not. Depending on the selection and the input value of unemployment the states will be shown.



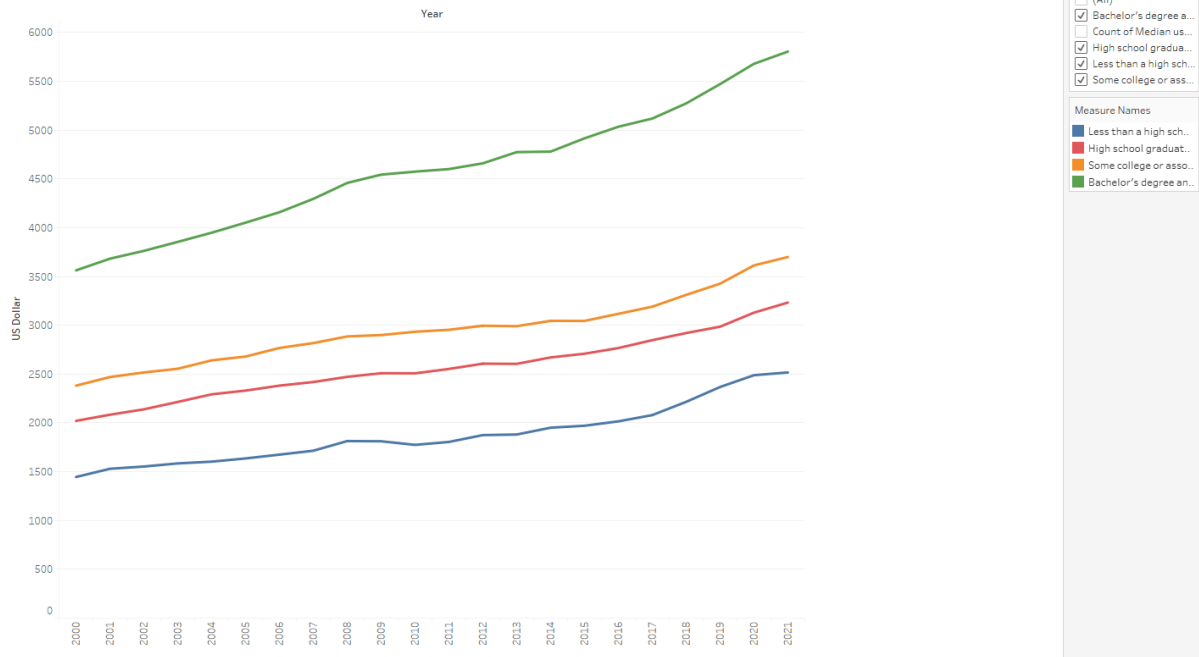
This is a line chart showing the predicted unemployment rate till year 2031.

I have created a calculated field that shows the graph in green when employment rate is below or equal to 4%. Else it shows in red. So as long as there are no major pandemics or recessions the below graph shows low unemployment rates which were lower than pre pandemic levels.

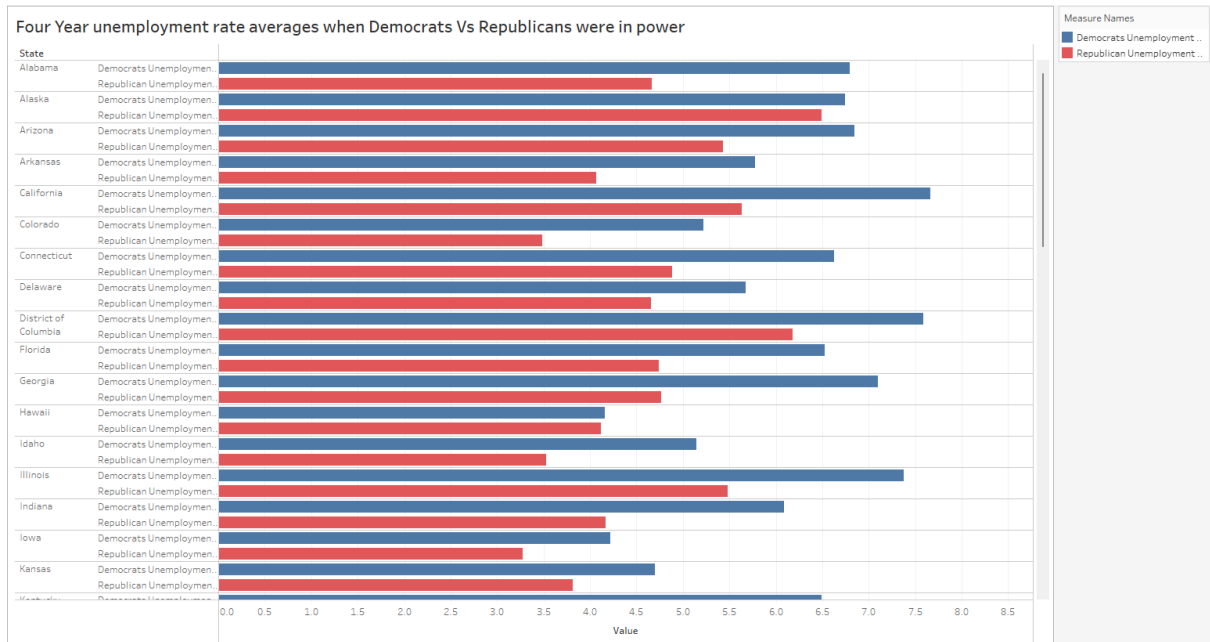


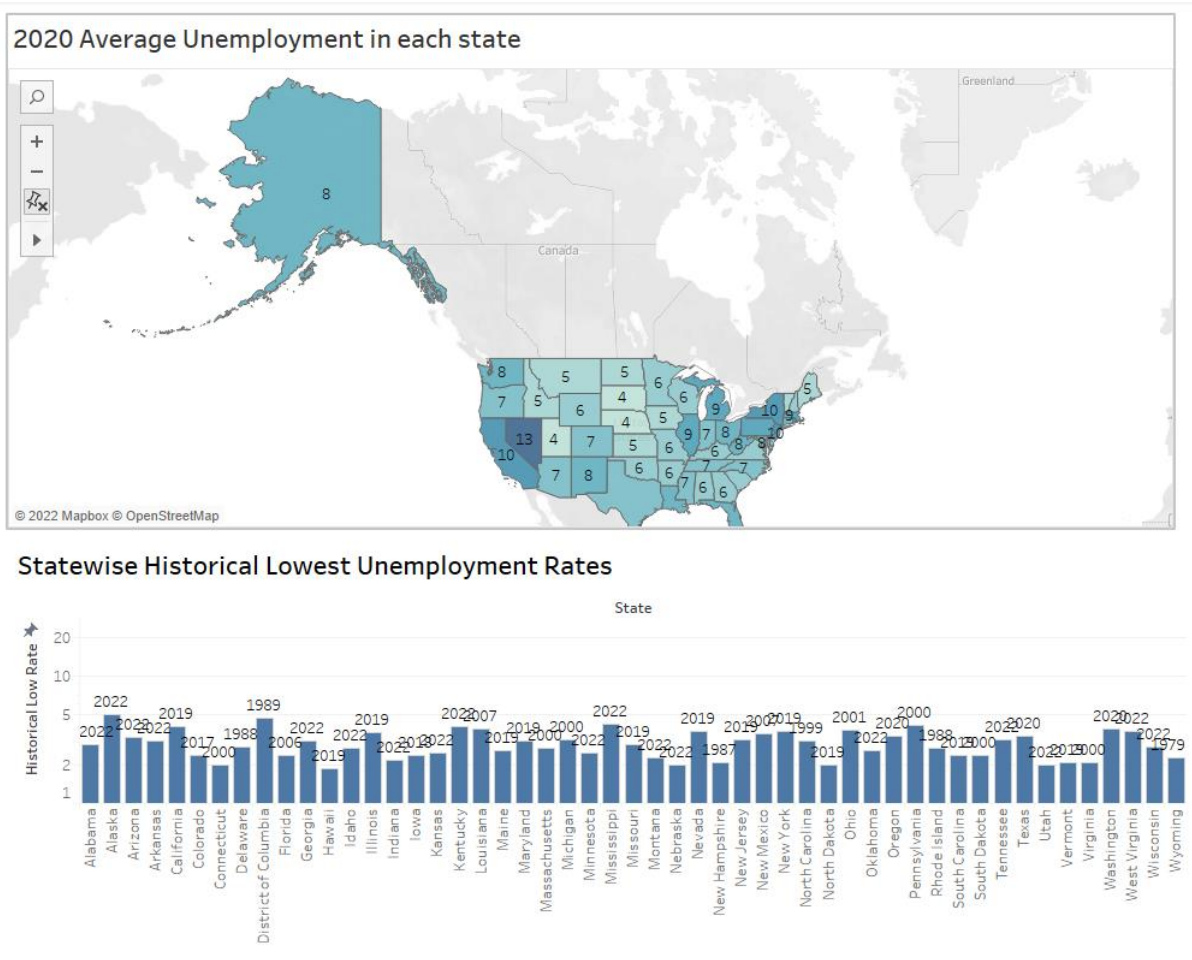
My next visualization shows the direct relation between education and income. So, it is very clear that higher the education level the more the people earn.

Median Income for age 25 and over based on Education Level



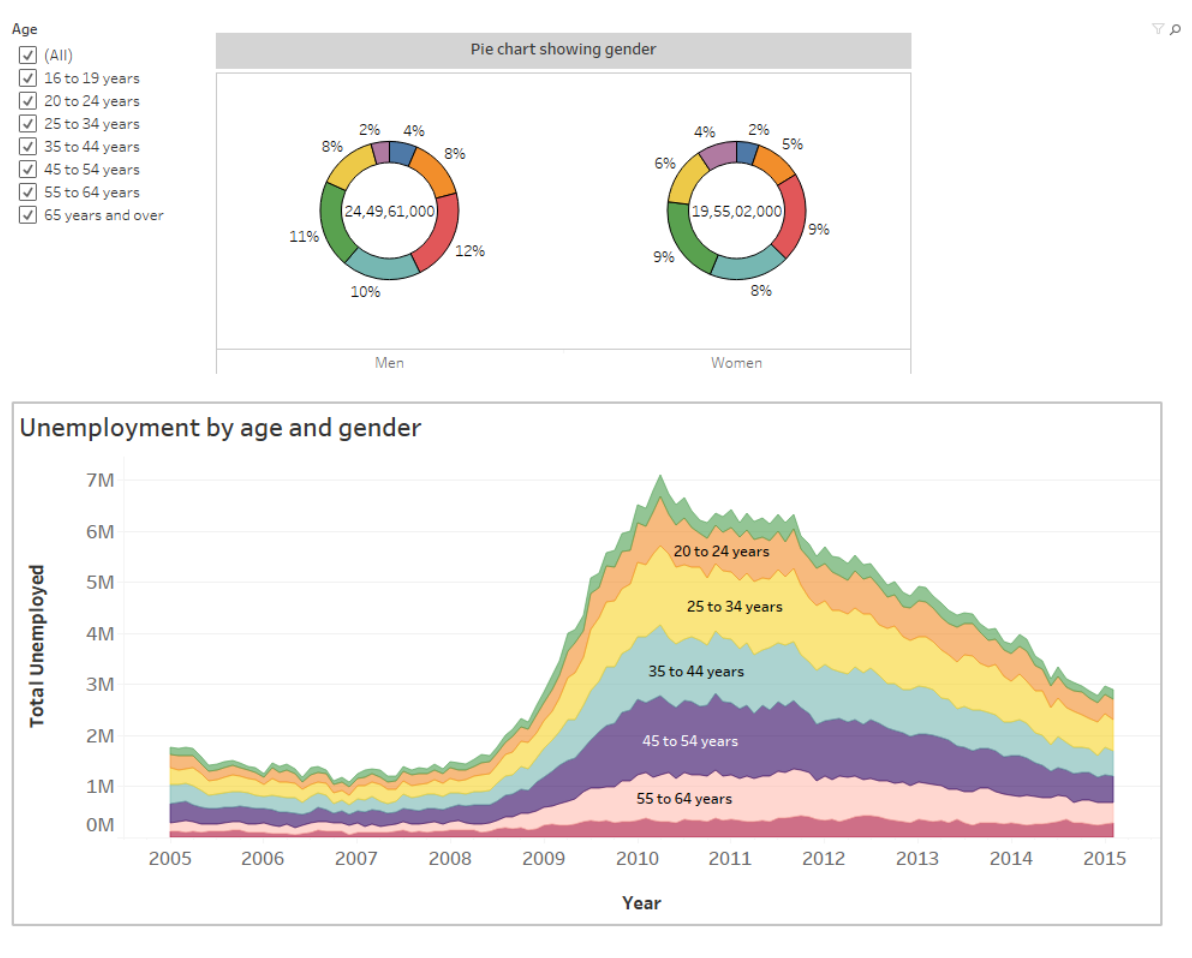
Unemployment rates over the 4 years for both Republicans and Democrats. The Unemployment rates has been recorded over the period of 4 years from 2012-2016 under President Barack Obama who is a Democrat and in 2016-2020 under President Donald J. Trump who is a Republican. The graph shows the states have consistently lower unemployment rates during the 2016-2020 years. A pint to note there was a recession during 2008 and whose peak unemployment was in 2010 and During Covid unemployment rates were the highest. But averaging over the period of four years we can see that there was a lower unemployment rate under republicans.





The above dashboard shows the average Unemployment rate in 2020 vs the lowest Unemployment rates in the states. In general we can see that the average unemployment rate is lower than 2020 for almost all states. So, due to COVID-19 the unemployment rates had gone up really high as many companies lost business and had to let go off people.

My second dashboard shows the unemployment based on gender and age. The pie chart shows the distribution of men and women in the total population and the graph below shows the distribution of men and women in the Unemployed population in the corresponding age groups from 16 years to 64 years.



Conclusion

My first research question tries to answer how the unemployment rate fares under the political party in power. We plotted the graph for a period of 4 years for both Democrats and Republicans. It was found that the rates were lower under the Republicans. But this is not a constant as we have not done the test over the entire duration of the two parties, and we also must factor in recession and other natural calamities or wars.

Based on the findings in this project we can see that the unemployment rates are highest among the youth population and higher among men. The Youth population is higher in number and there is a higher number of men in the unemployed population so this could be why there is a higher number of men.

Not all scenarios could be explored through this project and some additional research question could be

- Are some jobs exclusive to a gender?
- how the unemployment fared under different parties over the course of time
- and which countries have had a consistently low unemployment rates and what methods have the used to achieve that ?