CTEC 128 Group 1 Project Documentation

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Black People Are More Likely to Be Pulled Over by the Police for Expired Tags Than White People

Introduction

This data science project examines racial discrimination in traffic stops, whether Black people are stopped by the police for expired plates at a greater rate than White individuals. Racial discrimination within the police has been a frequent issue for years, and this project attempts to explore and measure these differentials by utilizing traffic stop data for various regions. There have been a variety of studies related to racial profiling as well as discriminatory biases in the police. The studies show that Black people are more likely to be stopped and searched by the police, even for less serious offenses. For an example, the ACLU (2018) discovered that Black drivers were stopped more often than White drivers for minor offenses, including expired license plates. Other research has indicated that Black people are likely to receive harsher punishments during traffic stops.

Hypothesis

We hypothesize that Black drivers are more likely to be stopped due to expired tags than White drivers.

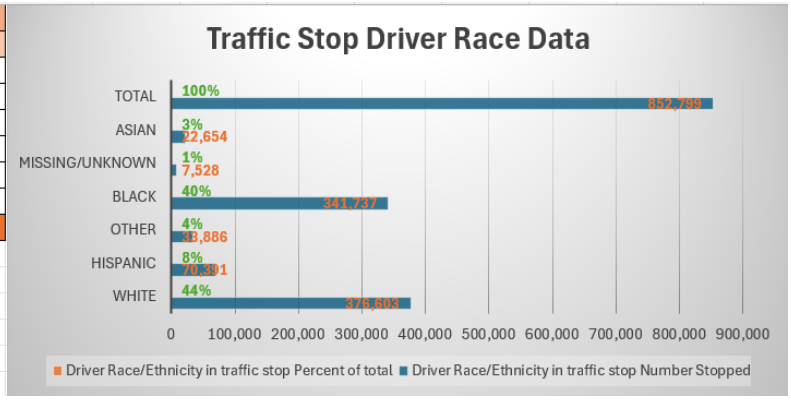
Research Questions

1. Is there a statistically significant difference in the likelihood of Black and White drivers being pulled over for expired tags?
2. How does this bias compare with broader trends in racial profiling in law enforcement?
3. What role does officer discretion play in traffic stops for expired tags, and how might implicit bias affect enforcement?

Part 1 Data Ingestion:

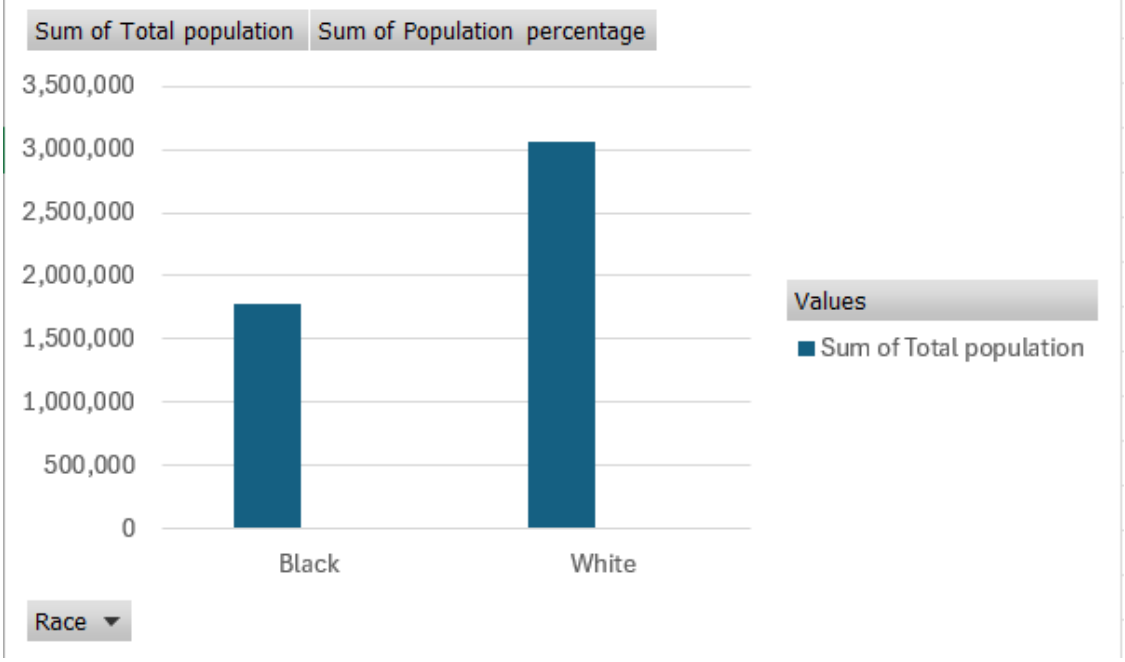
When searching for data to back up the claims the data that was found was quite helpful in determining what traffic stops looked like in 2017 to be specific. It was determined, using a traffic report produced by the (Governor's Office of Crime Prevention and Policy, 2024), that black people are a good portion of all reported traffic stops, about forty percent to be exact, while white people were forty-four percent of that total.

Driver Race/Ethnicity in traffic stop		
Race	Number Stopped	Percent of total
White	376,603	44%
Hispanic	70,391	8%
Other	33,886	4%
Black	341,737	40%
Missing/Unknown	7,528	1%
Asian	22,654	3%
Total	852,799	100%



According to 2017 population data from the Maryland Healthcare Commission, white individuals comprised 51% of Maryland's total population.

Row Labels	Sum of Total population	Sum of Population percentage
Black	1,776,692	29%
White	3,066,146	51%
Grand Total	**4,842,838**	**80%**



Black individuals made up approximately 29% of Maryland's total population. When analyzing the data, it becomes evident that there is a disparity in traffic stop reports when comparing the white and Black populations.

The data suggests that Black individuals in Maryland are more likely to be pulled over by police than white individuals. The purpose of collecting this data is to better understand population demographics and examine racial disparities in traffic stops. This information can help determine whether bias exists against a particular race or identify trends in population changes over time.

Maryland law enforcement agencies have been collecting traffic stop data since 2002, following the passage of a law aimed at addressing racial profiling (Governor's Office of Crime Prevention and Policy, 2024). The dataset used for this project consists of records from 2017, aligning with other relevant data sources.

Part 2 Data Wrangling:

One data feature that was used to make the charts and graphs for population is shown in the picture below, specifically Maryland and the black and white instances.

2017 Estimates	Prince George's	Maryland	United States
Population			
Total Population	**912,756**	**6,052,177**	**325,719,178**
Female	472,979 (52%)	3,116,355 (51%)	165,316,674
Male	439,777 (48%)	2,935,822 (49%)	160,402,504
Race and Hispanic Origin			
Black, NH	566,032 (62%)	1,776,692 (29%)	40,129,593 (12%)
Hispanic (any race)	169,032 (19%)	612,709 (10%)	58,846,134 (18%)
White, NH	115,126 (13%)	3,066,146 (51%)	197,285,202 (61%)
Asian, NH	38,838 (4%)	389,297 (6%)	17,999,846 (6%)
Other, NH	23,721 (2%)	207,333 (3%)	11,458,403 (3%)

Another data feature that was used to make the chart for traffic stop data in MD is seen in the picture below, the black and white instances are specifically used once more.

Table 1. Race/Ethnicity of Driver in Traffic Stops		
	Frequency	**Percent**
Asian	22,654	2.7%
Black	341,737	40.1%
Hispanic	70,391	8.3%
Other	33,886	4.0%
White	376,603	44.2%
Missing/Unknown	7,528	0.9%
Total	**852,799**	**100.0%**

It was decided that the group would use data specifically from Maryland. This is due to the group residing in Maryland, thus making the data more personally relevant. Knowledge on how certain races are treated in the home state of this group is important for the safety of poorly treated races/ ethnic groups. The data used was not modified in any way except for use of the sum and percent if function for easy calculations.

Data Insights

What has been gleaned from the data is that there is either a racial bias present against black people in MD or there is some other factor in play that has yet to be considered. It can be difficult to solve the issue at hand because biases towards a certain race can be deeply ingrained in some people without them even realizing it; proper education can be a fix for this issue.

Recommendations

In terms of future work, it would be nice to do further study into why black people are more likely to be pulled over by the police. It would also help to do research on more states in the US to gain a better understanding on how minorities are treated in terms of police enforcement.

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