THE UNIVERSITY OF CHICAGO
DATA SCIENCE INSTITUTE

BPI: Analyzing Chicago Traffic Stops

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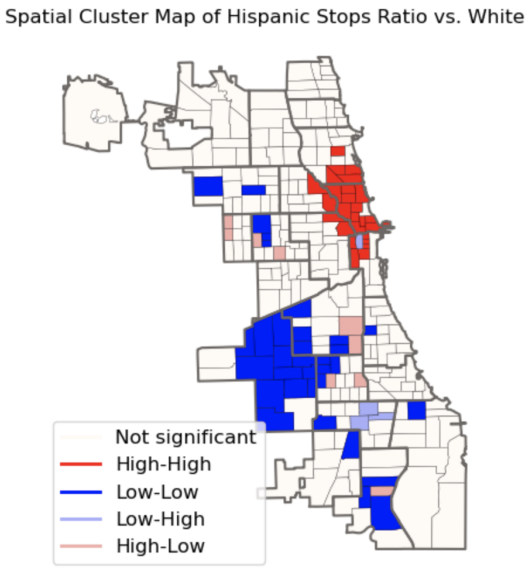
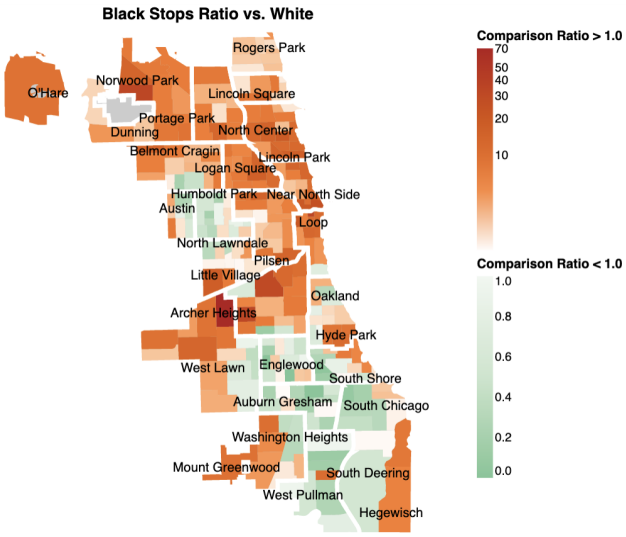
Business and Professional People for the Public Interest (BPI) is an IL-based public interest law and policy center working to combat systemic barriers to equity and to fight for racial, economic, and social justice. During the Winter 2023 Data Science Clinic, the team worked with BPI to conduct data analysis on Chicago traffic stop data to draw insights about traffic stop efficacy, promote police accountability, and increase the accessibility of findings.

To help BPI understand the link between traffic stops, crimes, and car crashes in Chicago, Akila performed a regression analysis which concluded that police stops overwhelmingly had a positive impact on the rate of crimes/traffic related crimes and crashes. Additionally, Ashley produced bivariate choropleth maps to provide an alternative visual representation to show the correlation between traffic stops and searches and car crashes, total crimes, high priority crimes, and traffic-related crimes.



The team also conducted analyses to examine potential racial bias in police traffic stops and searches. Spatial cluster analysis and cluster maps provided insight into where there were hotspots around Chicago where Black and Hispanic drivers were stopped at significantly high rates relative to white drivers after adjusting for driving population composition. Benchmark ratio maps displayed the ratio of the rates at which minority drivers were stopped and searched relative to white drivers, highlighting which police beats and districts had significantly high minority stop and search rates relative to those white drivers after adjusting for driver population composition. As shown in the figure above, in beats on the North, Far North, and West Sides of Chicago, Black drivers were stopped at rates up to 70 times higher than white drivers.



The team also looked at the effects of the Veil of Darkness which describes the phenomenon that Black drivers are less likely to be targeted for stops when it is dark out because it is harder to differentiate between races. Justin graphed the Black versus White stops in each district during the inter-twilight period throughout a given year. The inter-twilight period refers to the time of day that will vary in darkness throughout the year because of the changing length of days. The idea

here is that we can take a look at stop trends between light and dark, but at the same time of day so the driving population will be relatively similar.