Methodological Issues in Biased Policing Research with Applications to the Washington State Patrol

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I. INTRODUCTION

In the mid-to-late 1990s, media attention intensified around the issue of racial profiling. The increased attention was partially due to concerns that law enforcement were biased and targeting members of minority groups, and that incarceration rates were racially disproportionate. Literally hundreds of articles appeared on the topic of racial profiling in popular media.[1] It is important to note, however, that while the term "racial profiling" was only recently coined, biased policing and its empirical study have much deeper historical roots, both in the United States and abroad.[2]

For the purposes of this Article, we have adopted Dr. Lorie Fridell's definition of racial profiling: "the inappropriate consideration by law enforcement of race or ethnicity in deciding with whom and how to intervene in an enforcement capacity."[3] This definition is broader than many others because it goes beyond police decisions to stop or apprehend individuals predicated on either their race or ethnicity. Instead, the definition encompasses law enforcement decisions to cite, arrest, search, and use force.

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1. *See, e.g.*, DAVID A. HARRIS, PROFILES IN INJUSTICE: WHY RACIAL PROFILING CANNOT WORK (2002); Candace Batton & Colleen Kadleck, *Theoretical and Methodological Issues in Racial Profiling Research*, 7 POLICE Q. 30 (2004); John J. Donohue III & Steven D. Levitt, *The Impact of Race on Policing and Arrests*, 44 J.L. & ECON. 367 (2001); Robin Shepard Engel & Jennifer M. Calnon, *Comparing Benchmark Methodologies for Police-Citizen Contacts: Traffic Stop Data Collection for the Pennsylvania State Police*, 7 POLICE Q. 97 (2004); Matthew Zingraff, William Smith & Donald Tomaskovic-Devey, *North Carolina Highway Traffic and Patrol Study: "Driving While Black,"* 25 CRIMINOLOGIST 1 (2000).

2. Clayton Mosher et al., *The Importance of Context in Understanding Biased Policing: State Patrol Traffic Citations in Washington State*, 9 POLICE PRAC. & RES. 43, 43 (2008).

3. LORIE A. FRIDELL, POLICE EXEC. RESEARCH FORUM, BY THE NUMBERS: A GUIDE FOR ANALYZING RACE DATA FROM VEHICLE STOPS 1 (2004), http://www.policeforum.org/library/racially-biased-policing/by-the-numbers/BytheNumbers[1].pdf.

Racial profiling violates the United States Constitution's premise that all people are equal under the law, as well as the Fourth Amendment's guarantee that people should be free from unreasonable searches and seizures. Racial profiling has been found to result from individual officer racism or stereotyping,[4] from institutionalized biases,[5] and from the organizational culture of law enforcement agencies.[6]

We begin this Article by discussing the history of racial profiling before proceeding to consider various studies from a select number of American jurisdictions.[7] We then examine important methodological and theoretical issues in conducting research on racial profiling and racially biased policing, including a detailed discussion of our research with the Washington State Patrol (WSP). These issues are important to consider because if studies of racial profiling are not based on sound scientific principles, then those who deny the existence of the problem can attribute revelations of bias to faulty research methodology. The Article concludes with a response to the critiques of our methodology and conclusions presented by Professors Mario Barnes and Robert Chang.[8]

II. HISTORICAL CONTEXT AND RECENT RESEARCH

Although the term racial profiling emerged in the 1990s as attention to the problem intensified, biased policing has a long history in the United States and other countries. Some of the earliest examples include fugitive slave laws, Black Codes, and Jim Crow laws, as well as the internment of Japanese residents during World War II.

Bias against minorities on the part of law enforcement has been well-documented in United States history.[9] For example, the Chicago Commission on Race Relations suggested in a 1922 report that police

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4. Michael R. Smith & Geoffrey P. Alpert, *Explaining Police Bias: A Theory of Social Conditioning and Illusory Correlation*, 34 CRIM. JUST. & BEHAV. 1262, 1264 (2007).

5. RACHEL NEILD, OPEN SOC'Y INST., ETHNIC PROFILING IN THE EUROPEAN UNION: PERVASIVE, INEFFECTIVE, AND DISCRIMINATORY 22 (2009), http://www.soros.org/initiatives/justice/articles_publications/publications/profiling_20090526/profiling_20090526.pdf.

6. FRIDELL, *supra* note 3, at 2.

7. Due to space constraints, only a sampling of studies is included.

8. *See* Mario L. Barnes & Robert S. Chang, *Analyzing Stops, Citations, and Searches in Washington and Beyond*, 35 SEATTLE U. L. REV. 673 (2012).

9. *See, e.g.*, CHI. COMM'N ON RACE RELATIONS, THE NEGRO IN CHICAGO: A STUDY OF RACE RELATIONS AND A RACE RIOT (1922); ERNEST JEROME HOPKINS, OUR LAWLESS POLICE: A STUDY OF THE UNLAWFUL ENFORCEMENT OF THE LAW (1931); GUNNAR MYRDAL, AN AMERICAN DILEMMA: THE NEGRO PROBLEM AND MODERN DEMOCRACY (1944); Guy Johnson, *The Negro and Crime*, 271 ANNALS AM. ACAD. POL. & SOC. SCI. 93 (1941); Edwin J. Lukas, *Questions and Answers*, 36 J. CRIM. L. CRIMINOLOGY & POLICE SCI. 271 (1945); Thorsten Sellin, *Race Prejudice in the Administration of Justice*, 41 AM. J. SOC. 212 (1935); Thorsten Sellin, *The Negro Criminal: A Statistical Note*, 139 ANNALS AM. ACAD. POL. & SOC. SCI. 52 (1928).

officers more easily identified and arrested blacks because identifying a criminal's skin color enabled police officers to limit their search to what constituted, in some communities, a very small group.[10] In 1922, when the Carnegie Foundation commissioned the Swedish social economist, Gunnar Myrdal, to conduct studies on the experiences of black people in the United States, Myrdal reiterated these claims of police bias toward minority groups. He noted that in most northern communities in the United States, police were more likely to arrest blacks than whites "under any suspicious circumstances."[11] Myrdal further asserted that these problems were worse in the South: "[P]robably no group of whites in America have a lower opinion of the Negro people and are more fixed in their views than [Southern] policemen. To most of them no Negro woman knows what virtue is . . . and practically every Negro man is a criminal."[12]

Other researchers have found similar results. For example, Edwin Lukas focused on police bias to explain higher rates of black crime, noting that police activity was "greater in relation to the Negro than to the white. Everywhere, in the North and the South, police arrest Negroes on slight suspicion, and do not hesitate to use force against Negroes."[13] Guy Johnson, referring to the police "custom" of arresting blacks on slight suspicion and of staging mass "round-ups" of blacks, similarly asserted that blacks were more exposed to the police misuse of power than any other group.[14] Ernest Hopkins extended these early discussions of biased policing beyond their focus on blacks:

> [M]any years ago the American policeman undertook to make enemies of the vast number of foreign-born people whom we were inviting to our shores . . . . Perhaps nothing is more directly responsible for the violent character of much present-day crime than the lawless police work that was visited upon the immigrant in the past.[15]

More recently, and partially in response to considerable media scrutiny and public concern over racial profiling, a number of state and local governments have enacted legislation prohibiting racial profiling. Such

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10. CHI. COMM'N ON RACE RELATIONS, *supra* note 9, at 33.

11. MYRDAL, *supra* note 9, at 526.

12. *Id.* at 540.

13. Lukas, *supra* note 9, at 274.

14. Johnson, *supra* note 9, at 97; *see also* Lenese C. Herbert, *O.P.P.: How "Occupy's" Race-Based Privilege May Improve Fourth Amendment Jurisprudence For All*, 35 SEATTLE U. L. REV. 727, 729, 736 (2012) (arguing that the unprovoked use of police force on Occupy Wall Street protestors may help expose the long history of police brutality against black Americans).

15. HOPKINS, *supra* note 9, at 339.

legislation has generally mandated the collection and analysis of data on the race and ethnicity of individuals subject to traffic stops and other police contact.[16] Academic and other researchers have analyzed these data, leading to hundreds of reports and articles on the topic of racial profiling, only a few of which we have the space to discuss below.

Based on a comprehensive review and meta-analysis of data from numerous studies exploring the effect of race on a police officer's decision to arrest a person, a recent report concluded that minority suspects are more likely to be arrested than white suspects.[17] For example, the Los Angeles Police Department (L.A.P.D.), perhaps most notorious for the widely publicized and videotaped beating of Rodney King in 1991, was required to collect vehicle stop data after entering into a consent decree in 2001.[18] This decree followed a federal Department of Justice investigation that revealed patterns of excessive use of force, false arrests, and unreasonable searches and seizures by L.A.P.D. officers. According to a study of more than 700,000 stops of pedestrians and drivers between July 2003 and June 2004, African-Americans in Los Angeles were nearly three times more likely to be stopped than either whites or Hispanics.[19] Examining the post-stop actions of L.A.P.D. officers, the report also found that African-Americans and Hispanics were more than twice as likely to be ordered out of their vehicles compared to whites, and they were significantly more likely to be frisked, asked to submit to a search, searched, and arrested.[20]

In another example, an analysis of traffic stop data from San Francisco revealed that police stopped African-American, though not Hispanic, motorists at significantly higher rates than whites from July 1, 2001 to June 30, 2002.[21] Police also searched African-Americans 3.3 times more often and Latinos 2.6 times more often than whites.[22] Another study found that from 2004 through 2009, the New York City police stopped

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16. Patricia Y. Warren & Amy Farrell, *The Environmental Context of Racial Profiling*, 623 ANNALS AM. ACAD. POL. & SOC. SCI. 52, 53 (2009).

17. Tammy Rinehart Kochel, David B. Wilson & Stephen D. Mastrofski, *Effect of Suspect Race on Officers' Arrest Decisions*, 49 CRIMINOLOGY 473, 498 (2011).

18. The consent decree was terminated in 2009.

19. IAN AYRES & JONATHAN BOROWSKY, ACLU OF S. CAL., A STUDY OF RACIALLY DISPARATE OUTCOMES IN THE LOS ANGELES POLICE DEPARTMENT 3 (2008), *available at* http://www.aclu-sc.org/downloads/2/681086.pdf.

20. *Id.*

21. MARK SCHLOSBERG, ACLU OF N. CAL., A DEPARTMENT IN DENIAL: THE SAN FRANCISCO POLICE DEPARTMENT'S FAILURE TO ADDRESS RACIAL PROFILING 3 (2002), *available at* http://www.prisonpolicy.org/scans/021007-report.pdf.

22. *Id.*

close to 2.8 million people on the streets.[23] Whites, who constituted 44.6% of New York City's population at that time, represented only 10% of those stopped. Blacks, on the other hand, comprised only 25% of the city's population but represented 51% of those stopped, while Hispanics, comprising 27.5% of the city's population, represented 30% of those stopped.[24] The police located contraband in only 1.6% of the stops of blacks, 1.5% of the stops of Hispanics, and 2.2% of the stops of whites, and found weapons on 1.1% of blacks, 1.4% of Hispanics, and 1.7% of whites.[25]

Studies also demonstrate that issues of racial profiling are not confined to major cities. For example, Kenneth Novak's studies in Overland, Kansas revealed a tenuous relationship between race or ethnicity and police officers' decisions to stop individuals. But minorities in this jurisdiction were significantly less likely to receive a formal sanction as a result of the stop, leading Novak to suggest that police officers used pretextual traffic violations as a means to stop minorities.[26] In Missouri, Jeff Rojek, Richard Rosenfeld, and Scott Decker found that of those motorists stopped, police searched and arrested black and Hispanic drivers approximately twice as often as they searched and arrested white drivers.[27] In 2006, the Illinois Department of Transportation revealed data showing that while minorities accounted for approximately 28% of the driving population, they constituted 32% of those pulled over by police.[28] Police stopped individuals representing ethnic and racial minorities more often than whites for equipment, license, and vehicle registration violations.[29] They also ticketed these individuals at a higher rate, and they searched people of color more than twice as often as they searched whites.[30] In Minnesota, compared to their representation in the population, blacks were overstopped in all but one of the forty-three jurisdic-

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23. Bob Herbert, Op-Ed, *Watching Certain People*, N.Y. TIMES, Mar. 2, 2010, at A23, *available at* http://www.nytimes.com/2010/03/02/opinion/02herbert.html.

24. *Id.*

25. *Id.*

26. Kenneth J. Novak, *Disparity and Racial Profiling in Traffic Enforcement*, 7 POLICE Q. 65, 88 (2004).

27. Jeff Rojek, Richard Rosenfeld & Scott Decker, *The Influence of Driver's Race on Traffic Stops in Missouri*, 7 POLICE Q. 126, 138–39 (2004).

28. Ryan Keith, *Traffic Stop Study Raises Questions, But Answers Hard to Find*, ASSOCIATED PRESS, July 22, 2007, *available at* http://www.democracyforums.com/archive/index.php/t5401.html.

29. *Id.*

30. *Id.*

tions studied, while Latinos were overstopped in all but five.[31] With the exception of two of the thirty-eight jurisdictions from which data on searches were collected, police searched blacks at higher rates than whites, while Latinos experienced higher rates of discretionary searches in all jurisdictions.[32] Overall, 24% of discretionary searches of whites resulted in the discovery of contraband, compared to only 11% and 9% of searches of blacks and Latinos, respectively.[33]

Surveys conducted by the federal government's Bureau of Justice Statistics (BJS) in 2002 and 2005 found that in both years, police stopped white, black, and Hispanic drivers at similar rates, but blacks and Hispanics were searched twice as often as whites.[34] A 2001 BJS survey revealed that blacks reported being stopped by the police at higher rates than other ethnic groups, and that they were more likely to report having been stopped repeatedly.[35] Blacks also were less likely to believe that they had been stopped for a legitimate reason, were more likely to be ticketed, arrested, and handcuffed, and were less likely to believe a search was legitimate than whites.[36]

In the post-9/11 period, Arabs and Muslims have also been subjected to profiling in the United States and other countries as the so-called "War on Terror" has been prosecuted. In the first seven weeks after the 9/11 attacks, authorities detained close to 1000 individuals, nearly all of them Arabs or Muslims.[37] Additionally, the Department of Justice selected approximately 5000 young immigrant men for interviews based on their age, date of arrival in the United States, and country of origin.[38] Virtually all of the interviewees were Arabs or Muslims.[39] Over 80% of

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31. INST. ON RACE & POVERTY, MINNESOTA STATEWIDE RACIAL PROFILING REPORT: ALL PARTICIPATING JURISDICTIONS, REPORT TO THE MINNESOTA LEGISLATURE 1 (2003), *available at* http://www.irpumn.org/uls/resources/projects/aggregate%20report%2092303.pdf.

32. *Id.*

33. *Id.*

34. MATTHEW R. DUROSE, ERICA L. SMITH & PATRICK A. LANGAN, BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, CONTACTS BETWEEN THE POLICE AND THE PUBLIC, 2005 1 (2005), http://bjs.ojp.usdoj.gov/content/pub/pdf/cpp05.pdf.

35. BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, TRAFFIC STOP DATA COLLECTION (2001).

36. NAT'L RESEARCH COUNCIL OF THE NAT'L ACADEMIES, FAIRNESS AND EFFECTIVENESS IN POLICING: THE EVIDENCE ch. 2 (Wesley Skogan & Kathleen Frdyl eds., 2004) [hereinafter NAT'L RESEARCH COUNCIL REPORT], *available at* http://books.nap.edu/openbook.php?record_id=10419 &page=R1.

37. Susan M. Akram, *The Aftermath of September 11, 2001: The Targeting of Arabs and Muslims in America*, 24 ARAB STUD. Q. 61, 61 (2002).

38. Christine Swiney, *Racial Profiling of Arabs and Muslims in the U.S.: Historical, Empirical, and Legal Analysis Applied to the War on Terrorism*, 3 MUSLIM WORLD J. HUM. RTS. 1, 25 (2006).

39. *Id*.

Americans disapproved of racial profiling prior to the 9/11 attacks, but nearly 60%, including a majority of African-Americans, supported the profiling of Arabs at airports after the attacks.[40]

Biased policing, however, is a problem in other countries as well. In Great Britain, riots in the Brixton suburb of London and the murder of Afro-Caribbean teenager Stephen Lawrence led to the McPherson Report, which concluded that London's police force and police across Great Britain were "institutionally racist."[41] Among its suggestions, the report recommended that police record all stops of individuals and the ethnicity of the person stopped, which was already the procedure in the United States.[42] Between 2004 and 2005, blacks in Great Britain were six times more likely, and Asians two times more likely, to be searched by police.[43] Further, the targeting of Asians in counterterrorism measures intensified in Great Britain after both the September 11, 2001 attacks in the United States and the July 7, 2005 underground bomb attacks in London. Stops of Asians increased threefold following the 9/11 attacks and fivefold after the underground bombing, and 32% of British Muslims report being subject to discrimination at airports.[44]

Other European countries face similar problems with police treatment of racial minorities. In France, Germany, and Spain, police often conduct discriminatory identity checks on Muslims and Gypsies.[45] The Roma minority group is subjected to biased policing in Russia, the Czech Republic, Slovakia,[46] and Bulgaria.[47] Further, another study that focused on the Roma ethnic group examined police stops in Bulgaria, Hungary, and Spain, and found that racial profiling existed in all three countries, with immigrants in Spain being subjected to the most systemic form of racial profiling.[48] Finally, in Ireland, police have used racial profiling to

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40. *Id.*

41. *See* Jo Goodey, *Ethnic Profiling, Criminal (In)Justice and Minority Populations*, 14 CRITICAL CRIMINOLOGY 207, 209 (2006).

42. *Id.* Britain is currently the only European Union member country that systematically collects data on police practices.

43. NEILD, *supra* note 5, at 37.

44. *Id.* at 56.

45. Misti Duvall, *Evidence of Ethnic Profiling in Selected European Countries*, *in* JUSTICE INITIATIVES: ETHNIC PROFILING BY POLICE IN EUROPE 14, 16, 19 (2005).

46. Iulius Rostas, *ID Checks and Police Raids: Ethnic Profiling in Central Europe*, *in* JUSTICE INITIATIVES: ETHNIC PROFILING BY POLICE IN EUROPE, *supra* note 45, at 28–29.

47. Philip Gounev & Tihomir Bezlov, *The Roma in Bulgaria's Criminal Justice System: From Ethnic Profiling to Imprisonment*, 14 CRITICAL CRIMINOLOGY 313 (2006).

48. Joel Miller et al., *Racism and Police Stops: Adapting US and British Debates to Continental Europe*, 5 EUR. J. CRIMINOLOGY 161, 182–83 (2008).

discriminate against individuals based on their religion, socioeconomic status, and political allegiance.[49]

Although Canada has not systematically collected and analyzed its race-based crime statistics, considerable evidence suggests that biased policing in that country is fairly widespread both historically and currently. Specifically, Canadian police have shown bias against blacks, Asians, Middle-Eastern people, and particularly, First Nations and Aboriginal peoples.[50] After the 9/11 attacks, there has also been increased profiling of Arabs and Muslims in Canada.[51]

III. METHODOLOGICAL AND THEORETICAL ISSUES IN THE STUDY OF BIASED POLICING

While the American and international studies cited above may indicate the apparent pervasiveness of biased policing,[52] it is important to critically review the methodologies adopted in these studies. A National Research Council report noted that despite "scores of data collection efforts" in response to allegations of racial profiling, "the knowledge that has been gained is not commensurate with the effort because the results are ambiguous and difficult to interpret: many [studies] have not been guided by the logic of scientific inquiry."[53] A rational dialogue about appropriate law enforcement strategies requires "information that will either allay community concerns about the activity of police or help communities ascertain the magnitude of the problem."[54] But without sound methodology in collecting this information, any conclusions drawn from these studies will be weakened, and discussions about racial profiling are more likely to devolve into rhetoric and accusation.

This Part focuses on three methodological issues in studies on racial profiling. First, when collecting and recording data, how can officers determine the race and ethnicity of individuals they contact? Similarly, how can police departments ensure the accuracy of data collection procedures and be certain that they are not circumvented by officers who fail to file

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49. Mary O'Rawe, *Ethnic Profiling, Policing, and Suspect Communities: Lessons From Northern Ireland*, *in* JUSTICE INITIATIVES: ETHNIC PROFILING BY POLICE IN EUROPE, *supra* note 45, at 88.

50. Clayton Mosher & Taj Mahon-Haft, *Race, Crime, and Criminal Justice in Canada*, *in* RACE, CRIME AND CRIMINAL JUSTICE: INTERNATIONAL PERSPECTIVES 261 (Anita Kalunta-Crumpton ed., 2010).

51. *See, e.g.*, DAVID M. TANOVICH, THE COLOUR OF JUSTICE: POLICING RACE IN CANADA (2006).

52. *See supra* Part II.

53. NAT'L RESEARCH COUNCIL REPORT, *supra* note 36, at 7.

54. DEBORAH RAMIREZ, JACK MCDEVITT & AMY FARRELL, U.S. DEP'T OF JUSTICE, A RESOURCE GUIDE ON RACIAL PROFILING DATA COLLECTION SYSTEMS: PROMISING PRACTICES AND LESSONS LEARNED 13 (2000), *available at* https://www.ncjrs.gov/pdffiles1/bja/184768.pdf.

reports or who deliberately report erroneous information?[55] Second, can the data be analyzed and compared with an appropriate measure of the larger population of a jurisdiction—that is, what is the appropriate denominator or "benchmark" for the "population at risk"? Finally, what additional factors should be used to determine whether bias influences who is cited, arrested, or searched?

A. Coding Data on Race and Ethnicity

In 2000, a Department of Justice report outlined the practices for coding race and ethnicity data in several jurisdictions.[56] For example, the report concluded that in San Jose, California, the manner in which the police perceived minorities ultimately led to a problem of racial profiling.[57] Therefore, the best strategy to combat racial profiling was to address officers' perceptions, and it was appropriate to record the race and ethnicity—as perceived by the officer—of the individuals contacted.[58] Officers in San Jose were given eight options for coding race and ethnicity: Asian-American, African-American, Hispanic, Native-American, Pacific Islander, Middle-Eastern/East Indian, white, and other.[59] These racial and ethnic categories are similar to those used in several other jurisdictions in the United States.

The report also presented data from 1999 that showed that African-American and Hispanic drivers were stopped at a much higher percentage than the rest of the San Jose population.[60] Although African-Americans comprised 5% of San Jose's population, they accounted for 7% of vehicle stops.[61] Similarly, although only 31% of the city's population was Hispanic, 43% of all stops were of Hispanic drivers.[62] San Jose police officials offered two explanations for this disproportion in stops: (1) the number of officers per capita was higher in police districts that contained a higher percentage of minorities, and (2) socioeconomic factors in minority neighborhoods result in more calls for service from and subsequent interactions with police.[63] These explanations add an im-

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55. *See, e.g.*, Richard Lundman, *Are Police-Reported Driving While Black Data a Valid Indicator of the Race and Ethnicity of the Traffic Law Violators Police Stop? A Negative Answer with Minor Qualifications*, 38 J. CRIM. JUST. 77 (2010).

56. RAMIREZ, MCDEVITT & FARRELL, *supra* note 54.

57. *Id.* at 20.

58. *Id.* at 17–18.

59. *Id.* at 19.

60. *Id.* at 21.

61. *Id.* at 22.

62. *Id.*

63. *Id.* at 21–22.

portant theoretical component to the racial profiling debate by suggesting a social-structural dimension to analysis of biased policing. Thus, detailed characteristics regarding the racial, ethnic, and socioeconomic composition of individual police districts are required to properly analyze and draw conclusions from police contact data.

In San Diego, police began collecting race-based traffic stop data in January 2000, and like the police in San Jose, opted to use the officers' perception of the driver's race and ethnicity.[64] Officers were allowed to ask the driver to identify his or her own race if they were unsure of the driver's race.[65] In San Diego, however, there were eighteen separate racial and ethnic categories from which officers could choose: black, Chinese, Cambodian, Filipino, Guamanian, Hispanic, Indian, Japanese, Korean, Laotian, Pacific Islander, Samoan, Hawaiian, Vietnamese, white, Asian-Indian, other Asian, and other.[66] Given the sheer number of categories available to them, it is questionable whether police officers were able to accurately code the race and ethnicity of those stopped.

Other studies also have questioned the reliability of officers coding the race and ethnicity of individuals they encounter. For example, the police department in Vancouver, Washington had officers indicate in a study whether they knew the race of a motorist before a stop.[67] Only 6.5% of the officers indicated they were certain of the driver's race.[68] Similarly, in a 2002 study of encounters between police and citizens in Denver, officers were able to discern the race or ethnicity of drivers in only 8% of traffic stops.[69] These findings suggest that officers may have difficulties reliably coding race and ethnicity before initiating a traffic stop.

A final problem in some studies of racial profiling is the use of overly broad categories when police record the race and ethnicity of drivers. Many recent analyses of biased policing simply split the population into categories of white and nonwhite, and then make comparisons across these broad racial classifications. Such analyses can conceal important differences in outcomes across diverse racial and ethnic groups. For example, given that the 2010 United States Census indicates that

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64. *Id.* at 24–25.

65. *Id.* at 25.

66. *Id.* at 26.

67. CLAYTON MOSHER, VANCOUVER POLICE DEP'T, VANCOUVER POLICE DEPARTMENT–CITIZEN CONTACT DATA ANALYSIS PROJECT (2005).

68. *Id.*

69. FRIDELL, *supra* note 3, at 64 n.17.

Hispanics constitute about 16.3% of the United States population,[70] it is particularly important for analyses to examine policing outcomes separately for members of this group.[71]

B. Denominator Benchmarks for Racial Profiling

Researchers generally use one of two benchmarks to determine the existence of racial profiling. In the first benchmark, researchers compare demographic characteristics—including race and ethnicity, and in some cases, age and gender—of people the police contact with comparable census population data. Such data, however, are generally inappropriate for comparison because they do not adequately capture the population at risk of being stopped by the police.[72]

The second benchmark, pioneered by Professor John Lamberth[73] and subsequently used by several other researchers across the United States,[74] is based on observational road survey data. The methodology in studies using this benchmark involves observers coding the race and ethnicity, gender, and (in some cases) age of the driver, either at stationary points or while observers are passengers in vehicles.[75] Additionally, some of these studies record whether drivers are involved in traffic violations, such as speeding or running red lights.[76]

While these benchmarks may be appropriate for some studies of biased policing, they have a number of shortcomings, especially in the context of analyzing traffic stop data from large, geographically dispersed

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70. JEFFREY PASSEL, D'VERA COHN & MARK HUGO LOPEZ, PEW HISPANIC CTR., HISPANICS ACCOUNT FOR MORE THAN HALF OF NATION'S GROWTH IN PAST DECADE (2011), http://www.pew hispanic.org/2011/03/24/hispanics-account-for-more-than-half-of-nations-growth-in-past-decade/.

71. Ramiro Martínez, Jr., *Incorporating Latinos and Immigrants into Policing Research*, 6 CRIMINOLOGY & PUB. POL'Y 57, 57–58 (2007).

72. *See* FRIDELL, *supra* note 3, at 80–81.

73. Professor John Lamberth's analysis was first used on behalf of a defendant in a traffic stop case, in which he testified as an expert witness. *See* State v. Soto, 734 A.2d 350, 352–54 (N.J. Super. Ct. Law Div. 1996).

74. *See, e.g.*, THE ALPERT GROUP, MIAMI–DADE POLICE DEPARTMENT RACIAL PROFILING STUDY (2004), http://www.policeforum.org/library/racially-biased-policing/supplemental-resources/ Alpert_MDPDRacialProfilingStudy[1].pdf; HOWARD P. GREENWALD, FINAL REPORT: POLICE VEHICLE STOPS IN SACRAMENTO, CALIFORNIA (2001), http://www.hhs.csus.edu/Homepages/CJ/ GutierrezR/SacPD.pdf; WILLIAM R. SMITH ET AL., NORTH CAROLINA HIGHWAY TRAFFIC STUDY: FINAL REPORT TO THE NATIONAL INSTITUTE OF JUSTICE AND U.S. DEPARTMENT OF JUSTICE (2003), https://www.ncjrs.gov/pdffiles1/nij/grants/204021.pdf; Engel & Calnon, *supra* note 1, at 97.

75. THE ALPERT GROUP, *supra* note 74; Engel & Calnon, *supra* note 1; John Lamberth, *Benchmarking and Analysis for Ethnic Profiling Studies, in* JUSTICE INITIATIVES: ETHNIC PROFILING BY POLICE IN EUROPE, *supra* note 45, at 59.

76. THE ALPERT GROUP, *supra* note 74; Engel & Calnon, *supra* note 1; John Lamberth, *Benchmarking and Analysis for Ethnic Profiling Studies, in* JUSTICE INITIATIVES: ETHNIC PROFILING BY POLICE IN EUROPE, *supra* note 45, at 59.

law enforcement agencies, such as state patrols. As Fridell points out, to use observational data as a benchmark, the data must be location specific; a researcher cannot record observational benchmarks on a particular section of a state highway and then compare the data to contacts for the entire state.[77] Consequently, observational data are extremely expensive to collect.

Although some researchers claim that an observer's coding of race, ethnicity, gender, and age can achieve a high degree of reliability, such claims are rather questionable. For example, Lamberth reported inter-rater reliability coefficients on the coding of race in several of his studies that were never lower than .80, meaning that at least two observers agreed on the race of the person they were observing at least 80% of the time, regardless of whether the observations were recorded in daylight or non-daylight hours.[78] This level of agreement should be considered in the context of a 2001 observational traffic stop study in New Jersey, in which one-third of the data had to be excluded because the driver's race and ethnicity could not be determined due to various factors, including vehicle speed, windshield glare, bad weather, and shadows.[79] Similarly, a Missouri observational study reported that at night, observers were unable to determine the race of drivers in 40% of the vehicles.[80] In a BJS study conducted to determine inter-rater reliability in the identification of Hispanics at border patrol checkpoints and airports, observers agreed approximately 50% of the time on whether an individual was Hispanic.[81] Additionally, as noted in a study of racial profiling performed in Miami-Dade, Florida, "Even in situations where drivers are stopped and observers have an opportunity to see them clearly, it is highly unlikely that an observer can distinguish a[] 'Hispanic' from a member of another ethnic group."[82]

In Washington, however, researchers examining biased policing for the Washington State Patrol (WSP) developed a number of alternative,

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77. FRIDELL, *supra* note 3, at 105.

78. Lamberth, *supra* note 75, at 59.

79. JAMES E. LANGE, KENNETH O. BLACKMAN & MARK B. JOHNSON, OFFICE OF THE ATT'Y GEN., SPEED VIOLATION SURVEY OF THE NEW JERSEY TURNPIKE: FINAL REPORT (2001).

80. Rojek, Rosenfeld & Decker, *supra* note 27, at 138.

81. BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, ASSESSING MEASUREMENT TECHNIQUES FOR IDENTIFYING RACE, ETHNICITY, AND GENDER: OBSERVATION-BASED DATA COLLECTION IN AIRPORTS AND AT IMMIGRATION CHECKPOINTS 4–6 (2003), http://bjs.ojp.usdoj.gov/content/pub/pdf/amtireg.pdf.

82. THE ALPERT GROUP, *supra* note 74, at 76.

less-costly benchmarks to compare traffic stop data.[83] The first of these alternatives uses data from when the WSP initiated contact by respond-ing to a call for vehicle assistance.[84] Researchers consider this method to be a blind benchmark because it is highly unlikely that WSP troopers would know the race of the individual requesting assistance.[85] A second benchmark used in the WSP study compared traffic stop data for drivers who police had contacted for speeding detected by either radar or aircraft patrols with all other stops. This particular benchmark statistic, which measures both driving quantity and driving quality, has the additional advantage of also being blind.[86] That is, WSP troopers operating radar units seldom can—if ever—determine the race and ethnicity of motorists caught speeding.[87] The third alternative benchmark involved a compari-son of daytime to nighttime stops.[88] Logically, if racial profiling was oc-curring, it would be more likely to manifest in stops during the day than at night because officers would be better able to form an impression of an individual driver's race.[89]

Arguably, the most effective benchmark is to compare traffic stop data with the rates of motorists' involvement in roadside collisions.[90] These collision data measure both the quantity and quality of driving in a particular area.[91] Most importantly, they constitute another blind measure because law enforcement officers do not know the race of individuals they will contact in a traffic collision prior to arriving at the collision scene.[92]

The utility of using collision data instead of census data as a benchmark is demonstrated by the analysis of traffic stop data from the Yakima area of Washington State. Census data for this area indicated that the population was 23.6% Hispanic, but in 2002, 52.6% of those contacted by the WSP in traffic stops were Hispanic.[93] On the surface, these data seem to provide clear evidence of racial profiling. But due to the presence of (largely Hispanic) migrant and seasonal farm workers, as

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83. NICHOLAS P. LOVRICH ET AL., DIV. OF GOV'TL STUDIES & SERVS., WASH. STATE UNIV., REPORT TO THE WASHINGTON STATE PATROL (2007) [hereinafter 2007 WSP REPORT], *available at* http://www.wsp.wa.gov/publications/reports/wsu_2007_report.pdf.
84. *Id.* at 5.
85. *Id.* at 6.
86. *Id.* at 9.
87. *Id.*
88. *Id.* at 5.
89. *Id.* at 15.
90. *Id.* at 12.
91. *Id.*
92. *Id.*
93. *Id.*

well as undocumented immigrants in this agricultural area of Washington, census data vastly underestimate the Hispanic population.[94] In contrast, the alternative collision data benchmark indicated that 52.8% of those involved in collisions in this area were Hispanic, almost identical to the 52.6% traffic stop figure, suggesting that racial profiling by the WSP in this area of Washington was likely not occurring.[95]

C. Citations, Arrests, and Searches

Some additional indicators of biased policing that have been reported in the literature include racial and ethnic differences in citations, arrests, and searches. Again, in many instances, claims of biased policing have been based on rather questionable data and analyses. A successful analysis of traffic stop citations needs to take into account the fact that some members of minority groups are less likely to comply with traffic laws,[96] may be more likely to have a higher number of traffic violations,[97] and may be more likely to be involved in more serious traffic offenses, such as driving while impaired.[98] Each of these factors alone increases the probability of receiving a citation. By failing to account for these factors, an analysis that supposedly shows police bias may be misleading.

In the context of receiving a citation, it is also important to note that partially due to socioeconomic factors, members of a minority group are more likely to have license, registration, or insurance violations.[99] Socioeconomic inequities tend to compound disadvantage and are one of the

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94. *Id.* at 3, 5.

95. *Id.* at 5. Collision data have also been used as a benchmark in a study of the Miami-Dade Police Department. THE ALBERT GROUP, *supra* note 74, at v.

96. *See, e.g.*, ROBERT B. VOAS ET AL., NAT'L HIGHWAY SAFETY ADMIN., DRINKING AND DRIVING IN THE UNITED STATES: THE 1996 NATIONAL ROADSIDE SURVEY (1998), http://ntl.bts.gov/lib/26000/26000/26007/DOT-HS-809-019_002.pdf; ROBERT B. VOAS, A. SCOTT TIPPETTS & DEBORAH A. FISHER, NAT'L HIGHWAY SAFETY ADMIN., ETHNICITY AND ALCOHOL-RELATED FATALITIES: 1990 TO 1994 (2000), http://www.nhtsa.gov/people/injury/alcohol/Archive/ethnicity/ethnicity.html; Elisa R. Braver, *Race, Hispanic Origin, and Socioeconomic Status in Relation to Motor Vehicle Occupant Death Rates and Risk Factors Among Adults*, 35 ACCIDENT ANALYSIS & PREVENTION 295 (2003); Sherry A. Everett et al., *Trends and Subgroup Differences in Transportation-Related Injury Risk and Safety Behaviors Among High School Students, 1991–1997*, 28 J. ADOLESCENT HEALTH 228 (2001); JoAnn K. Wells, Allan F. Williams & Charles M. Farmer, *Seat Belt Use Among African Americans, Hispanics, and Whites*, 34 ACCIDENT ANALYSIS & PREVENTION 523 (2002).

97. 2007 WSP REPORT, *supra* note 83, at 38.

98. Doug Campos-Outcalt et al., *Motor-Vehicle Crash Fatalities among American Indians and Non-Indians in Arizona, 1979 Through 1988*, 87 AM. J. PUB. HEALTH 282, 285 (1997).

99. Mosher et al., *supra* note 2, at 46.

most difficult hurdles for the equitable enforcement of traffic laws.[100] "For instance, individuals with lower incomes are likely to experience more difficulty in paying traffic fines, parking tickets, and license [and insurance] fees."[101] If a law enforcement officer contacts such an individual for an improper lane change, then the likelihood that the individual would have a license violation would be greater than for a person of means.[102] Since American racial minorities tend to be comparatively economically disadvantaged, at least part of the reported disparities in traffic stop outcomes might be a reflection of this socioeconomic inequality.[103] And just as socioeconomic disadvantage may manifest in the inability to pay license fees and fines, it also plays "a similar role in the issue of compliance" with mandatory vehicle insurance laws.[104]

Other factors may play a role in police discretionary behavior. Those factors include situational characteristics of the individual contacted by the police, such as the individual's gender, age, level of intoxication, and demeanor, as well as characteristics of the specific police–citizen encounter, such as the location, time of day, and presence of bystanders or other officers.[105] Additional factors include vehicle characteristics, such as the vehicle's age and general state of repair, and the number and demeanor of passengers in the vehicle.[106] All of these factors can affect police discretionary behavior.[107] Perhaps the most important factor—and most neglected in the extant study of racial profiling and biased policing—are the legal characteristics prior to and during traffic stops. These characteristics include the individual's prior criminal record, traffic violation record, and the number, type, or seriousness of offense.[108]

Similar to studies of courts in which such legal factors have been demonstrated to influence sentencing decisions,[109] research in this area has consistently found that officers' discretion is affected by the seriousness of the offense and the amount and strength of the available evi-

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100. *Id.*

101. *Id.*

102. *Id.*

103. *Id.* at 46, 48.

104. *Id.* at 48.

105. Robin Shepard Engel et al., *Theory and Racial Profiling: Shortcomings and Future Directions in Research*, 19 JUST. Q. 249, 263–64 (2002); Mosher et al., *supra* note 2, at 44.

106. Engel et al., *supra* note 105, at 264; Mosher et al., *supra* note 2, at 44.

107. Engel et al., *supra* note 105, at 264; Mosher et al., *supra* note 2, at 44.

108. Engel et al., *supra* note 105, at 264; Mosher et al., *supra* note 2, at 44.

109. *See generally* CLAYTON MOSHER, DISCRIMINATION AND DENIAL: SYSTEMIC RACISM IN ONTARIO'S LEGAL AND CRIMINAL JUSTICE SYSTEM, 1892–1961 (1998).

dence.[110] In the context of traffic stops, officer discretion to issue a citation and perhaps search individuals or their vehicles will similarly be affected by the number and types of violations committed by an individual, and if available, information on the individual's prior record of traffic violations and criminal history.[111] These shortcomings suggest that analyses of searches should separate low-discretionary or nondiscretionary searches (such as mandatory vehicle searches for individuals apprehended for driving while impaired) from consent searches, where law enforcement officers exercise considerably more discretion in deciding whether to conduct a search.

Multivariate analyses of the various domains (stops, citations, arrests, searches, and the use of force) in which biased policing is alleged to occur should consider additional factors that affect police behavior. For example, Greg Ridgeway analyzed approximately 500,000 pedestrian stops that the New York City Police Department (N.Y.P.D.) conducted in 2006.[112] Eighty-nine percent of these stops were of nonwhites, with 53% involving blacks, 29% Hispanics, 3% Asians, and 4% unknown.[113] Forty-five percent of blacks and Hispanics were stopped were frisked, compared with 29% of whites.[114] In a more detailed analysis, Ridgeway found that the 2756 most active N.Y.P.D. officers (approximately 7% of the total number of officers) accounted for 54% of the total stops in 2006.[115] After adjusting for the circumstances of the stops and additional characteristics of those stopped, the racial differences in rates of frisk, search, use of force, and arrest were attenuated, leading Ridgeway to conclude that "the raw statistics, while easy to compute, often exaggerate racial disparities."[116]

IV. WASHINGTON STATE PATROL RESEARCH

Along with other colleagues, we have been conducting research on racial profiling for the Washington State Patrol (WSP) since 2001. For the purposes of this Article, we summarize our findings from our most comprehensive analyses, which were published in internal WSP reports

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110. David A. Klinger, *Bringing Crime Back In: Toward a Better Understanding of Police Arrest Decisions*, 33 J. RES. CRIME & DELINQUENCY 333 (1996).

111. Mosher et al., *supra* note 2, at 48.

112. GREG RIDGEWAY, RAND CORP., ANALYSIS OF RACIAL DISPARITIES IN THE NEW YORK POLICE DEPARTMENT'S STOP, QUESTION, AND FRISK PRACTICES xi (2007), http://www.rand.org/pubs/technical_reports/2007/RAND_TR534.sum.pdf.

113. *Id.*

114. *Id.*

115. *Id.* at xiii.

116. *Id.* at xiv.

and in peer-reviewed journals.[117] The WSP traffic stop data set included a number of variables available for analysis: the date and time of the stop; eight indications of the type of observed violations; eight indications of whether a written or verbal warning or citation was issued; the highway number and mile post of the stop; the sex, age, race, and ethnicity of the driver; the sex, race, rank, and years of experience of the WSP officer; an individual officer number (allowing for officers to be identified, though not by name); and the patrol area and district to which the officer was assigned at the time of the traffic stop.[118]

Our study offers insights into racial bias and profiling that most studies do not. Most extant analyses of racial profiling consider data at the level of an entire city or state, which can conceal important contextual differences in law enforcement practices across smaller geographic areas. This concealment can lead to problems of aggregation bias.[119] We overcame this problem by conducting analyses at the level of the forty Autonomous Patrol Areas (APAs).[120]

A. Contacts

We analyzed data for all self-initiated traffic stops by the WSP from November 1, 2005 to September 30, 2006 for each of the then thirty-four APAs.[121] Of the 569,862 contacts statewide, 83.1% were white, 3.7% were African-American, .6% were Native-American, 3.6% were Asian/Pacific Islander, .9% were East Indian, and 7.8% were Hispanic.[122] By comparing these data to the 2005 United States Census data on the racial and ethnic composition of Washington State, we found that whites, who comprised 85% of the state's population, were slightly underrepre-

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117. *See* 2007 WSP REPORT, *supra* note 83; NICHOLAS P. LOVRICH ET AL., DIV. OF GOV'TL STUDIES & SERVS., WASH. STATE UNIV., ANALYSIS OF TRAFFIC STOP DATA COLLECTED BY THE WASHINGTON STATE PATROL 1 (2005), *available at* http://www.policeforum.org/library/racially-biased-policing/supplemental-resources/wsu_2005_report[1].pdf; NICHOLAS P. LOVRICH ET AL., DIV. OF GOV'TL STUDIES & SERVS., WASH. STATE UNIV., WSP TRAFFIC STOP DATA ANALYSIS PROJECT REPORT 1, *available at* http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.102.7223&rep=rep1&type=pdf; Clayton Mosher, *Racial Profiling/Biased Policing*, 5 SOC. COMPASS 763 (2011); Mosher et al., *supra* note 2; J. Mitchell Pickerill, Clayton Mosher & Travis Pratt, *Search and Seizure, Racial Profiling, and Traffic Stops: A Disparate Impact Framework*, 31 LAW & POL'Y 1 (2009).

118. *See* 2007 WSP REPORT, *supra* note 83; Mosher et al., *supra* note 2, at 45.

119. Edem F. Avakame, James J. Fyfe & Candace McCoy, *"Did You Call the Police? What did They Do?" An Empirical Assessment of Black's Theory of the Mobilization of Law*, 16 JUST. Q. 765 (1999).

120. Autonomous Patrol Areas are administrative units designated by the WSP within particular regions of the state and could be considered equivalent to precincts in the local policing context.

121. 2007 WSP REPORT, *supra* note 83, at 3.

122. *Id.*

sented in WSP traffic stops.[123] On the other hand, blacks, who represent 3.5% of the state's population, were slightly overrepresented.[124] Native-Americans, who represent 1.7% of the state's population, Asian/Pacific Islanders, who represent 6.9% of the state's population, and Hispanics, who represent 8.8% of Washington State's population, were all underrepresented.[125]

As noted above, census data are not ideal benchmarks in the analysis of traffic stop data.[126] To compensate, our analyses used four alternative benchmarks: contacts initiated as a result of "calls for service" and vehicle assists; contacts initiated as a result of radar patrols; WSP contacts initiated in responding to collisions; and daytime traffic stops.[127] In these analyses, we adopted the criterion that differences are not substantively significant as long as the percentage contacted in any particular racial group is not more than five percentage points greater than the percentage of the group in the benchmark comparison.[128]

There were no APAs in which the percentage of blacks, Native-Americans, or East Indians contacted as a result of self-initiated WSP activity was more than five percentage points greater than those contacted as a result of calls for service and vehicle assists. For Asians/Pacific Islanders, one APA (APA 30–Bellingham) had a difference greater than 5%. For Hispanics, no APA had a difference greater than 5%. These findings indicate that bias did not exist at the level of contact.

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123. *Id.*

124. *Id.*

125. *Id.* The Census Bureau does not provide data on the percentage of East Indians.

126. *See supra* note 72 and accompanying text.

127. 2007 WSP REPORT, *supra* note 83, at 5.

128. *Id.* at 5–6. Alternative measures of disparity include the "ratio of disparity," "relative differences," and the "disparity index," FRIDELL, *supra* note 3, at 315, or what John Lamberth refers to as "odds ratios." JOHN LAMBERTH, ANN ARBOR POLICE DEPARTMENT TRAFFIC STOP DATA COLLECTION METHODS AND ANALYSIS STUDY: REPORT FOR THE CITY OF ANN ARBOR, REPORT SUBMITTED TO THE ANN ARBOR POLICE DEPARTMENT 25 (2004), http://www.policeforum.org/library/racially-biased-policing/supplemental-resources/Ann%20Arbor%20analyses%20by%20lamberth[1].pdf. The latter measure is calculated by dividing the percentage of drivers in a particular racial group who are stopped by their percentage in the benchmark population. *Id.* As Fridell noted, when the percentage in a particular minority group in both the contacted driver population and the benchmark population is low, both the disparity index and the two alternative measures of disparity can be "misleadingly high." FRIDELL, *supra* note 3, at 333. This issue also was addressed in the 2007 WSP Report:

> Although there are certain APAs [in Washington State] in which the proportion of minorities (particularly Hispanics) contacted is relatively high, at the statewide level no racial minority group represents more than 7.1% of those contacted by the WSP. Thus, in order to maintain consistency in the reporting of our results, and in order to avoid the presentation of potentially misleading findings, our measure of disparity subtracts the percentage of those in each racial group contacted from their percentage in the various benchmarks.

2007 WSP REPORT, *supra* note 83, at 5 n.1.

With respect to contacts initiated because of radar patrols, blacks, Native-Americans, Asian/Pacific Islanders, or East Indians were not overrepresented in contacts in any of the APAs.[129] Hispanics were overrepresented in one APA (APA 12–Sunnyside).[130] We also found that blacks, Native-Americans, Asian/Pacific Islanders, East Indians, and Hispanics were not overrepresented in contacts compared to collision data in any of the APAs.[131] In fact, there were three APAs in which Hispanics were underrepresented.[132]

While our study showed that there was considerable variation in the overall proportion of daylight stops across APAs, a higher proportion of blacks were stopped in daylight hours in four APAs (APA 12–Sunnyside; APA 23–Kelso; APA 37–Hoquiam; APA 39–Raymond).[133] A higher proportion of Native-Americans than whites were stopped in daylight hours in five APAs (APA 4–Thurston County; APA 5–Seattle North; APA 13–Kennewick; APA 15–Colville; and APA 21–Vancouver).[134] A higher proportion of Asians/Pacific Islanders than whites were stopped in daylight hours in three APAs (APA 27–Okanogan; APA 30–Bellingham; and APA 39–Raymond).[135] A higher percentage of East Indians than whites were stopped in four APAs (APA 11–Yakima; APA 28–Ephrata; APA 30–Bellingham; APA 39–Raymond).[136] Although these disparities should be noted, this comparison of the proportion of minority drivers compared to white drivers who are contacted by the WSP in daylight hours indicates that minorities tend to be underrepresented in daylight stops.[137] Considered in their totality, the four distinct benchmark data comparisons indicated that WSP troopers were not engaged in systemic racial profiling when choosing which drivers to contact. Our study demonstrated this conclusion with respect to both statewide figures and all thirty-four APAs distributed across the state.

B. Citations

Our bivariate analyses of citations revealed that black drivers were more likely than whites to be issued citations in thirty-two of the Wash-

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129. 2007 WSP REPORT, *supra* note 83, at 9.
130. *Id.*
131. *Id.* at 12.
132. *Id.*
133. *Id.* at 15.
134. *Id.*
135. *Id.*
136. *Id.* at 15–16.
137. *Id.* at 17.

ington's forty APAs.[138] Similarly, Native-American and Asian drivers were more likely than whites to be issued citations in thirty-four and twenty-nine APAs, respectively.[139] Finally, a higher proportion of Hispanic drivers were issued citations in all forty APAs.[140] While these findings appear to provide evidence of biased policing on the part of the WSP, it is necessary to consider the methodological issues addressed above.[141]

At a minimum, a control must be established to account for differences in compliance with traffic laws across racial groups. Our analyses revealed substantial differences in the average number of traffic law violations across racial groups: statewide, Asians had the lowest number with 1.71 violations per stop, "followed by white drivers at a rate of 1.74 per stop."[142] In contrast, the average number of violations for drivers contacted by the WSP was 1.94 for black drivers, 1.98 for Hispanic drivers, and 2.05 for Native-American drivers.[143] We also found that the higher average number of current violations for black, Hispanic, and Native-American drivers was "fairly consistent" across the forty APAs.[144]

Because a potentially important predictor of law enforcement decisions is the seriousness of the violations that individuals commit,[145] we also conducted analyses of average violation seriousness scores by race. Asian drivers had the lowest average seriousness score at .14, followed by white drivers at .19.[146] The average seriousness score was .31 for black drivers, .33 for Hispanic drivers, and .45 for Native-American drivers.[147]

While bivariate analyses of outcomes are useful for descriptive purposes, they are far too simplistic to disentangle the role of race or any

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138. Mosher et al., *supra* note 2, at 46.

139. *Id.*

140. *Id.*

141. *See supra* Part III.

142. Mosher et al., *supra* note 2, at 46.

143. *Id.*

144. *Id.*

145. The seriousness variable was coded as follows:

"one" for serious offenses and coded "zero" for other offenses, and then summed across the eight violation fields (with possible scores ranging from zero to eight). Serious violations included the following offenses: felony drugs; misdemeanor drugs; DUI drugs with test; DUI drugs, no test; DUI underage, with test; DUI underage, no test; DUI with test; DUI without test; felony flight, elude; felony warrant; hit and run; insurance–none; license suspension/revocation; misdemeanor warrant; negligent driving, 1st degree; negligent driving, 2nd degree; reckless driving; vehicular homicide; and vehicular assault.

2007 WSP REPORT, *supra* note 83, at 26 n.1; Mosher et al., *supra* note 2, at 56 n.1.

146. Mosher et al., *supra* note 2, at 46.

147. *Id.*

other single factor in determining police behavior.[148] Our multivariate analyses treated citation as a dependent variable for each of the forty APAs, with the independent variables consisting of the motorist's gender, age, and race, including dummy variables[149] for black, Native-American, Asian, and Hispanic drivers, with white drivers treated as the reference category. Other independent variables the analyses considered were the number of current violations of the individual contacted and the combined seriousness of those violations.[150] Officer-related variables included the race and gender of the officer, and years of employment from the date the officer was commissioned with the WSP.[151] In order to statistically control for possible racial variations in driving behavior across time and geographical space, we also included variables for the time of day[152] the stop occurred and whether the stop occurred on an interstate highway.[153] The multivariate models also included interaction terms for race multiplied by the number of violations, allowing us to control for the possible effects of differences in the number of violations across racial groups on being issued a citation.[154]

When the number of violations across racial groups was controlled for, blacks were more likely to be issued citations in three APAs and significantly less likely to be cited in five APAs.[155] In these multivariate analyses, Native-Americans were not significantly more likely to be cited in any of the forty APAs and were less likely to receive citations in two APAS.[156] Hispanics were significantly less likely to be issued citations in three APAs, and significantly more likely to receive a citation in one

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148. *See* JOYCE MCMAHON, JOEL GARNER, CAPTAIN RONALD DAVIS & AMANDA KRAUS, U.S. DEP'T OF JUSTICE, HOW TO CORRECTLY CORRECT AND ANALYZE RACIAL PROFILING DATA: YOUR REPUTATION DEPENDS ON IT! 32 (2002), http://www.cops.usdoj.gov/Publications/e06064106.pdf.

149. A dummy variable is one that takes the values 0 or 1 to indicate the absence or presence of a condition, in this case, race and ethnicity.

150. 2007 WSP REPORT, *supra* note 83, at 29.

151. Mosher et al., *supra* note 2, at 48.

152. The data were coded such that 7 a.m. to 7 p.m. constituted daylight hours:

While we realize that there are substantial monthly/seasonal differences in the number of daylight hours in any given day, there were no substantial differences in the number of stops over the various months included in the data set. The coding of this variable thus assumes that monthly/seasonal differences in the number of daylight hours will essentially cancel each other out.

2007 WSP REPORT, *supra* note 83, at 15 n.2; Mosher et al., *supra* note 2, at 56 n.2.

153. 2007 WSP REPORT, *supra* note 83, at 18.

154. *Id.* at 30.

155. Mosher et al., *supra* note 2, at 59.

156. *Id.*

APA.[157] But even with the inclusion of the interaction terms, Asians were significantly more likely to be issued citations in thirteen APAs.[158]

Critics contend "that our finding of attenuated racial/ethnic bias in the issuing of citations when the number and seriousness of violations across racial/ethnic groups is considered is an artifact which itself is the result of racial bias on the part of the [WSP] . . . ."[159] Officers recording a greater number and seriousness of violations for members of minority groups "could be the product of officer bias rather than the actual driving behavior of those contacted."[160] To address this potential criticism, we conducted two additional sets of analyses. In the first set, we conducted logistic regression analyses on the probability of receiving citations for those who had only one recorded violation.[161] If WSP officers were exhibiting bias, then the regression analysis would lead us to expect that minority drivers who had only one violation would have a greater likelihood of being issued another citation.

These analyses revealed that black drivers with only one recorded violation were significantly less likely to be cited in two APAs and significantly more likely to be cited in seven APAs.[162] Similarly, Native-American drivers with only one recorded violation were significantly less likely to be cited in four APAs and were significantly more likely to be cited in two APAs.[163] Hispanics with a single violation were significantly more likely to be cited in nine APAs, while Asians with a single violation were more likely to be cited in eighteen APAs.[164] Thus, these analyses revealed more evidence of potential bias in the forty APAs, but they cannot confirm systemic bias in citing minorities who had only a single violation recorded by the WSP.

In the second set of analyses, we selected contacts where citations were not issued, and then compared the average number of violations and average seriousness scores across racial and ethnic groups for all forty APAs.[165] "If members of the WSP were deliberately piling on violations or recording more serious violations for minorities to justify issuing citations"[166]—an additional potential measure of biased policing—"we

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157. *Id.* at 51.

158. *Id.*

159. 2007 WSP REPORT, *supra* note 83, at 35; *see also* Barnes & Chang, *supra* note 8, at 684–85; Mosher et al., *supra* note 2, at 51.

160. 2007 WSP REPORT, *supra* note 83, at 35.

161. *Id.*

162. Mosher et al., *supra* note 2, at 51.

163. *Id.*

164. *Id.*

165. *Id.*

166. *Id.*

would expect that the average number of violations and seriousness scores for minorities would be significantly lower compared to whites in non-citation situations."[167]

Our findings indicate that there were no APAs in which the average number of violations for blacks not issued citations was lower than for whites, and there were three APAs in which the average number of violations for blacks was significantly higher.[168] There were no APAs in which blacks not issued citations had average seriousness scores that were significantly lower than whites, and three in which they were significantly higher.[169] For Native-Americans who were not issued citations, there were no APAs in which the average number of violations was significantly lower than for whites, and two in which they were significantly higher.[170] There were no APAs in which Native-Americans not issued a citation had lower seriousness scores than whites, and six in which they were significantly higher.[171] The rest of our findings were summarized in a previous article:

> For Asians not issued a citation, there [wa]s one APA in which the average number of violations [wa]s significantly lower than for whites, and four APAs in which the average seriousness scores were significantly lower. Finally, for Hispanics not issued a citation, there were no APAs in which the average number of violations was significantly lower, and 11 in which these averages were significantly higher. There were no APAs in which average seriousness scores for Hispanics were significantly lower than for whites, and 12 in which they were significantly higher. Collectively, these findings indicate . . . that there is no evidence that members of the WSP [we]re recording more violations, or documenting more serious violations for minorities to justify issuing citations to them.[172]

C. Analyses of Searches

The data used for our analyses of searches included every traffic stop made by members of the WSP from March 2002 through October 2002—a total of 677,514 stops.[173] It is important to note that police officers conduct different types of searches that involve varying degrees of discretion. The WSP data divide searches into seven categories, which

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167. *Id.*
168. *Id.*
169. *Id.* at 51–52.
170. *Id.* at 53.
171. *Id.*
172. *Id.*
173. Pickerill, Mosher & Pratt, *supra* note 117, at 9.

we used to create three theoretically relevant categories: No Search, Low-Discretion Search, and High-Discretion Search.[174] The low-discretion search category included searches that troopers were required to conduct, such as searches incident to arrest, impound searches, and warrant searches, while high-discretion searches included searches conducted entirely at the officer's discretion, including consent searches, K9 searches, and pat down or "Terry" searches.[175]

Similar to our analyses of citations, we conducted multi-nomial logit analyses,[176] statistically controlling for a variety of variables. We controlled for driver characteristics, which included age, gender, and dummy variables for race and ethnicity.[177] We also controlled for the nature of the contact, which included daylight stops and interstate highway stops.[178] We controlled for officer characteristics as well, including gender, experience, and dummy variables for race and ethnicity.[179] Finally, we controlled for geographical context by using dummy variables for each of the eight "districts" of the WSP and treating Spokane as the reference category.[180]

Of the more than 677,000 traffic stops included in the data set, only 3.5% (or 23,393 stops) resulted in a search, and of these, 77% (or 18,062 searches) were low-discretion searches.[181] The bivariate analyses of searches were consistent with findings from other studies of searches, revealing statistical disparities in search rates across racial and ethnic groups.[182] Approximately 3% of whites, 2.5% of Asians, 6.7% of Hispanics, 7.6% of blacks, and 15% of Native-Americans were searched after being stopped by the WSP.[183]

While these disparities in search rates are concerning, we cannot conclude that they are evidence of biased policing without additional analyses. Interestingly, there were greater disparities across the racial groups for low-discretion searches than for high-discretion searches. Approximately 2.6% of whites, 2.2% of Asians, 5.7% of Hispanics, 6.6% of

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174. *Id.* at 10.

175. *Id.*

176. Multinomial regression models are used to predict the probabilities of two different possible outcomes of a categorically distributed dependent variable given a set of independent variables. *See* WILLIAM H. GREENE, ECONOMETRIC ANALYSIS 720–23 (1993).

177. Pickerill, Mosher & Pratt, *supra* note 117, at 11.

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.*

182. *Id.*

183. *Id.* at 12.

blacks, and 12.9% of Native-Americans[184] were subject to low-discretion searches,[185] while about 0.4% of whites, 0.3% of Asians, 0.9% of Hispanics, 1.0% of blacks, and 2.1% of Native-Americans were subject to high-discretion searches.[186]

We also calculated "hit rates"[187] for each racial group. For low-discretion searches, the hit rates were 24.9% for whites, 18.4% for blacks, 22.0% for Native-Americans, 10.7% for Asians, and 16.5% for Hispanics.[188] In the context of high-discretion searches, the hit rates were 24.1% for whites, 22.1% for blacks, 18.1% for Native-Americans, 22.4% for Asians, and 17.6% for Hispanics.[189] There are thus some racial and ethnic disparities in these hit rates.

Our multivariate analyses of high-discretion searches revealed that at the statewide level, Native-Americans and nighttime drivers were the demographics most likely to be searched.[190] We also found that the more violations involved in a particular traffic stop occurring on an interstate highway, the more likely it was that a search took place.[191] Additionally, younger drivers were more likely to be searched than older drivers, and men were more likely to be searched than women.[192]

The disproportionate search rates revealed by our analyses, even after controlling for other relevant factors, are consistent with an interpretation of biased policing. But one should not immediately conclude that this disproportion in searches is prima facie evidence of discrimination or bias. As a practical matter, the legal question facing an agency such as the WSP is its potential violation of equal protection.[193] The issues that arise from litigation of equal protection violations relate to the existence of intentional discrimination or disparate impact on one or more racial or ethnic group. Thus, our analyses provide one way—given the extant data—for seeking to uncover systemic intentional discrimination and bias

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184. The higher rates of low-discretion searches for Native-Americans are largely the result of inventory searches related to driving under the influence charges. *Id.*

185. *Id.* at 12 tbl.2.

186. *Id.*

187. This measure codes whether troopers discovered and seized contraband as a result of the search.

188. Pickerill, Mosher & Pratt, *supra* note 117, at 13 at tbl.3.

189. *Id.*

190. *Id.* at 15.

191. *Id.*

192. *Id.*

193. Obviously there are also Fourth Amendment questions, but those apply to individual searches and can be challenged only by an individual claiming his or her rights have been violated. But even Fourth Amendment claims can be pursued against law enforcement agencies that do not systematically discriminate or engage in biased policing and is an individual decision to be made by a judge.

by showing statistical disparity in the impact of law enforcement activity on racial and ethnic groups.

Our conclusions explicitly state that our findings do not purport to conclusively confirm systemic bias in law enforcement or to disprove the occurrence of bias elsewhere in the law enforcement process. Our analyses of citation decisions simply indicate that evidence of bias is not discernible in the context of arrests; however, minority drivers may be arrested at higher rates due to a myriad of factors possibly related to bias. This could lead to higher search rates incident to arrest, and it is of course possible that some of the racial disparity in searches may be the result of unconscious bias on the part of WSP troopers.[194] This possibility raises a new set of research questions that cannot be answered solely with the traffic stop data.

V. CONCLUSION

As Jack McDevitt and Lisa Bailey noted, if studies of biased policing "jump to conclusions that are not supported by the data" and analyses, the costs to law enforcement agencies can be high.[195] Studies of racial profiling can seriously damage the reputation of a department and, consequently, the ability of the agency to serve its community if they incorrectly or inaccurately label law enforcement agencies as engaging in racial profiling. Ultimately, we wish to convey, against the backdrop of our research on biased policing, that it is irresponsible, and perhaps even dangerous, to draw conclusions from descriptive and bivariate statistics.

The role of researchers in studying the important issue of racial profiling is not to try to exonerate or indict law enforcement agencies. As we have concluded before:

> Careful, well-designed studies that include appropriate multivariate analyses and that avoid the potential problem of aggregation bias by focusing on smaller geographic areas are essential to examining the issue of biased policing. Such analyses also take us beyond the racial profiling paradigm and encourage [legal] scholars and researchers to think more theoretically about those factors that influence police behavior, sometimes instead of race, and sometimes in conjunction with race.[196]

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194. *See* Task Force on Race & the Criminal Justice Sys., *Preliminary Report on Race and Washington's Criminal Justice System*, 35 SEATTLE U. L. REV. 623, 658, 663 (2012).

195. Jack McDevitt & Lisa Bailey, *Looking Deeper at Racial Profiling*, BOS. GLOBE, Aug. 2, 2003, at A19, *available at* http://www.boston.com/globe/metro/packages/tickets/080503_folo.shtml.

196. Mosher et al., *supra* note 2, at 56.