Racial Disparities in Ohio Traffic Policing

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Introduction

We focused our project on understanding the spatial distributions and racial disparities in Ohio Traffic stops. We found that differences do exist both in the rate at which different races are stopped as well as differences in stop outcomes. In short, minorities are stopped more often and face more severe outcomes, especially in rural areas.

The Data

- Data Background
- Data Collection
- Data Contents

Background

- Our data set was one of the Tidy Tuesday datasets, released on March 19th.
- Before that, it was constructed as part of the Stanford Open Policing Project
  - Project to gather, analze, and release records from millions of traffic stops by law enforcement agencies across the country.
  - We used a subset of the data - exclusively looking at figures from Ohio
  - Cincinatti
  - Columbus
  - State patrol records, from all 88 counties in Ohio.

Collection

- Per the working paper associated with this project, public records requests with all 50 state patrol agencies and over 100 municipal police departments were filed. The researchers normalized the data and made it tidy, correcting for any duplications or data entry mistakes. We downloaded the data from the project website, `https://openpolicing.stanford.edu/data/`.

Contents

- Our data has many variables, but can overall be categorized as follows:
  - Driver information (race, sex)
  - stop information (citation/arrest/warning, location and date-time)
  - Additionally, for calculating some measures we had to pull in outside data, like city populations and demographic information, or shape files to construct accurate maps.

Our Questions

1. Which counties have the highest stop rates and highest search rates?
2. Do different counties have different racial distributions for each type of stop?
3. If there are significant differences, can we understand the spatial distribution of these differences?
4. Specifically, do black drivers have higher search and citation rates?
5. Does racial bias exist?
6. If so, what is the spatial distribution of racial biases?
7. What are possible solutions to any problems, and are there policy implications?

Our Findings

- We were able to answer almost all of our original questions using this data.
- We were not able to quantitatively examine the issue of racial bias
- It would have taken more time than we were able to dedicate
- Would have required a richer data set and more advanced statistical techniques

County Rankings for Stops & Searches

- Highest Arrest Rate: Scioto County: 1.89% stops resulted in arrest.
- Highest Warning Rate: Morgan County: 53.28% stops resulted in the driver only receiving a warning.
- Highest Search Rate: Butler County: 5.92% stops resulted in a search of the vehicle.

Spatial Distribution by Race

- We find clearly noticeable differences in arrest, search, and warning rates in different counties based on racial difference.

White Warning Rate

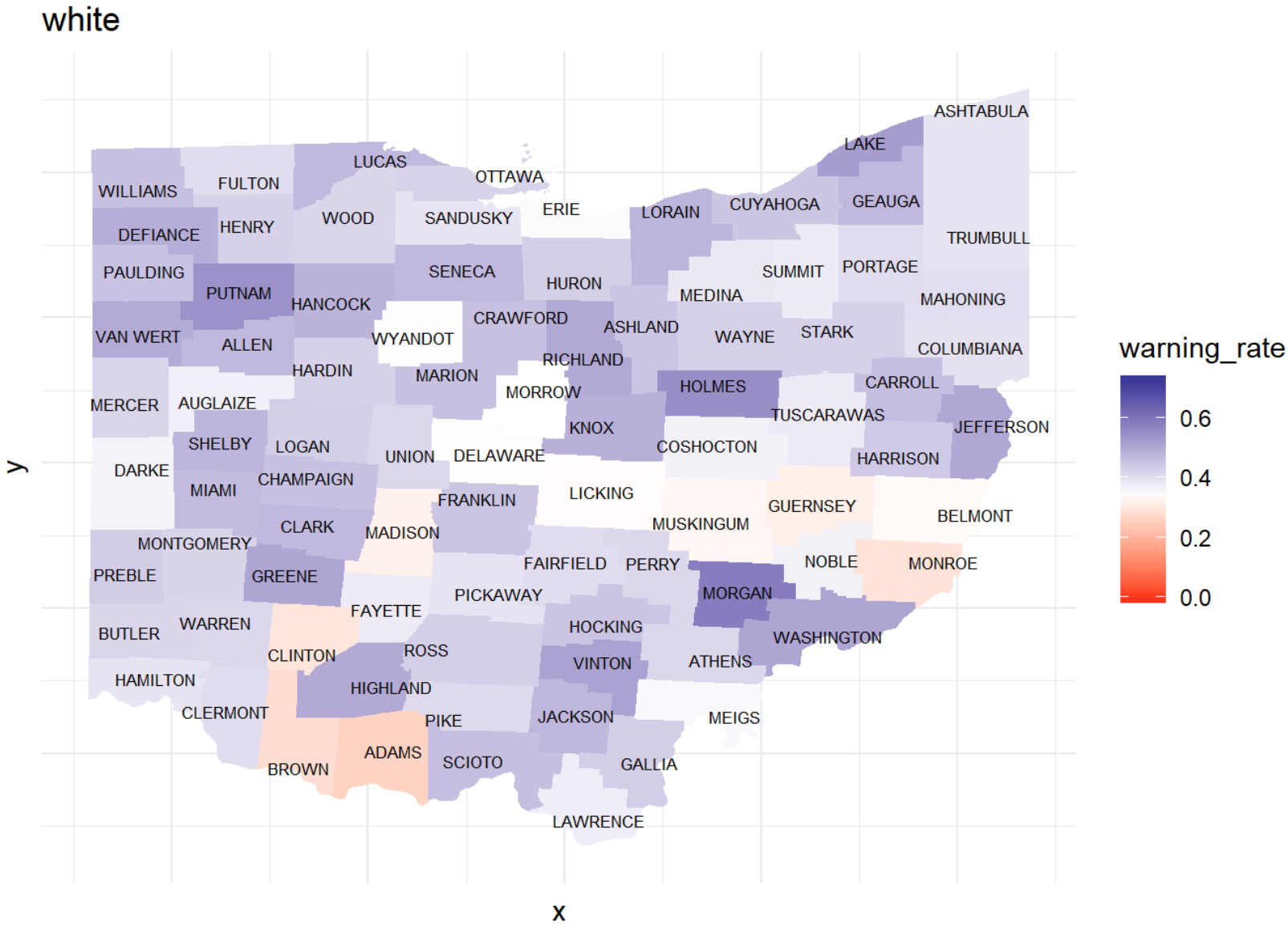


Figure 1: White Drivers Released With Just a Warning

Asian Warning Rate

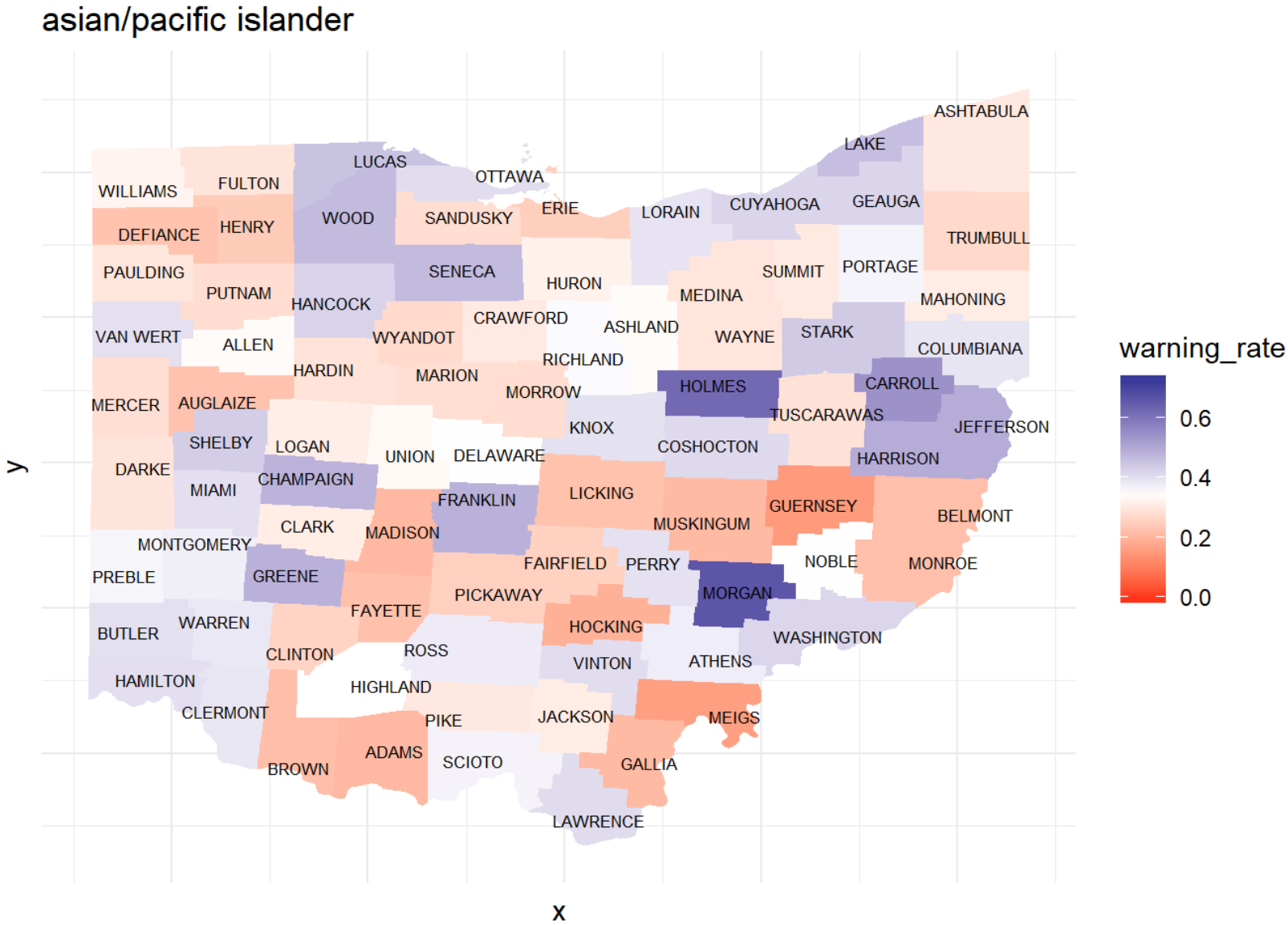


Figure 2: Asian Drivers Released With Just a Warning

Black vs White Arrest Rate

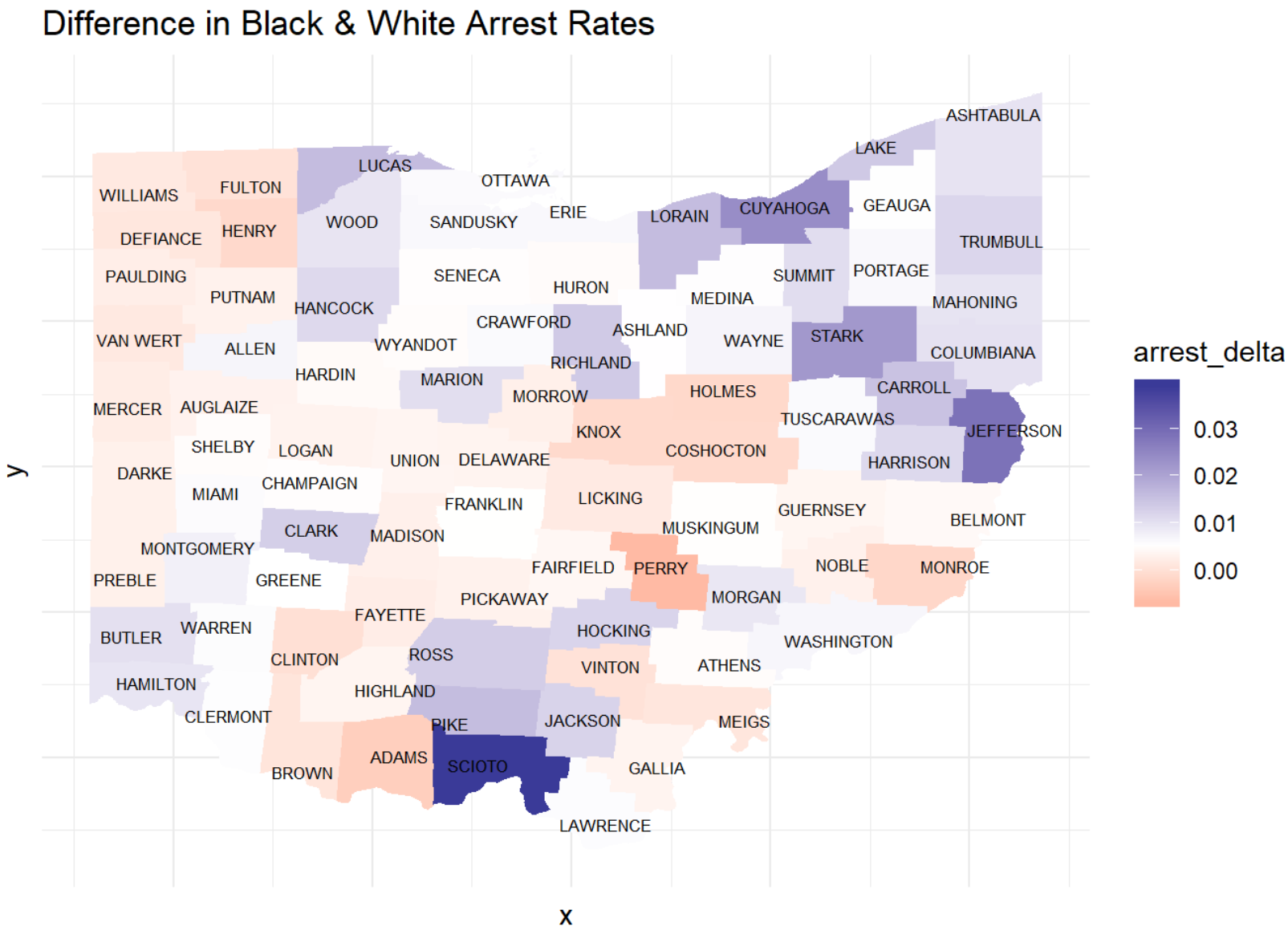


Figure 3: Difference in Black vs White Arrest Rate by Ohio County

Black vs White Search Rate

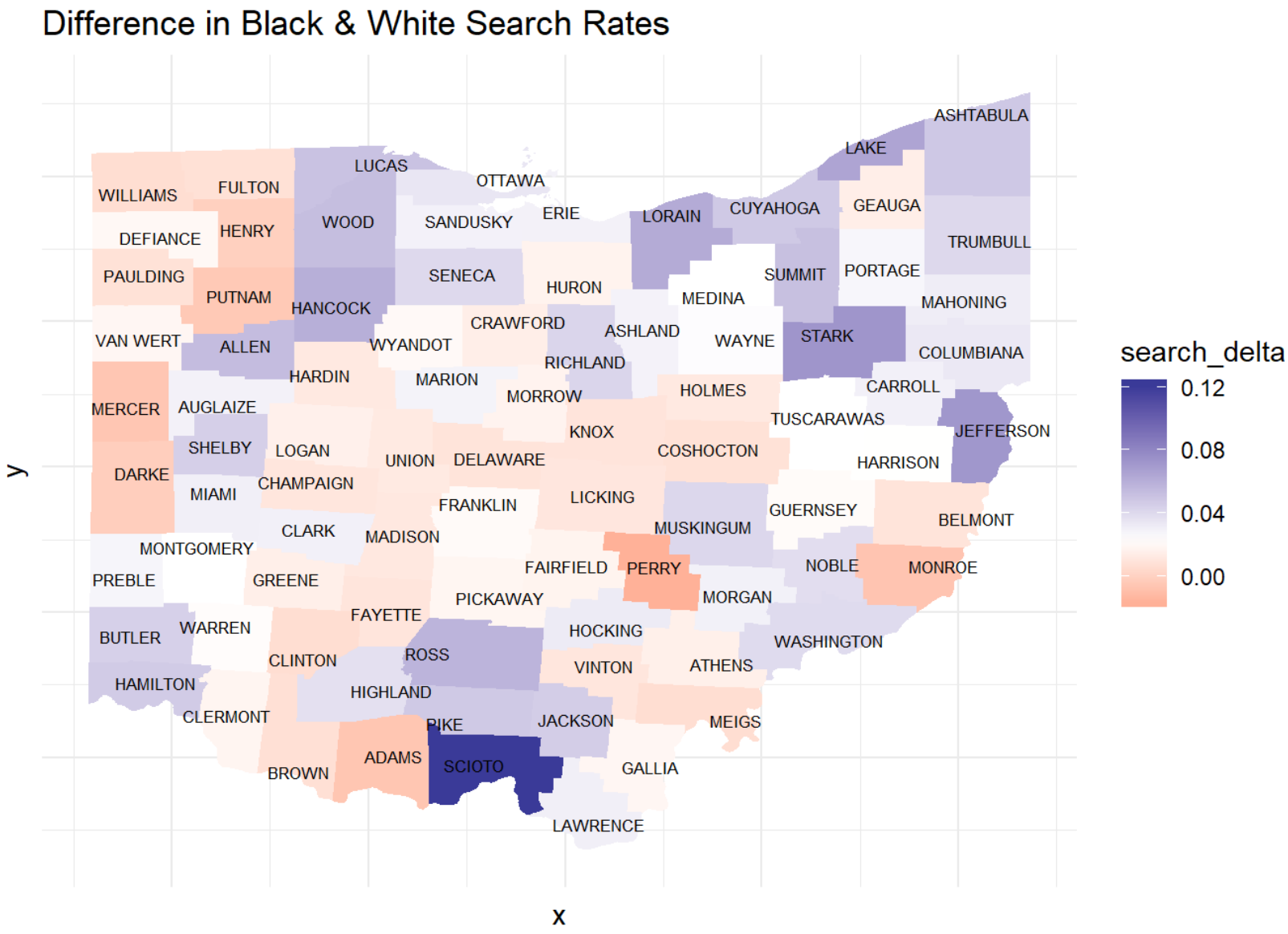


Figure 4: Difference in Black vs White Search Rate by Ohio County

Black vs White Warning Rate

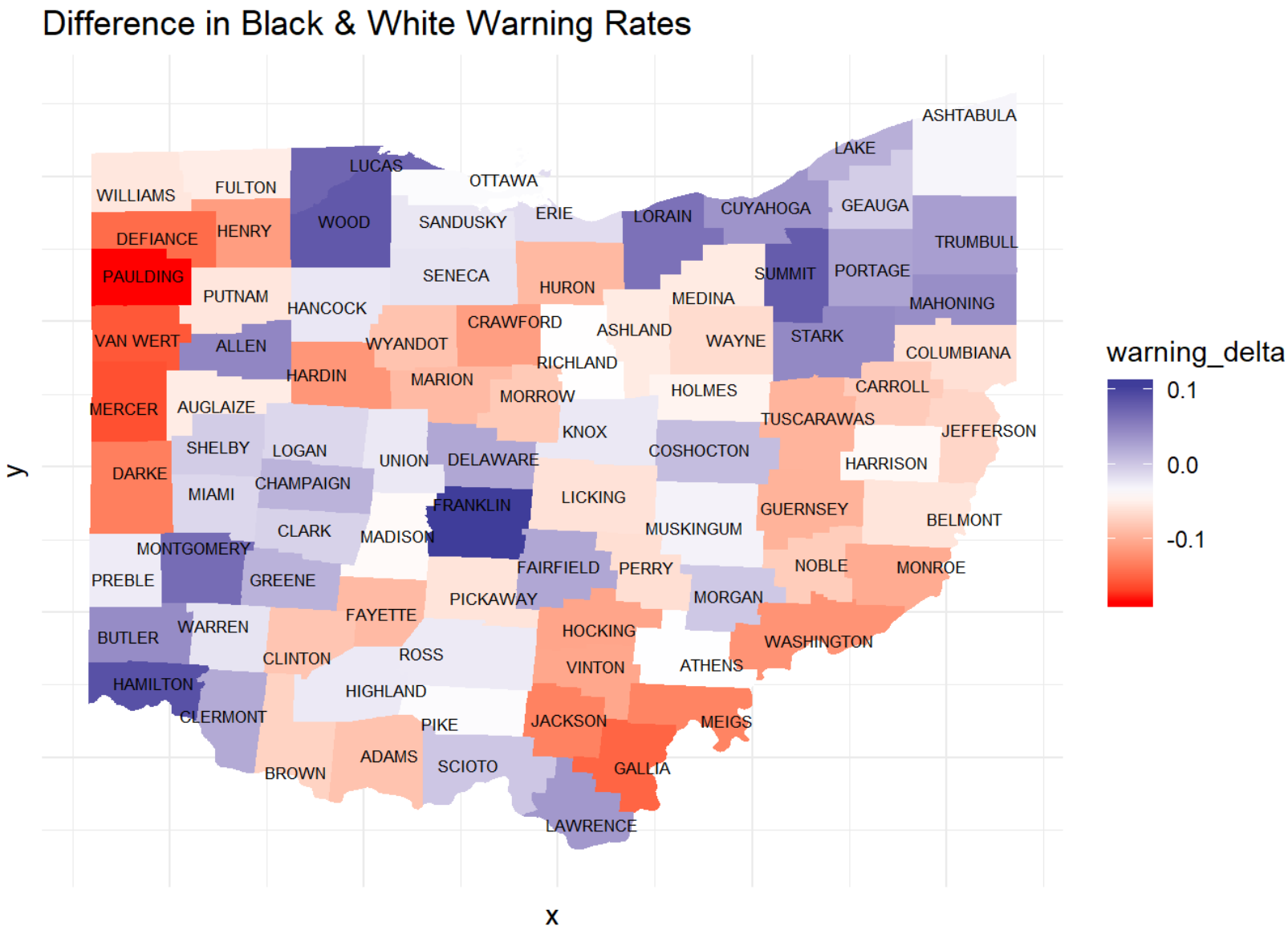


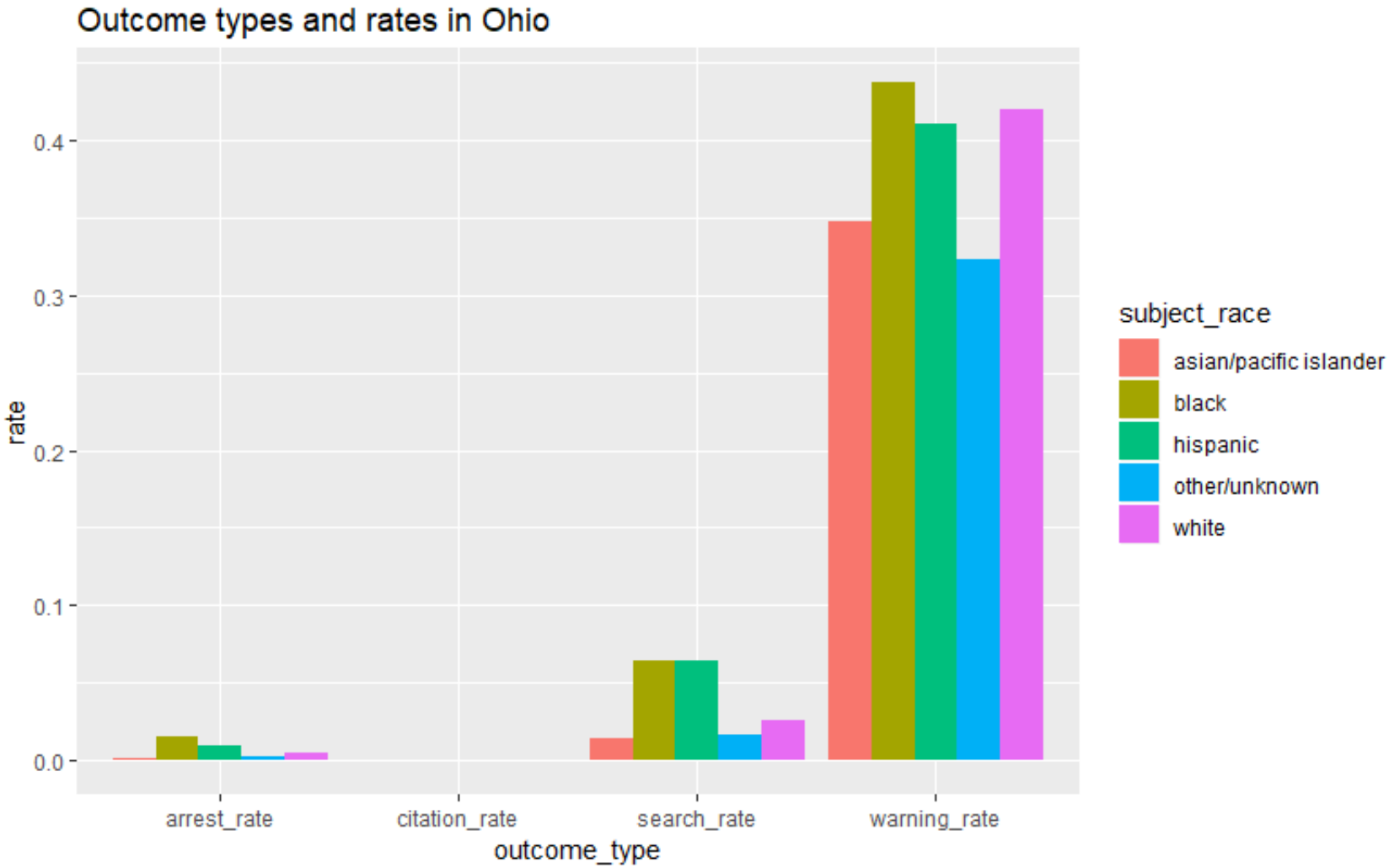
Figure 5: Difference in Black vs White Warning Rate by Ohio County

Inferences

- Clear geographic pattern present in the data.
- More sparsely populated counties / closer to the border tend to have greater disparities.

Racial Disparities by Outcome

- Not very large differences in search rates, for the most part. Higher differences in warnings and arrests.



Columbus Disparities

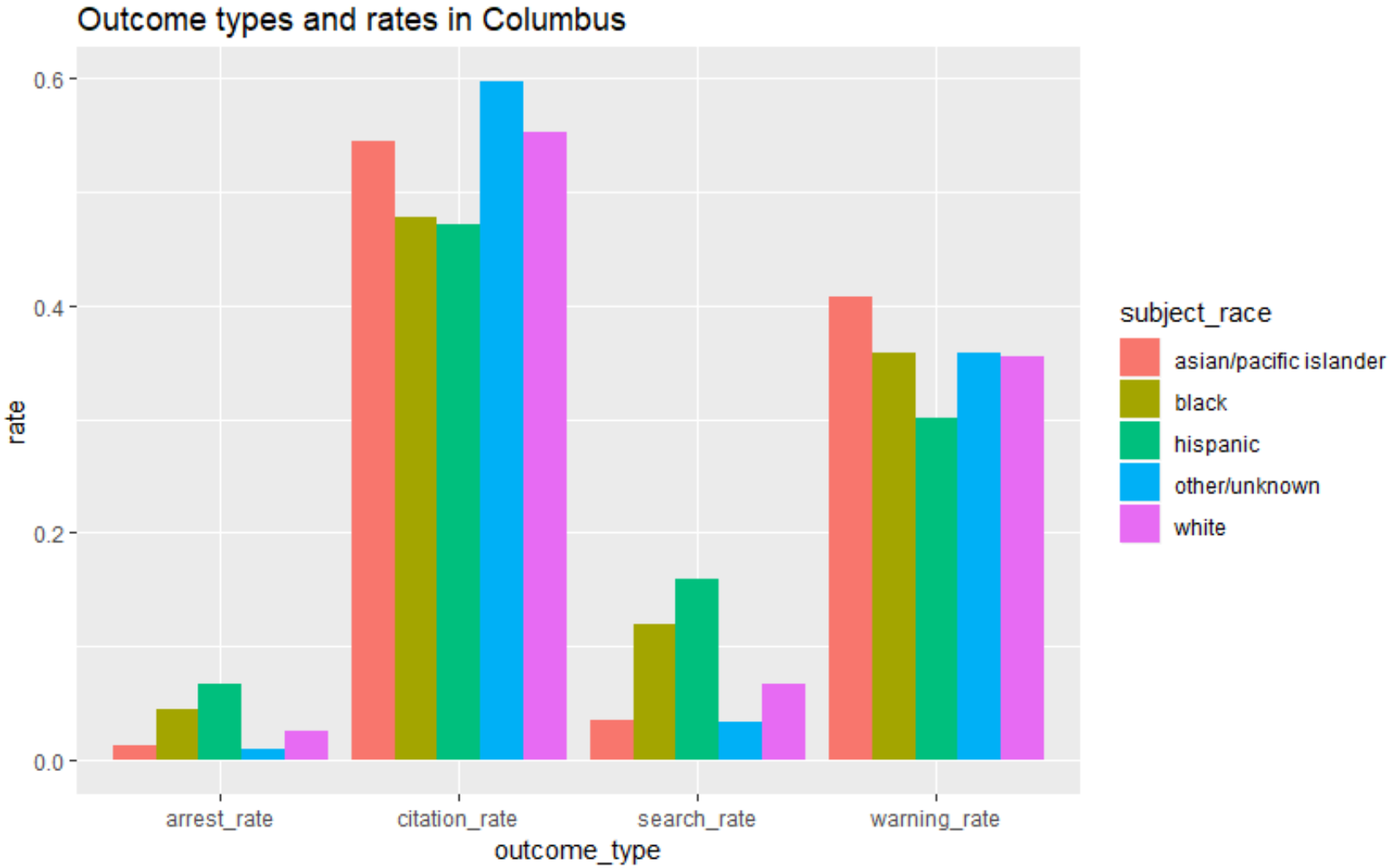


Figure 7: Relatively even, but clearly see differences in search rates and arrest rates - blacks & hispanics more common

Racial Bias Spatial Distribution

- Similarly, our data wasn't sufficient to analyze racial bias spatial distributions.
- More advanced statistical techniques and models of decision making
- Research paper addresses this further.

Solutions & Policy Implications

- Further analysis and investigation into racial bias and policing disparities are needed.
- Acknowledgement of these differences by communities and government vitally important.
- Anti-bias training, great engagement between different races & cultures. Demographic correlates.

Shiny App

Drago will present the design and functionality of our app!

Closing

Thank you!