US Census Demographic Data

1. Which states have the best transportation?

1.1 Link

https://public.tableau.com/app/profile/hetti.pathiranalage.yuwani.uthpala.wijerathne/viz/USCencesDemographicDataProject/USCencesDemographicData?publish=yes

1.2 Summary

The above link of US Transportation Analysis will provide the sufficient answer to this question. The bar chart, **"Best Transportation States"** shows the top 11 states which have average mean commute time less than 20 minutes. Alaska has the least Average mean commute time of 11.23 minutes. South Dakota, Kansas, Montana, Nebraska holds 2nd, 3rd, 4th and 5th least average mean commute times respectively. The highest average mean commute time of 30.06 minutes holds the New Jersey. Less commute time affects the overall productivity of companies, people can have the work – life balance, and lower health issues. Therefore, the responsible public authorities and private investors can build many offices, industrial zones within this top 11 States and related countries. Furthermore, there are influential factors of having less commute times in particular States such as effective public/private transportation systems, infrastructure of the land, mode of travel (own vehicle usage, carpooling, walk etc.). Therefore, mode of transportation is another crucial factor to analyze.

In USA high percentage of people are commuting alone in a car, van or truck (Other mode of transportations), alternatively they reluctant to use public transportation. This can be seen in the Viz **Public Vs other transportation** graph. Only District of Colombia has the highest avg. transit % of 37.40. Kansas state has the lowest avg. public transportation usage of 0.22%. Therefore, authorities should closely examine the reasons for this highest avg. transit % in District of Colombia, and accuracy of data in order to improve the public transportation of other states. Moreover, it should be examined why countries include in New York State like Kings, Bronx, Queens have high usage of public transportation and other countries in New York has less percentages. It is better to analyze the mode of transportation which are significantly impacted to the average commute times? (The viz, **Commute time Map with Proportion of transportations**) It can be observed that many people use their own car, van or truck (% Drive) to commute, all states have the above 60% of Avg. Drive %. In top 11 States which categorized less than 20 minutes of commute times, also have the

higher percentages of other mode of transportation, specially usage of own Drive. May be this can be affected to the high mean commute times due to traffic congestions and road accidents.

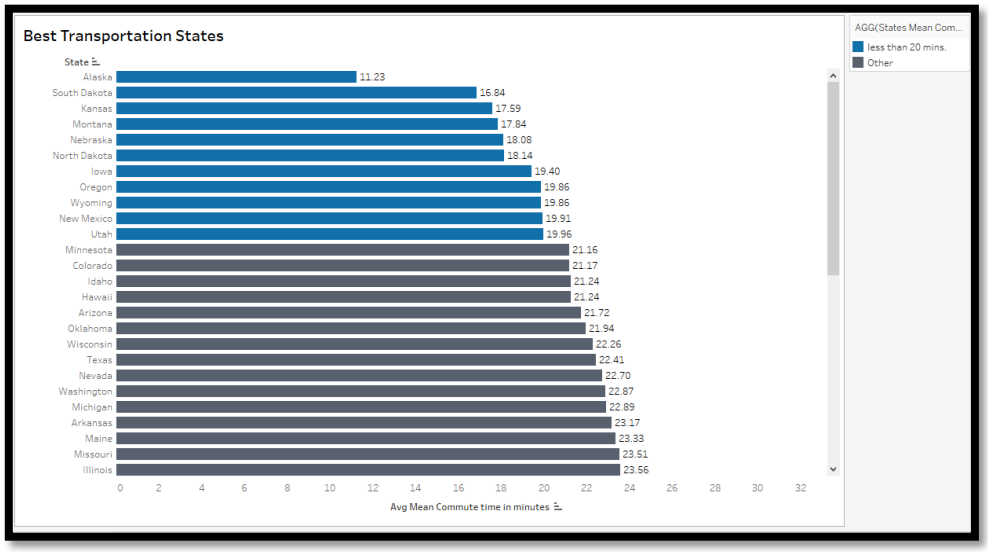
1.3 Design

Best Transportation states

I used bar chart to represents the Best Transportation states because it can clearly show the best 11 states with average mean commute time of less than 20 minutes. I used calculated field to color the 11 states in blue color, and other states dark grey (States Mean Commute less than 20 mins. Calculated field with IF Function).

IF AVG([Mean Commute])<= 20 THEN 'less than 20 mins. '
ELSE 'Other'
END

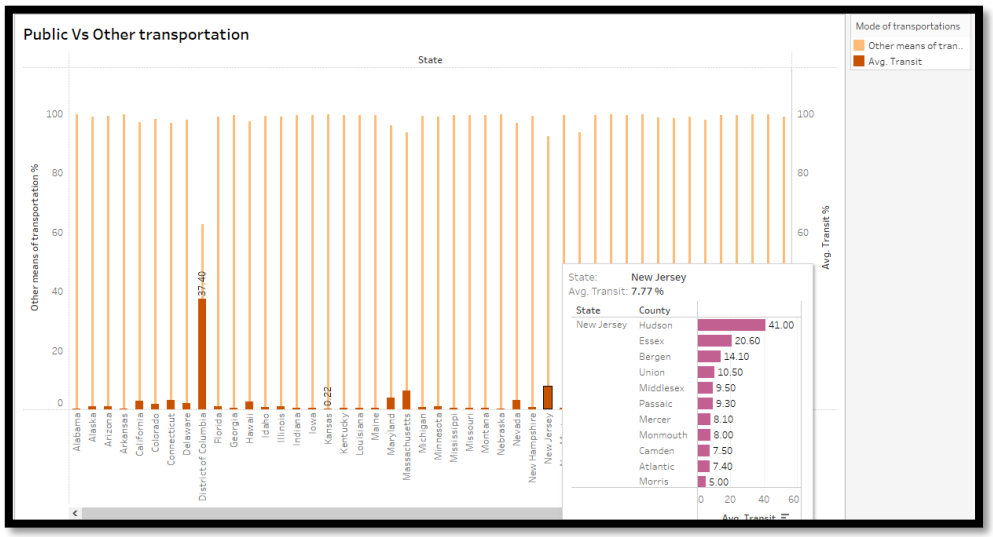
The best 11 states are automatically highlighted with blue since it is friendly color for Color blind people. By highlighting them from other states, users can decide which State or Country should be selected to find a job, or start an industry or business.



Public Vs Other transportations

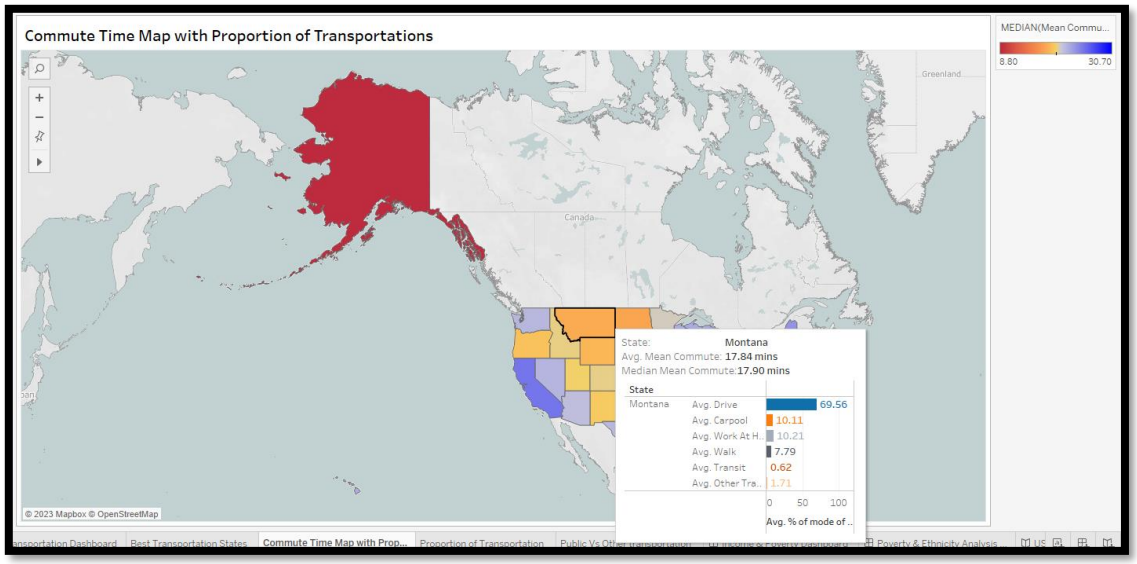
Two bar charts were used for Avg. transit percentages and the other transportations (Drive, Carpool, walk, Other transportations). Calculated field has been used to get the sum of Average percentages of Drive, Carpool, walk, Other transportations. In order to combine the two diagrams, I used the Dual Axis and synchronize the axis. Additionally, created

another **bar graph** to represents the **State's average transit percentages including country wise** and finally insert the diagram (as sheet) into Avg. transit percentages bar chart by using tooltips (insert Transit Sheet). Users can clearly identify the difference between usage of public vs other transportation modes, at the same time they can get idea about Country wise public transport usage by hovering the end points of transit bar chart.



Commute time map with proportion of transportations

Country Map was used to represent the State Wise Average and Median mean commute times and custom color code of blue for higher commute times and orange for medium commute times were used for clear visualization. This can be user friendly for color blinded individuals. Also, separate bar chart **(Proportion of transportations worksheet)** has been created to show proportions of transportations usage, and insert it to Commute time map through tooltips. When users hover across the States in Map, they can see the Average and Median mean commute times with related bar chart of proportions of transportations. Opacity has changed to show the color difference in States according to the mean times.



Recourses,

1. https://www.kaggle.com/datasets/muonneutrino/us-census-demographic-data

2. How does income and poverty look across America?

2.1 Link

https://public.tableau.com/app/profile/hetti.pathiranalage.yuwani.uthpala.wijerathne/viz/USCencesDemographicDataProject/USCencesDemographicData?publish=yes

2.2 Summary

To analyzed this, first created the **poverty bar chart (Top 5 Highest Poverty States & Others),** the highest percentage of poverty has the Puerto Rico, average poverty % of 49.37. Alternatively, the least poverty % can be discover in the Connecticut State of average poverty % of 9.4. The users can see the first five most poverty States in America which are Puerto Rico, Mississippi, Georgia, Louisiana, Kentucky states respectively holding 1st, 2nd,3rd,4th, and 5th places. Then user can get idea about the **Income per capita & Income** though upper right side viz, it clearly shows the Puerto Rico has both lowest median Income & avg. Income per capita levels. Mississippi, Georgia, Louisiana, Kentucky also have relatively low median Income & Income per capita values. The lowest poverty State, Connecticut has the second Avg. Income per capita of $ 37,025 and State's median income level is $ 69,228. It is obvious that Avg. Income per capita should be lower than average

household incomes. Income per capita is to ascertain the areas wealth or lack of wealth. However, District of Colombia has the highest median Income of $ 47,675 & avg. Income per capita of over $ 70,000. But in poverty level the State is in 18%(Average poverty level in entire States 15.33%). When comparing to Connecticut, District of Colombia has a huge difference in figures. That means it is not wealthy state that we thought. Most probably the reason for this situation can be assumed as over 90% of work force are employed into office, service and white collar professional jobs, yet only 2.9% into constructions and 3.7% into production (This shows the **Construction & Other jobs impact for poverty? Map)**. The viz in bottom left (**The Map - Construction & Other jobs impact for poverty?)** similarly shows least percentage of poverty states are located in east coast area, and considerable work force are employed into construction & production fields. It is observed that mostly highest income States are also located at coastal areas, and considerable proportion of percentages employed in constructions and production. The median household income distribution is normally distributed with four outlier Courtiers. 2,029 Countries are binned into $16,000 - $24,000. The **Median Household Income Distribution** was created to identify the outliers and Skewness of the income distribution.

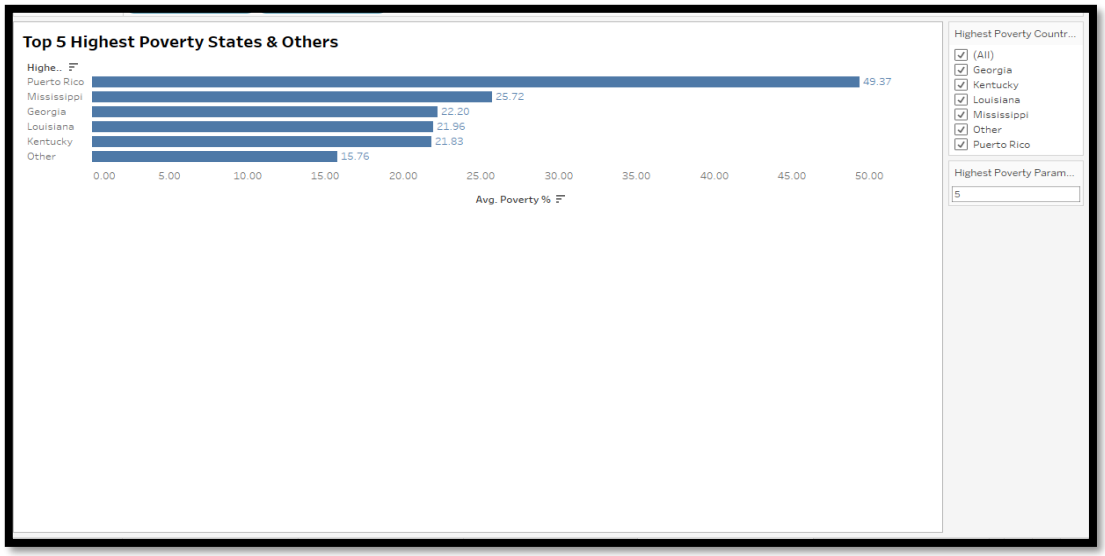
2.3 Design

Top 5 Highest Poverty States & Others

To represent the poverty of States, I used a Bar chart and add the both parameter and filter to input values accordingly. For insights, I wanted to get top 5 highest poverty states, and Other. In order to do that, created a calculated field like this,

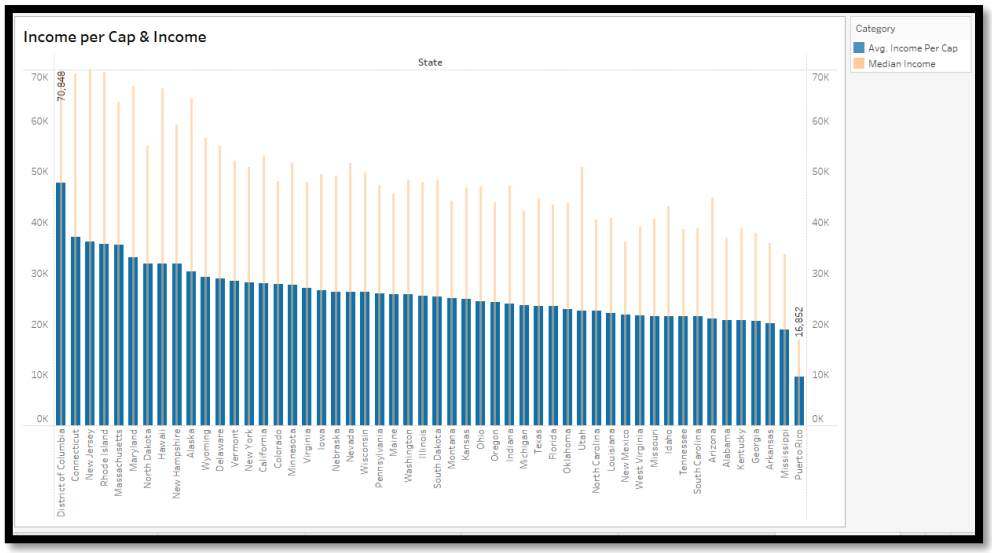
```
IF [State] IN [Highest Poverty States Top 5] THEN [State]
ELSE 'Other'
END
```

From that “top highest poverty states and Others” calculated field, created a SET called “Highest Poverty States Top N”, and set a parameter for that newly created “SET” as to retrieve “top highest poverty states(N) and Others”, by according to their Avg. poverty percentages. Furthermore, filter added to further narrow downs of data.



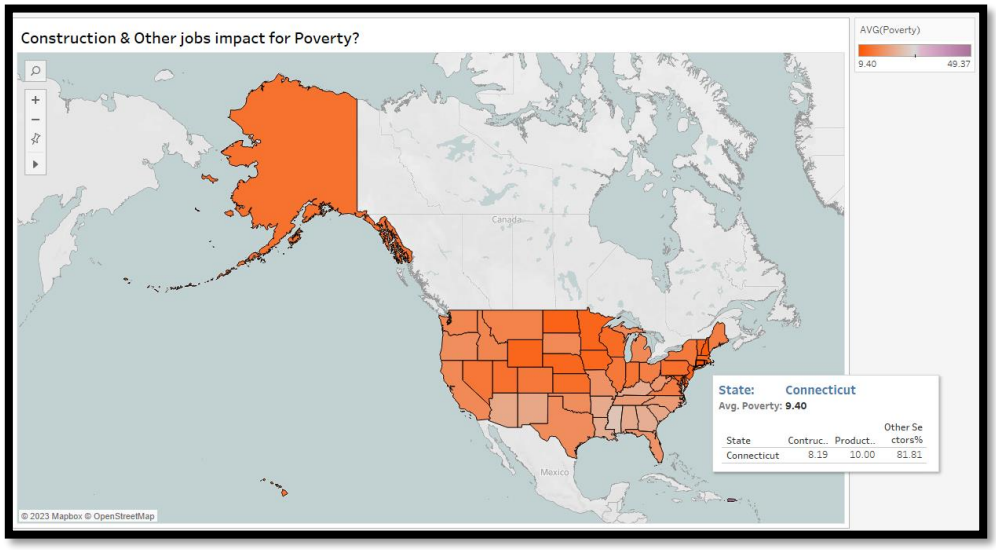
. **Income per Cap & Income**

Two bar charts represent the Avg. Income per Capita and the Avg. Income. These particular diagrams (used Duel Axis and synchronize the y axis.) were used to show the difference of figures. Specially, how income has fluctuated among States. Color palette of "Color Blind" colors were used to show the difference of graphs.



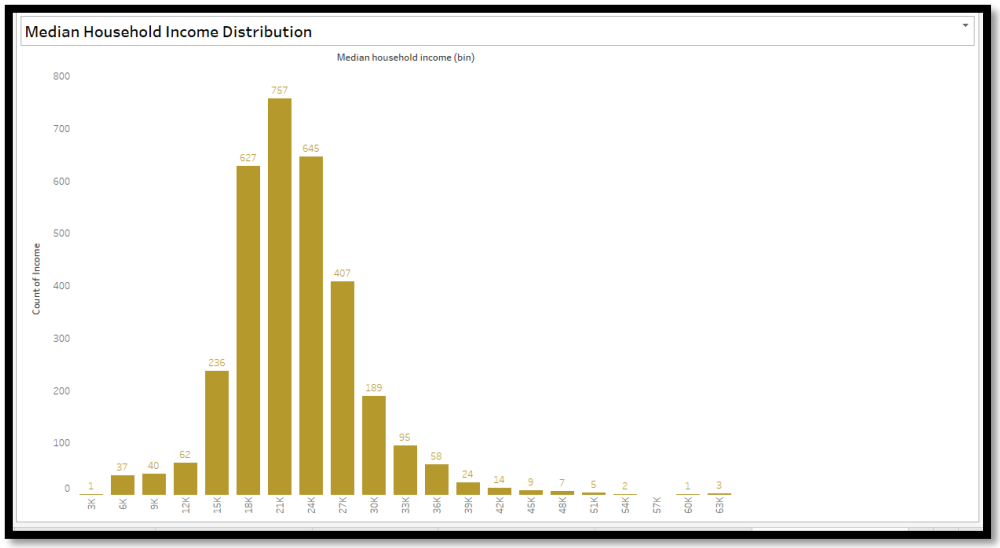
Construction & Other jobs impact for poverty?

Map was used to describe this scenario. The poverty of the States indicates the custom diverging colors that highlighting the lowest poverty in dark Orange and highest poverty in purple. Moreover, I have inserted another individual sheet (a table named **Construction, Production and Others**) into tooltips to show average percentage of employed in Construction, Production and Other Sectors (office, service, and professional). The calculated field was necessary to calculate certain Averages. When hovering the curser in certain State. The average percentages are shown. This is useful to users to get idea about influence among construction and production experience and poverty. Avg. Poverty also included in tooltips.



Median Household Income Distribution

The Histogram is denoting country counts according to its income level. The bin size is $3000. The Gold color was used for clear visualization.



2.4 Recourses,

1. https://www.census.gov/quickfacts/fact/table/US/PST045221
2. https://www.youtube.com/watch?v=rsgTW_sCbjA
3. https://app.datacamp.com/learn/courses/analyzing-data-in-tableau

3. Poverty & Ethnicity

3.1 Link

https://public.tableau.com/app/profile/hetti.pathiranalage.yuwani.uthpala.wijerathne/viz/USCencesDemographicDataProject/USCencesDemographicData?publish=yes

3.2 Summary

The bar graph – **US Ethnicity (**Viz in the upper right) shows the Ethnicity as each population type as Avg. percentages. The highest type is White population of 75.43%. Other types are relatively small comparing to the White population. The next viz is a Map – **Poverty & Ethnicity** which denotes Avg. percentage of poverty in each State additionally, proportion of each type of ethnic types are denoted (White Vs Non – White) as Circles. Therefore, it can be observed that the States with higher non-white populations have higher avg. poverty rates than States with White. The Puerto Rico, the highest poverty State that having the most living non-white population of 99.15% , in the lowest poverty State, Connecticut has the lowest non-white population of 20.83%. The right hand side bottom viz (**Poverty & White Population**), the Scatter plot shows that when Country wise Average White percentage increases, the Average poverty with decreases.

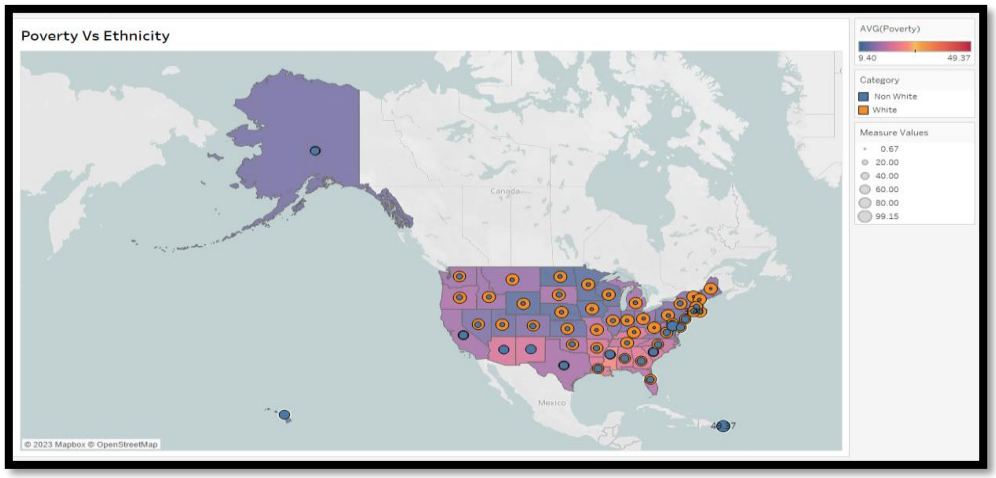
3.3 Design

US Ethnicity

Different type of Ethnicities in USA are represented by the Bar Chart with marked averages.

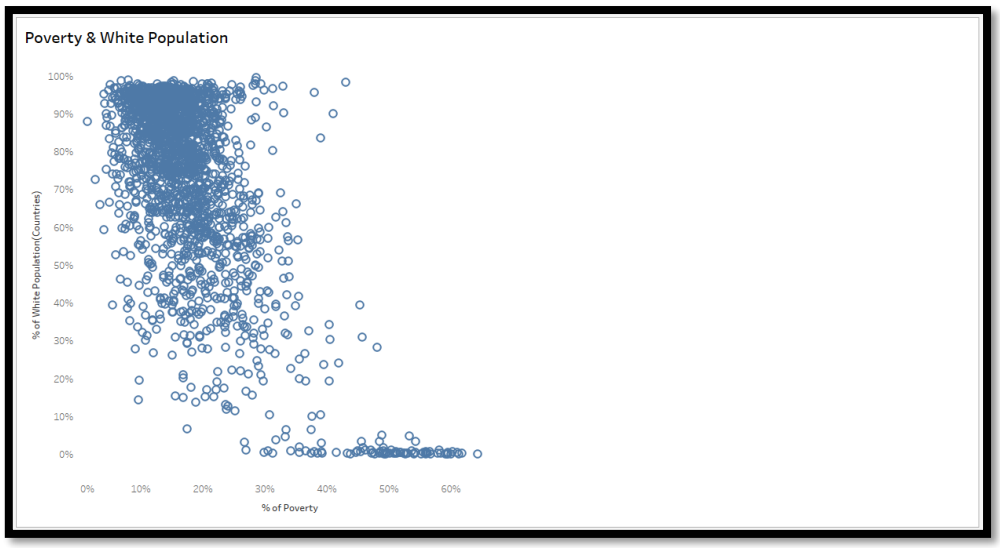
Poverty and Ethnicity

The Duel Axis Map represents this Viz, the first map is denoted the Avg. percentages of poverty with Color Coded States. The color palate is Sunrise – Sunset Diverging. The dark purple displays the lower poverty states and Maroon denotes the higher ones. The color legend is shown in the Story. The second Map symbolizes the Average percentages of White (orange color circle) and Average percentages of Non- White (mat blue). Before adding proportions, the Calculated field was created for the Non- White population as AVG([Hispanic]+[Black]+[Native]+[Asian]+[Pacific]). The used colors were friendly for color blind users.



Poverty and White Population

This signifies in Scatter Plot with two variable of % of poverty vs % of White Population. Instead of symbolized States, this Scatter Plot's dots are represented the particular Country of State. In order to get clear ideal about relationship between variables, I used Countries instead of States. The further analysis need to be done to investigated correlation between these two variables.



3.4 Recourses,

1. https://www.census.gov/quickfacts/fact/table/US/PST045221
2. https://www.kaggle.com/datasets/muonneutrino/us-census-demographic-data
3. https://app.datacamp.com/learn/courses/connecting-data-in-tableau
4. https://campus.datacamp.com/courses/creating-dashboards-in-tableau/getting-started-with-dashboards?ex=15