Hate Crime Rates

By: Vishnu Sivaprasad
Anthony Hampton
Josiah Glyshaw
Harrison Lanier

Question:
Are hate crime rates correlated to any particular US state statistics, and can we predict hate crime rates based on those state statistics?

This is important because hate crimes are a large issue in the US and we want to see what factors can lead to hate crimes.

Data:
The data we used is from FiveThirtyEight and is called 'Hate Crimes.' It has many statistics for each of the individual US states.

We focused on the column 'avg_hatecrimes_per_100k_fbi' which is the average annual hate crimes per 100,000 population (recorded by the FBI). We compared this column to all our other columns in the data set to find correlations.

Findings:
By calculating correlation coefficients and linear regression lines, we were able to identify the state statistics that were most correlated with the FBI hate crime rates.

The *most* correlated columns were: share_voters_voted_trump (-0.50), gini_index (0.42) and median_household_income (0.32)
The *least* correlated columns were: share_unemployed_seasonal (0.07), share_non_white (0.08) and share_population_with_high_school_degree (0.16)

This means that hate crime rates can be impacted by political backgrounds, household income, and wealth distribution. Hate crime rates are not largely correlated with seasonal unemployment, race, and education. Our most correlated column was share_voters_voted_trump, and it was negatively correlated. This means, on average, states that have higher voter percentages for Trump have lower hate crime rates. On the other hand, median household income was positively correlated meaning that for higher incomes there are more hate crimes.

Conclusions:
We found that hate crime rates can be correlated to certain state statistics such as percentage of trump voters and household income. In general, however, none of our state statistics were extremely correlated (as you can see from the graphs on the right) which makes us think that there is no clear cause to what might make people commit hate crimes. Regardless of a state's political climate and income distribution etc, they may or may not struggle with hate crimes.

Header	Definition
state	State name
median_household_income	Median household income, 2016
share_unemployed_seasonal	Share of the population that is unemployed (seasonally adjusted), Sept. 2016
share_population_in_metro_areas	Share of the population that lives in metropolitan areas, 2015
share_population_with_high_school_degree	Share of adults 25 and older with a high-school degree, 2009
share_non_citizen	Share of the population that are not U.S. citizens, 2015
share_white_poverty	Share of white residents who are living in poverty, 2015
gini_index	Gini Index, 2015
share_non_white	Share of the population that is not white, 2015
share_voters_voted_trump	Share of 2016 U.S. presidential voters who voted for Donald Trump
hate_crimes_per_100k_splc	Hate crimes per 100,000 population, Southern Poverty Law Center, Nov. 9-18, 2016
avg_hatecrimes_per_100k_fbi	Average annual hate crimes per 100,000 population, FBI, 2010-2015

Source: https://github.com/fivethirtyeight/data/tree/master/hate-crimes
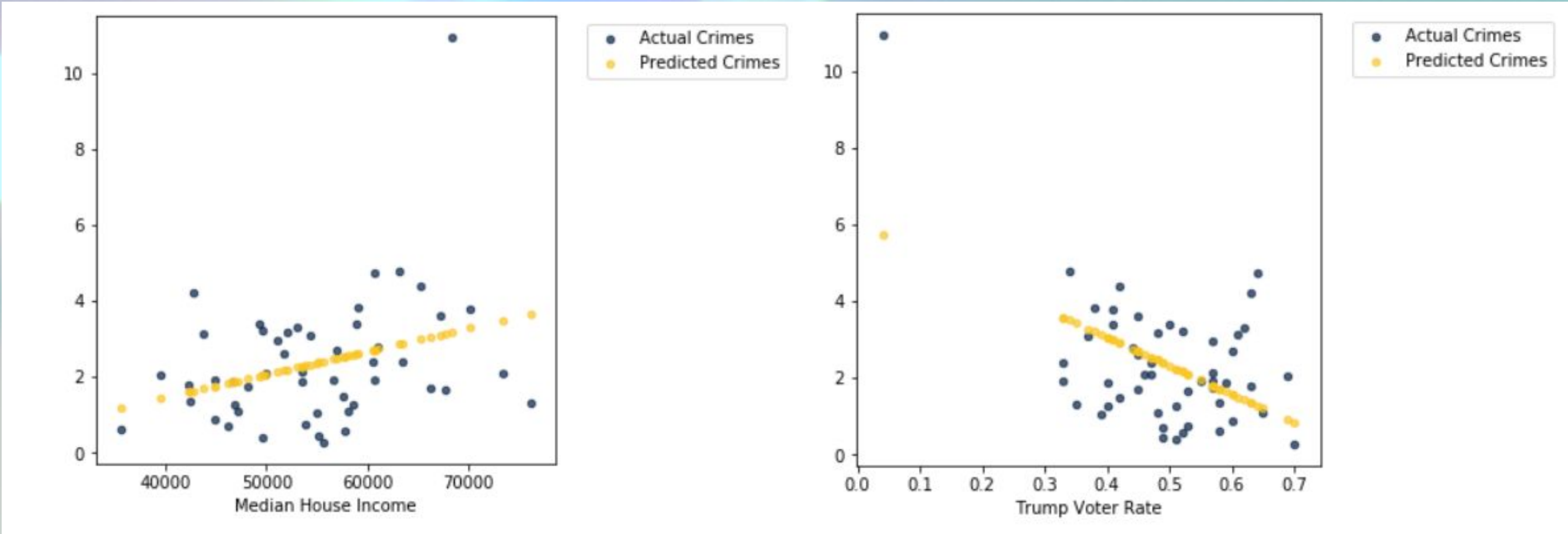
Predicted Missouri hate crime based on Trump voter percentage:
Predicted: [1.80306847] Actual: [1.90895499]
Predicted Missouri hate crime based on median household income:
Predicted: [2.47213317] Actual: [1.90895499]
Predicted Alaska hate crime based on Trump voter percentage:
Predicted: [2.09941731] Actual: [1.65670011]
Predicted Alaska hate crime based on median household income:
Predicted: [3.13804526] Actual: [1.65670011]
Trump regression line: Hate Crime Rate = -0.0344 * (voter value) + 0.57514