Adam Imran, Thomas Malejko, Douglas Post, and Patrick Aquino

Dr. Purna Gamage

ANLY 512-03

14 April 2020

Montgomery County Traffic Data:

An Exploratory and Predictive Analysis

It happens to just about every American during the course of their life; at some point they are stopped by the police for violating a rule of the road. However, what happens after that point is largely up to the citing officer—does the driver get issued a citation or is he simply given a warning? Will the officer’s decision be based purely on the severity of the driver’s violation or does environmental factors, such as the weather or time of day, impact his decision? At a more malicious level, does the officer’s decision depend upon the demographics of the driver? While these questions are difficult to answer at the individual level, the Montgomery County (Maryland) Traffic Dataset, will allow us to evaluate any significant trends that exist about policing efforts within that county. The dataset, which is available as part Montgomery County Maryland’s Digital Government Strategy contains information about every electronic traffic violation cited in Montgomery County, Maryland from January 1, 2012 to March 4, 2020 (the date of collection for this study). The dataset, which is comprised of 1.66 million records spanning 43 features, includes information about the traffic stop itself, data about the vehicle involved, and demographics about the driver.

Using a series of advanced statistical and analytic techniques we can conclude that, in general, officers issue citations principally based upon the severity of the traffic violation and other incident characteristics (i.e. was there an accident or property damage). Additionally, some evidence suggests that environmental factors (such as the weather and time of day), as well as, driver demographics have a small impact on an officer’s decision to issue a citation or warning. However, this evidence needs further study before we can conclusively say that there is a direct relationship between the two.