



Statistical Analysis on Hate Crimes in the United States

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BACKGROUND

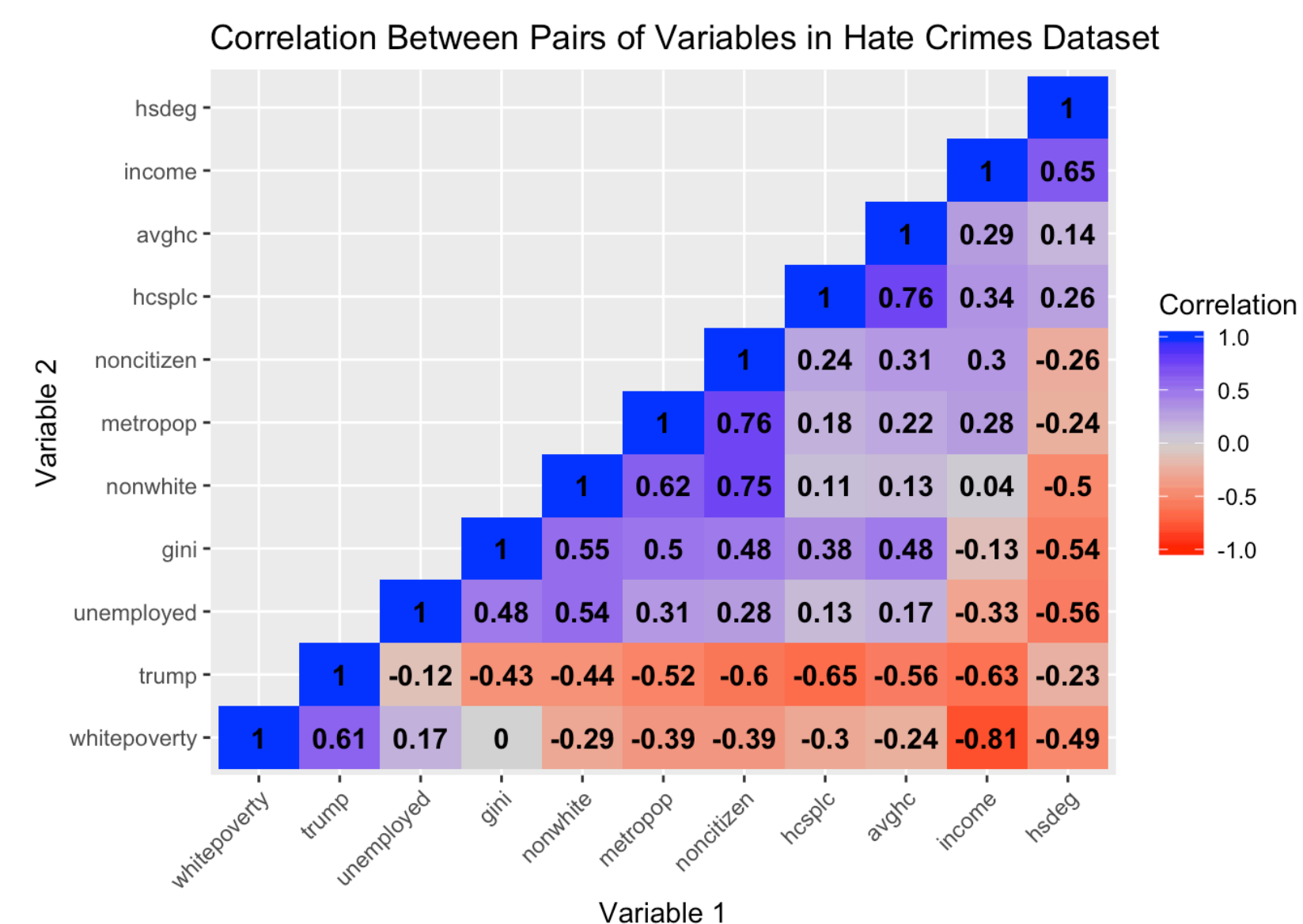
- The “Hate Crimes” dataset is comprised of information collected from the FBI and Southern Poverty Law Center.
- It aggregates the average number of annual hate crimes per state by a population of 100,000 and compares these figures with various demographic variables.

RESEARCH OBJECTIVES

- Understand why specific correlations exist in the dataset
- Explain how certain predictor variables are associated with our main response: *average hate crime*
- Describe additional interesting associations among non-Hate Crime variables

CORRELATIONS

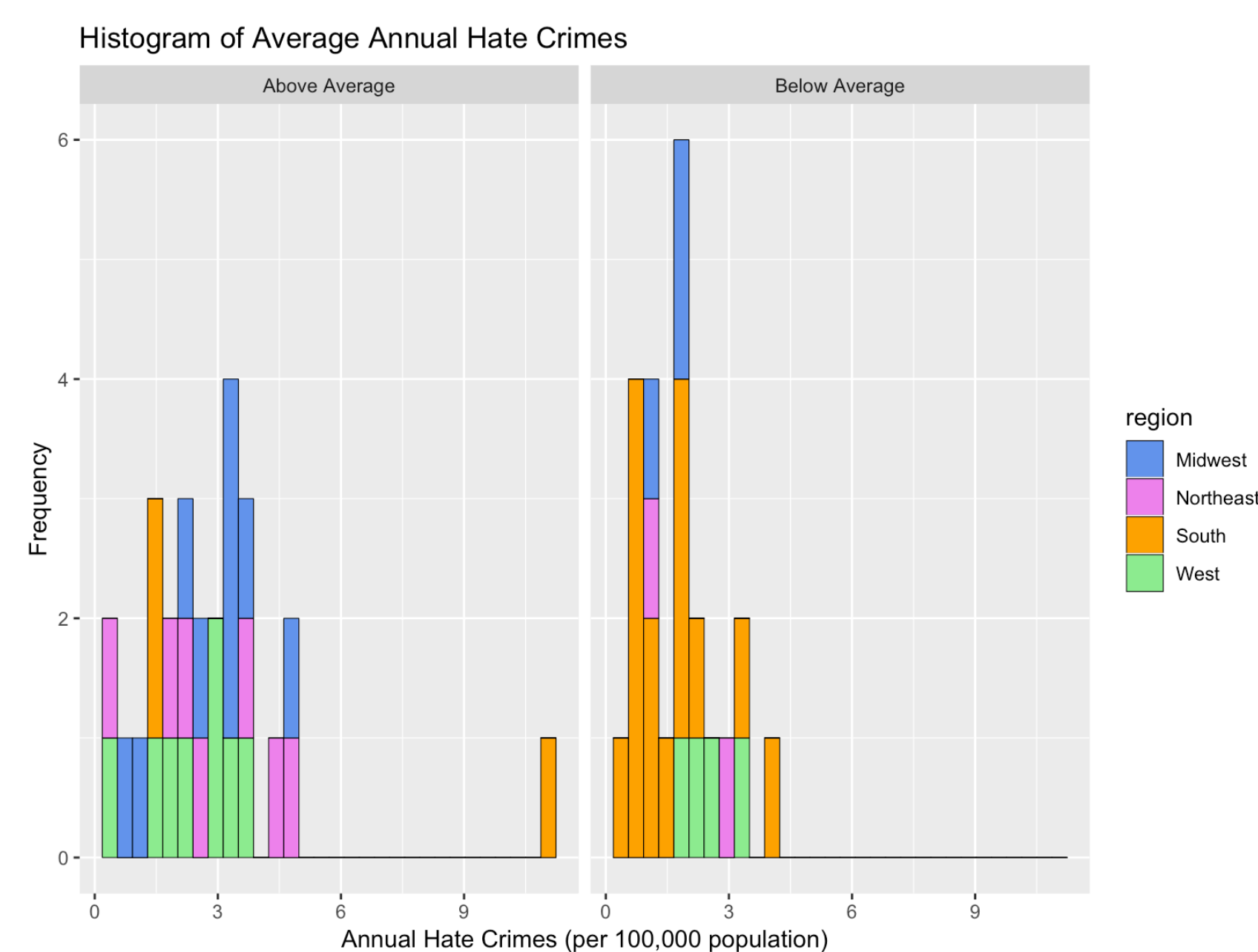
What correlations exist in the dataset?



- Correlation matrix for identifying potential interesting relationships

MULTIVARIABLE ANALYSIS

Hate Crimes and High School Degree

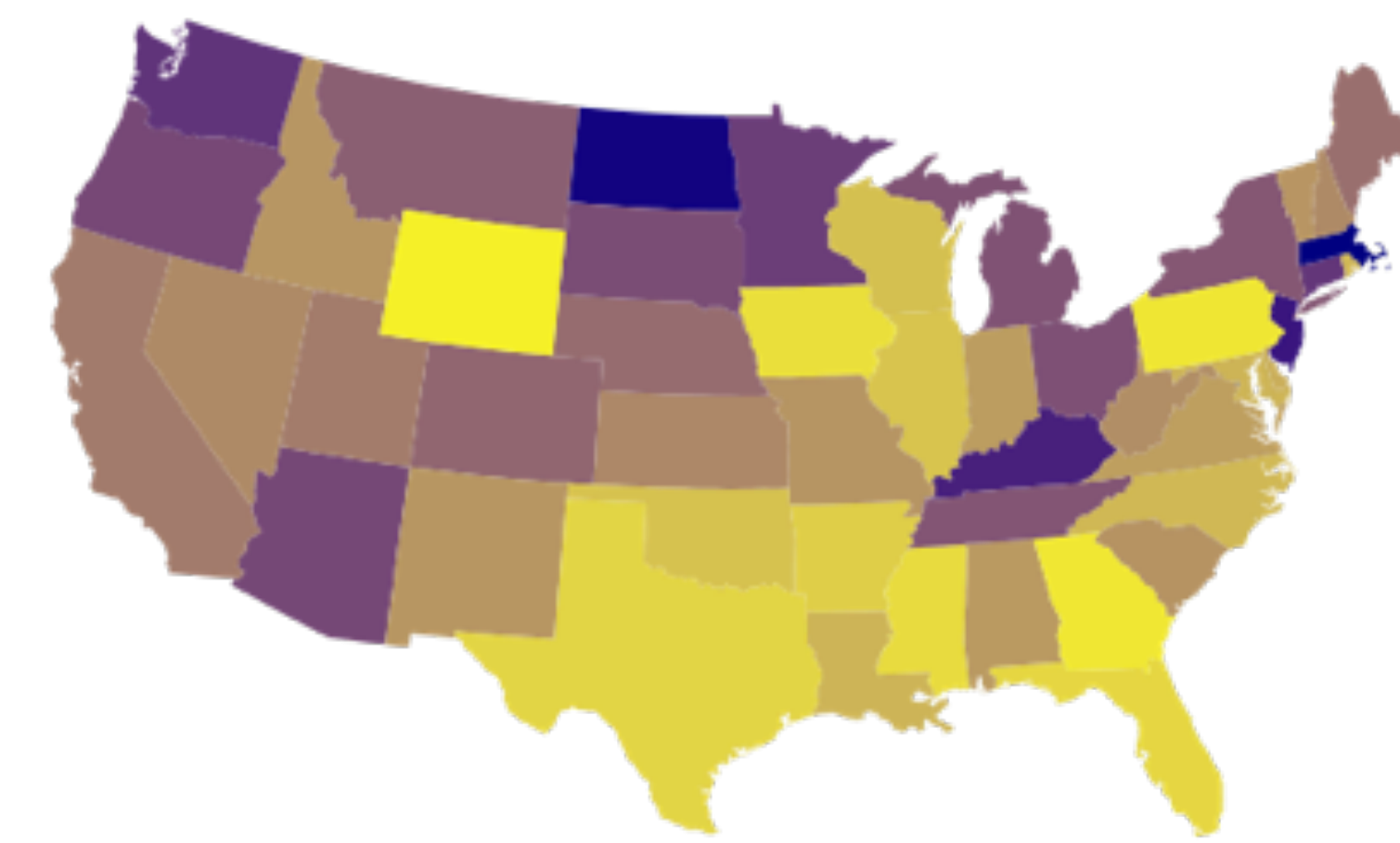


- Hate crimes by average share of adults with high school degree
- Left: One state in the "Above Average" group with over 9 hate crimes potentially contributes to the unexpected *positive* correlation between average hate crimes and high school degree.

SINGLE VARIABLE ANALYSIS

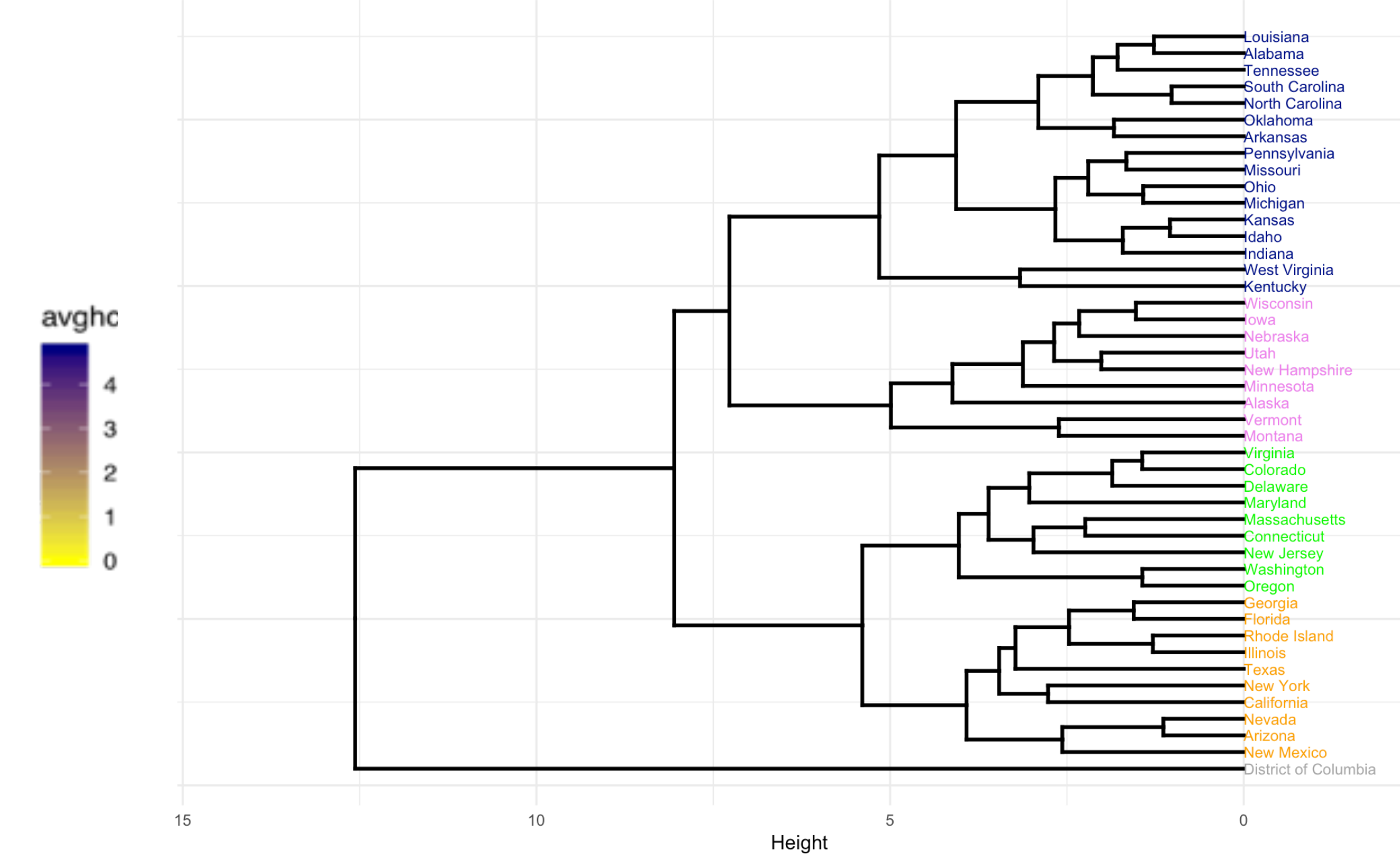
Average Annual Hate Crime Across the US

Average Annual Hate Crimes per State



- District of Columbia, Hawaii, Alaska eliminated
- Fewer annual hate crimes in South
- Not all states within one region have similar average hate crimes

Hierarchical Clustering of Average Hate Crimes by State



- States with missing data eliminated
- Clustered into five groups in terms of average hate crimes
- Not necessarily clustered by region

MULTIVARIABLE ANALYSIS

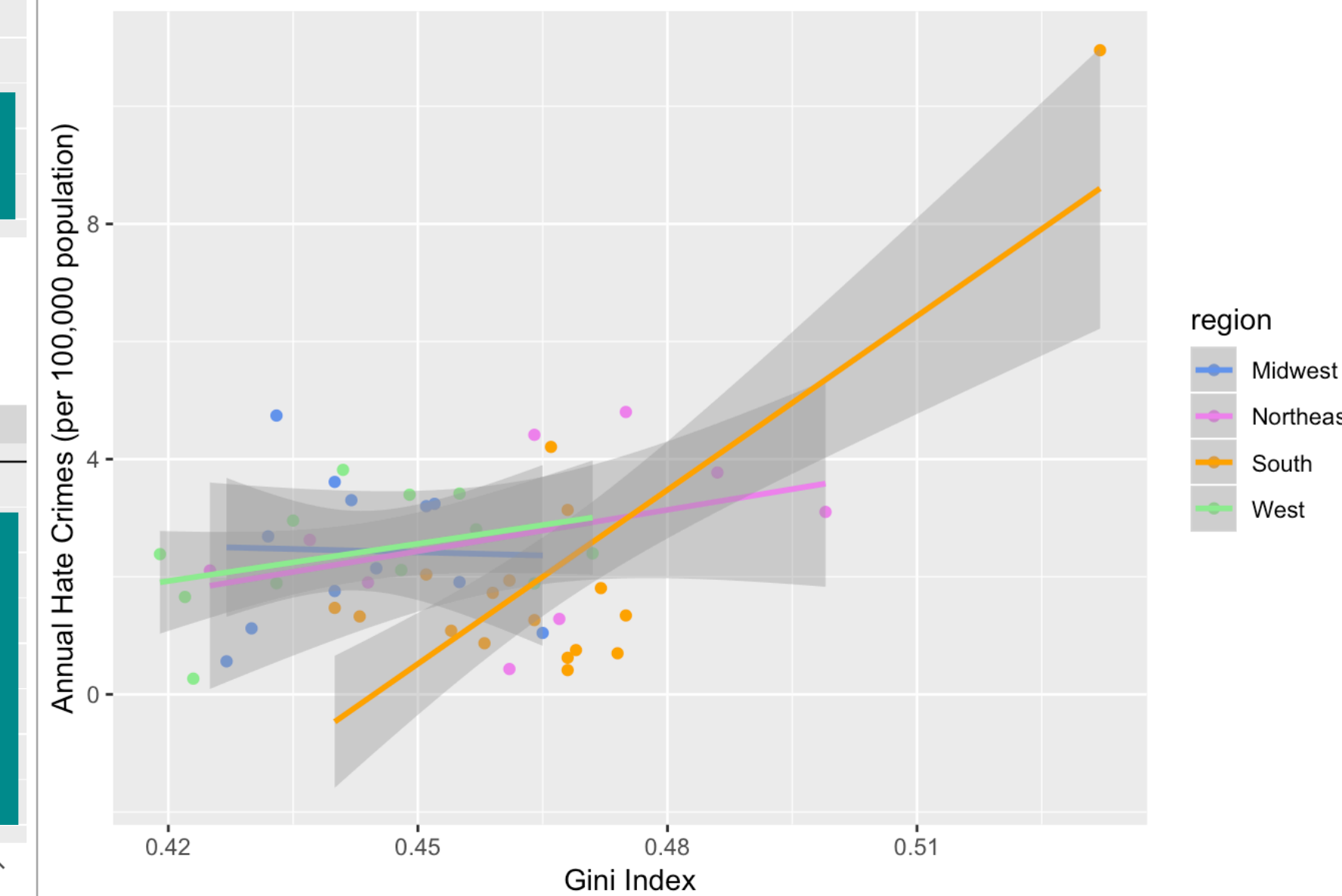
Metro Population and Share of Trump Voters



- All regions: state with highest metro population share had < 50% of its votes for Donald Trump.
- All regions except Northeast: state with lowest metro population share had ≥ 50% of its votes for Trump.
- Northeast: all states regardless of share of metro population had < 50% of votes for Donald Trump.

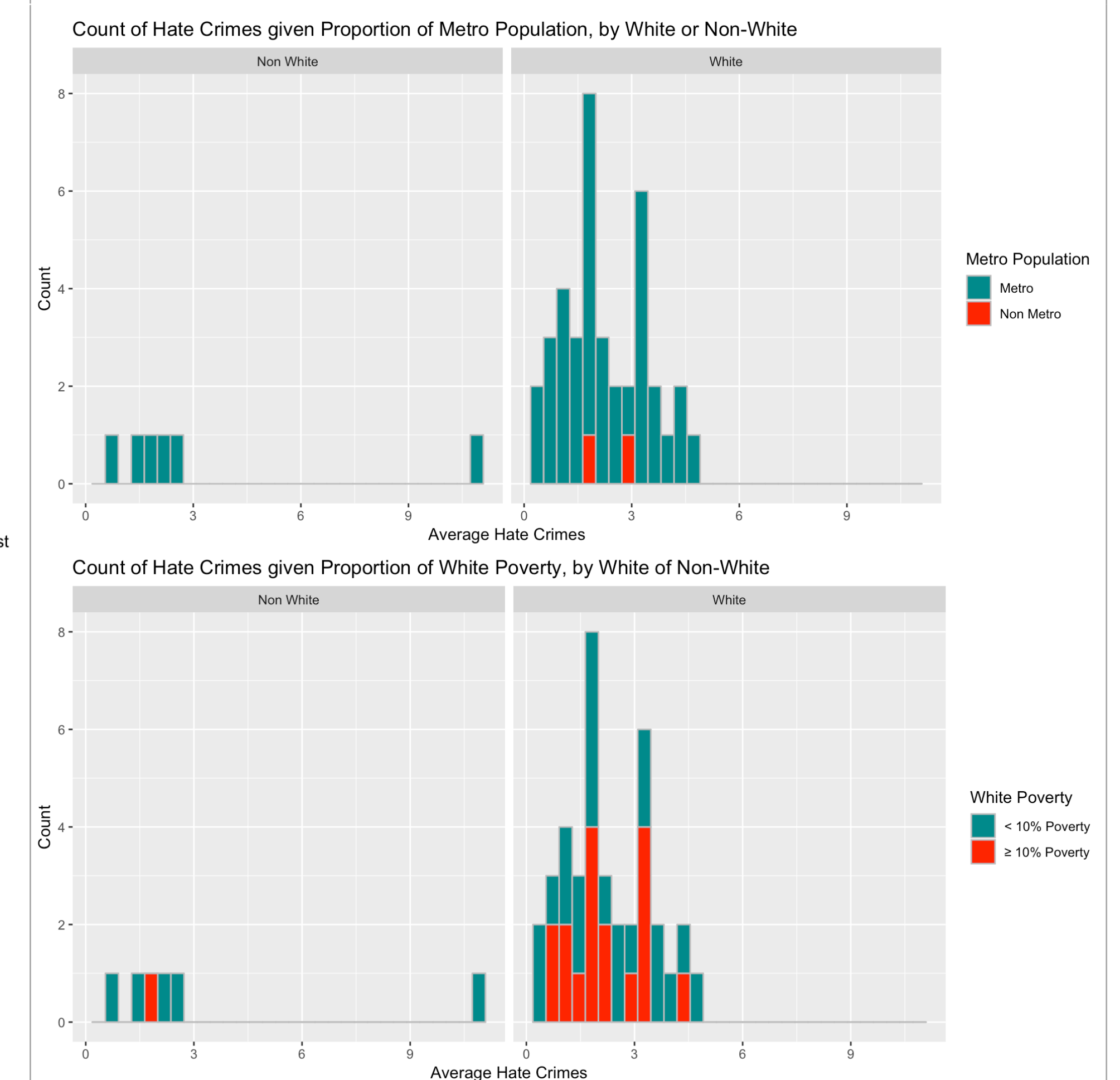
Gini Index and Hate Crimes

Average Annual Hate Crimes vs. Gini Index



- Gini index:** statistical measure of economic inequality
- Positive correlation between Gini index and hate crimes
- Large overlaps of confidence bands between Midwest, West, Northeast → no significant difference in slopes

Average Hate Crime by Metro Population & White Poverty



- More hate crimes in majority white areas with large metro population
- More hate crimes in areas with ≥ 10% white poverty
- Possibly majority of crimes against minority group