Project

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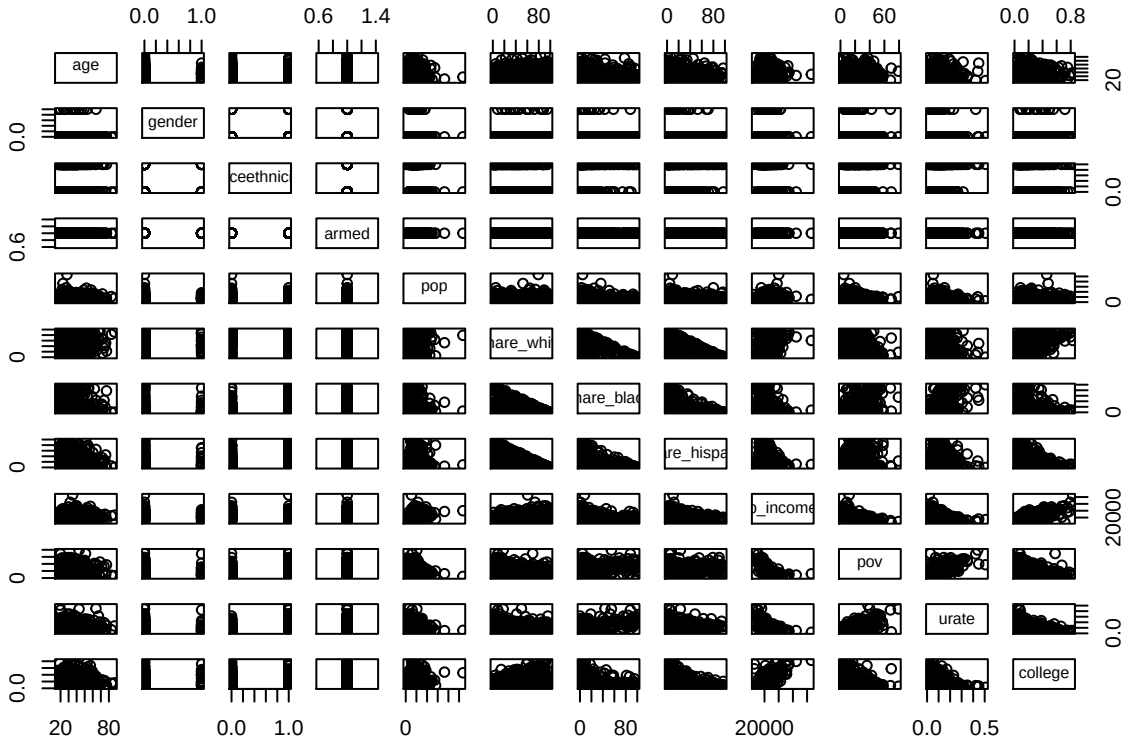
Final Project - Police Killings

Introduction and Problem Statement

The Police Departments With The Biggest Racial Disparities In Arrests And Killings by Samuel Sinyangwe claims that black people are arrested and killed by police at much higher rates than white people in 34 of the 37 largest US cities. We further look into this topic by examining the relationship between the ethnicity of the victim and as well as other attributes such the white, black, and hispanic shares of the population in that city as well as tract-level poverty rates.

We will look at different population shares and wether that influences the number of killings of each race to show whether Sinyangwe's claim is true. We will also expand upon it by looking at the results when it comes to poverty rates. Below is a visualization of the correlations between some of the attributes looked at in this study.



what is the response?

Methods

The study was conducted by producing several generalized linear models (GLM) using different attributes including black population share, white population share, hispanic population share, poverty rates, etc. The results of these models are shown in confusion matrices that show the number of predictions regarding the race of the victim that were correct and incorrect.

The classification for race grouped together non-white ethnicities in order to give a better comparison between these groups in general and white people when it comes to incidents involving police killings. We want to examine whether white people are less likely to be shot than other races in different situations.

Results

The results showed that the race of the victims is predicted correctly almost as likely when the black share of the population, the white share of the population, all three shares of the population, as well as povery are used in the prediction process.

GLM model using black, hispanic, white pop share

```
##            raceethnicity
## glm.pred    Asian/Pacific Islander Black Hispanic/Latino Native American
##   Non-White                      7    69              44               3
##   White                          3    66              23               1
##            raceethnicity
## glm.pred    Unknown White
##   Non-White       8    85
##   White           7   151
```

All three population shares resulted in 60.39% correct results.

GLM model using black pop share

```
##            raceethnicity
## glm.pred    Asian/Pacific Islander Black Hispanic/Latino Native American
##   Non-White                      6    64              15               3
##   White                          4    71              52               1
##            raceethnicity
## glm.pred    Unknown White
##   Non-White       4    60
##   White          11   176
```

The black pop share resulted in 57.39%.

GLM model using white pop share

```
##            raceethnicity
## glm.pred    Asian/Pacific Islander Black Hispanic/Latino Native American
##   Non-White                      8    64              46               3
##   White                          2    71              21               1
##            raceethnicity
## glm.pred    Unknown White
##   Non-White       8    88
##   White           7   148
```

The white pop share resulted in 59.31%.

GLM model using poverty rate

```
##            raceethnicity
## glm.pred    Asian/Pacific Islander Black Hispanic/Latino Native American
##   Non-White                      6    57              35               1
##   White                          4    78              32               3
##            raceethnicity
## glm.pred    Unknown White
##   Non-White       6    81
##   White           9   155
```

The tract-level poverty rate resulted in 55.67%.

Conclusion

The results show that each predictor used resulted in very similar predictions. This means that Sinyangwe's conclusion was correct. Non matter what the proportion of races is in a specific city, black people, as well as other races, are more likely to be involved in police shootings than white people, otherwise the models would have resulted in different conclusions when the proportion on one race is higher than that of another race.

We also examined the relationship between the race of the victim and poverty rates in the are. This model resulted in a very similar, although slightly less accurate, model than that of the other attributes. This leads us to the conclusion that poverty in the area does not affect the proportion of people of a specific race being involved in a police shooting, which further supports Sinyangwe's claim that black peopl are more likely to be involved than white people in general.

References

Samswey, S. (2021, February 04). The police departments with the biggest racial disparities in arrests and killings. Retrieved April 19, 2021, from https://fivethirtyeight.com/features/the-biden-administration-wants-to-address-racial-bias-in-policing-what-cities-should-it-investigate/