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Factors influencing racial disparities in traffic enforcement in Massachusetts

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FACTORS INFLUENCING RACIAL DISPARITIES
IN TRAFFIC ENFORCEMENT IN MASSACHUSETTS

A dissertation presented

by

Jack McDevitt

to

The Program of Law, Policy and Society Program

In partial fulfillment of the requirements for the degree of
Doctor of Philosophy

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Boston Massachusetts
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ABSTRACT OF DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Law, Policy and Society
in the Graduate School of Arts and Sciences
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ABSTRACT

This dissertation seeks to understand the extent to which community-level or organizational-level factors are related to the level of racial disparity in traffic enforcement in Massachusetts. Prior research has demonstrated that racial disparities exist in the ways traffic laws are enforced in Massachusetts and in many other communities across the United States. Little research, however, has focused on what factors may be associated with these disparities. Two theoretical frameworks suggest potential explanations for the disparities that have been identified: racial-threat theory and police-organizational theory. Racial threat theory suggests that racial characteristics of a community, such as the size of the minority population or the change in the size of the racial population, may be associated with the level of racial disparity in traffic stops practiced by the police in a particular community. From this perspective the perceived level of threat posed by the minority community either due to the overall size of the community or the population growth of that group, would result in increased enforcement directed at minority drivers. From the police organizational theory perspective prior research has shown that characteristics of police agencies can influence the use of discretion by the officers of that agency. This research investigates the extent to which certain police organizational characteristics influence the level of racial disparity in traffic enforcement practiced by officers of that agency.

The research finds some support for racial threat theory in the practice of stopping vehicles driven by non-White drivers in Massachusetts but the research finds no support for racial threat theory in the practice of searching non-White drivers. The implications of this model are that in communities with a larger non-White population the police are more likely to stop non-white drivers disproportionately as suggested by some racial threat theorists.

In the analysis of police organizational characteristics again the variables in the model were associated with the decision to stop but not the decision to search non-White drivers. Departments with a written community policing plan were less likely to have high disparities in stops.

When the two models were combined to account for community level variables and police organizational two indicators are significantly related to the level of disparity in traffic stops the proportion of the community's population that is non-White and the existence of a community policing plan. The implications of this research are that community level and organizational level factors can help to explain the disparity that has been noted nationally in the traffic enforcement practices of police.

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Chapter 1

Statement of Problem

Definition

The term *racial profiling* has been used to describe a wide variety of situations, ranging from ethnic genocide to simple acts of disrespect by a person in power such as a police officer. In order to examine this phenomenon, it is first necessary that we define the behavior under review in this research. As defined by the United States Department of Justice in 2000 racial profiling is “any police initiated action that relies on race, ethnicity or national origin rather than the behavior of an individual or information that lead police to a particular individual who has been identified as being or having been engaged in criminal activity” (Rameriz, McDevitt, & Farrell, 2000).

A number of additional definitions have also been put forth to describe the practice. For example, the International Association of Chiefs of Police defines *racial profiling* as “the detention, interdiction or other disparate treatment of any person on the basis of their racial or ethnic status or characteristics” (2000). This definition differs from the Department of Justice version, somewhat surprisingly, because it was developed by a police organization but does not include an exception for the use of race when it is part of intelligence developed by the police in a particular case.

A third definition was put forth by the Police Executive Research Forum (PERF). In their description, PERF scholars coined a new term for racial profiling: *Racially Biased Policing*. The PERF Definition states, “Racially Biased Policing occurs when law enforcement inappropriately considers race or ethnicity in deciding

with whom and how to intervene in an enforcement capacity” (Fridell, 2004). This new term *racially biased policing* was intended to expand the traditional definition of racial profiling to include law enforcement decisions, in addition to traffic and pedestrian stops, in decisions such as making an arrest and using force.

Background

While allegations of bias by police have been made since public police agencies were originally formed, the public attention to racial profiling in the context of traffic stops came to widespread public attention in the late 1980s and 1990s, following public accusations that the New Jersey and Maryland State Police were engaged in a practice of stopping Black and Latino drivers more frequently than White drivers (Harris, 2002). As the public debate intensified, the practice became known as “Driving While Black or Driving While Brown (DWB)” (Gates, 1995).ⁱ

The public attention was followed by a gradually increasing amount of social science research devoted to the topic of racial profiling. The initial research was conducted in association with litigation, specifically the litigation filed against the New Jersey State Police in *State of New Jersey vs. Pedro Soto* (1996) and the Maryland State Police in *Wilkins vs. the Maryland State Police* (1993). The initial research compared stops and searches by the New Jersey and Maryland State Police to observations of the race of those driving on each State’s highways (State of New Jersey vs. Pedro Soto, 1996; Wilkins vs. the Maryland State Police, 1993). These initial studies found significant disparities in the rate at which Black and Latino drivers were stopped and searched on each State’s highways in comparison to White drivers.

This initial research was followed by an additional wave of research on allegations of racial profiling conducted by both academic researchers and by police agencies themselves (Harris, 2002; Ramirez et al., 2000). Individual police departments across the country began to collect information on traffic stops, attempting to determine whether allegations of racial profiling would be supported or refuted by the data. Research was conducted for the states of Rhode Island, Connecticut, Missouri, Massachusetts, Texas, and Illinois and in many cities across the country (Fridell, 2004). The results of this research have not been as definitive as the researchers, advocates, or practitioners had hoped.

In general, research has been inconclusive as to the role race of the driver may play in a police officer's decision to stop a vehicle, with most studies finding that it is not possible to conclude that police were engaged in racial profiling (Fridell, 2004). Given this lack of consensus regarding traffic stops themselves, there appears to be a bit more agreement that race may play a role in post-stop decisions, that is decisions to search or issue a formal citation to the motorist who has already been stopped. (Engle, Calnon, & Bernard, 2002; Fridell, 2004). Research to date has consistently found that, once stopped, Black and Latino drivers are more likely to be searched and more likely to receive a formal written citations than white drivers. (Decker & Rojek, 2002; Fagan & Davies, 2000; Farrell, McDevitt, Cronin, & Pierce, 2003). This research has had a limited impact on public policy, in part because the cause of the disparities are yet undetermined. Specifically, almost all the research to date has been unable to determine whether the disparities that have been documented are a result of racial bias by police or the result of other factors such as community demographics,

departmental policies or practices (e.g., deployment practices), or differences in driving activity for selected racial or ethnic groups (e.g., speeding).

Variation in Racial Disparity

One additional finding that has been relatively consistent in the literature on racial profiling has been that there are wide variations in the levels of disparity identified in law enforcement agencies. While law enforcement agencies are often thought of as functioning similarly across jurisdictions, such does not appear to be the case in traffic enforcement. It appears that there are large variations across police agencies in how they enforce statewide traffic laws. In research done in Missouri, Rhode Island, and Massachusetts, for example, law enforcement agencies varied widely in both the character of their traffic enforcement practices and in the levels of racial disparity. The Missouri Attorney General's Office reports data on traffic stops annually, and the research team that works with the Attorney General computes a disparity index, which is simply a ratio of traffic stops of drivers of a particular race to an estimate of the size of population of that racial group in the community. In this measure, a ratio of 1 means that the racial make-up of traffic stops is equivalent to the racial population figures. In 2006, the rate for Blacks being stopped in the 635 jurisdictions in Missouri ranged from 0.00 to 8.55 (Missouri Attorney General Jay Nixon, 2007). These figures indicate that, in some jurisdictions, there were no stops of Blacks, and in one jurisdiction, Blacks were stopped at a rate 8 times their estimated population in the community.

Similarly, in Rhode Island, the 40 police agencies demonstrated wide variations in the racial disparities associated with traffic enforcement practices. In

Rhode Island, racial disparities in traffic stops ranged from 22.9% in Providence, meaning that the Providence Police stopped 22.9% more non-White drivers than the estimated driving population, to Bristol whose police stopped 1.7% fewer non-White drivers than the estimated driving population (Farrell et al., 2003). Table 1.1 presents a listing of these disparities for all Rhode Island Communities.

Table 1.1

*Non-White Driving Population Estimate Compared to Non-White Stops,
Sorted by Level of Disparity*

Jurisdiction	Percent non-White driving population estimate (DPE)	Non-White stops, 2004 - 2005	Absolute difference
Providence	32.2%	55.1%	22.9%
Cranston	14.0%	30.6%	16.6%
North Smithfield	6.6%	22.4%	15.8%
Lincoln	7.0%	20.4%	13.4%
North Providence	10.8%	24.0%	13.2%
Johnston	6.4%	17.9%	11.5%
Woonsocket	14.6%	25.1%	10.5%
East Providence	14.9%	24.8%	9.9%
Central Falls	51.4%	60.6%	9.2%
State Police	15.1%	23.2%	8.1%
Cumberland	6.9%	12.6%	6.7%
Foster	3.8%	10.5%	6.7%
Pawtucket	24.4%	30.7%	6.3%
Jamestown	3.1%	8.7%	5.6%
Hopkinton	3.7%	8.4%	4.7%
Warwick	9.5%	13.2%	3.7%
Smithfield	5.2%	8.8%	3.6%
Charlestown	3.7%	7.0%	3.3%
Portsmouth	6.2%	9.3%	3.1%
Westerly	5.5%	8.4%	2.9%
East Greenwich	6.3%	9.2%	2.9%
West Greenwich	3.4%	6.2%	2.8%
Tiverton	3.2%	5.9%	2.7%
Narragansett	4.3%	6.9%	2.6%
Warren	4.1%	6.4%	2.3%

Jurisdiction	Percent non-White driving population estimate (DPE)	Non-White stops, 2004 - 2005	Absolute difference
South Kingstown	8.7%	10.9%	2.2%
Richmond	4.0%	6.1%	2.1%
New Shoreham	2.6%	4.6%	2.0%
Scituate	3.1%	5.1%	2.0%
West Warwick	7.9%	9.8%	1.9%
Newport	12.0%	13.7%	1.7%
Coventry	3.6%	4.5%	0.9%
North Kingstown	7.7%	8.6%	0.9%
Little Compton	2.3%	3.1%	0.8%
Burrillville	2.8%	3.6%	0.8%
Barrington	5.2%	5.5%	0.3%
Gloucester	2.6%	2.7%	0.1%
Middletown	10.1%	8.6%	-1.5%
Bristol	6.0%	4.3%	-1.7%

In Massachusetts, similar variation exists in the rates of disparity in traffic stops by local police agencies (Farrell, McDevitt, Bailey, Andresen, & Pierce, 2004). In an analysis comparing stops of residents to census data on the demographics of the community, the rates of disparity ranged from 24.2% in Lawrence and 23.2% in Boston to a -11.7% in West Boylston (Farrell et al., 2004). These figures indicate that, in Lawrence, 24.2 more non-White resident drivers were stopped than the census data indicated lived in the town, and at the other extreme, in West Boylston, 11.7 fewer non-White resident drivers were stopped than census data indicated were living in the town. This wide variation in the level of disparity across police agencies offers an opportunity to investigate the factors associated with communities or police agencies that have the largest racial disparities

Additionally, these statewide studies have also documented wide variation in the other traffic enforcement practices of individual police agencies. Variation exists

across agencies in the rate that traffic citations are issued as compared to traffic warnings and in the rate in which drivers are searched. These variations offer a research opportunity and raise an important question as to why such wide variations exist. For example, again in Rhode Island, agencies varied in the proportion of their stops that resulted in an official citation being issued, from a low of 7.9% in Newport to a high of 97% in Pawtucket (Farrell et al., 2003). In another example, as illustrated in Table 1.2, departments varied widely in their search activity with 1.5% of the stops by the Barrington Police resulting in a search and 21.6% of the stops by the Providence Police resulting in a search of the driver or occupants (Farrell et al., 2003).

Table 1.2

Stops Resulting in a Search by Agency

Jurisdiction	<i>N</i>	<i>P</i>
Providence	2,962	21.6%
Woonsocket	1,091	14.9%
Central Falls	607	13.9%
East Providence	1,883	12.5%
East Greenwich	419	12.3%
Warwick	1,974	12.3%
North Smithfield	356	11.6%
Richmond	172	11.3%
West Greenwich	107	11.0%
Westerly	248	10.9%
West Warwick	387	10.3%
Burrillville	219	8.8%
Hopkinton	274	8.4%
Triverton	369	8.2%
Cranston	746	7.9%
Portsmouth	499	7.9%
North Providence	521	7.8%
Bristol	486	7.7%
Narragansett	336	7.0%
SP - Hope Valley	954	6.8%

Jurisdiction	<i>N</i>	<i>P</i>
Warren	315	6.8%
Charlestown	153	6.7%
SP - Lincoln Woods	921	6.2%
Lincoln	138	6.2%
Middletown	375	6.1%
SP - Wickford	643	6.0%
Coventry	391	5.9%
All State Police	3,340	5.8%
SP - Portsmouth	340	5.6%
Jamestown	68	5.3%
Little Compton	95	5.2%
Scituate	109	5.1%
Glocester	168	4.9%
North Kingstown	440	4.9%
Newport	368	4.6%
Johnston	428	4.5%
Smithfield	301	4.4%
Cumberland	267	4.3%
New Shoreham	15	4.2%
Foster	36	3.6%
SP - Chepachet	316	3.3%
Pawtucket	332	2.1%
South Kingston	304	2.0%
Barrington	39	1.5%

Impact on Public Policy

Interestingly, much of the research on racial disparities in traffic enforcement has not significantly impacted public policy, with one notable exception in which the research was part of the evidence cited in litigation seeking court ordered intervention in particular police agencies (Fridell, 2004; Harris, 2002). In these cases, the litigation was part of a “pattern and practice” suit filed in Federal Court. Section 14141 of the 1994 Violent Crime Control Act authorizes officials from the United States Department of Justice to initiate an investigation of a law enforcement agency if there is credible evidence that members of that agency are engaged in a “pattern and

practice” that results in the abuse of citizen rights. A number of these lawsuits were filed in the 1990’s and early 2000’s, and as of 2006, about 20 had come to settlement (Racial Profiling Data Collection Resource Center, 2007). In addition to the suits mentioned above in New Jersey and Maryland, similar litigation has been filed in Buffalo, New York; Cincinnati, Ohio; Columbus, Ohio; Highland Park, Illinois; Los Angeles, California; Pittsburg, Pennsylvania; Providence, Rhode Island; and Mount Prospect, Illinois. In recent years, the Civil Rights division of the United States Department of Justice has become more reluctant to bring these pattern and practice cases, and thus, more recent complainants who believe they have been the victims of racial profiling have been forced to go into the state court systems.

In general, though, the research completed to date has been met with substantial frustration because researchers have not been able to support either the position of the police (that racial profiling was not occurring) or the position of the advocate community (that racial profiling was widespread). There are multiple reasons for this frustration, including concerns about the use of various driving-population benchmarks, concerns about the quality of the data on traffic stops, and concerns about whether racial disparities that have been identified reflect the inappropriate use of race by police or differential rates of offending by various groups.

Recently a few scholars have raised an additional set of concerns regarding the lack of a theoretical orientation to the existing body of racial profiling work (Engle et al., 2002; Petrocelli, Piquero, & Smith, 2003). While debate continues about the extent and character of the racial disparities that have been documented by the

existing research, little research has examined why these disparities might be occurring. Most research to date has assumed a “bad apple” perspective: that a few police officers (bad apples) may be racist and are the cause of the disparity for an entire organization. Little research has focused on alternative explanations, such as community demographics or police organizational characteristics that may cause the disparities that have been noted.

Few of the research studies completed thus far have been guided by a theoretical framework that might provide an explanation as to the reasons racial disparities might be occurring in a jurisdiction (Engle et al., 2002). A number of reasons exist for this lack of theoretical orientation in the existing research. First, the initial series of research studies were exploratory, attempting to determine whether the allegations of racial profiling were supported by empirical evidence. These studies were primarily descriptive and atheoretical. A second reason for the lack of theory guiding much of the early research may have resulted from the fact that much of the initial research was contracted by state organizations or local municipal agencies that were looking for a quick answer to the question of whether it was happening in their jurisdictions. Consequently, a significant gap exists in our understanding of the causes of racial disparities that have been noted in the literature, this research seeks to begin to fill that gap.

This current research will attempt to test two theoretical frameworks for understanding allegations of racial profiling. This dissertation will attempt to look at racial disparities in one state, Massachusetts, from two theoretical orientations in order to develop a deeper understanding of the factors that may be associated with

racial disparities in traffic enforcement. First, this research will review community level characteristics that might be associated with racially disparate traffic enforcement consistent with conflict theory or, more specifically, racial threat theory (Parker, McDonald, Alpert, Smith, & Piquero, 2004). Second, many police scholars have argued that institutional characteristics of police organizations significantly influence the behavior of officers (Crank and Langworthy, 1992; Fridell, 2004; Wilson, 1968); therefore, this research will also examine the structural characteristics of police agencies and how these characteristics may explain the existing variations in racial disparity.

Chapter 2

Methodological Considerations Regarding Racial Profiling Research

Stop and Poststop Distinctions

The research on racial disparities in traffic enforcement has focused on two primary decision points: first, the decision to stop a motorist (or in a smaller number of studies a pedestrian) and, second, what has been called “poststop decisions,” the decision to formally cite or to search a driver after he or she has been stopped. There are a number of substantive and methodological reasons for viewing these two decision points separately.

First, a common complaint from law enforcement officials accused of racial profiling is that they often cannot determine the race of the driver before they stop a vehicle. Police officials have argued that, at night, in inclement weather and on highways, it is frequently impossible to identify the race of a driver prior to an officer’s deciding to pull over a vehicle. This is particularly true of stops initiated by radar with which the officer is watching the speed of an approaching vehicle rather than the race of the driver of the oncoming vehicle. These police officials have argued that racial disparities cannot be the result of racial profiling in these cases because the officers did not know the race of the drivers at the time of the stops.

This concern is substantially reduced in poststop decisions, such as the decision to search or formally cite a motorist after the vehicle has been stopped. At this decision point, the officer has reviewed the driver license and registration and has, in many cases, had a brief conversation with the driver at the vehicle. There is little debate that the officer has information on the race of the driver when he or she

makes a decision to cite or search the driver. This research will include both decision points in the analysis.

A second concern of police officials involves the lack of objective information about the race of the driver. In almost all jurisdictions collecting data on racial disparities in traffic enforcement, the race of the driver is measured by the perception of the officer. Many police organizations have argued that race of drivers should be included in some official record, such as on the drivers' licenses, so that officers do not need to guess the race of drivers. While an entire body of literature exists concerning race as a social construct not an objective variable (Lopez, 2004), there is a more important reason for asking the officers to record their perceptions of the race of motorists. The allegations of racial profiling that have been made are based on perceived differential treatment that is based on the perceptions of the officers; because the officers, in the vast number of interactions, do not have objective indications of the drivers' race and do not ask the drivers about their race, it is the officers' perceptions that fuel any disparate treatment that may occur. Most researchers and legislators have decided that the perception of the officer is the correct measure of race in this instance. This present research will use the perceptions of the officers as the measure of the race of the drivers.

Identifying an Appropriate Benchmark

Methodologically, the distinction between prestop and poststop decisions also has some merit. The analysis of the decision to stop a vehicle involves a comparison of the race of those drivers who are actually stopped to the drivers available to be stopped. For example, if a police agency indicates that 20% of the drivers stopped by

its officers are African American, how would they know whether that proportion is too high or too low? The department would have to know how many African American drivers were available to be stopped in order to make that comparison. The racial composition of the drivers available to be stopped has been one of the most elusive and controversial measures in all racial-profiling research.

The definition of drivers “available to be stopped” would include all those drivers who are committing a traffic violation that has come to the attention of law enforcement. The two parts of this definition must occur proximately. In other words, a driver must be violating a specific traffic statute and be observed doing so by a police officer. A number of factors may affect the decision of a police officer to stop a vehicle, such as the seriousness of the violation, the prior criminal or traffic history of the driver (if known), and—it has been alleged—the race of the driver. In almost all situations, due to traffic flow and officer safety considerations, police cannot pull over all the cars “available to be stopped,” so they must make choices about which of a number of vehicles violating the traffic laws they will stop. In a perfect situation, in deciding which of the available vehicles to stop, police would use legitimate factors, such as the severity of the violation (e.g., the number of miles over the speed limit the vehicle is travelling) or the criminal history of the driver (e.g., the car is registered to a person with an outstanding felony warrant). However at its most basic level, the controversy about racial profiling involves allegations that police use race as a primary factor in deciding which of the available vehicles to stop.

The ability to measure the number and characteristics of drivers meeting both elements of the “available to be stopped” definition has been very difficult for social

scientists. More will be said about the methodologies employed by social scientists later, but obtaining an accurate measure of drivers who are violating a traffic law and have been observed by a police officer has been one of the most significant challenges facing social-science research in this area.

The methodological challenges are again reduced somewhat if the analysis is reduced to poststop decisions. As mentioned previously, the concern about whether an officer has information on the race of the driver is reduced because the officer has already had an interaction with the driver and, in most cases, has reviewed the driver's license and registration, which contain the driver's name and address. In addition, restricting the analysis to poststop decisions also minimized the need to develop an appropriate benchmark of drivers "available to be stopped." The appropriate universe of drivers for the analysis of poststop decisions is the pool of drivers who have been stopped. In other words, the racial composition of the drivers searched in a particular community should be compared to all those drivers who were subject to being searched: all drivers that were stopped by the police in that jurisdiction. In jurisdictions such as Massachusetts, where all police officers were (for a period of 27 months) required to document driver characteristics, including race of driver for each traffic stop, such data exist and provide the most appropriate comparison group.

Benchmark for Analysis

One of the most vexing issues for research on the racial and ethnic disparities in traffic enforcement practices by police involves what has been termed the "benchmark question" (Fridell, 2004; Walker, 2001). This question involves

determining the most appropriate group to compare to the demographics of drivers stopped by the police. Previous research has used a number of sources to calculate a measure of the driving population, the most common sources include census data and adjusted census data, observational data, and most recently, accident data. The strengths and weaknesses of using each of these sources are discussed below.

Census

The use of census data, one of the most common benchmarks in the initial racial profiling research, has been criticized for a number of reasons. Most often, this data source is criticized for not accounting for the large number of drivers who drive through a jurisdiction but do not live in the jurisdiction (Farrell et al., 2004; Fridell, 2004). The use of simple census population figures has a number of additional problems as well.

These problems reflect two main limitations: one is geographic, and the other behavioral. First, the census is collected to measure the number of people who live in a particular jurisdiction; however, the travel patterns of these individuals are not reflected in the census data. Consequently, the data are, by definition, unable to measure the population of a community at given times of the day or days of the week. The second limitation in census data is that driving behavior is not standard across different groups who live in a community. Due to age or economic conditions, the driving behavior of individuals varies substantially across population groups. For example, not all the individuals listed in the census actually drive. All states have a minimum driving age, so the youngest individuals included in a community's population cannot drive. Second, many elderly people do not drive for health or

economic reasons. Finally, the poorest individuals in a community tend to drive less and take public transportation more often. For these reasons, there is little likelihood that the full, unadjusted census data would reflect the driving population of a community. Paradoxically, while it was known that census data are unlikely to reflect the driving population of a community, this data source was used often in the initial racial profiling studies, for example, the analysis done by the San Jose Police Department (Landsdown, 2000). The primary reason for the use of census data in these initial studies and many subsequent studies is their availability. They are the most widely available and inexpensive data on population demographics. Data obtained through other methods, such as observations described below, are much more costly and time consuming to collect.

Adjusted Census Data

After the initial set of studies, subsequent authors continued to use census data, but they began to adjust the data to attempt to reflect more accurately the driving population. Some of the most common adjustments included removing from the population figures those residents too young to drive (Cordner, Williams, & Zuniga, 2000). This adjustment was relatively easy to make and made the data used for comparison analyses more reflective of the driving populations; however, it did not account for nonresident drivers or differential rates of driving due to economic disparities. Researchers in Missouri (Decker & Rojek, 2002), Rhode Island (Farrell et al., 2003), and Massachusetts (Farrell et al., 2004) attempted to refine further the census measure by adjusting the population figures of a community to reflect the demographics of nearby communities. These models were the first to attempt to

adjust census data to reflect nonresident drivers. In Missouri, Decker and Rojek used a model that adjusted the population of the 92 largest cities in Missouri by weighting the population to include adjustments that incorporated the racial and ethnic population of any community within 20 miles. This weighting measure adjusted the racial demographics of each community by adding drivers from nearby communities to the target community. The authors adjusted the population measures by proximity to each community, with communities nearest to the target community contributing more and those farthest away contributing less.

In Rhode Island, the Northeastern University research team attempted to adjust the census figure by employing a sophisticated formula that was developed to correspond to similar formulas used in traffic research. The Northeastern formula adjusted the population of each community in Massachusetts by including drivers from communities within 30 minutes' driving time from that community. Prior traffic research had found that 30 minutes was the average driving time that individuals would drive to work or shop (Anderson, 1979). Additionally, the Northeastern team realized that not all communities were equally likely to be destination points for drivers, so they weighted each community by a series of factors that might cause individuals to be drawn to a particular community. Some of the measures reflected employment (proportion of the state's labor force employed in that community) or entertainment (number of commercial establishments in a community). These factors were used to weight the proportion of population from nearby communities that would be drawn into the city. These adjusted estimates may have reflected an improved estimate of the driving population, but there was still much controversy as

to how accurately they reflected the actual driving population in a particular community.

Observational Data

The acknowledged best method of measuring who is driving on the roads of a particular community is to observe and record the characteristics of these drivers. As noted earlier, in the initial research in New Jersey, Maryland, and North Carolina, this method was used on state highways and generally included having observers stationed by the side of a highway (stationary survey) or traveling on a highway (rolling survey) who recorded the race, gender, and other characteristics of a sample of drivers they encountered. This methodology overcomes many of the limitations of census data discussed above. It is not an estimate; it is a measure of who was observed by data collectors driving on the communities' highways. This method has also been accepted by a number of courts as an appropriate benchmark for comparisons of the drivers actually stopped by the police in the jurisdiction.

As a specific example of the methodology used to collect observational data, in New Jersey, Lamberth positioned observers on either side of the New Jersey Turnpike with binoculars. These observers each had responsibility for one of the four Turnpike lanes. Each observer was partnered with a recorder who wrote down the race of vehicle occupants based on information relayed by the observer. They observed each lane for 90 minutes and then took a 30-minute break. They conducted more than 21 sessions between June 11 and June 24, 1993, and the sessions were conducted between 8:00 am and 8:00 pm. Overall, the observers recorded the race of occupants in approximately 43,000 cars using this methodology (Lamberth, 1997).

The methodology for the rolling survey was slightly different. For this analysis, a single public defender drove along the New Jersey Turnpike at a constant speed of 60 miles per hour, which at the time was 5 miles per hour over the speed limit. He noted in a tape recorder the number of occupants and race of driver, as nonviolators, of each car he passed. He also noted in the tape recorder the race of occupants of all the cars that passed him, cars that Lamberth described as being driven by traffic violators. In this initial analysis, Lamberth noted that more than 98% of the vehicles were speeding, thus violating the traffic laws and being eligible to be stopped (Lambeth, 1997).

In North Carolina, the research team used a rolling survey, but in this case, they used multiple observers in a single vehicle. In North Carolina, teams of three to four graduate students rode in the observer vehicles. One student drove and had no additional responsibilities, one observer called out the race of the driver of each car they encountered at specified time intervals, and a third observer recorded the driver's race information. In order to determine whether a vehicle was speeding, a fourth observer timed the speed at which the vehicle passed the observer vehicle with a stopwatch. This method of measuring speeding was suggested as an improvement to the method used by Lamberth (1997). The authors first interviewed a number of state troopers concerning the actual speed at which a trooper would pull over a vehicle, realizing that, although legally permissible, very few stops are ever made for drivers' going one or two miles over the legal speed limit. The interviews revealed that most troopers would not pull a vehicle over unless it was going more than 10 miles over the speed limit. The research team then tested how long it would take for a vehicle to

pass the observer vehicle (from back bumper to front bumper) traveling at 10 miles per hour faster than the observer vehicle. During the actual observation, this measurement was used to determine whether the vehicle was speeding.

While this methodology is clearly more accurate than census estimates, it is not without its problems as well. The first problem is the time and cost involved in collecting this information. It is very costly to do these kinds of observations. For example, the North Carolina team received a grant of nearly \$400,000 from the National Institute of Justice to do its study of the North Carolina State Police. There are a number of reasons for the high cost of this research, one of which is that the driving population of a roadway changes during the day and from one section of the highway to another. For example, during the early morning hours, the highways may be used disproportionately by commuters, whereas at noontime, the population of drivers might look very different. Therefore, in order for the observations to be accurate, they need to be taken at different times of the day and on different days of the week. Additionally, different sections of a roadway may be used by drivers with different demographics. The driver demographics of a particular stretch of roadway may, for example, reflect the residential or employment demographics of the area.

A second limitation of observations is that they cannot generally be taken at night. A number of researchers have tried to make night observations, but none have found that observing the race of a driver at night on a highway was possible. With the very real possibility that the racial and ethnic make-up of the drivers may vary on a highway between night and day, this limitation makes analysis of nighttime traffic enforcement by local police much more challenging.

A third limitation of observations involves the designation of the ethnicity of the driver. As observers look into a car to determine the race of the driver, they can often tell whether the driver is Black or White, but it is much more challenging to determine whether the person is Latino. Most observation studies use inter-rater reliability tests to measure the validity of their observations. In these tests, multiple raters will separately observe and record the race or ethnicity of drivers. The recorded race data will then be compared between the observers, and a score will be computed of how often the observers agreed on the characteristics of the driver. Analysis of these results indicates that observers agree on the race of the driver more often than they agree on the ethnicity. In one example, in study of racial disparities in Miami, the researchers did not ask observers to record information on ethnicity, reporting that it was too difficult for observers to determine the ethnicity of drivers (Smith & Alpert, 2002).

A final limitation of observational methodology involves studies of traffic enforcement in municipal jurisdictions. With the exception of the Miami study, the previous discussion of traffic observation involved observation of highways. On the other hand, most of the studies of racial profiling have analyzed municipal jurisdictions. Observational studies of municipal jurisdictions can be done by placing observers at intersections of a community, but in statewide analysis, such as the 700 jurisdictions in Missouri or the 350 jurisdictions in Massachusetts, the costs quickly become prohibitive.

Accident Data

An alternative to both census data and observational data was suggested by Smith and Alpert (2002) in their analysis of racial disparities in traffic enforcement in Miami. These researchers tested the use of traffic accident data to measure the driving population in 11 intersections in Miami. They compared traffic accident data to observations of drivers passing through each intersection. They found that, in a majority of the intersections, the not-at-fault traffic accidents were an accurate reflection of the drivers passing through the intersections.

As with all other potential benchmarks, there are also limitations to using accident data. The chief limitation is the number of accidents that occur in a community. It is possible that, for example, at the neighborhood level of aggregation, some communities may not have sufficient numbers of accidents, particularly accidents involving non-White drivers, to allow for analysis. Using traffic accidents as a measure, however, is a potentially important development in the search for an accurate benchmark to compare to traffic enforcement data. If accident rates are an accurate predictor of the driving population, using such data could prove to be a low cost way to measure a community or neighborhood's driving population.

In the current research, the estimated driving population measure that was developed by Farrell et al (2004) for their analysis of Massachusetts will be used.

Disparity Versus Discrimination

One of the most challenging concepts in racial profiling research has been the relationship between disparity and discrimination. Most of the racial profiling research has attempted to measure racial disparities in traffic enforcement. Whichever

benchmark the researcher chooses to use, the ultimate question becomes “when is a disparity the result of discrimination?” To some advocates, any disparity in stops, searches, or citations is evidence of racial profiling. To most police officials, however, disparities are normal and result from a variety of factors that have little to do with race. A number of explanations have been put forth by police officials to explain disparities that have been identified, including deployment practices, drug enforcement practices, and variation in illegal behavior (Mac Donald, 2003).

The most common explanation involves the deployment of officers as an explanation for disparity. As the argument is presented, police are more likely to patrol high-crime areas because that is where they are needed. In many communities, these high-crime areas are the same areas where Blacks and Latinos live. Since more police are patrolling such areas, they will make more traffic stops in those areas, and when these traffic stops are aggregated to a city level, it will look like the police are disproportionately stopping Blacks and Latinos. While this may, in fact, explain the disparity in some communities, some questions have been raised about the explanation. First, while it is certainly true that more police are deployed to high-crime areas and that in many communities more non-White residents live in these high-crime areas, it is not clear that police do a great deal of traffic enforcement in these areas. It may be the case that police assigned to high-crime areas are too busy answering calls for serious crimes to do much traffic enforcement. This is an empirical question that, to date, no research has addressed.

The second explanation for racial disparities in traffic enforcement in certain communities involves a department’s focus on drug enforcement. Police officials

have argued that, if they concentrate their crime-reduction efforts on drug enforcement, they will make more traffic stops in neighborhoods where drugs are being sold at the street level. In many communities, these neighborhoods are again the areas where large numbers of non-White residents live. The police will often point out that, in these neighborhoods, the non-White residents are calling for them to stop the drugs being sold in the communities. The concern about this explanation is that, in most communities, only a small number of traffic stops are made as part of a drug investigation, and these will not normally be sufficient to skew the traffic enforcement numbers for an entire community. Again, this is an empirical question that merits further research.

An additional challenge to the explanations offered above involves questions of institutional racism (MacPherson, 1999). Critical race theorists have argued that institutions and organizations set policies that have racist outcomes, often unintended by those who implemented the policy. In the example above, the decision of a police agency to focus traffic-enforcement efforts on a particular neighborhood to reduce drug sales in that neighborhood may have the unintended result of stopping and searching a disproportionate number of African Americans or Latinos. These theorists would point out that the decision to choose this policy rather than a policy that focuses, for example, on the suppliers of large amounts of drugs into the neighborhood would have racially disparate impacts.

The final explanation offered by a small number of police is that minorities are more likely to be involved in crime, so they are stopped more. In the context of traffic enforcement, this argument has been bolstered by two empirical studies: the

study in North Carolina by Zingraff et al. (2000) and a subsequent study in New York that indicated that Black drivers appeared to speed at higher rates than White drivers (Lang, Johnson, & Voas, 2005). These two studies have been challenged on methodological grounds, but in each case, variations in speeding rates by race were small, particularly when compared to variations in speeding rates by age. In a variation on this argument, it has been argued that drug dealing and drug use are concentrated among the Black and Latino communities and that racial disparities in traffic reflect that reality (Mac Donald, 2003). These allegations of disproportionate drug use appear to contradict the finding of the national “Survey of Drug Use and Health” conducted by the U.S. department of Health and Human Services (SAMSHA 2002). This nationally representative survey indicated that drug-use rates were similar across racial and ethnic groups and that, in fact, White drug use rates were slightly higher than those for African Americans and Latinos.

The methodological challenges in racial profiling research are significant. The identification of an appropriate benchmark for analyses of traffic stops has proven particularly challenging. The literature has yet to identify a reasonably inexpensive methodology that can accurately measure the racial and ethnic composition of drivers in a particular jurisdiction. Even if an appropriate benchmark could be developed, researchers are still left with the problem of determining when a disparity is the result of discrimination and not other factors. Possibly, the most challenging public policy issue for those attempting to eliminate racial profiling may be is determining what agencies can do to eliminate them once such unexplained disparities have been

identified. This research attempts to provide some guidance to policy makers who are attempting to address this issue.

Chapter 3

Literature Review: Racial Profiling

The history of negative relations between African Americans and American police extends far back into American history. In one early example, police were used to enforce discriminatory laws during the “Jim Crow” period of this country’s history. Even after the Jim Crow period, police were often part of slave patrols to apprehend and return slaves who had left their prior owners, even in situations where they were legally free.

Historically, police were seen in many communities as those entrusted to keep African Americans in their “place.” In one example, in 1944, Gunnar Myrdal wrote “that Negro criminals or suspects, or any Negro who shows signs of insubordination should be punished bodily, and that this is a devise for preventing crime and for keeping the ‘Negro in his place generally’” (as quoted in Skolnick, 2007).

The history of problems between African Americans and the police continued with multiple incidents of police use of force, often serving as a spark to violence such as occurred with the urban violence of the 1960 and 1970s. A large number of the urban riots during this period followed an incident of perceived mistreatment by a police officer toward an African American citizen (Skolnick, 2007; Walker, Spohn, & DeLone, 2000). In fact, the most destructive riot in U.S. history followed the acquittal of the four white Los Angeles police officers in the beating of Rodney King after a high-speed traffic chase (Skolnick, 2007).

This present study investigates one of the most common present-day situations in which African Americans, Latinos, Middle-Eastern immigrants, and Asians allege

disparate and discriminatory treatment by the police in traffic stops. In 2007, noted criminologist Jerome Skolnick wrote “Aside from police use of excessive force—with or without shooting—perhaps nothing generates bitterness more than stops and searches that are, or appear to be, racially motivated” (p. 66).

The term racial profiling or the more common term “Driving While Black” or “Driving While Brown” came to public attention in the 1980’s, in part, as a result of a drug-courier profile that was developed and disseminated by the Drug Enforcement Administration (DEA) in the 1980s (Harris, 2002). This profile, developed by a Florida highway patrol officer and then shared with the DEA, cited qualities such as driving a car registered to someone else, the driver’s demeanor, driving in the early morning hours, and having sleeping bags or bedding in the car as indicators that the occupants may be involved in trafficking drugs (Harris, 2002). Once this profile was adopted by the DEA, it was included in the agency’s ongoing training offered to local law enforcement, and by one estimate, this training was provided to approximately 27,000 officers nationwide (Harris, 2002).

This profile was developed by the DEA to better prepare DEA agents to interdict interstate drug-distribution networks. A reasonable question exists as to the applicability of this profile to intrastate or community-level traffic enforcement. Would the same indicators that were reported to work on the interstate highways work within or across local communities? Would local drug dealers be as likely to fit the profile described above as interstate drug couriers, and if not, why would local police embrace this profile if it was unlikely to identify traffickers in their local settings?

It may be that local police embraced the approach suggested by DEA because it provided some structure to what was an extremely unstructured activity, traffic enforcement. Officers are trained in their police academies to do safe traffic stops, but they are generally not trained to do effective traffic stops. They are trained where to stand, how to interact with the driver, and when to call for backup if the encounter becomes higher risk. These are important elements of traffic enforcement and officer safety; however, the officers are seldom taught how to decide which vehicle to stop.

Officers learn that the goals of traffic enforcement are to promote traffic safety and to interdict illegal activity, including drug and gun trafficking (Mastrosfski Ritti, & Hoffmaster 1987). However, most training does not teach officers how the decisions they make might best help them achieve the goals of traffic enforcement. It is into this void that the DEA training may have fit. This training may have been viewed by officers as a guide to making effective traffic stops, at least in the area of drug interdiction. The training purported to show officers how to make the most effective traffic stops. In the absence of any other information as to the ways to make effective traffic stops, many local law enforcement offices embraced this training, even though the techniques suggested did not make as much sense in their local settings.

As indicated previously, late in the 1980s and early 1990s, a series of allegations surfaced concerning racially disproportionate traffic enforcement by the State Police in Maryland and New Jersey. These initial lawsuits were brought against two state police agencies in cases in which the officers involved may have been investigating what appeared to them as interstate drug trafficking.

In 1990, the American Civil Liberties Union (ACLU) brought suit on behalf of 19 African American drivers, alleging that the New Jersey State Police engaged in an ongoing pattern of disproportionately stopping members of various racial or ethnic groups (State vs. Pedro Soto, 1996). In this case, the New Jersey Superior Court accepted social-science evidence of disparate-enforcement practices as the basis for granting a motion to suppress evidence in the cases of these 19 defendants. While this case was progressing through the court system, the ACLU brought an additional suit on behalf of Robert Wilkins, a Black doctor who had been stopped on the Maryland Turnpike with three members of his family and forced out of the car. When he refused, the Maryland State troopers request that he consent to a search. The State troopers held Wilkins and his family out of their car and made them wait for a drug-sniffing dog to be brought to the scene. After the dog found nothing illegal in the vehicle or on its occupants, they were allowed to go on their way with a \$1500 traffic citation (Harris, 2002).

These initial court cases produced the first two academic studies on racial profiling in traffic enforcement. Both studies were conducted by John Lamberth, a psychologist from Temple University hired by the ACLU in both Maryland and New Jersey to measure whether state troopers in New Jersey and, subsequently, in Maryland were engaging in racial profiling in their traffic enforcement activities. In New Jersey, Lamberth collected data from the New Jersey State Police on the race of all drivers they stopped on the New Jersey Turnpike. Knowing the number of drivers stopped by race did not answer the question of whether police were engaged in racial profiling because Lamberth had to compare the numbers of persons stopped to some

measure of who might have been stopped or those “available to be stopped” on the State’s highways. As indicated earlier, to determine those drivers available to be stopped, Lamberth used observers who either stood by the side of the New Jersey Turnpike or drove along sections of the Turnpike and recorded the race of drivers they encountered on the highway.

Lamberth reported his results to the ACLU, which included his analysis and results in its brief to the Court in the Soto case. Lamberth found that 13.5% of the cars driving on the New Jersey Turnpike contained a Black occupant but 73.2 % of the arrests by New Jersey state troopers on the turnpike were of Black drivers. In 1996, the New Jersey Superior Court cited the Lamberth analysis in its decision that the New Jersey State Police had indeed been targeting Black drivers for disproportionate traffic enforcement (*State vs. Pedro Soto*, 1996).

At about the same time, allegations surfaced that the Maryland State Police were also engaged in a pattern of traffic enforcement that was considered to be racial profiling. Again, the ACLU asked Lamberth to conduct a similar study on Interstate 95 in Maryland. For this study, Lamberth used a similar observational approach by having observers drive on I 95 and record the race of drivers who were traveling on the roadway. In Maryland, Lamberth concluded that 17% of the drivers on I 95 were Black but 72% of the drivers stopped by the Maryland State Police were Black. This study was again cited in the court’s decision as compelling evidence of a pattern of racial discrimination by the Maryland State Police (*Wilkins vs. Maryland State Police*, 1995).

Following this initial research, a number of other studies were conducted by other research teams. In 1998, a team of researchers from North Carolina State University led by Matthew Zingraff received a grant from the National Institute of Justice to conduct a more comprehensive study of traffic enforcement practices by the North Carolina State Police. The team from NC State looked at traffic enforcement data from 1998 and 2000 to determine whether the North Carolina State troopers were engaged in racial profiling. The results of this study were met with widespread frustration because the research team concluded that, while racial disparities did in fact occur, Zingraff and his colleagues could not conclude that these disparities were an indication of racial profiling (Zingraff et al., 2000).

As part of this analysis, similar to Lamberth, the North Carolina State research team also collected observational data on the race of persons driving on North Carolina Highways as a benchmark for their analysis. In their final report, the researchers suggested that the disparities uncovered may be explained by differential driving behavior by race (Zingraff et al., 2000). It was suggested by Zingraff and his colleagues that African American drivers may, in fact, violate the law (e.g., speeding) at higher rates than White drivers. This conclusion was based in part on the team's observations of driving behavior and in part on a community survey conducted by the North Carolina research team as part of its overall project. The survey questioned 1,500 White respondents and 1,500 African American respondents, and the data revealed more self-reported speeding and other illegal driving behaviors by Black drivers than White drivers. The research team suggested that the racial disparities in traffic enforcement by the North Carolina State Police might, in fact, reflect these

racial differences in violating behavior by drivers on North Carolina's highways. This report was denounced by national groups, including the ACLU, and by many African Americans who lived or drove in North Carolina.

The North Carolina research was the first to review poststop decisions, including the rate with which drivers were given citations and the rates with which they were searched. This analysis revealed consistent patterns of issuing disproportionate levels of traffic citations to and searching disproportionate numbers of African American drivers by members of the North Carolina State Police. Similarly, this research was the first to look at the results of the searches or what has been termed the "hit rates" (Harris, 2002), that is, the rate at which searches uncovered contraband such as drugs, guns, or alcohol. The North Carolina study found that African American drivers were less likely to be found in possession of contraband than White drivers. This initial research was supported by a grant from the National Institute of Justice. The grant, which totaled nearly \$400,000, represented a significant investment that would go far beyond what would be available to local communities to conduct their own research. The fact that such a well-financed study could not come up with definitive answers about the existence of racial profiling on North Carolina's highways caused significant frustration.

Following this research Fagan and Davies analyzed data on stop-and-frisk activity by the New York City Police Department (2000). In their analysis of what they call "Order Maintenance Policing," in which New York City Police aggressively stopped and frisked individuals they encountered in certain neighborhoods in an attempt to locate firearms, the researchers found that the aggressive stop-and-frisk

practices of the New York City Police disproportionately included Blacks and Latinos living in the targeted neighborhoods (Fagan & Davies, 2000). The researchers concluded that these practices initiated by the New York City Police “[threaten] to weaken citizen participation in the co-production of security and undercut the broader social norms of contemporary policing” (p. 458). The New York City study was the first to document racial disparities in police-enforcement practices within a municipal jurisdiction.

In 2001, the San Diego Police Department published its analysis of its traffic enforcement practices during the 2000 calendar year. The report analyzed more than 168,000 vehicle stops and compared the demographics of those stops to census demographics of the community. In this analysis, Hispanics and Blacks were over represented in those stopped by the San Diego Police department. In 2000, Hispanics made up 20% of the driving age population and 29% of those stopped by the police. A similar pattern emerged for Blacks, who represented 8% of the driving age population but 12% of the drivers stopped in 2000 (Cordner, Williams, & Velasco, 2002). In the San Diego analysis, Cordner et al. found again that African Americans and Hispanics were searched disproportionately. In 2000, Blacks made up 8% of San Diego’s driving age population but 18% of the drivers searched, Hispanics made up 20% of the driving age population and 52% of the drivers searched, and Whites made up 55% of the driving age population and 29% of the driver searched. This study did not conclude that racial profiling was occurring, suggesting instead that the disparities identified may have been the result of police deployment decisions by the San Diego Police.

Also in 2001, Smith and Petrocelli reviewed data from 2,673 traffic stops conducted by the police in Richmond, Virginia. In this analysis, the authors compared the stops by the Richmond police to population data for those groups in the community as provided by the U.S. Census. The authors found that “minorities and African–Americans in particular were disproportionately stopped compared to their percentage in the driving eligible population” (p. 4). Interestingly, the authors found that in Richmond, Whites were significantly more likely to be subjected to a consent search and that White drivers were more likely to receive a formal citation (rather than a warning) and were more likely to be arrested (Smith & Petrocelli, 2001).

Following this analysis, Petrocelli and his colleagues reanalyzed the Richmond, Virginia, traffic enforcement data to see whether broader community-level variables could account for the disparities identified above. These authors looked at neighborhood-level variables associated with conflict theory to determine whether these variables could help explain the disparity. This was the first study of racial profiling to suggest a more macro level, theoretically driven explanation for racial disparities. The authors found that the total number of stops was almost entirely a function of the crime rate in the neighborhood. Additionally, they found that the proportion of stops that resulted in an arrest was determined almost exclusively by the proportion of the neighborhood population that was Black. The authors suggested that their finding offered partial support for a conflict-theory explanation for racial disparities in traffic enforcement, but they called for future analyses to include not only community characteristics but also indications of police organization and orientation (Petrocelli et al., 2003).

In 2002, Meehan and Ponder reviewed a unique set of data. They acquired the files of the Oakland Police Department in Michigan on license checks run by members of the Oakland PD. In this police department, as in many others, police can “run” the license of a vehicle even if they do not stop the vehicle. Across the country, there are a variety of procedures that can accomplish this task, but one of the most common is allowing officers to run inquiries from laptop computers in their cars, the approach used by the Oakland PD. The goal of these inquiries would be to determine whether the person who was registered as the vehicle owner had outstanding warrants or other types of criminal involvements. In theory, officers should run these inquiries for vehicles that raise their suspicion concerning their possible involvement in criminal misconduct. Meehan and Ponder found that officers in Oakland were much more likely to run the licenses of African American and Latino drivers than White drivers. Additionally, these researchers found that African American and Latino drivers were much more likely to have license checks run on them if they were in all-White sections of Oakland. The authors suggest that the idea of being “out of place” may be the factor that triggered suspicion.

In 2004, Rojek and Decker published the results of an analysis of traffic enforcement in 92 of Missouri’s largest communities. In their analysis of approximately 200,000 traffic stops, the authors compared the racial demographics of traffic stops to an estimated driving population that had been adjusted to reflect the demographics of residents from communities within 20 miles of the target city. In this analysis, the authors computed a “disproportionality score” for each community. In essence, this score was simply a ratio of the proportion of various racial and ethnic

groups stopped to the estimate of the proportion of those groups in the driving population. In this measure, a score of 1 would represent an equivalency between the proportion of African American drivers stopped and their adjusted proportion in the census population. Rojek and Decker found that Black and Latinos drivers tended to be disproportionately stopped in the vast majority of the 92 Missouri communities. In this analysis, the authors also reviewed search patterns of the St Louis Police Department and found that the search rates were again disproportionate, with 11% of the White drivers being searched while 17% of the Black drivers and 22% of the Latino drivers were searched.

Also in 2004, Novak reviewed traffic enforcement practices of the Overland Park Police Department from Overland Park, Kansas. Novak reviewed 10,473 traffic stops that were initiated by the Overland Park Police Department between July and November of 2000. This research used a multivariate approach that included officer level characteristics (e.g., officer age, officer sex, and number of years of employment). The analysis revealed a weak but statistically significant relationship between driving as a Black or Latino driver and being stopped by the police. This research also looked at the type of stop and found that Black and Latino drivers were more likely to be subjected to stops for equipment violations and subsequently searched. Interestingly, this research found that equipment stops of Black drivers were less likely to lead to the issuance of a formal citation than similar stops of White drivers. The authors suggested that this finding may reflect a pattern of pretext stops of non-White drivers that do not yield the contraband originally anticipated. Pretext stops are stops in which the police stop a vehicle for a traffic violation in hopes that

they will uncover a more serious violation, such as drug trafficking. While a number of advocacy groups, such as the ACLU, have criticized the police for using pretext stops, the US Supreme Court in *Whren vs. U.S.* (1996) has upheld the right of police to conduct pretext traffic stops.

In 2003, a team of researchers from Northeastern University in Boston reviewed 445,593 traffic-stop records from 40 jurisdictions in Rhode Island and compared these to an estimate of the driving population. In 33 of these jurisdictions, non-White drivers were stopped more often than their estimated driving population would have suggested. Once stopped, non-White drivers in more than half of the communities in Rhode Island were significantly more likely than Whites to be subjected to a discretionary search. In addition, non-White drivers were significantly more likely to be subjected to searches that did not result in contraband being found or an arrest being made. It was suggested that such searches in which nothing was found and no action taken may produce the most animosity and ill feeling between the police and the community (Farrell et al., 2003).

In 2004, the same research team conducted a similar analysis in Massachusetts. In this study, the researchers examined approximately 1.6 million traffic stops conducted by police officers from 365 jurisdictions over a 27-month period from April 2001 until June 2003. Again, the racial demographics of the drivers stopped by the police in these jurisdictions were compared to an estimate of the driving population in these towns. The authors found that 249 of the jurisdictions in Massachusetts had substantial disparities in that non-White drivers were more likely to be stopped, searched, or given a citation than White drivers. Based on this analysis,

the Massachusetts Secretary of Public Safety concluded that these 249 communities had “an appearance of racial profiling,” as defined in Chapter 228 of the Acts of 2000, and he ordered each of these communities to take steps to reduce these disparities and to collect additional data to demonstrate that the disparities had, in fact, been reduced.

In 2004, Schafer, Carter, Katz-Bannister, and Wells (2006) reviewed 30,514 traffic stops from “Central City” a mid-western city of approximately 100,000 residents. In this study, the authors reviewed disparities in searches by race, ethnicity, and gender. The authors found consistent disparities where Black and Latino drivers were significantly more likely to be searched by the Central City police; specifically, the authors found that African American and Latino drivers were twice as likely to be searched as White drivers. This research also examined the discretionary nature of the search authority, comparing consent or *Terry* searches versus searches incident to arrest and vehicle searches incident to officers having to tow a car. This research found that the disparities were greater in the more discretionary searches. Finally, this research looked at the “hit rates” or the rates in which searchers found contraband. In this research, White male drivers who were searched were more than twice as likely as African American or Latino drivers to be in possession of contraband.

Also in 2004, Engel and her colleagues analyzed a unique set of self-report data, the *Police-Public Contact Survey*, a national survey of citizens conducted by the Bureau of Justice Statistics. This survey measured the self-reported contacts between members of the public and the police over the prior 12 months. The authors found that, in traffic stops, young Black and Hispanic males were more likely to receive a

citation, be searched, and be arrested. The authors suggested that these disproportionate policing practices were the result of police officers acting on lessons learned during the so-called “war on drugs” in the 1980’s (Engel, Calnon and Bernard 2004).

At the same time, Lundman (2004) used the same *Police-Public Contact Survey* to investigate further disparities in search rates. In this survey of more than 80,000 respondents, 8.7% of the respondents reported that they were subject to a traffic stop by police over the past year. Of those, only 5% reported that they had been searched by the police during the traffic stop. Lundman used these data in a multivariate analysis that sought to understand factors associated with the decision to search a vehicle and found that searches are significantly more likely for Black and Hispanic male drivers. The researcher then investigated the hit rates of these searches and found that, based on this self-reported survey, there were no differences in the rate police found contraband among Black, White, and Latino drivers (Lundman, 2004).

Much of the early research into racial profiling was flawed. The initial studies were often carried out under a cloud of political suspicion after an allegation that a police organization was involved in widespread racial profiling. The initial research efforts generally used census data as a benchmark, were completed quickly, and did little more than compare traffic enforcement practices with census data (Schafer et al 2004). There were few refinements in these initial analyses. If a disparity was noted, an explanation would be posited, such as it was due to the deployment of police in

minority areas or the imprecision of the benchmark to identify the actual driving population, and each side in the debate would argue over the interpretation.

Research presented at the 2006 Annual Meeting of the American Society of Criminology reviewed 49 racial-profiling reports issued between 1998 and 2006 (Farrell & McDevitt, 2006). Collectively, this research concluded that census data have been used as a benchmark in 55% of the studies. Observations were used in 32% of the studies over this period. The use of census data has been declining somewhat over time, with approximately three-quarters of the studies conducted between 1998 and 2001 using census data while approximately one-quarter of the studies conducted between 2003 and 2004 used census data as a benchmark. This research also indicated that the most common way police agencies have collected information on the race of the persons they stop in traffic enforcement is by requiring officers to complete a supplemental paper form. In 76% of the studies, police agencies used a new paper form to collect information on the traffic enforcement practices of their officers.

Twenty of the 49 studies analyzed information on searches by law enforcement conducted as part of a traffic stop. As opposed to the somewhat contradictory results indicating there was a disparity in overall stops, in all 20 studies non-White drivers were searched more often than White drivers. (Farrell & McDevitt, 2007).

This research also reviewed the productivity of the searches by race. *Productivity* simply refers to whether the police officer conducting the search found some form of contraband during the search (e.g., drugs or a weapon). Across the 14

studies that reported information the productivity of searches, the results ranged from 11% to 50%. The analyses of these 14 studies revealed that searches of White drivers were more likely to turn up contraband than searches of Black or Latino drivers. Across these studies, the average productivity of searches of White drivers produced contraband in 25% of the searches while searches of Black and Latino drivers produced contraband in 18% and 16% of the searches respectively.

Such research also illustrates one of the greatest frustrations of police and members of the advocacy community, groups such as the ACLU, with academic research in this area. In the 49 studies analyzed, racial disparities were identified in 34 of them or 69%. In 9 studies (18%), no racial disparities were identified, and in 6 studies (12%), the authors' analysis was inconclusive as to whether racial disparities existed. However, when the authors of the studies were asked to draw a conclusion as to whether racial profiling was occurring in only 13 studies or 26 %, the authors' report concluded that racial profiling either was or was not occurring.

In five of these studies, the authors concluded that racial profiling was occurring in that particular jurisdiction, and in eight of the studies, the authors concluded that racial profiling was not occurring. As indicated in Table 3.1, the analysis of these results revealed an interesting pattern. When racial disparities were not found, the vast majority (89%) of the studies concluded that racial profiling was not occurring. In contrast, when racial disparities were found in the analysis (in 85% of the studies), the authors reached the conclusion that they could not tell whether racial profiling was occurring. These results probably reflect the high stakes involved in declaring that a police agency is engaging in racial profiling, but it is interesting

that authors are more likely to report a definitive negative finding that racial profiling was not occurring. Such conclusions could be, in part, due to the lack of a theoretical basis for the research, which ultimately hindered the authors' ability to draw definitive conclusions.

Table 3.1

Summary of Racial Disparity Findings and Conclusions in 49 Studies Conducted Between 1998 and 2006

Report conclusion	Racial disparity inconclusive	Racial disparity found	Racial disparity not found
Racial profiling occurring		5 (15%)	
Inconclusive	6 (100%)	29 (85%)	1 (11%)
Racial profiling not occurring			8 (89%)
Total	6 (100%)	34 (100%)	9 (100%)

A summary of this research regarding racial disparities would conclude that there are very mixed results regarding the extent to which race influences traffic stops by police, but there are more consistent findings indicating that race seems to influence the decision of police to search and cite stopped motorists who have already been stopped and are African American or Latino. While we know these disparities exist in many jurisdictions, we have very little information about why they exist.

Public Attitudes Regarding Racial Profiling

In addition to attempts to measure the extent to which racial disparities exist, some research has also measured public attitudes about racial profiling. In a widely cited 1999 Gallup poll, 59% of Americans reported that racial profiling was widespread, and fully 81% of the respondents disapproved of the practice. This statistic was widely cited in much of the original research as justification for efforts to

reduce or eliminate racial profiling (Fridell, 2004; Harris, 2002). In 2002, Weitzer and Tuck reanalyzed the data and found that race, age, and prior experiences, specifically where the respondents felt they were profiled previously by the police, had a significant effect on respondents' attitudes. In this analysis, young Black individuals who believed they had been profiled previously were most likely to condemn the practice of racial profiling (Weitzer & Tuck, 2002).

Many speculated that, after the attacks of September 11, 2001, the feelings of the American public would change; however, a 2003 Gallup poll of Americans found that again 59% of respondents thought racial profiling was wide spread, including 85% of the Black respondents. More recently, a Fox News poll released in 2005 found that 49 % of Americans still disapproved of racial profiling, with 46% of White and 64% of Black respondents disapproving of the practice. While there appears to be an increase in those who report they approve of racial profiling after September 11, 2001, it is still the case that the majority of Americans disapprove of the practice.

The belief that racial profiling is widespread is also shared by African American police officers. A study of African American police officers from Milwaukee found that 69% reported they had been stopped because of their race at least once in their lives, and fully 43% had been stopped in the past 5 years because of their race (Barlow & Barlow, 2002). More recently, a survey of 1,265 urban Virginia police officers (of all races) found that 21% of the police officers responding to the survey reported that they believed that officers in their own police department practiced bias-based policing and 15% of these officers reported that they had

witnessed other officers engaging in biased-based policing. (Ioimo, Tears, Meadows, Becton, & Charles, 2007).

While the initial empirical research on racial profiling delivered mixed results addressing the question of whether racial profiling was occurring in a given jurisdiction, more recent research has shed some additional light on the question. Statewide analyses have revealed wide variation across police agencies in the level of racial disparity in their traffic-enforcement practices. These findings may indicate that factors in addition to individual officer bias may influence the level of racial disparity in a jurisdiction. A more consistent pattern of racial disparities has been identified in the search behavior of police, and the few studies that have addressed the issue have found differences in the “hit rates” or the rates in which individuals who have been searched are found to be in possession of contraband. Additionally, survey data seem to indicate that the American public continues to disapprove of racial profiling as a law enforcement tool.

The missing element in much of the past research was any discussion of factors that may cause or be associated with disparities that were identified. The next two chapters present theoretical perspectives that may offer some explanation for racial disparities in traffic enforcement.

Chapter 4

Literature Review: Racial Threat Theory

The original theoretical orientation for this research comes from conflict theory, which suggests that political and economic structures are established to maintain the existing economic and political power distribution in society (Turk, 1969). In 1958, Blumer described how racial prejudice by the dominant group in society is the result of the perception of a collective threat (Blumer, 1958). According to Blumer, members of the dominant group share four feelings or beliefs: first, that they are in fact superior to other groups in society; second, that members of the subordinate groups are inherently inferior; third, that members of the dominant groups have a legitimate claim to certain areas of privilege and advantage; and fourth, that members of the dominant group believe that members of the subordinate group want the privileges they enjoy (Blumer, 1958).

In 1996, Bobo and Hutchings expanded on Blumer's classic theoretical orientation by specifically addressing the role race plays in levels of perceived threat by the subordinate group. In a reanalysis of a 1992 survey of 1,869 Los Angeles residents, Bobo and Hutchings found that the level of racial alienation enhanced the impact of the perceived threat for minority groups who were members of racial minorities (Bobo & Hutchings, 1996).

Some who hold this perspective see the law as being developed by those who have significant power in society to maintain that power (Chambliss, 1976; Quinney, 1980). Moreover, in one adaptation of this theory, powerful groups can, at times, define the behavior of the less powerful members of society as criminal (Quinney,

1980). Specifically, in terms of the role of the police from a conflict perspective, the police are seen as one of the groups most responsible for enforcing laws that are directed at the least powerful members of society (Chambliss, 1976). The war on drugs has often been characterized as a program that focuses the power of the criminal justice system on the least powerful members of society and one that, it has been argued, had a disproportionate impact on racial minorities (Kennedy, 1997).

Some conflict theorists have gone as far as viewing crime as a form of social protest, emanating from those most powerless in society towards those who hold power (Jackson & Carroll, 1981). These theorists posited that those who have little power in society can only resort to crime to challenge the existing power structure. These authors suggested that community leaders may act in ways that protect members of the majority from this perceived threat. Jackson and Carroll tested the notion that overall police expenditures may reflect the perceived threat of certain racial groups. Using data from 90 U.S. cities, the researchers found that, after controlling for crime and poverty, cities with larger Black populations and cities where Blacks participated in civil rights actions were more likely to spend more resources on police.

These group-level theories of racial prejudice suggest that the level of “power and threat” posed by the “out-group” are most important in understanding how a community will react. Two of the most important aspects of the power and threat are the size of the “out-group” population and the level of economic competition (Blalock, 1976). Blalock described how, as minority group populations increase in

size, they enhance their capacity to influence the political process, and this influence is sometimes viewed as coming at the expense of the majority group (1976).

These propositions were tested in a study of prejudice attitudes in 12 European countries (Quillian, 1995). In this analysis, the author found that “the average degree of prejudice in an EEC country is strongly related to the threat perceived by the dominate group resident there” (p. 605). This analysis found that, in this sample of European countries, both the relative size of the subordinate group and the level of economic competition significantly affected the level of prejudice measured from the majority group (Quillian, 1995).

Quillian also noted that the impact of a threat is quite broad in a community. He found that those individuals whose interest is not directly threatened by a minority group are almost as likely to express racial prejudice in attitudinal surveys as those more directly threatened (Quillian, 1995). In another study, Bobo and Kluegel found a similar result when they found that parents without school-age children were just as likely to oppose court-ordered busing of school children as those parents with school-age children (Bobo & Kluegel, 1993).

It has also been suggested the police may be the government agency most often called upon to enforce the existing social order (Jacobs, 1979). Some authors have suggested the police may have had a historical mandate in this regard, suggesting that the police were originally formed to protect the property interests of more economically advantaged groups from the threat posed by disadvantaged groups (Silver, 1966). From the conflict and racial threat perspective, some authors suggested

that police might use traffic enforcement as a means to influence the travel and housing decisions of those seen as a potential threat to their community.

To test the relationship between economic disadvantage and spending on police, in 1979, Jacobs analyzed data from all Standard Metropolitan Statistical Areas (SMSA) with a population of more than 250,000 in 1960 and 1970. He looked at a number of measures of the economic disadvantaged in these SMSAs, including median family income, percent unemployed, and level of economic inequality. Jacobs found that, in SMSA with higher levels of economic disadvantage, the per capita spending on police was significantly higher. The author concluded that this research at least partially supported a conflict perspective (Jacobs, 1979).

It has also been suggested that hate crimes vary by the motivation of the offender and that economic disadvantage may trigger more hate-motivated violence. In periods of economic strain, individuals may become less tolerant and more likely to blame out-groups for their economic problems (Levin & McDevitt, 2002).

Conflict theory also serves as the basis for the defended-neighborhood application as developed by Donald Greene in his work on hate crime in New York City (Greene, Stolovitch, & Wang, 1998). The authors found that, as the diversity of a neighborhood increases, the level of racially motivated violence also increases. Interestingly, this relationship is not linear. In this study, Greene et al. found population thresholds that were associated with the increases in racially motivated crimes. As the racial population of a neighborhood changed, there were points or thresholds at which violence was more likely to erupt (Greene et al., 1998).

Racial threat theory has been suggested to explain a number of criminal justice decisions—including the decision to arrest, various sentencing decisions, and incarceration decisions—as well as expenditures on police. In fact, several authors have called for increased research on how variations in racial threat may affect decisions and behavior of actors in the criminal justice system (Stoltzenberg et al., 2004). In a study using National Incident Reporting System Data (NIBRS) from 182 communities, Stolzenberg and his colleagues found that the Black arrest rate was not affected by the size of the Black population. These authors also found that, in cities with high levels of racial segregation, the Black arrest rate was lower. The authors suggested that racial segregation may be a mechanism for reducing racial threat in certain communities. In this study, the authors did find that, for certain crimes, those involving a Black offender and a White victim, the arrest rate of Blacks was significantly higher in communities with a large Black population.

In 1987, Smith conducted an observational study of police behavior and found that police were more likely to arrest in racially mixed or majority-minority neighborhoods. While this pattern held true for both Black and White offenders, the fact that more police were deployed to minority neighborhoods resulted in disproportionate arrests of minority citizens.

Crawford, Chiricos, and Kleck (1998) studied the effect of racial threat variables on the designation of “habitual offenders” in Florida. The study reviewed 8,690 males sentenced to prison and eligible for habitual-offenders statutes. Using a multivariate approach, they found that Black offenders were more likely to receive this designation. This was particularly true for certain kinds of crimes, including drug

offenses and certain property crimes that the authors reported have particularly high victimization rates for Whites. Also, this research found that Black offenders were more likely to be designated habitual offenders in communities with low Black populations, low levels of income inequality, low violent-crime rates, and low drug-arrest rates. The authors explained this somewhat counterintuitive finding by discussing the proposition that the racial threat may be highest in communities with low Black population and low crimes. These may in fact be the communities where fear of crime is greatest and interracial interactions the most infrequent (Crawford et al., 1998). This research may possibly speak to the allegations that racial profiling in traffic enforcement may be practiced in communities with very low minority populations.

In 1993, Giles and Buckner studied voting patterns in Louisiana in elections involving David Duke, the notorious former Grand Wizard of the Ku Klux Klan. This research found Duke received the greatest proportion of White votes from parishes with the largest Black population. A reanalysis of these data by Voss in 1996 found that Whites who had the most contact with Blacks were less likely to vote for Duke, causing the author to suggest that increased interracial contact may result in less prejudiced attitudes and behavior (Voss, 1966).

Only a limited number of studies have attempted to apply conflict theory or racial-threat theory to police traffic enforcement. Petrocelli et al. (2003) examined data from Richmond, Virginia, as a test of the racial-threat theory perspective. The authors employed a multivariate approach in their analysis and found that the total number of stops in Richmond over the period studied were associated with the crime

rate in the area but not associated with the demographic make-up of the neighborhood. However, when they looked at similar equations predicting searches, they found that the proportion of stops resulting in searches was related to the Black population of the area. It is useful to recall that searches are one area in which prior research revealed consistent racial disparities. Based on these results, the authors found mixed support for a conflict-theory explanation of racial profiling (Petrocelli et al., 2003).

Following Petrocelli et al. (2003) Parker et al. (2004) examined data on arrests by race in Miami and found that community characteristics were associated with racial disparities in arrest rates. Specifically, these authors found that being “out of place” was associated with a higher likelihood of arrest. In their analysis, White arrest rates were higher in Black areas, and Black arrest rates were higher in predominantly White areas. This research also paralleled a line of research being pursued by a series of critical race theorists. These researchers argued that race is socially constructed and that the agencies of the criminal-justice system, including the police, use race in decisions about how laws are formulated and implemented (Gomez, 2004). For these scholars, racial profiling is but one illustration of how race plays a role in the implementation of law in society.

It appears, from the current research on racial threat theory, that the dynamics of how the theory is operationalized are interesting. The threat may be perceived to be greater in communities with less contact between Whites and non-Whites. This kind of dynamic could, in fact, explain how disproportionate traffic-enforcement practices could be practiced by police from communities with very low minority populations.

Collectively, research in these areas has posited a number of relationships, including that, as the actual number of non-White residents of a community increases, politically powerful residents become threatened and take steps to control the influx of additional non-White residents and to control the activity of those already in the community. Also, these actions may take place in communities that are experiencing such stresses as higher levels of economic problems and higher levels of violent crime.

This present research investigates the suggestion that racially disproportionate traffic-enforcement practices may be one way that police officers react to perceived threats posed by increasing community diversity. Disparate traffic enforcement can have the effect of making a community less appealing to potential new residents while making the costs of remaining in a community too high for those residents who are targeted for disparate treatment. This study examines the level of diversity of a community and the changes in the level of diversity between 1990 and 2000, as measured by the U.S. Census, and attempts to determine whether these measures of diversity are related to the level of racial disparity in law enforcement by police departments.

In addition to the data from the census on potential indicators of racial threats, other researchers have included a measure of serious crime in the community as a conditioning factor in their analyses. It has been suggested that, in communities where serious crime is higher, the public feeling of being threatened is exacerbated, because many publicly held stereotypes of Black and Latino males associate those groups with criminal activity (Langworthy, 1986). Based on this research, the present

study includes measures of the level of violent crime in the community as an alternative explanatory variable.

Chapter 5

Police Organizational Perspective

An alternative explanation for the variation in traffic enforcement patterns suggests that police officers and police organizations are not responding to community level trends but that the variations identified reflect the use of discretion by police officers. According to this line of thought, the best way to understand the variation in enforcement practice would be to understand the structural characteristics of police organizations that may influence the use of this discretion by officers.

The idea of police discretion began to be discussed by researchers in the 1960's and 1970's. Skolnick (1966), Wilson (1968), and Reiss (1971) began to note that police officers have a great deal of discretion concerning how they carry out the rules and policies of the organization.

A number of policing scholars have written about this practice, particularly how the amount of discretion available to an individual officer is associated with level of visibility and the organizational role of the police officer (Brown, 1988; Reiss, 1971). It has been suggested that police officers have maximum discretion in those areas of law enforcement in which the officer receives the least amount of supervision. Large numbers of encounters with civilians on the street are examples of this kind of low-visibility, high-discretion situation. The police may encounter a youth on a street, particularly in an area with few bystanders, and the behavior of the officer will seldom be brought to the attention of or reviewed by a supervisor.

Traffic enforcement is one example of low-visibility high-discretion situations (Ramirez et al., 2000). When a police officer stops a vehicle, there is generally little

probability of oversight by the officer's supervisor. Until recent years, most police agencies never even collected information about the traffic enforcement practices of their officers. It is just this kind of low-visibility, high-discretion situation that may result in officers using racial and ethnic stereotypes to inform the discretionary decisions they are facing.

It has been noted that discretionary decision-making by police officers can result in a situation in which officers substitute their judgments for the judgment of others in the criminal-justice system (Goldstein, 1990). In one of many examples of this phenomenon, it has been noted that, if police officers used their discretion to release a suspect that they had the legal authority to arrest, they were precluding a judge or jury from the ability to adjudicate that offender because, by the act of letting the offender go, the officer had removed the individual from consideration by the court, at least in this encounter (Walker, 1992). Traffic-enforcement encounters are similar, in that a decision to release a potentially drunken driver, for example, could have both short-term and long-term negative consequences.

Wilson was the first writer to suggest that discretionary actions by an officer could be linked to characteristics of a particular organization (Maguire & Uchida, 2000). James Q. Wilson's classic research suggested that law enforcement agencies differ in their orientation toward providing public safety to their community (Wilson, 1968). Wilson suggested that there were three major styles of law enforcement organizations: the law enforcer, the social agent, and the watchman-style organization. Wilson reported that these styles translated into differential enforcement practices across departments characterized by the differing philosophies. He

suggested, for example, that law-enforcement style organizations would be more aggressive in enforcement actions, including their traffic enforcement practices, while watchman-style police agencies would be less aggressive in terms of arrest behavior and attempts to maintain order. Wilson attributed these variations in policing styles to the political culture of the hosting community. He suggested that cities with so-called professional or “good government models” would be more likely to have law-enforcement style police agency while cities with more partisan or traditional mayor and/or city council models of government would be more apt to have a watchman style of police department (Wilson, 1968).

In 1985, Langworthy retested Wilson’s theory, using data from American cities with a 1970 population of over 100,000, and found that, indeed, the kind of variation in style of police agencies that Wilson described did exist. Lagworthy did, however, raise questions about the extent to which this variation in style was associated with the structure of government in a community as opposed to other factors.

More recently, Zhao, He, and Lovrich (2006) re-tested Wilson’s original thesis using a data set of police agencies from Washington State. Zhao et al. found that political culture, as defined by Wilson, was no longer a predictor of police organizational behavior. These researchers speculated that variations among the police agencies in measures of professionalization described by Wilson, such as the extent of specialization and formalization, had narrowed significantly by the late 1990s and 2000s. They suggested that a much larger proportion of police agencies have adopted similar practices by establishing specialized units to focus on various

crime types or have put in place a formal set of policies and procedures. While this research has raised questions about the continued applicability of the local political-culture explanation for policing styles, this research continues to support Wilson's original premise that variation exists in how individual police organizations interact with their communities.

Other developments in policing since Wilson's research on police practices have influenced how police agencies interact with those with whom they contact. Arguably one of the most widely discussed policing reforms in recent years has been the adoption of policies and programs under the broad umbrella of community policing (Goldstein, 1990). This approach, at its roots, attempts to enlist the community as a partner in providing public safety. It is hoped that collaborative efforts will reduce tension and increase community trust and confidence in the police. The extent to which agencies are committed to developing strong positive relationships with their community as part of their community policing orientation may influence the way they conduct traffic enforcement.

A significant debate has ensued in the police literature about the extent to which the widespread adoption of community policing programs has resulted in real structural changes in police departments (Greene & Mastrosfki, 1988; Maguire, 1997; Zhou, Lovrich, & Robinson, 2001). Critics have suggested that community policing has often been implemented through the use of isolated specialized units or has been implemented in name only to make police organizations eligible for federal grants. A number of scholars have argued that, in order for community policing to be fully

implemented as its proponents have proposed, there need to be significant structural changes in police organizations themselves (Greene et al., 1994; Zhou et al., 2001).

While there is some evidence of structural reforms that have resulted from the community policing movement (Maguire, 1997), it does appear that many police agencies may have changed in more subtle ways. Many police agencies have changed their orientation from what Mastrosfki and Ritti refer to as “people-processing” organizations to organizations that are centered more on “people-changing.” That is, police organizations that have embraced the community-policing philosophy may be more focused on solving problems they encounter rather than simply processing people and sending them on to the courts for their decision. This shift in orientation, to the extent it is in fact happening, would be facilitated by a closer relationship between the police and the community they serve. The community can provide information about the extent and character of a problem and they can work with the police to resolve the problem. By this measure, police organizations that employ a community-policing philosophy on a widespread basis across their organization may hold improved trust and confidence in the police as a value that may translate into efforts to reduce disproportionate traffic enforcement.

A second dimension of police operations that has been said to affect traffic enforcement policies involves the aggressiveness of the police department. Beginning with Wilson and Boland (1978) and now associated with so called “Zero Tolerance” policing (Bratten & Knobler, 1998), this approach calls on police agencies to be aggressive with minor violations of the law to help deter more serious types of criminal behavior (Wilson & Boland, 1978). Departments that use aggressive traffic

enforcement as part of an aggressive or zero-tolerance strategy may actually have the unintended consequence of increasing the racial disparities in traffic enforcement. It has been suggested that aggressive traffic enforcement, either because of where it is implemented in a community or due to stereotypes held by police officers, may result in increased racial disparities in traffic enforcement practices.

An additional question has been raised as to whether departments that are more focused on drug interdiction will have greater disparities in their data because they may focus their efforts on certain segments of the community (Gross & Barnes, 2002). While little research exists to support the notion that drug use is concentrated in one ethnic or racial group over another, much research on police arrest procedures has indicated that police are more likely to arrest African American and Latino individuals for drug offenses (Walker et al., 2000). Police agencies focused in drug enforcement may concentrate enforcement efforts on a limited set of city neighborhoods or may more aggressively target a segment of the city's population, either of which may result in increased enforcement activity targeted towards members of the non-White community. As indicated above, one of the major justifications put forth by police for racial disparities has been their search for drugs (Harris, 2002). From the original DEA drug-courier profile, police agencies have seen traffic enforcement as one way to stop the flow of drugs into and through their communities. It may then be the case that agencies more committed to drug enforcement may be more likely to engage in disparate traffic-enforcement practices.

Finally, a dimension of police organization that has been thought to reduce racial disparities involves the diversity of the police workforce itself. It has been

suggested that, as police departments become as diverse as the communities they serve, racially and ethnically disparate treatment will be reduced. This suggestion has yet to be addressed in the context of traffic-enforcement efforts. However, this present research uses measures of the organizational characteristics described above to determine whether these characteristics are associated with the overall level of racial disparity in traffic enforcement practices by Massachusetts Police agencies.

Chapter 6

Research Design

Research Hypotheses

The four research hypotheses that direct the analysis in this dissertation are:

Hypothesis 1: The characteristics of the community, specifically the total non-White population or the change in non-White population will be associated with the racial disparities in police traffic stops in that community.

Hypothesis 2: The characteristics of the community, specifically the total non-White population or the change in non-White population will be associated with the disparities in police searches resulting from traffic stops in that community.

Hypothesis 3: Structural characteristics of police agencies, specifically the commitment to community policing, the aggressiveness of the traffic enforcement practices of the agency, the commitment to drug enforcement, and the racial and ethnic diversity of the agency will be associated with the disparity in police traffic stops.

Hypothesis 4: Structural characteristics of police agencies, specifically the commitment to community policing, the aggressiveness of the traffic enforcement practices of the agency, the commitment to drug enforcement, and the racial and ethnic diversity of the agency will be associated with the disparity in searches resulting from traffic stops.

Data Sources

The data for this analysis were developed from the four data sources described below.

Massachusetts traffic enforcement data. Data on traffic enforcement came from the Massachusetts Racial and Gender Profiling data set that was collected by Northeastern University's Institute on Race and Justice as part of the Massachusetts Racial and Gender Profiling Study (Farrell et al., 2004). This data set contains 1.7 million traffic stops that resulted in a citation being issued conducted by 350 Massachusetts police agencies conducted over 27 months between April 1, 2001, and

June 30, 2003. The data set contains information on every stop that resulted in a citation, as well as information on the race of the driver (as perceived by the officer), whether a search was conducted, the date and time of the stop, and whether the driver was a resident of the jurisdiction. The variables of interest from this data set include the race of the driver and whether a search was conducted following the stop.

These data were collected on the Massachusetts Universal Citation Form that was amended to include data for this study. This form is the standardized form used by all Massachusetts law enforcement agencies to provide official citations to motorists who have violated Massachusetts traffic statutes. This decision to collect information in this way resulted from a compromise arrived at between the Massachusetts legislature and the Massachusetts Chiefs of Police Association. The existing citation form was amended to include information on the race of the driver as well as whether there had been a search conducted as part of the stop and the legal basis for the search (e.g., consent, reasonable suspicion, inventory, or search incident to arrest). A copy of the amended Massachusetts Universal Traffic Citation form is included in Appendix A.

U.S. census data. Data on traffic stops have been supplemented at the community level with data from the U.S. Census. Data from the 2000 census have been added to the traffic stop file to provide additional community-level characteristics. The census indicators that have been added are the percent of the community population that is non-White and the change in the non-White population between 1990 and 2000. Finally, from the census data, this research includes a measure of social disorganization, the percent of the families below the poverty line.

“Uniform Crime Report” data. The third data set that has been merged at the community level is the “Uniform Crime Reports” compiled annually by the Federal Bureau of Investigation (FBI). This data set includes information on crimes reported to the police for more than 17,000 communities across the United States. The data are organized into 8 “Part I” crimes: murder, rape, robbery, aggravated assault, larceny, burglary, auto theft, and arson. These data are reported as annual counts of each category of crime reported to the police.

For this analysis, a violent crime index (a composite of the crimes of murder, rape, robbery, and aggravated assault) has been constructed to measure the level of serious crime in the communities. The violent crime measure was constructed as a rate of crime per population to adjust for varying community sizes.

Law Enforcement Management and Administrative Statistics. The final source of data for the analysis is the “Law Enforcement Management and Administrative Statistics” (LEMAS). These data are the result of a survey of approximately 3,000 law enforcement agencies conducted nationally every three to four years by the Bureau of Justice Statistics of the United States Department of Justice. The sample includes all law enforcement agencies employing 100 or more sworn officers and a nationally representative sample of smaller agencies. The response rate has been approximately 90%, with the response rate for 2003 at 91%. This survey obtains an extensive array of data from individual police agencies. The survey contains 62 questions that collect information on personnel, operations, specialized units, community policing, emergency preparedness, equipment, and existing policies and procedures. Variables relevant to this analysis include the size and racial and ethnic

composition of the police force and indications of the agencies commitment to community policing programs as well as to drug enforcement activities.

LEMAS represents the first systematic attempt to collect information that describe the internal structure of police organizations (Maguire & Uchida, 1998). LEMAS was launched in 1983 after a Bureau of Justice Statistics review of criminal justice data sources nationwide revealed that data on the structure of law-enforcement organizations lagged far behind data collections from the courts and correction agencies (Maguire & Uchida, 1998). In 1987, the initial wave of the survey was distributed to all police agencies employing more than 135 officers, plus a random sample of smaller agencies. Beginning in 1990, the sample for the survey was expanded to include all police agencies with more than 100 sworn officers and continued the random sample of smaller agencies. This survey had been fielded in 1990, 1993, 1997, 2000, and 2003. It now contains information on more than 500 variables as reported by more than 3,000 police agencies.

Police Organizational Characteristics Analysis Variables

As indicated above, this research examines four structural characteristics of police organizations that may affect racial disparities in traffic enforcement. The measure of commitment to community policing is measured by whether the agency has a formal written community-policing plan. The measure of commitment to drug enforcement has been operationalized by whether an agency has one or more full-time officers assigned to a drug unit or task force. The aggressiveness of the police agency has been operationalized by the ratio of traffic stops resulting in citations to the number of residents in that community. The final characteristic of police agencies is

the diversity of the department as measured by the proportion of the force that is African American, Asian, or Hispanic.

Data Quality Concerns

Concerning Massachusetts traffic stop enforcement data, some have suggested that traffic-stop data, such as produced by police agencies in Massachusetts, may be flawed (Lundman, 2004). It has been suggested that police officers who know that the data would be used to measure racial disparities will have an incentive to alter the actual data in ways that mask their true actions. Such masking could be done by inaccurately recording the race of a particular driver, for example stopping a Black driver and indicating on the forms that he or she was White. While it is possible that this misreporting occurred, there are a number of reasons why this is not likely to be a widespread practice in the Massachusetts Traffic Enforcement Data.

As part of the implementation of this data collection process, law enforcement agencies in Massachusetts were provided training in effective auditing practices to enhance data quality. Chiefs in Massachusetts were encouraged to have a supervisor review each traffic stop form when they were turned in at the end of each shift. The supervisors were told to review the forms for completeness and to go back to the officer if any fields were left blank.

Additionally, the police chiefs were encouraged to perform spot checks on random forms to verify the accuracy of the information. There were two primary review procedures practiced by Massachusetts police officials. In the first, a supervisor would pull dispatcher records for a random sample of police officers for traffic stops they initiated over a 2-to-7-day period. In most Massachusetts police

agencies, officers are required to notify the dispatcher whenever they make a traffic stop. The main reason for this notification is officer safety: if something happened to the officer at the traffic stop, the dispatcher would know where the officer was in order to send assistance. The supervisor would then check to be sure that all the traffic stops indicated in the 911 dispatch system matched a completed traffic stop form.

The second area of auditing involved checking the race of the driver, as indicated by the officer, with other data sets that included race information. In a number of police agencies, the supervisors tried to match the race of a sample of drivers who had traffic enforcement forms completed with data from their arrest files, which contained race information. While this check could only be completed for drivers who had previously been arrested, it did provide some checks on the veracity of the race information for certain drivers.

An additional check on data quality was the internal benchmarking analysis conducted by many agencies. As part of these analyses, in many agencies, officers were compared with officers who patrolled similar sectors or districts in a community. If one officer had different stopping patterns than the other officers in their district, the supervisor would have a conversation with the officer as to why the disparity existed. While we do not know which departments used these various techniques, we do know that many used at least some of these techniques. It is expected that the knowledge of police officers that their forms were being reviewed for accuracy according to any of the methodologies above would encourage most officers to report accurate information.

Finally, the situation in Massachusetts was unique. As indicated above, the traffic stop enforcement data were collected on the formal citation issued to the motorist. In most other jurisdictions, the traffic stop information was collected on a separate and new form, but in Massachusetts, it was decided to modify the Universal Citation Form used by all Massachusetts police agencies. This change added pressure for the data to be accurate because the universal citation is a legal document and, if a motorist contests a citation in court, the document would be entered as evidence. It would raise questions about the accuracy of the entire citation if an officer recorded the race of the driver inaccurately.

Racial Threat Analysis Variables

The variables included in the racial threat analysis came predominately from the census. Including the total population size of the community, the proportion of the population that is non-White in the 2000 census, the change in the non-White population from 1990 to 2000, as a measure of structural disadvantage—the proportion of families in a community living below the poverty line, and finally from the FBI's uniform crime reports, the violent-crime rate of a community.

Population and Sample

The analysis presented here includes 2 separate samples, each testing one of the theories described above, and a final sample testing the two theoretical approaches combined.

The initial test of the racial threat hypothesis was performed using the Massachusetts Traffic Stop Enforcement Data, which were collected for all of the 350 communities in Massachusetts, combined with data on violent crime as reported to

the UCR and data on demographic characteristics as collected by the U.S. Census. Because not all Massachusetts agencies report their crime data to the FBI as part of the Uniform Crime Reporting system, the sample for the racial threat analysis includes 163 communities that report to all three sources.

The second analysis of police organizational and structural features that may be associated with racial disparities in traffic enforcement has been conducted on a subset of the Massachusetts communities. Not all Massachusetts communities participate in LEMAS because, as described above, the criteria for participation include the size of the agency. The final number of cities and towns includes those communities that participated in all the data collection activities resulting in sources used in this analysis. For most of the data sources in this analysis, all Massachusetts communities participated; these include the Traffic Enforcement Data, the Census, and the Uniform Crime Report; however, because it is a voluntary survey, a smaller number of communities participated in the Law Enforcement Management and Administrative Statistics survey. The final sample for this analysis includes 74 Massachusetts municipal law enforcement agencies that participated in all of the project data sources (see Appendix B).

Development of Data Set

The initial step in the analysis was to construct a master data set that combines the variables described above from each of the four data sources at the community level. The initial data set used in the analysis of the racial-threat hypothesis, including 163 Massachusetts communities, tests the extent that demographic factors suggested by the literature as indicators of racial threat are associated with the level of racial

disparity demonstrated by law enforcement agencies in Massachusetts. The second data set includes a smaller number of communities as indicated above; only those communities that participated in all the data sets involved in this analysis, including the LEMAS survey. As part of the construction of each data set, non-municipal police agencies have been removed. The Massachusetts Traffic Enforcement data set contains information from a number of non-municipal police agencies, including campus law enforcement agencies, the Massachusetts State Police, and the Mass Bay Transportation Police. These agencies, while very interesting, differ in jurisdiction and orientation from municipal police agencies and are excluded from this analysis. Once the universe of communities was identified, the data set was supplemented with UCR and census data as described above.

Dependent Variables

For each analysis, two dependent variables are considered: (a) the disparity in stops resulting in a citation and (b) the disparity in searches conducted by members of each law enforcement agency. Each dependent variable reflects the hypotheses posed for this research. The initial dependent variable is the disparity in rates of stops resulting in a citation in Massachusetts between April 1, 2001, and June 30, 2003. This variable is derived as the difference between the number of stops resulting in a citation and the Driving Population Estimate (DPE) for that jurisdiction. As already discussed, the DPE is the adjusted estimate of drivers for each community in Massachusetts. This measure is calculated by subtracting the non-White stops resulting in a citation from the non-White estimate of the driving population as

measured by the DPE. A negative score would mean that fewer non-white drivers were stopped and cited than would have been expected based on the DPE.

This measure has certain limitations. Most importantly, it includes only traffic-enforcement actions in stops that resulted in a citation; it does not include those stops in which a written or verbal warning was issued. This limitation was negotiated by the Massachusetts Chiefs of Police Association when the legislation was originally passed in an effort to minimize the workload on officers who would have to complete a new form. Using stops that resulted in a citation is a more conservative approach to measuring discretionary traffic-enforcement practices. As already noted, in a number of prior studies of racial disparities in traffic enforcement, some of the officer discretion appeared to be used in determining who should receive a traffic citation or who should receive a warning. By restricting this analysis only to those stops resulting in a citation, the influence of that discretionary decision has been removed, allowing for analysis of a more uniform set of data to determine whether racial disparities do exist.

The second dependent variable is the disparity in search rates. This variable is developed by subtracting the proportion of stops that resulted in searches of vehicles driven by White drivers from the proportion of the stops of non-White drivers that also resulted in searches. This measure of search disparity is a much cleaner measure because the driving population is not estimated. This measure is simply the difference in the rate of searches involving White and non-White drivers.

This measure also has some limitations. First, because it is computed from the citation data described above, it also does not include stops in which a search was

conducted but no citation was issued. It is expected that, while in some cases officers will search a driver and not issue a traffic citation, this occurrence would be a relatively rare event. Searches themselves are rare events, and thus, it would seem the officer would issue some kind of a citation when he or she conducts a search.

An additional limitation of this variable is that, because searches are so rare, it is not possible in most communities to compute search ratios for each racial and ethnic group. Thus, a White versus non-White comparison is being used in this variable.

Each data set consists of a subset of all Massachusetts municipal jurisdictions, raising a question of the representative nature of the data set. Because this is a convenience sample of all communities that submitted data to all the data sets in question, this data set is by definition not representative of all Massachusetts communities. This study contains an initial descriptive analysis to determine to what extent the final sample of communities compares to the universe of Massachusetts communities. All conclusions of this analysis characterize only the actions of the communities that are in the final sample and cannot be generalized beyond these communities. A map of the communities included in the reduced sample is provided in Appendix B.

As indicated in Figure 6.1, the initial analytic approach will involve a two-stage analysis: first, a descriptive bivariate analysis of variables suggested by each model and, second, an OLS regression analysis because the dependent variables will be interval level (rates of racial disparity in stops and racial disparity rates in searches). There will be three multivariate analyses conducted: first, an analysis of

association of racial threat variables; second, an analysis of police structural and organizational factors; and finally, a combined analysis (Figure 6.1). It is expected that this approach will suggest support for either the racial-threat theory or the police-organization-and-orientation analysis or some combination of these explanations.

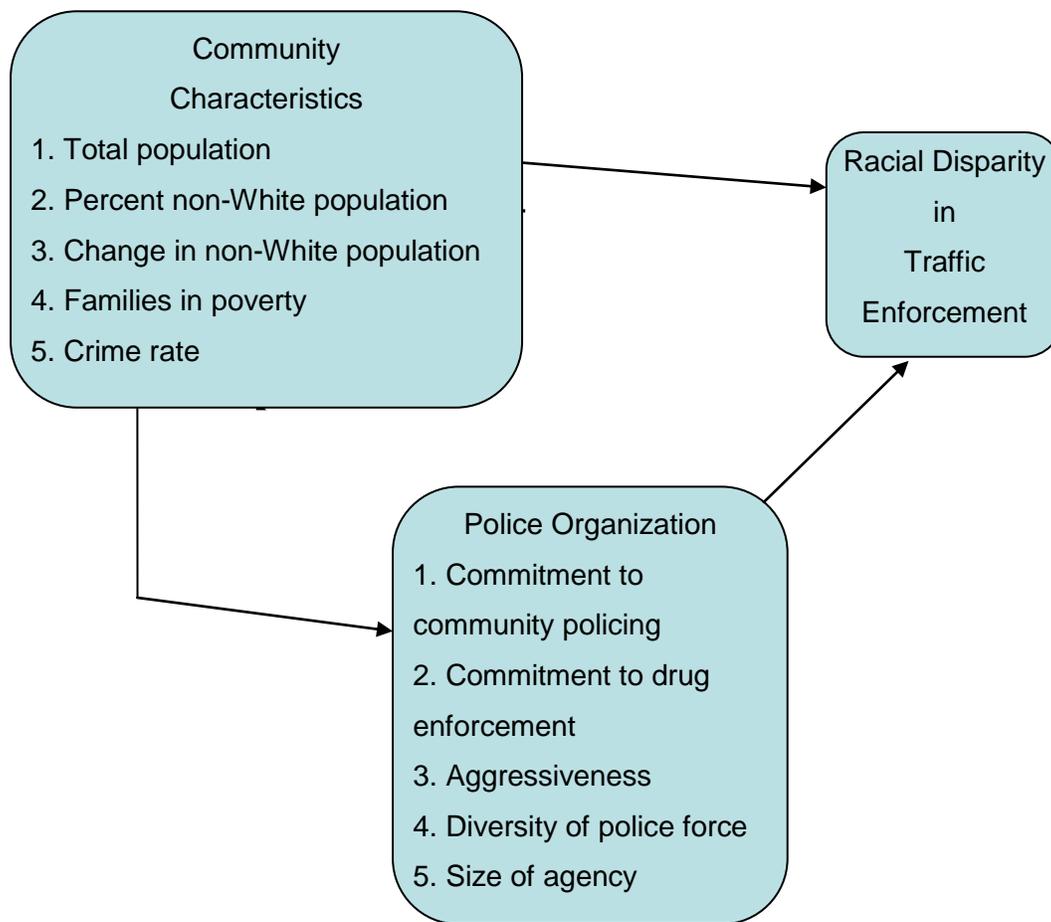


Figure 6.1. Model of factor associated with racial disparities in traffic enforcement.

Sample Generalizability

As already noted, because a number of communities did not participate in all the data sets involved in this analysis, each analysis is conducted on a different subsample of Massachusetts communities. The fact that not all communities are involved raises questions of generalizability of the results to all Massachusetts communities.

The analysis below documents the differences between selected characteristics of each sample and the full universe of Massachusetts cities and towns.

As indicated in Table 6.1, the comparison of means from the different samples indicates that the Massachusetts communities participating in LEMAS are significantly larger and have greater non-White populations than the non-LEMAS Massachusetts communities. In addition, and as would be expected because the larger Massachusetts communities are included in LEMAS, the violent-crime rate is higher in the LEMAS communities. Importantly, however, there is no significant difference on the dependent variables for this analysis between the two samples. This analysis indicated that the findings from the police organizational-characteristics model can only be generalized to the larger Massachusetts communities that are represented in the sample.

Table 6.1

Comparison of Means of Demographic Community Characteristic for Reduced Sample Compared to Non-LEMAS Massachusetts Communities

	Reduced sample	Non-LEMAS sample	Significance
Total population	34737.41	8559.69	***
Non-White population, 18+	11.7284	5.3355	***
Violent crime rate	465.12	322.56	**
Disparity in stops	7106.85	3222.82	ns
Black to White search disparity	.978	1.093	ns
Total sample	74	266	340

The next analysis compared the community characteristics of the subsample of communities that will be used in the racial threat analysis. Again, this sample is smaller because a number of Massachusetts communities did not report to the FBI's

Uniform Crime Reporting Program. Here again, there are significant differences in the size of the community and the proportion of the population that is non-White. The sample used in this analysis includes communities that are significantly larger and contain more non-White residents. Also, similar to the analysis above, the 2 groups of communities are not significantly different on the dependent variables for his analysis. Again, the results of the analysis cannot be generalized to all Massachusetts communities, but are more likely to reflect the experiences of larger Massachusetts communities.

Table 6.2

Comparison of Means of Demographic Community Characteristic for Reduced Sample (163 communities – Racial Threat Analysis) Compared to Non-UCR Massachusetts Communities

	Reduced sample	Non-UCR sample	Significance
Total population	24968.10	4369.80	***
Non-White population, 18+	9.4865	4.1790	***
Disparity in stops Black to White	3.0209	2.2983	Ns
search disparity	.88650	1.24667	Ns
Total Sample	163	177	340

IRB

Human Subjects approval was received for the project from Northeastern University's Internal Review Board on May 6, 2008. It is expected that the project will provide minimal risks to human subjects. Approval was granted IRB# 08-04-08.

Chapter 7

Racial Threat Analysis

Bivariate Analysis

The bivariate correlations between the variable in the racial-threat analysis and the disparity in stops resulting in a citation are presented in Table 7.1. This analysis of the variables used in the racial threat model predicting the disparity in traffic stops reveals that only Total Population and Total non-White Population are significantly related to the level of disparity in traffic stops. This finding indicates that police agencies from larger Massachusetts communities and communities with a larger proportion of their population being non-White have greater racial disparities in their traffic stops. It is interesting to note that contrary to some of the prior literature, violent crime is not significantly related to disparities in traffic enforcement. This finding may indicate a lack of support for the argument that disparities are the result of policing in high crime areas.

Table 7.1

Bivariate Correlations Between Variables in the Racial Threat Analysis and the Disparity in Stops by the Massachusetts Law Enforcement Agencies

	Correlation coefficient	Significance
Total population	.209	.000
Percent non-White population	.110	.043
Change in non-White population between 1990 and 2000	-.100	.210
Percent of families living in poverty	.098	.073
Violent crime rate	.052	.512

Figure 7.1 presents a scatter plot of the disparity in traffic stops by the total population of the community. The plot is somewhat difficult to read because Boston

is such an outlier with a total population in 2000 of more than 500,000; however, the scatter plot does illustrate the positive relationship between the two variables.

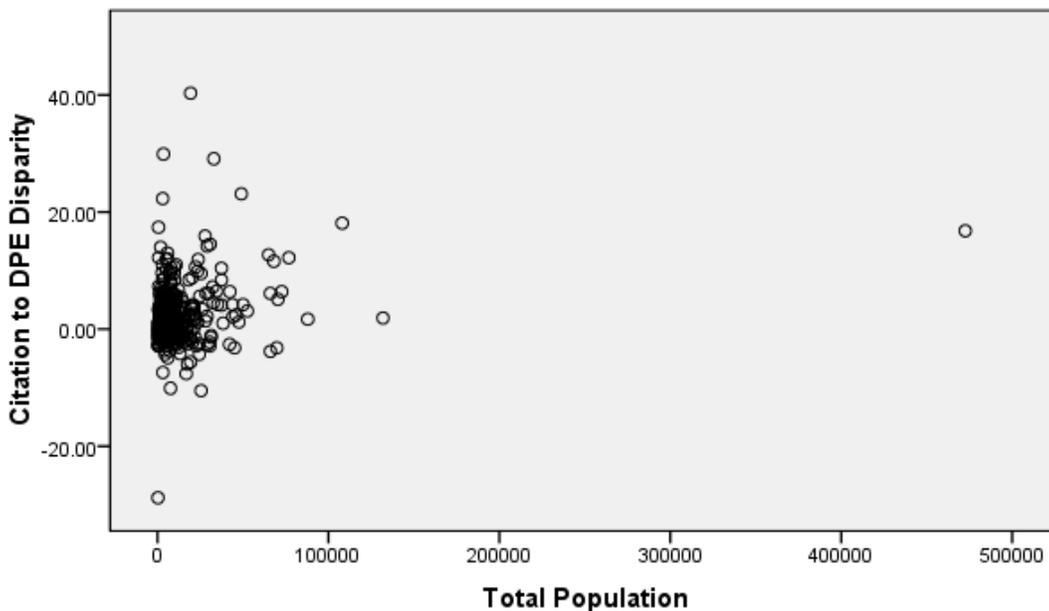


Figure 7.1. Scatter plot of disparity in traffic stops to the total community population.

Figure 7.2 presents a scatter plot of the disparity in stops to the total non-White population of the community. In this figure, the relationship between the variables can be further observed, with the trend again slightly positive, indicating that communities with larger non-White populations have greater disparity in traffic stops made by the police from their communities.

Table 7.2 presents the bivariate analysis of the variables in the racial-threat model with the level of racial disparity in searches. As can be clearly seen from Table 7.2, none of the variables in the racial-threat model are significantly related to the disparity in searches conducted by police from Massachusetts communities. This conclusion is particularly interesting since the finding of racial disparity in searches is one of the more consistent findings in the racial profiling literature, but this analysis

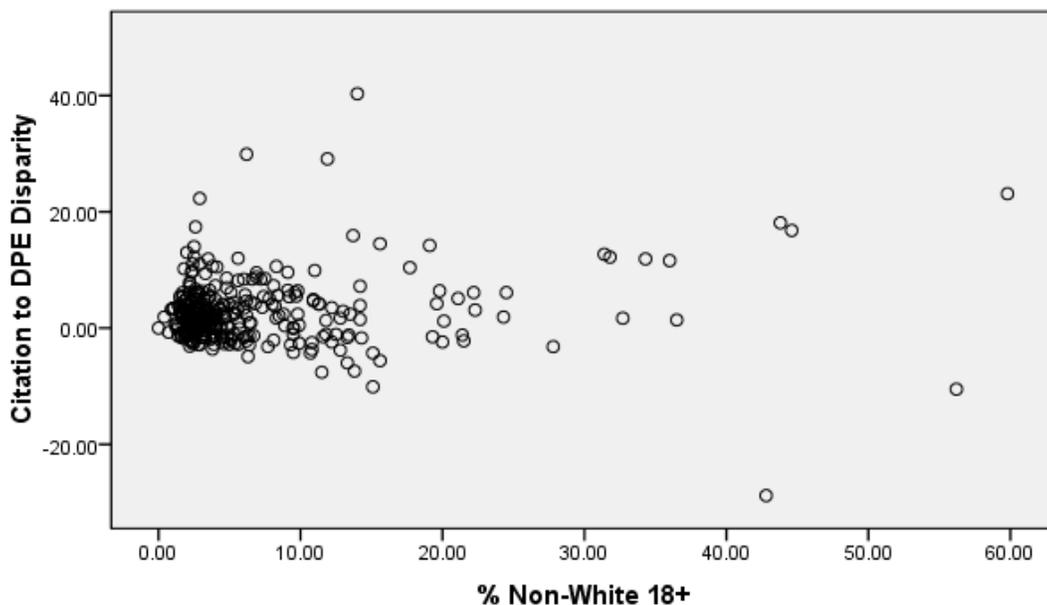


Figure 7.2. Scatter plot of disparity in traffic stops to the percent of the population that is non-White.

finds that racial disparities in searches conducted by Massachusetts law enforcement communities are not related to any of the variables in this model.

Table 7.2

Bivariate Correlations Between Variables in the Racial Threat Analysis and the Disparity in Searches by the Massachusetts Law Enforcement Agencies

	Correlation coefficient	Significance
Total population	-.008	.890
Percent non-White population	-.020	.712
Change in non-White population between 1990 and 2000	.019	.816
Percent of families living in poverty	.029	.606
Violent crime rate	.086	.278

Racial Threat: Multivariate Analysis

The multivariate model for the disparities in traffic stops offers some support for the racial threat theory. Of the five variables in this model, only one is statistically

significant: the percent of the population that is non-white. The violent crime rate, the total population of the community, and the percent of families living below the poverty line are not significantly related to the racial disparity in stops resulting in a citation. The percent of the population that is non-White is strongly associated with the racial disparity in citations. The sign of this coefficient is positive, indicating that police agencies serving Massachusetts communities with a higher non-White proportion of their population are significantly more likely to have high disparities in stops. This relationship remains strong even when controlling for the size of the community, the change in the proportion of the non-White population, the percent of families living in poverty, and the violent-crime rates. The interpretation of these results as suggested by racial-threat theory might be that, as the proportion of the non-White population increases, members of communities perceive a greater threat to the existing order in a community; thus, one outcome is more targeted traffic enforcement by police in that community.

Table 7.3

Multivariate Analysis of Racial Threat Variables and Disparity in Traffic Stops Resulting in Citations

Independent variables	B	S.E.	Beta
Total population	1.884E-5	.000	.139
Percent non-White	.206**	.079	.362**
Percent change in size of non-White population	-.011	.006	-.151
Percent below poverty line	-.147	.232	-.108
Violent crime	.000	.002	-.025
Constant = 2.425			
R ² = .169			

Note: * < .05; ** < .01, *** < .000

Table 7.4 presents the racial threat multivariate analysis of the disparity in searches by race. In this equation, it is clear that there is little support for racial threat as an explanation for disparities in searches. With no significant variables and an R square or total variance accounted for of approximately 2% (.021), the variables in this model are not associated with disparity in search behavior by Massachusetts police agencies. These results cast doubt on the utility of racial-threat theory as an explanation for the disparity in searches by Massachusetts law enforcement agencies.

Table 7.4

Multivariate Analysis of Racial Threat Variables and Disparity in Searches Conducted by Massachusetts Officers

Independent variables	B	S.E.	Beta
Total population	1.717E-6	.000	.028
Percent non-White	-.049	.039	-.190
Percent change in size of non-White population	.002	.003	.046
Percent below poverty line	.111	.115	.177
Violent crime	.000	.001	.021
Constant = .594			
R ² = .021			

* <.05; **<.01, ***<.000

In conclusion, this analysis indicates some support for racial threat as an explanation for traffic stops by Massachusetts police agencies. Specifically, in communities with a higher proportion of the population that is non-White, the racial disparity in traffic stops that result in a citation is significantly higher. This analysis finds no support for the racial-threat explanation for the search behavior of Massachusetts police agencies.

Chapter 8

Analysis of Police Organizational Characteristics

This chapter presents the analysis of the police agency organizational characteristics that may affect the discretionary traffic enforcement behavior of the officers who work for that agency. The reader should be reminded that the sample for this analysis is the 74 Massachusetts communities that participated in the LEMAS survey. As previously noted, this sample over represents larger Massachusetts communities and communities with a larger non-White population. The variables included in the analysis include the departments' commitment to community policing, the departments' focus on drug enforcement, the aggressiveness of the departments in traffic enforcement, and the racial and ethnic diversity of the agencies. Again, the analysis will begin with a descriptive bivariate analysis and be followed by an ordinary least squares regression analysis.

Construction of Variables

On the LEMAS survey, law enforcement agencies were asked whether they had a formal community-policing plan in place in their agency. Of the 74 Massachusetts law enforcement agencies in this sample, 73 reported that they had a plan, with only one reporting that it did not have a community-policing plan. There was a distinction as to whether the plan in place at these agencies was formally written or not. In this sample, 33 agencies reported that they had formal written community-policing plan while 40 agencies reported having a less formal, unwritten plan. This measure was used as an indicator of the department's commitment to community policing with the assumption that agencies with a formally written plan

demonstrated a greater commitment to community policing than agencies without such a formally written plan. The variable was then coded as to whether the agency had a formal written plan or not, with the one agency reporting no plan included with the agencies without a formal written plan.

The LEMAS survey also asked agencies whether they had an officer or officers assigned full time to a special unit for drug enforcement. In this sample, 34 agencies or 46% reported that they had officers assigned full time to a special unit for drug enforcement; the remaining 54% reported they had no such full-time assignments.

The next police organizational characteristic that might affect the disparity in traffic enforcement was the overall aggressiveness of the agency in its traffic-enforcement practices. The variable was operationalized by computing a rate of traffic stops resulting in a citation per resident for each jurisdiction.

To measure the representativeness diversity of the police department, a variable that represents the ratio of the size of the non-white population of the department to the non-white population of the community was created.

Finally, the size of the agency is measured by the total number of full-time sworn positions allocated to the agency.

Bivariate Results

In the descriptive analysis, the existence of a written community-policing plan seems to have some effect on disparities in stops resulting in citations. The bivariate Pearson correlation of these variables is $-.229$ and is significant at the $.05$ level. The strongest bivariate relationship is between the size of the agency and the level of

disparity in traffic stops, from this sample larger communities have greater disparities in traffic stops

Table 8.1

Bivariate Correlations between Police Organizational Characteristics Variables and the Disparity in Traffic Stops by the Massachusetts Law Enforcement Agencies

	Correlation coefficient	Significance
Existence of written community policing plan	-.229	.050
Focus on drug enforcement	.194	.097
Aggressiveness of the department in traffic enforcement	.041	.454
Racial and ethnic representativeness of the agency	.013	.910
Size of the agency	.377	.001

Table 8.2 presents the bivariate results of the police organizational characteristics variables and the level of disparity in searches. Similar to the results above for the racial-threat model, none of the organizational characteristic variables are significantly related to the level of racial disparity in the search behavior of Massachusetts police agencies. This finding is somewhat surprising, given that many of the explanations offered for the disparity in searches by police agencies reflect some of the measures in the police organizational characteristic model. Again, it may be that, because searches are a rare event during traffic stops, they may be associated with decisions by individual officer's more than organizational characteristics.

Table 8.2

Bivariate Correlations between Police Organizational Characteristics Variables the Disparity in Searches by the Massachusetts Law Enforcement Agencies

	Correlation Coefficient	Significance
Existence of Written Community Policing Plan	-.093	.430
Focus on Drug Enforcement	.139	.241
Aggressiveness of the Department in traffic enforcement	.028	.612
Racial and Ethnic Diversity in the Agency	.012	.917
Size of Agency	.004	.974

Multivariate Analysis of Police Organizational Characteristics

The Ordinary Least Squares (OLS) multivariate regression analysis of police organizational characteristics indicates some support for the hypothesis that police organizational characteristic are related to the disparity in stops by Massachusetts law enforcement agencies. Two variables are significantly related to the disparity in stops the size of the agency and the existence of a written community policing plan. In this analysis larger agencies and agencies without a written community policing plan have greater disparities than smaller communities and communities with a written community policing plan. None of the other variables in the model are significantly related to the disparity in stops by Massachusetts police agencies.

Table 8.3

Multivariate Analysis of Police Organizational Characteristics and Disparity in Traffic Stops Resulting in Citations

Independent variables	B	S.E.	Beta
Size of agency	.006	.003	.106*
Racial and ethnic representativeness of the agency	1.457	1.641	.112
Aggressiveness of agency	10.865	7.832	.170
Written community policing plan	-2.845	1,500	-.251*
Focus on drug enforcement	..280	.745	.011
Constant = 4.511			
R squared = .247			

* <.05; **<.01, ***<.000

Table 8.4 presents the results of the multivariate analysis of disparity in searches. As expected from the bivariate analysis, the police organizational variables are not associated with the disparity in search rates. The R squared for the equation measuring the variance accounted for by the variables in the equation is a .059 indicating that the model accounts for less than 6% of the variance in the dependent variable, as compared with the model for stops, which accounted for 25% of the variance in that model. None of the variables in the model were significantly related to the dependent variable. This analysis finds no support for the hypothesis that police organizational characteristics predict the disparity in searches by Massachusetts police agencies.

Table 8.4

Multivariate Analysis of Police Organizational Characteristics and Disparity in Searches

Independent variables	B	S.E.	Beta
Size of agency	-.000	.001	-.067
Racial and ethnic representativeness of the agency	-.133	.635	-.029
Aggressiveness of agency	.574	3.032	.026
Written community policing plan	.050	.581	.013
Focus on drug enforcement	.426	.292	.216
Violent Crime rate	.000	.001	.105
Constant=.119			
R squared= .059			

* <.05; **<.01, ***<.000

Chapter 9

Full Model with Racial-Threat Analysis
and Police Organizational-Characteristics Analysis

The final stage of the analysis combines the variables from both the racial-threat analysis and the police organizational-characteristics analysis into a single model. The rationale for this combined model is the suggestion that no one set of variables or theoretical approaches will adequately explain the complex dynamics of disparate traffic enforcement practices. It may very well be the case that both perspectives can contribute to an understanding of the processes that are associated with larger racial disparities.

For example, as has been shown, communities with larger non-White populations tend to have larger disparities in stops resulting in citations. While this dynamic may help to explain some of the variance in the rate of racial disparity, it may be that certain characteristics of police organizations may mediate or exacerbate the impact of the racial composition of a community. In one potential example, the violent-crime rate in a community may mediate the effect of the proportion of non-White or one of the police characteristics.

One caution with the combined analysis is that the sample has decreased to those communities with LEMAS data or the 74 community sample. This change could affect the results, and with 8 variables in the model, the estimates may be somewhat less stable.

Table 9.1 presents the results from the model that combines the variables associated with racial threat and the variables associated with police organizations. To

reduce any multicollinearity in the combined model, one variable was excluded from this analysis: (a) the size of the community because it was highly correlated with the size of the police agency.

As indicated in Table 9.1, the combined model has added to the variance accounted for by the model, raising it from 25% in the racial-threat model to 44% in this combined model; again, some of this additional variance may be due to the smaller sample size.

In this analysis of the disparity in stops resulting in citations, the combined model contains two significant predictors, one from each of the theoretical perspectives. From the racial-threat perspective, the proportion of the community that is non-White remains significantly related to racial disparities in stops in the combined model. In addition, from the police organizational-characteristics model, the existence of a written community-policing plan remains significantly related to having lower disparities in stops. Specifically, police agencies with a written community-policing plan are less likely to have high racial disparity in traffic stops.

These results from this combined model should be treated as preliminary and with caution. While these two variables were significant in each of the separate models the lower sample size may introduce some instability into the model.¹ While some caution should be exercised in drawing conclusions from this analysis, it does appear that, as would be suggested by racial-threat theory, the size of the non-White population is significantly related the level of disparity in traffic stops. It is also the

¹ A review of the multi-collinearity diagnostic statistics reveals that no variable has a tolerance of .10 or a VIF less than 1.0

case that a commitment to community policing may, in fact, have some benefits, including possibly a reduction in racially disparate traffic stops.

Table 9.1

Multivariate Analysis of Police Organizational Characteristics and Disparity in Traffic Stops Resulting in Citations

Independent Variables	B	S.E.	Beta
Size of agency	.001	.003	.064
Racial representativeness of Agency	1.536	1.467	.118
Aggressiveness of Agency	5.565	7.024	.087
Written Community Policing Plan	3.321	1.332	-.293**
Agency has Drug Task Force	-.630	.679	-.111
Violent Crime Rate	-.001	.002	-.093
Proportion Non-White Population	.282	.083	.620**
Proportion of families in Poverty	-.065	.252	.058
Constant=4.49			
R squared=.445			

* <.05; **<.01, ***<.000

Racial Disparity in Searches

To complete the analysis, the combined model for racial disparity in searches was also run. As would be expected, based on the prior analysis, Table 9.2 indicates that no variables from the combined model significantly predicted the racial disparity in search behavior. As seen in both the racial-threat analysis and the police-organization analysis, these models do not predict the racial disparity in searches.

This combined model explains only 8% of the variance in the racial disparity in searches. The existence of officers assigned to a drug unit² and the violent-crime rate

² A set of diagnostics were run removing each nonsignificant variable one step at a time. In all cases, the two variables proportion of the community that is non-White and the existence of a written community-policing plan remained significant.

in a community were the strongest predictors in the model, but neither came close to achieving statistical significance.

Table 9.2

Multivariate Analysis of Police Organizational Characteristics and Disparity in Traffic Stops Resulting in Citations

Independent Variables	B	S.E.	Beta
Size of Agency	.000	.001	-.054
Racial Representativeness of Agency	.004	.653	.001
Aggressiveness of Agency	1.268	3.126	.057
Written Community Policing Plan	-.018	.593	-.005
Agency has Drug Task Force	.507	.302	.258
Violent Crime Rate	.001	.001	.268
% Non-White	.010	.037	.062
% Below the Poverty Line	-.116	.112	-.299
Constant	-.230		
R squared= .084			

* <.05; **<.01, ***<.000

The reason that the theoretical orientations employed in this dissertation did not adequately explain the disparity in searches is not fully clear. It may be that, as explained above, the dynamics of a police officer's decision to search a driver may be informed by much more information and constrained by the legal authority required to conduct a search to such an extent that external community-level and agency-level factors are less important. It should be noted, though, that searches are one of the areas in which racial disparities have most often been demonstrated. It should be noted that this data includes only discretionary searches and if non-discretionary searches were included (e.g. searches incident to arrest and inventory searches) more racial variation would exist in the variable. It behooves future research, to attempt to

model more adequately the disparity in searches in order to be able to identify ways to reduce any documented disparities.

Chapter 10

Conclusions and Implications for Policy

Conclusions

This research offers some support for one of the four hypotheses that guided this research with possible support for another. The analysis offers little or no support for the remaining two hypotheses guiding this research.

In Hypothesis 1, it was suggested that community level characteristics associated with the racial threat perspective would be associated with the level of diversity in traffic stops. This analysis finds some support for that hypothesis by identifying that the proportion of the non-White population of a community is related to increased racial disparity in traffic stops.

In Hypothesis 2, it was suggested that community level characteristics associated with racial threat perspective would be associated with the level of racial disparities in searches by police. This analysis finds no support for that hypothesis.

In Hypothesis 3, it was suggested that organizational characteristics of a police department might be associated with the level of disparity in stops conducted by members of that department. There was some ambiguous support for this hypothesis. In the original model, the only significant variable was the level of diversity of the police agency. Subsequent analysis revealed that this measure was highly correlated with the diversity in the community and that it might be standing as a proxy for that measure. In the final combined analysis, the diversity of the department was removed and the existence of a community-policing plan was significantly related to the level of racial disparity in traffic stops.

In Hypothesis 4, it was suggested that organizational characteristics of a police department might be associated with the level of disparity in searches conducted by members of that department. This analysis found no support for that hypothesis.

Regarding the two models being tested, this analysis finds some partial support for each perspective. In the racial-threat model, the analysis uncovered a significant relationship between the proportion of a community's population that is non-White and the level of racial disparity in stops by that department. In the parallel analysis of racial variation in searches, this analysis found no support that variables from the racial-threat perspective were associated with racial disparity in searches by Massachusetts police officers.

From the police organizational-characteristics perspective, again this analysis finds some limited support. In the combined model, uniting variables from each perspective, agencies with a written community-policing plan had lower levels of disparity in searches, suggesting that departments more committed to community policing may have lower rates of racial disparity in the traffic stops. This relationship is not very strong and needs to be replicated in future research involving different samples of police agencies. There is no support for the conclusion that variables reflecting police organizational perspectives are associated with racial disparity in searches by Massachusetts police agencies.

In conclusion, this analysis finds some limited support for each theoretical perspective tested in this research. However, in each analysis, the support is mixed and inconsistent. Future research should expand on these findings with other samples

of additional police agencies. In addition, future research should explore what having a formally written community policing plan does mean for police agencies. It may be that this variable measures additional policies and practices of police agencies that are associated with community policing and that those agencies that have a written community policing plan also have other progressive policies that help to reduce racial and ethnic disparity in traffic stops.

Policy Implications

This research can lead to a number of policy implications for Massachusetts public officials. First, the analysis of racial disparities in searches offers little guidance to public officials. Because this analysis was not able to identify any variables that are significantly related to racial disparities in searches from either perspective tested in this research, any policy implications regarding ways to reduce racial disparities in searches could not be informed by this research.

The analysis of the stops resulting in a citation in Massachusetts communities may have some policy implications that arise from the conclusions. First, the finding that stop disparities are greatest in communities with higher proportions of their population that is non-White may lead the State to focus resources on these communities. Resources such as training and grants to support the monitoring of traffic stops could be targeted on communities that have larger non-White populations.

The tentative conclusion that racial disparities in traffic stops is lower in communities with a greater commitment to community policing, as measured by having a written community-policing plan, can also affect public policy in the

Commonwealth. The suggestion in the literature that police agencies with stronger community-policing programs would have better relationships with the residents and result in less biased policing receives some support from this analysis. Future efforts to reduce or eliminate racial profiling in the Commonwealth may include a provision that seeks to strengthen a community's community-policing program.

In terms of implications for future research, there are several. First, this analysis would suggest that future research should incorporate community-level and agency-level variables as a way to offer a deeper understanding of disparities in traffic enforcement. Additionally, future research should look at alternative ways to operationalize racial threat as well as determine which police organizational characteristics might be associated with the level of racial disparities. This research offers partial support for each approach, but as models are refined and re-specified, the robustness of the model may improve. This research also offers some support for using multiple models to help to explain racial disparities in traffic enforcement. Because, in the final analysis, combining variables from each model accounted for the most variance in stops resulting in a citation, this kind of a combined-model analytic approach might be considered.

Law, Policy, and Society Implications of This Research

Law. This research has been conducted at a key point during the discussion of legal issues surrounding racial profiling in the Commonwealth of Massachusetts. In June of this year, the Massachusetts Supreme Court, in *Commonwealth vs. Lora*, handed down a decision that allowed defendants to use data, such as the data analyzed here, to make a case that a police officer has engaged in racial profiling. In

Lora, the court ruled that the prior traffic stop history of individual officers can be used by the defense to raise a racial profiling claim. If prior traffic stop statistics raise a racial profiling claim, then the burden shifts to the State to demonstrate that the officer did not use race in decision-making about the traffic stop. The case is so new that no one knows how it will be put into practice, how defendants will get the traffic stop records as part of discovery, and what kind of analysis the court will find compelling; however, analysis such as presented here may help to inform the court about factors that might be considered.

Policy. The traffic enforcement laws in place across America are expected to make our communities safer by regulating the driving behavior of our citizens. More than 43,000 persons are killed each year on American highways, nearly 3 times the number of homicide victims each year. If police engage in racial profiling, certain segments of the public may lose faith in the traffic enforcement policies and increasingly ignore these polices. If members of certain groups believe that police will target them due to certain characteristics they possess rather than their behavior, they may lose trust and confidence in their police department and fail to support local public-safety efforts. Additionally, if Whites see the police disproportionately enforcing the law, for example, against Blacks and Latinos, Whites may begin to disobey traffic laws more frequently because they perceive their risk of being detected as much lower than other groups.

The finding that racial disparities in traffic stops are greater in communities with larger non-White populations should help inform State officials in their decision of where to target training and support resources.

Society. This research can have a number of positive implications for society in general. Because the research has found that racial disparities are greater in communities with larger non-White populations, a number of ameliorative actions could be put into effect by the State of Massachusetts. As indicated above, targeted training may be the first consequence of this research. A second policy outcome of this research could be increased monitoring of police agencies that have high disparity rates and fail to take actions to reduce the disparities. A final outcome for recalcitrant police agencies could be new antiracial profiling litigation initiated by the state or by third parties, such as legal advocacy groups.

In any case, all efforts to reduce racial disparities in traffic enforcement can have positive societal benefits. Reduced disparate enforcement may increase compliance with existing traffic laws, thereby increasing overall traffic safety in Massachusetts. Additionally, as police are perceived to be enforcing laws in an impartial manner, it will result in increasing trust and confidence in government on the part of the public, which will, in turn, pay benefits in increasing participation in public-safety efforts and other governmental efforts.

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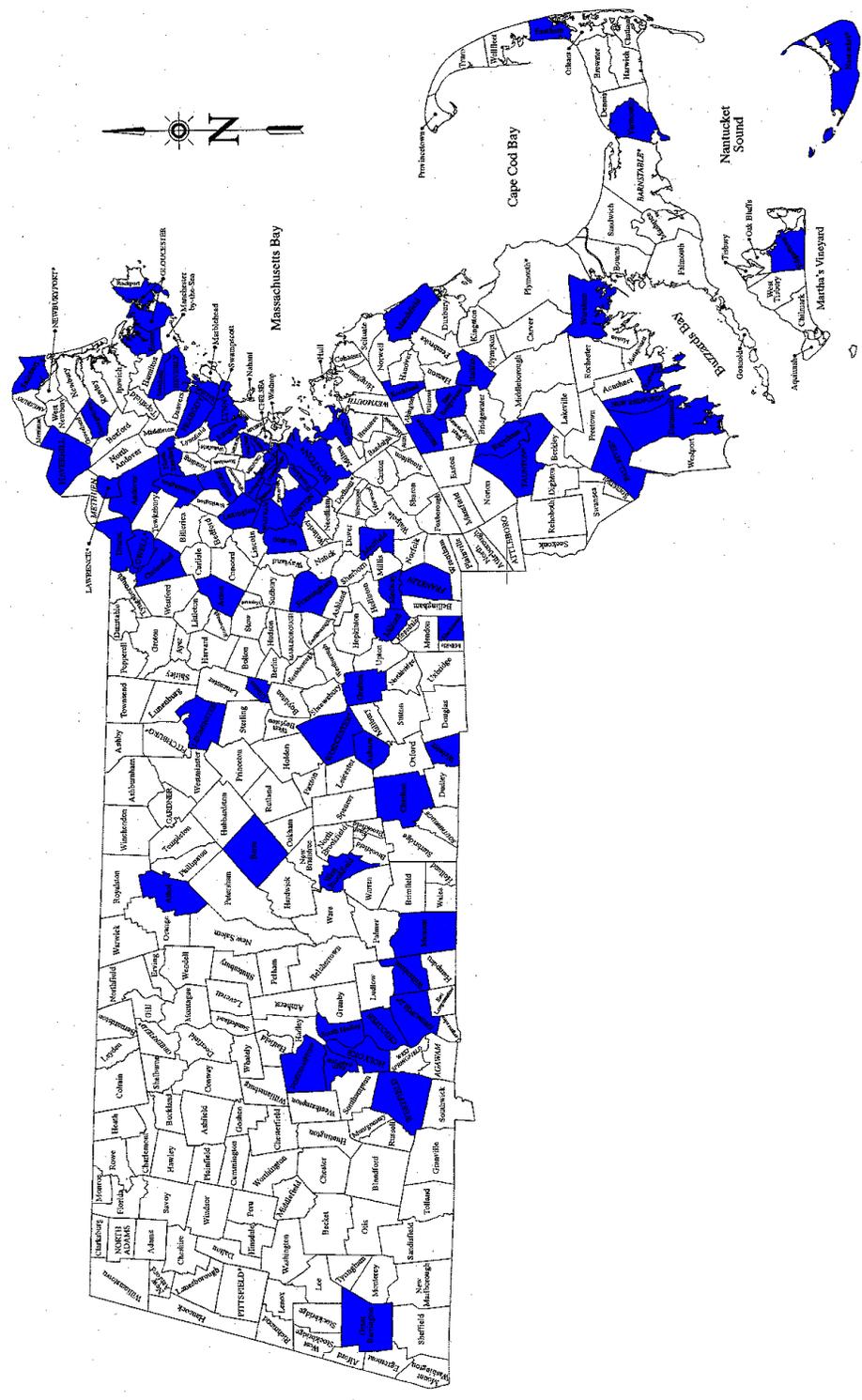
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APPENDIX A

Massachusetts Uniform Citation

APPENDIX B

Massachusetts Communities with Data from all Sources



List of Massachusetts Communities

1. ACTON POLICE DEPT
2. ANDOVER POLICE DEPT
3. ARLINGTON POLICE DEPT
4. ATHOL POLICE DEPT
5. AUBURN POLICE DEPT
6. BARRE POLICE DEPT
7. BELMONT POLICE DEPT
8. BEVERLY POLICE DEPT
9. BLACKSTONE POLICE DEPT
10. BOSTON POLICE DEPT
11. SUFFOLK COUNTY SHERIFF DEPT
12. BROCKTON POLICE DEPT
13. BROOKLINE POLICE DEPT
14. CAMBRIDGE POLICE DEPT
15. CHARLTON POLICE DEPT
16. CHELMSFORD POLICE DEPT
17. CHICOPEE POLICE DEPT
18. CLINTON POLICE DEPT
19. DARTMOUTH POLICE DEPT
20. DRACUT POLICE DEPT
21. EAST BRIDGEWATER POLICE DEPT
22. EASTHAMPTON POLICE DEPT
23. EDGARTOWN POLICE DEPT
24. ESSEX POLICE DEPT
25. EVERETT POLICE DEPT
26. FAIRHAVEN POLICE DEPT
27. FALL RIVER POLICE DEPT
28. FRAMINGHAM POLICE DEPT
29. FRANKLIN POLICE DEPT
30. GEORGETOWN POLICE DEPT
31. GLOUCESTER POLICE DEPT
32. GRAFTON POLICE DEPT
33. GREAT BARRINGTON POLICE DEPT
34. HALIFAX POLICE DEPT
35. HAVERHILL POLICE DEPT
36. HOLYOKE POLICE DEPT
37. LAWRENCE POLICE DEPT
38. LEOMINSTER POLICE DEPT
39. LEXINGTON POLICE DEPT
40. LOWELL POLICE DEPT
41. LYNN POLICE DEPT
42. MALDEN POLICE DEPT
43. MARSHFIELD POLICE DEPT
44. MEDFIELD POLICE DEPT
45. MEDWAY POLICE DEPT
46. MILFORD POLICE DEPT
47. MONSON POLICE DEPT

48. NANTUCKET COUNTY SHERIFF DEPAR
49. NEW BEDFORD POLICE DEPT
50. NEWTON POLICE DEPT
51. NORTH EASTHAM POLICE DEPT
52. NORTH READING POLICE DEPT
53. NORTHAMPTON POLICE DEPT
54. PEABODY POLICE DEPT
55. QUINCY POLICE DEPT
56. RAYNHAM POLICE DEPT
57. ROCKLAND POLICE DEPT
58. SALEM POLICE DEPT
59. SALISBURY POLICE DEPT
60. SAUGUS POLICE DEPT
61. SOMERVILLE POLICE DEPT
62. SOUTH HADLEY POLICE DEPT
63. SPRINGFIELD POLICE DEPT
64. SWAMPSCOTT POLICE DEPT
65. TAUNTON POLICE DEPT
66. WALTHAM POLICE DEPT
67. WAREHAM POLICE DEPT
68. WEBSTER POLICE DEPT
69. WENHAM POLICE DEPT
70. WEST BROOKFIELD POLICE DEPT
71. YARMOUTH POLICE DEPT
72. WESTFIELD POLICE DEPT
73. WESTON POLICE DEPT
74. WILBRAHAM POLICE DEPT
75. WILMINGTON POLICE DEPT
76. WOBURN POLICE DEPT
77. WORCESTER POLICE DEPT

ⁱ It is important to note that this dissertation deals with racial and ethnic differences in the treatment of individuals by the police. There is a large body of research that has identified that notions of race and ethnicity are indeed social constructs and are only understood in the context of the culture, laws, and traditions of a society at a particular point in time (Walker et al., 2000; Bobo and Hutchings, 1996). Through this dissertation, I use terms such as *Black*, *White*, and *Latino* to describe groups, mindful that these distinctions are culturally determined and do not represent real measurable differences between individuals. It is, however, the perception of difference and how key actors may use or allow these perceptions of difference to influence their actions that is just what this research seeks to understand.