2020 MASSACHUSETTS UNIFORM CITATION DATA ANALYSIS REPORT

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OVERVIEW OF CURRENT STUDY

1. Description of Variables Used
2. Methodology
3. Findings
4. Strengths of the Current Study
5. Limitations
6. Recommendations to Improve the Data
7. Important Take-Away Points

DESCRIPTION OF VARIABLES USED

MOTORIST DEMOGRAPHICS

Age

- Age of driver

Residence

- Motorist's home state and zip code

- **Race/Ethnicity[1]**
- AA/Black
- Hispanic
- White
- "Other"
- Unknown

[1] Officer perception

Gender

- Male
- Female
- Non-Binary
- Unknown

INFORMATION ABOUT THE STOP

- **Stop Details**
  - **Date, time, law enforcement agency**
- **Outcome of Stop**
  - Warning, Citation (Civil or Criminal), or Arrest
- **Non-inventory, Discretionary Search Conducted (Y/N)**

METHODOLOGY

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1. **Statewide Analyses**
   - **All stops in Massachusetts**
2. **Department-Level Analyses**
   - **Only** for departments with ≥ 100 stops
     - 80.9% of 350 agencies had ≥ 100 stops

METHODOLOGY (STATEWIDE)

- **Provide descriptive statistics**
- **Three Different Types of Analyses:**
  1. **Veil of Darkness Analysis**
     - All Stops
     - ITP Stops Only
  2. **Tested for Disparities in Outcomes of Traffic Stops**
  3. **Examined Discretionary, Non-Inventory Searches**

METHODOLOGY (DEPARTMENT-LEVEL)

- **Provide descriptive statistics**
- **Five Different Types of Analyses:**
  1. **Compared Department-Level Data to Statewide Average**
  2. **Compared Department-Level Data to Resident Population Demographics**
  3. **Veil of Darkness Analysis**
     - All Stops
     - ITP Stops Only
  4. **Tested for Disparities in Outcomes of Traffic Stops**
  5. **Examined Discretionary, Non-Inventory Searches**

VEIL OF DARKNESS & INTERTWILIGHT PERIOD

- The Veil of Darkness (VoD) analysis uses changes in natural light to assess disparate treatment in traffic stops
  - 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
- Examines a restricted sample of stops occurring during the "intertwilight period," or ITP which occurs during morning and/or evening commute times
  - The dawn ITP is defined as the earliest start of civil twilight to the latest sunrise while the dusk ITP is defined as the earliest sunset to the earliest end of civil twilight.
  - Visibility during these times will vary throughout the course of the year, which makes it possible to compare stop decisions *at the same time of day with substantially similar driving populations but in different lighting conditions*

VEIL OF DARKNESS & INTERTWILIGHT PERIOD

- VoD uses logistic regression to test whether the odds of Non-White traffic stops during daylight are significantly different from the odds of Non-White traffic stops during darkness
  1. If the odds ratio is NOT statistically different from 1.0 = no difference in stops made during daylight and darkness
  2. If the odds ratio is less than 1.0 AND is statistically significant = the odds of a Non-White driver being stopped in daylight are lower than in darkness
  3. If the odds ratio is greater than 1.0 AND is statistically significant = the odds of a Non-White driver being stopped in daylight are higher than in darkness
     - Potential evidence of racial disparities in stops after accounting for additional control variables that are available in the stop data, including the season of the year and whether it is a weekday or weekend

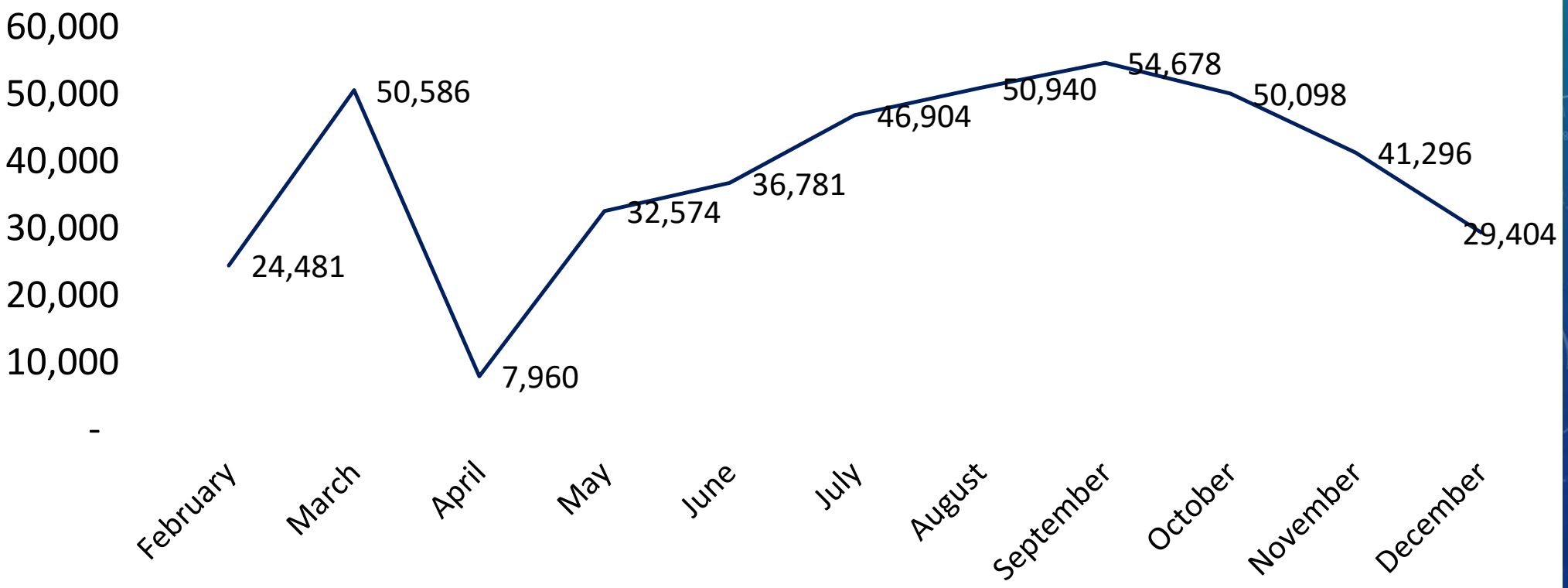
FINDINGS

INFORMATION ABOUT THE STOPS

- Total of **425,702** stops by **350** law enforcement agencies in Massachusetts from 2/23/2020 through 12/31/2020
- Municipal Police: **60%**
- MA State Police: **40%**

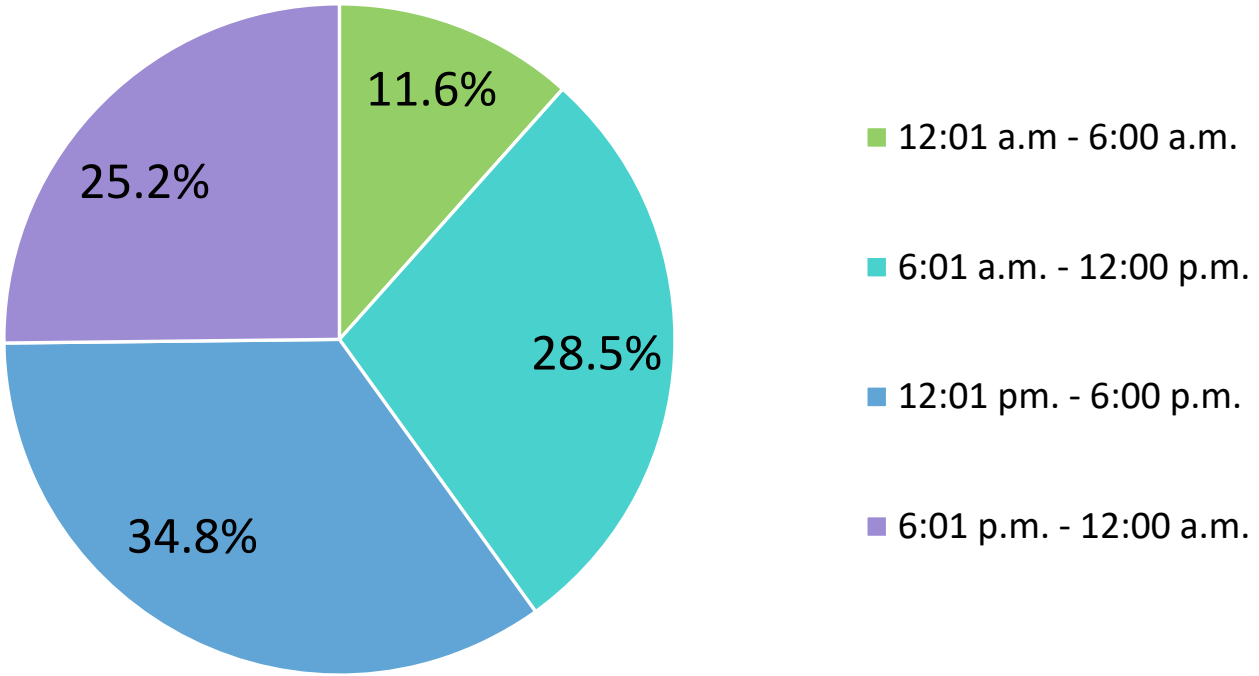
STATEWIDE TOTAL STOPS BY MONTH

Figure 2. Statewide Total Stops By Month



STATEWIDE STOPS BY TIME OF DAY

Figure 1. Statewide Stops by Time of Day



STATEWIDE DESCRIPTIVE STATISTICS, ALL STOPS VS. ITP STOPS

All stops (N = 425,702)			**ITP stops only** (N= 137,493, 32.2% of all stops)		
Mean age		**37.2**	Mean age		**36.9**
Zip Code Matching	Intown motorist	**32.1%**	Zip Code Matching	Intown motorist	**32.4%**
	Passing through	**67.9%**		Passing through	**67.6%**
Gender	%		Gender	%	
	Female	**34.0%**		Female	**33.0%**
	Male	**65.2%**		Male	**66.2%**
	Non-binary	**0.9%**		Non-binary	**0.8%**
Race	%		Race	%	
	AA/Black	**15.7%**		AA/Black	**14.7%**
	Hispanic	**14.7%**		Hispanic	**14.4%**
	White	**65.5%**		White	**66.8%**
	Other	**4.1%**		Other	**4.0%**

STATEWIDE VEIL OF DARKNESS ANALYSIS, ALL STOPS VS. ITP STOPS

All stops (N = 425,702)			ITP stops only (N = 137,493)		
Race	Daylight	Darkness	Race	Daylight	Darkness
Non-White	**31.5%**	**41.6%**	Non-White	**33.4%**	**33.1%**
White	**68.5%**	**58.4%**	White	**66.6%**	**66.9%**
Chi-Square:	.000*	*sig.*	Chi-Square:	0.335	*not sig.*
Odds ratio Exp(B):	.641*	*sig.*	Odds ratio Exp(B):	.984	*not sig.*

STATEWIDE STOP OUTCOMES BY RACE/ETHNICITY

	Warning	Civil Citation	Criminal Citation	Arrest
African American/Black	**59.7%**	**23.7%**	**13.5%**	**3.1%**
Hispanic	**52.4%**	**25.8%**	**18.0%**	**3.7%**
White	**63.7%**	**24.3%**	**9.6%**	**2.4%**
Other	**64.0%**	**29.5%**	**5.1%**	**1.3%**
Chi-Square		.000*	sig	

STATEWIDE NON-INVENTORY SEARCHES BY RACE/ETHNICITY

	# of Searches	% Within Race Subject to Search
Non-White	**1,718**	**1.21%**
White	**2,006**	**0.74%**
Total Searches	3,724	N/A
Chi-Square	.000*	sig

STRENGTHS OF THE CURRENT STUDY

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1. The new law (Chapter 122 of the Acts of 2019) requires more detailed information be collected about the stop and the motorist demographics than the previous law (Chapter 228 of the Acts of 2000), including information about the **time of the stop**, the **location of the stop** and the **age of the motorist stopped**
2. The new law also requires that the findings of the analyses be made publicly available and that at least three public hearings be held to accept public testimony on the findings of the analyses
3. In keeping with best practices, we utilized multiple different types of analyses to examine potential racial disparities

LIMITATIONS

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- Race/ethnicity of stopped driver is officer perception
- Data only includes traffic stops that result in a formal, written warning or citation
  - The data does not include traffic stops where only a *verbal warning* is given. It would be particularly important to have data on verbal warnings to examine potential racial disparities in who is given a verbal warning and who is cited as these are often the violations that allow for the most discretion
- In cases where a motorist has multiple infractions, the data does not identify which of the infractions was the "triggering" offense, or the *reason for the stop*

LIMITATIONS

- The data does not include information regarding whether the stop was discretionary or if the stop was conducted due to a warrant or a dispatched call
- The data does not include any information on motorist behavior after being stopped nor do we have any data on the prior record or prior contacts with law enforcement, which would be legitimate factors that would likely influence who gets a warning and who gets a citation as well as who gets searched
- The data does not include information on the outcome of a search (i.e. whether contraband was found or not)

LIMITATIONS

- When considering the Veil of Darkness (VoD) analysis, it is also important to note that there are limitations regarding the extent to which the visibility of race is truly tied to the time of day
  - Lighting, speed and other factors (i.e. tinted windows, weather) can also impact the officer's ability to identify the race of the driver. Additionally, VoD also cannot account for the potential impact of either neighborhood profiling or vehicle profiling
- When considering the Department-Level Data (stops by department) to Resident Population Demographics, caution should be used in interpreting these results due to the fact that in the current study, only 32% of the stopped motorists were residents of the community where the stop occurred
- When considering the Department-Level Data (stops by department) to the Statewide Average (*all* law enforcement stops in the entire state) it is important to note that the statewide average is highly influenced by the stop data from the larger cities as larger cities make up the largest volume of stops overall

LIMITATIONS

- Since this is the first year since the law went into effect that stop data was collected, we do not have a full year of data. It is possible that not having the data on stops for all of January and part of February 2020 may have impacted the findings of some of the analyses
- The COVID-19 pandemic likely had an impact on not just driving patterns but also traffic enforcement patterns during much of 2020.
  - For example, there were far fewer vehicles on the road for the lockdown periods. Additionally, the lockdowns likely had an impact on who was on the road and who was working from home (“essential” vs. “non-essential” workers)

RECOMMENDATIONS TO IMPROVE THE DATA

1. Consider collecting data on all motor vehicle stops, including verbal warnings
2. Consider collecting data on outcome of a search (i.e. whether contraband was found or not) for a more robust analysis
3. Consider identifying the “triggering offense,” or the initial reason for the stop in the data
4. Consider collecting information on duration of the stop

IMPORTANT TAKE-AWAY POINTS

- The data are not perfect (especially this year), and therefore do not “prove” anything
  - *Disparity does not equal discrimination or profiling*
  - Instead, this report serves as the starting point for reflection and further learning and discussion
- The goal of this study is to learn more about potential patterns of disparity in traffic stops for the purposes of understanding the causes of these disparities and building or maintaining community trust, ultimately making us all safer