Influence of Driver's Race On The Outcome of a Traffic Stop

Eduardo Gomez

California State University, Chico

Introduction

In today's America, whether or not people are being discriminated against based on their race is still a hot topic. The discrimination being referred to is the unjust treatment in education, places of work, politics, public areas, and more because of a person's skin color. There are people claiming racial discrimination is over, that it's a problem that's been fixed and others are saying that it's still an ongoing problem. There is also big talk on racial discrimination when it comes to the outcome of the interaction between law enforcement and people of color. Entire groups (BLM) have formed from this discussion that people have over how poorly the police treat black men and women. Traffic stops are an example of where people of color could be victims of racial discrimination from police officers. We are looking at information provided by the police officers of Connecticut in 2013-2014 (with about 366,000 stops) to see if there is a relationship between the outcome of the traffic stop and the driver's race.

Research Question

Is there an association between a person's race and whether or not they get arrested as a result from a traffic stop based on whether they are a local of the town they were stopped at?

Methods

The data was provided from the state of Connecticut in the United States of America by the police departments.

The traffic stop reports are all written by the police officers.

The dataset was created in attempts to prohibit law enforcement officers from stopping, detaining, or searching a driver based on their race, ethnicity, age, gender, or sexuality.

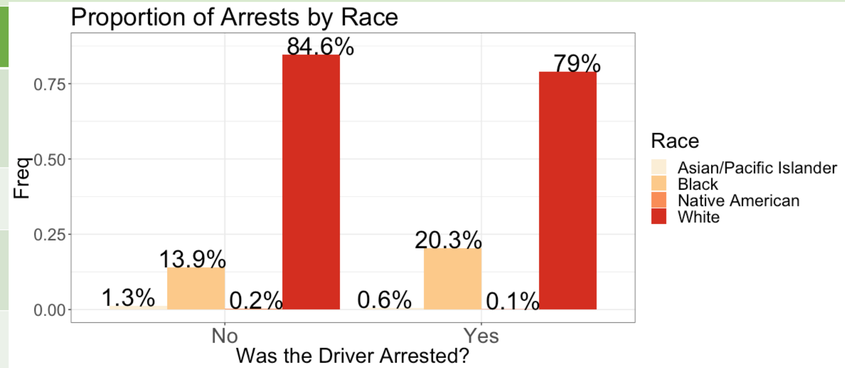
Sample Characteristics

This dataset was collected in the years 2013 and 2014 in the state of Connecticut with a total of 3,660,060 observations.

The measure of this data are

- Information on the police officer conducting the traffic stop and the department they belong to
- Date and length of the stop
- Driver's race/ethnicity, size, age, why they were stopped, if the vehicle was searched, if the driver gave consent and if they found anything, and the outcome of the traffic stop.

Driver's Race	Frequency
Asian/Pacific Islander	1.31%
Black	14.07%
Native American	0.19%
White	84.44%

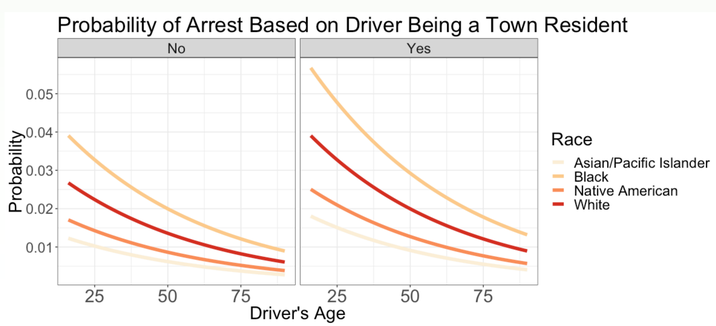


For this sample, the majority of the people stopped are White (309,085) and the next highest group were Black people (51,494). 1.31% of the drivers were Asian/Pacific (4,777) and 0.19% were Native American (677). We have that of the people arrested as a result of these traffic stops, 79% are White (6,263), 20.3% are Black (1,609), less than 1% were Asian/Pacific Islander, similarly for Native Americans.

Results

We are looking at a logistic model with whether or not the driver was arrested as the response variable. The explanatory variables that we are looking at are what the officer thought the driver's race was, if their car was searched, and their age. (For driver's age, the range was from 0 to 1,876. We are going to look at those that state that the age is between 16 to 90.)

Measure	β	95% Conf. Int.	P-Value
Intercept	0.04	(0.036, 0.041)	< 0.0001
Townie	1.48	(1.413, 1.548)	< 0.0001
Age	0.98	(0.978, 0.982)	< 0.0001
Black	1.48	(1.399, 1.565)	< 0.0001
Native American	0.63	(0.303, 1.147)	0.173
Asian\Pacific Islander	0.45	(0.331, 0.601)	< 0.0001



Results (Cont.)

The table on the left gives us estimates for the odds ratio , with their corresponding p-values, as well as confidence intervals. The odds of a black out of town driver being arrested are 1.48 (1.399, 1.565) times greater than the odds for a white out of town driver after adjusting for the linear effects of the driver's age ($p < 0.0001$).

While the probability doesn't increase as drastically, we can see that for both if they were or weren't a town resident, Black drivers have the highest probability of getting arrested.

We are seeing that young black men have a higher probability of being arrested than older white men, regardless of them being a resident of the town they were stopped in.

Conclusion

The results of the model tell us that the driver's race is a significant influence on whether or not they get arrested. We see that White and Black drivers have the highest probability of being arrested, which might come from the fact that Connecticut is 80.3% White (2,868,850) and 11.9% Black (425,148) and other races are much lower.

The Implication

We had hoped to find some evidence of racial bias in police officer's decision to arrest a driver after a traffic stop and we did find race to be a significant factor in the probability of being arrested.

In future studies, looking at traffic stop information with a more balanced ratio of race within the state. We believe that if there are more even amounts of race, then there will be more of an inequality.

References

R Core Team (2018). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/

RStudio Team (2016). RStudio: Integrated Development for R. RStudio, Inc., Boston, MA URL http://www.rstudio.com/

Contact

Eduardo Gomez – egomez42@mail.csuchio.edu