Traffic Stop Data Analysis & Findings in Massachusetts, 2020

EXECUTIVE SUMMARY

About This Report

The Massachusetts legislature passed Chapter 122 of the Acts of 2019, *An Act Requiring the Hands-Free Use of Mobile Telephones While Driving ("the Act" or "the Hands Free Driving Law"),* which prohibits operators of motor vehicles from using any electronic device, including mobile telephones, unless the device is used in hands-free mode. The law took effect on February 23, 2020 and the intent is to reduce crashes by identifying and limiting the number of distracted drivers on the public roadways in the Commonwealth (Commonwealth of Massachusetts, 2020).

As part of the law, all law enforcement agencies in Massachusetts are now required to collect data from all Uniform Citations issued, including demographic information about the stopped motorist (gender, age, race/ethnicity) and information about the stop (the traffic infraction, the date and time of the offense, the municipality in which the offense was committed, whether a search was initiated as a result of the stop, and whether the stop resulted in a warning, citation, or arrest). On an annual basis, the stop data must be analyzed and a report of the findings published online.

As such, the current study analyzes traffic stop data collected in Massachusetts from February 23, 2020 through December 31, 2020 for the Commonwealth as a whole and by municipality. In total, 425,702 traffic stops conducted by a total of 350 law enforcement agencies during the 10-month period were analyzed. The overall goal of this study is to learn more about potential patterns of racial disparities in traffic stops for the purposes of

understanding the causes of these disparities.

We first discuss our methodological approach, including a description of the variables available for the analyses and the types of analyses used in both the statewide evaluation and the department-level evaluations. The current study utilizes multiple types of analyses. For the statewide analysis of stops, we utilized three different analytical tools. For each department-level analysis, we utilized five different analytical tools or measures of disparity. The first three analytical tools examine potential racial disparities in the decision to stop. The last two analytical tools examine potential racial disparities in post-stop outcomes, including the decision to issue a warning or a citation and the decision to conduct a non-inventory search. One of the analytical tools utilized is the Veil of Darkness (VoD), which uses changes in natural light to assess disparate treatment in traffic stops. The VoD analysis compares stops made during the day when it is light to those made at night when it is dark to test for disparities when officers can more easily determine the race/ethnicity of the driver. The underlying assumption is that if law enforcement officers are profiling motorists, they are better able to do so during the daylight hours when race/ethnicity is more easily observed. Second, we provide a summary of the characteristics of the traffic stop data in the Commonwealth as a whole for the current data collection period. Third, we present the findings of the analyses for the Commonwealth as a whole. While we do not discuss each department-level analysis in detail in the report, department-level analyses were conducted for *each* law enforcement agency that had a minimum of 100 stops. In total, about 80.9% of 350 agencies had 100 or more stops. Each department report can be found listed in alphabetical order in Appendix C. Finally, we conclude

with a summary of the major findings, followed by a discussion of the strengths and limitations of the data and some recommendations to improve the data for future reports.

Major Findings

Characteristics of the Statewide Traffic Stop Data

Information About the Stops

- There were a total of 425,702 motor vehicle stops during the 10-month period by a total of 350 law enforcement agencies including municipal police departments and the various Massachusetts State Police units.

- About 60% of the traffic stops were conducted by the municipal police departments and 40% of the total stops were conducted by the state police.

- About 11.6% of stops occurred from 12:01 a.m. - 6:00 a.m., 28.5% of stops occurred from 6:01 a.m. - 12:00 p.m., 34.8% of stops occurred between 12:01 p.m. - 6:00 p.m. and the remaining 25.2% of stops occurred between 6:01 p.m. and 12:00 a.m.

- The total stops per month varied from a high of 54,678 in September 2020 to a low of 7,960 in April 2020. The low volume of stops in April 2020 is not surprising given the COVID-19 pandemic restrictions. The average stops per day varied from a low of 265.33 stops per day in April 2020 to 1,822.6 stops per day in September 2020.

Demographics of Stopped Motorists

- Regarding the gender of stopped drivers in Massachusetts as a whole during this period, 65% were male, 34% were female, and about 1% were non-binary.

- The mean age of stopped drivers was about 37 years-old.

- About 39% of stopped drivers were 29 years-old or younger and the remaining 61% were 30 years-old or older.

- About 16% of stopped drivers in the state as a whole were African American/Black, 15% were Hispanic, 65% were White, and 4% were Other (Asian, Asian Pacific, American Indian, Middle Eastern or Pacific Islander).

- Nearly 68% of motor vehicle stops were not residents of the jurisdiction where the stop occurred.

Major Findings of the Statewide Analyses

Veil of Darkness Analysis (VoD): Statewide Analysis for All Stops

- The chi-square test for the state as a whole for all stops (n = 425,702) was statistically significant, which is taken as evidence that there is a relationship between the likelihood of a Non-White motorist being stopped during the day as compared to darkness (as well as there is a relationship between the likelihood of a White motorist being stopped during the day as compared to darkness). The results of this test for all stops indicates that White motorists are *more likely* to be stopped in daylight than in darkness whereas Non-White motorists are l*ess likely* to be stopped in daylight than in darkness.

- The VoD logistic regression for all stops statewide (n = 425,702) was also statistically significant. Specifically, the odds ratio was .641. This means that Non-White motorists were 36% *less likely* to be stopped in daylight than in darkness. This finding means that no support was shown for a pattern of racial disparity based on the VoD analysis for the state as a whole.

Veil of Darkness Analysis (VoD): Statewide Analysis for ITP Stops Only

- The chi-square test for the state as a whole for only the ITP stops (n = 137,493) was NOT statistically significant, which is taken as evidence that there is no relationship between the likelihood of a Non-White motorist being stopped during the day as compared to darkness. The results of this test for only the ITP stops show much more similar *within race* percentages of stops during daylight as compared to darkness, with Non-White motorists being slightly more likely to be stopped in daylight as compared to darkness and White motorists being slightly more likely to be stopped in darkness than in daylight.

- The VoD logistic regression for ITP stops only statewide (n = 137,493) was NOT statistically significant. This finding also means that no support was shown for a pattern of racial disparity based on the VoD analysis for the state as a whole.

Test for Disparities in Outcomes of Traffic Stops

- The results indicate that motorists in the Other race category are most likely to receive a warning, followed by White motorists. Conversely, Hispanic motorists, followed by African American/Black motorists are least likely to receive a warning.

- When it comes to receiving a *civil* citation, motorists in the Other race category were most likely to receive a civil citation, followed by Hispanic motorists. African American/Black motorists were least likely to receive a civil citation, followed by White motorists.

- When it comes to receiving a *criminal* citation, Hispanic motorists, followed by African American/Black motorists are most likely to receive a criminal citation whereas motorists in the Other race category, followed by White motorists were least likely to receive a criminal citation.

- When examining arrests by race/ethnicity, Hispanic motorists were most likely to be arrested, followed by Black motorists. Conversely, motorists in the Other race category were least likely to be arrested, followed by White motorists.

- Additionally, the chi-square test was statistically significant, which is taken as evidence that there is a relationship between race/ethnicity of the stopped motorist and the outcome of the stop (whether a motorist received a warning, citation, or is arrested). Although the chi square test tells us that there appears to be a statistically significant relationship between race/ethnicity of the stopped motorist and the outcome of the stop (and that relationship is NOT due to chance alone), that doesn't mean that the race/ethnicity of the stopped driver causes the specific stop outcomes. There is a lot we don't know about the circumstances of the stop that could definitely influence the outcome of the stop.

Tests for Disparities in the Decision to Search

- Only about 1% of traffic stops statewide resulted in a discretionary, non-inventory search (n = 3,724). Due to the small number of non-inventory searches that were conducted *and* the fact that we are not able to determine the initial reason for the stop, caution should be used in interpreting these results, especially for agencies that had less than 100 searches.

- The results indicate that Non-White motorists were more likely to be subjected to a non-inventory, discretionary search. Specifically, the results show that while about .74% of White motorists were subjected to a non-inventory, discretionary search, 1.21% of Non-White motorists were subjected to a non-inventory, discretionary search.

- The chi-square test tells us that there appears to be a statistically significant relationship between race/ethnicity of the stopped motorist and whether a non-inventory search is conducted (and that relationship is NOT due to chance alone) but that doesn't mean that the race/ethnicity of the stopped driver is the CAUSE of the search.

Major Findings of the Department-Level Analyses

- Department-level analyses were conducted for law enforcement agencies that had 100 or more stops during the 10-month data collection period. In total, about 80.9% of 350 agencies had 100 or more stops.

- As previously noted, the Veil of Darkness (VoD) is considered the most robust analysis for examining possible racial disparities in traffic stops. In total, the results showed that three departments (Hadley Police Department, Ludlow Police Department and Massachusetts State Police Troop H-3) had odds ratios that indicated that Non-White drivers were more likely to be stopped during the day than at night. We caution that this does NOT prove that any of these departments are engaging in racial profiling; there are many explanations for racial disparities in traffic enforcement other than officer bias. These findings simply serve as a starting point for further discussion and reflection.