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Do Precinct Characteristics Influence Stop-and-Frisk in New York City? A Multi-Level Analysis of Post-Stop Outcomes

Philip J. Levchak

Between 2003 and 2014, the majority of people stopped under the New York Police Department's policy of stop-and-frisk were non-white. This led to charges of racial bias. This paper examines whether biases persist after a stop occurs. Data on 587,479 stops from 2010 are analyzed to examine differences by race for six outcomes: use of force, being frisked, being searched, being issued a summons, being arrested, and yielding a productive stop. Multilevel logistic models are then estimated to examine the effect of precinct-level residential racial composition and crime rates on the odds of the six outcomes. Results show that blacks and Latinos are more likely to be frisked and to have force used against them; however, this risk depends on precinct-level characteristics. A supplementary analysis of stops from 2014 shows that decreased reliance on stop-and-frisk reduces the odds of force being used against blacks and Latinos to non-significance.

Keywords race; stop-and-frisk; force; NYPD; precinct

In 2014, 45,787 stops were conducted by the New York Police Department (NYPD) as part of "stop, question, and frisk." This was substantially lower than the 685,724 stops made by the NYPD in 2011 (NYCLU, 2014; NYPD, 2015). Between 2003, when the NYPD began releasing stop-and-frisk data to the pub-

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lic, and 2014, the majority of stops were conducted on non-white persons. Blacks accounted for over half of the total stops, while Latinos accounted for approximately 30% (NYPD, 2015). Whites made up only 9% of all stops, despite accounting for one-third of New York City's total population (NYPD, 2013; United States Census Bureau, 2013). This disparity led many to question whether the program is racially biased (Gelman, Fagan, & Kiss, 2007; Jones-Brown, Gill, & Trone, 2013; NYCLU, 2014). Despite the dramatic decline of stop-and-frisk in recent years, charges of racial bias have not gone away (NYCLU, 2014).

Although there is evidence that non-whites are more likely to be stopped, there are few systematic examinations of what happens after a stop occurs (Gelman et al., 2007). Potential post-stop outcomes include the following: use of force, being frisked, being searched, being issued a summons, being arrested, and yielding a productive stop. This study examines these outcomes via two methods. First, standard logistic regression models estimate race effects while controlling for precinct variability. Second, multilevel logistic regression models are estimated to examine the effect of individual-level race and precinct-level residential racial composition. Precinct-level felony rates are controlled for and interaction terms between individual-level race and precinct-level residential racial composition are estimated. Modeling these interaction effects can show whether the odds of blacks and Latinos experiencing each of the outcomes is dependent on the residential racial composition of the precinct. Significant individual-level race effects and interaction effects, net of crime rates, could indicate the presence of racial bias.

New York City Stop-and-Frisk

In June 2014, a nationally representative Gallup poll found that 68% of blacks and 25% of whites held the belief that blacks are treated unfairly by police and the criminal justice system (Gallup, 2014). Such a view likely reflects the fact that racial disparities are often observed in pedestrian stops, traffic stops, and incarceration rates (Gelman et al., 2007; Mauer & King, 2007; Novak, 2004; NYCLU, 2014; Rojek, Rosenfeld, & Decker, 2004). While the presence of racial disparities is well documented by prior research, much public discussion and scholarly work has focused on disparities resulting from the NYPD stop-and-frisk program (Gelman et al., 2007; Jones-Brown et al., 2013; NYCLU, 2014).

The legal basis for stop-and-frisk is derived from the case of *Terry v. Ohio* (1968). The ruling allowed police officers to stop an individual when there was reasonable suspicion that he or she had committed a crime, was in the process of committing a crime, or was about to commit a crime. If there was reasonable suspicion to believe that the stopped individual was carrying a weapon or presented a threat to the officer or the public, the officer could perform a frisk, or pat-down, of the individual's outer garments.

Since then, stop-and-frisks have been widely used in an effort to reduce crime. However, the number of stops and the circumstances surrounding those stops has traditionally been known only by police departments (Rosenfeld & Fornango, 2014). In New York City, this changed when the Center for Constitutional Rights filed the class-action lawsuit of *Daniels et al. v. City of New York et al.* in (1999). As part of the settlement, stop-and-frisk data were made available to the public. Currently, the NYPD provides data on stops from 2003 to the present. The number of stops for the period 2003–2014 is shown in Figure 1. While the number substantially increased between 2003 and 2011, it is likely that some of the early increases were due to changes in record keeping—as opposed to actual increases in the number of stops. However, it is also likely that the number of stops is underestimated since officers do not always report having conducted one (Jones-Brown et al., 2013).

Figure 2 shows the percentage of whites, blacks, and Latinos stopped each year. Non-whites made up nearly 90% of the stops, with blacks accounting for nearly 50% and Latinos approximately 30%. This is substantially different from the population composition of New York City. In 2010, blacks accounted for 22.8% of the population, Latinos 28.6%, and whites 33.3% (United States Census Bureau, 2013). While the percentage of stops of Latinos was close to their percentage in the population, blacks were overrepresented and whites were underrepresented.

Because stops are based on reasonable suspicion, it is possible that blacks and Latinos engage in more suspicious behavior. Alternatively, behavior considered suspicious for blacks and Latinos may not be considered suspicious for whites (Smith et al., 2003). Unfortunately, this is not something that can be addressed with existing data. However, it is evident that disparities in stops exist. Controlling for precinct variability and crime rates over a fifteen month period between 1998 and 1999, Gelman et al. (2007) found that blacks were stopped 2.5 times as often as whites for suspected violent crimes, and Latinos

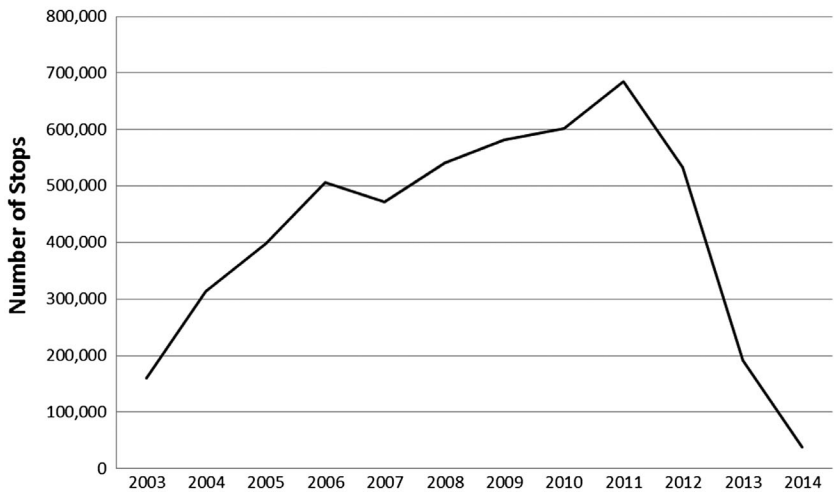


Figure 1 Number of NYC stop-and-frisks, 2003–2014.

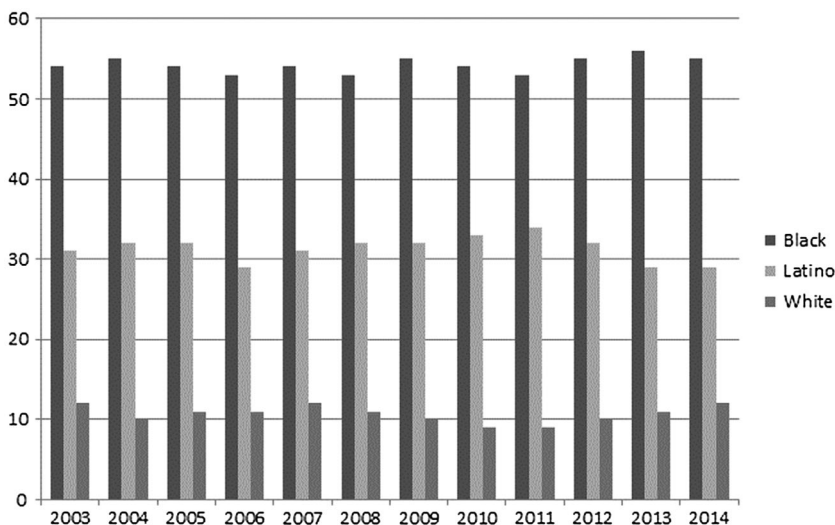


Figure 2 Racial composition (as a percent of total stops) of NYC stop-and-frisks, 2003–2014.

were stopped 1.9 times as often as whites. For suspected weapons crimes, blacks and Latinos were stopped approximately 1.5 times as often as whites. Despite the differential stop rates, they found that stopping whites was more efficient, with 1 in 7.9 whites arrested compared to 1 in 8.8 Latinos, and 1 in 9.5 blacks.

Research on Racial Disparities

Several theories have attempted to explain the mechanisms through which these disparities are produced—among these: the racial threat hypothesis, overt racism, cognitive stereotyping and implicit biases, police organizational structure, and officer deployment.

Racial threat scholars argue that whites view their political, economic, and cultural dominance as threatened when black and Latino populations increase in size (Blalock, 1967; Blumer, 1958; Bobo & Hutchings, 1996). Whites may also view blacks and Latinos as criminal threats (Liska, Lawrence, & Sanchirico, 1982). As a result, leaders may create policies that target or disproportionately impact minority groups. A considerable amount of research has found support for this perspective. There is evidence that prejudice by whites increases when the size of the black population increases (Taylor, 1998). Fear of crime also increases (Liska et al., 1982; Quillian & Pager, 2001). Increases in the size of the black population have also been found to be associated with increases in the size of police forces and in policing expenditures (Carmichael & Kent, 2014; Jackson, 1986; Stults & Baumer, 2007).

Overt racism would imply that racist police officers intentionally target black and Latino individuals. While there are undoubtedly officers who engage

in racist practices, it would take many actively racist ones to produce the large disparities observed in New York City's stop-and-frisk program. Thus, it is unlikely that most police officers are intentionally acting on racist beliefs (Smith & Alpert, 2007). Additionally, there is a body of research on traffic stops showing that the race of the police officer is not related to the race of the person who is stopped (Novak, 2004; Smith & Petrocelli, 2001). However, officer race may play a role in what happens after an individual is stopped (Alpert, Dunham, & Smith, 2007). Alpert et al. (2007) found that white and Latino officers in Miami-Dade County, Florida were more likely to initiate a search following a traffic stop. They also found that black officers were less punitive, initiating fewer arrests and issuing fewer summons. This was true regardless of the race of the person stopped.

While active racism may not be the primary mechanism through which disparities are produced, there is evidence that police officers act on cognitive stereotypes or implicitly held biases (Smith & Alpert, 2007; Warren, Tomaskovic-Devey, Smith, Zingraff, & Mason, 2006). Cognitive stereotyping occurs when an officer uses commonly held stereotypes about blacks and Latinos as a basis for reasonable suspicion to conduct a stop. While cognitive stereotyping and implicit biases are latent, they manifest in disproportionate contact with minority populations. Perhaps the most common cognitive stereotype held by individuals, police and non-police alike, is that blacks and Latinos are dangerous and should be viewed with suspicion (Alpert, Macdonald, & Dunham, 2005; Greenwald & Krieger, 2006). Such a view will result in non-whites being stopped more frequently. There is evidence that police officers rely on general stereotypes (e.g. rap music and black male dress) when making pretextual stops of black individuals, while they rely on specific stereotypes (e.g. drug related bumper sticker) when stopping whites (Smith et al., 2003). The observed disparities would not be unusual if officers do rely on vague stereotypes about blacks when deciding if they should conduct a stop.

There is also evidence that the majority of Americans hold implicit biases. The Race Implicit Association Test, which is used to assess biases toward blacks, has been available for self-administration online since 1998, and millions of Americans have taken it since—revealing that fewer than 20% of test-takers are “implicitly neutral” (Greenwald & Krieger, 2006, p. 955).¹ There is no reason to believe that police officers are different from the current population of test-takers. Furthermore, simulation studies have shown that police officers are

1. This test assesses the extent to which individuals are biased against blacks. The test requires individuals to pair positive or negative attributes with either whites or blacks. First, negative attributes are paired with blacks and positive attributes are paired with whites. The test is then repeated, with negative attributes paired with whites and positive attributes paired with blacks. Test-takers are instructed to make the correct pairings as quickly as possible. If an individual is faster at pairing negative attributes with blacks, the results would indicate that he or she holds implicit biases against blacks (Greenwald, McGhee, & Schwartz, 1998).

more likely to mistakenly shoot unarmed black suspects than unarmed white suspects (Plant & Peruche, 2005).

Organizational culture can also account for disparities in stops. In a department where supervisors promote and reward arrests, officers will often find ways to make arrests (Engel, Calnon, & Bernard, 2002). The NYPD has frequently been criticized for having what officers perceive as a quota system. The class-action lawsuit *Floyd v. City of New York* (2013) included testimony from officers who stated that supervisors imposed "performance goals." Many officers interpreted this as a quota system, through which they must make a certain number of arrests and issue a certain number of summonses in order to advance through the ranks (Goldstein, 2013).

Focusing patrols and conducting stop-and-frisks in non-white communities can also lead to disparities. If police presence is concentrated in non-white neighborhoods, it would not be surprising to see many blacks and Latinos being stopped. In New York City, police focus their efforts on high crime areas. Because crime rates are often higher in precincts with more blacks and Latinos, officers do have a greater presence in minority neighborhoods (Weisburd, Telep, & Lawton, 2014). Minorities are also suspected and arrested more often than whites for many crimes in New York City. In 2010, blacks were suspected in 74.2% of shootings and accounted for 69.2% of arrests. Latinos were suspected in 23.3% and accounted for 26.3% of arrests. Similar patterns were found for murder and robbery (NYPD, 2011).

A final explanation for the observed disparities is "out-of-place" profiling (Fagan, Dumanovsky, & Gelman, 1999). This occurs when officers stop individuals who appear out of place in certain neighborhoods. This could include stopping a black individual in a predominately white neighborhood or a white individual in a predominately black neighborhood. Several studies support this. In Rhode Island, blacks were more likely to be stopped outside of the Providence area where they accounted for approximately 10% of the population as opposed to inside Providence where they made up nearly 40% of the population. Whites, however, were more likely to be stopped in the Providence area than outside of it (Carroll & Gonzalez, 2014). Similarly, Novak and Chamlin (2008) found that the size of the black population increases the stop rate of whites and the rate of citations issued to whites but has no impact on either rate for blacks in Kansas City, Missouri.

Current Study

While a number of descriptive studies of stop-and-frisk exist, there are few empirical analyses of the post-stop disparities that result from the program. The focus of the current study is twofold. First, the independent effects of race on six outcomes are estimated via standard logistic regression models. The following likelihoods are estimated: of force being used, of being frisked, of being searched, of receiving a summons, of being arrested, and of a stop

being productive. Next, multilevel logistic regression models are estimated to examine the effect of precinct-level residential racial composition and crime rates on the six outcomes. An independent effect of race, when controlling for precinct variability, may signify the presence of racial bias in how stop-and-frisk is implemented. The preceding are estimated using data on stops from 2010. This makes it possible to match stops with Census data on population composition and NYPD data on precinct crime rates. Although the number of recorded stops declined considerably by 2014, the racial composition of persons stopped remained virtually unchanged. Logistic regression models of the post-stop outcomes are re-estimated using data on stops from 2014 to determine if a decreased reliance on stop-and-frisk changes the initial results.

Data and Methods

Data

The primary data for this study come from the NYPD's Stop, Question and Frisk Database (NYPD, 2015). The information stored by the database is taken from the UF-250, which is supposed to be filled out when an officer makes a stop. The form provides demographic information and a physical description of the person stopped; it indicates the reason for the stop, it records the outcome of the stop; it indicates whether any force was used during the stop; and it records characteristics about the neighborhood where the person was stopped. This study examines stops from 2010 and 2014. Because the goal of this study is to assess the effect of precinct-level characteristics on individual outcomes, data from 2010 were used so observations could be linked to Census data. For 2010, 601,285 stops were recorded in the database. To see if the decline of stop-and-frisk changed any of the relationships observed in the 2010 analysis, data from 2014 were also analyzed. For 2014, 45,787 stops were recorded.

The multilevel analysis of 2010 stops incorporates two additional data sources. The total residential precinct population and the percentages of the precinct population by race were taken from the United States 2010 Census and were compiled by Keefe (2013). Precinct-level felony rates were obtained from the NYPD (NYPD, 2013).

Measures

Dependent variables

This study examines the effect of race on six outcomes. The first is use of force. Eight types are included on the UF-250—hands on a suspect, suspect on ground, pointing of firearm at suspect, handcuffing suspect, suspect against wall/car, drawing firearm, baton, and pepper spray. Because some types are

rarely used, it was not possible to obtain separate estimates for each. Therefore, the use of force measure in this study refers to whether any of the eight types were used. Additional dependent variables include whether an individual was frisked, searched, issued a summons, or arrested. The final dependent variable is whether or not the stop was productive. A stop is coded as productive when a weapon or other form of contraband was found on the stopped individual. All dependent variables are dichotomous.

Individual-level independent variables

The primary independent variable of interest is the race of the stopped individual. Seven categories of race are coded in the stop-and-frisk data. These include Asian/Pacific Islander, black, American Indian/Alaskan Native, black Latino, white Latino, white, and other. These categories were combined to create five race variables. Black Latinos and white Latinos were combined to create a category for Latino. Because so few American Indian/Alaskan Natives were stopped (.43%), they were combined with the category of "other." There were also a small number of individuals whose race was unknown (.09%). These cases were excluded from the analyses. The categories of Asian/Pacific Islander, black, and white were left unchanged.

Several controls are included in the subsequent analyses. Individual controls include age, gender, and the size of the stopped individual. A small percentage of stops (.55%) listed ages that were very young or very old. These were recoded to a minimum of 12 and a maximum of 75. An individual's size was calculated by creating a ratio of weight to height, with larger values corresponding to larger individuals. Several situational controls are also included. The first two describe the disposition of the individual during the stop. They include a refusal to comply with an officer's directions (0 = *no refusal*; 1 = *refusal*) and verbal threats made by the stopped individual (0 = *no verbal threat*; 1 = *verbal threat*). Other situational controls include stops that occur in high crime areas (0 = *not high crime*; 1 = *high crime*), length of time an officer observed an individual before initiating a stop,² and night stops. Night stops are defined as those that occurred between sunset and sunrise (0 = *day*; 1 = *night*). Year 2010 sunrise and sunset times for New York City were obtained from the U.S. Naval Observatory (2015).

Precinct-level independent variables

For the multilevel analysis, the effects of precinct-level residential racial composition and crime are examined. Percent black, percent Latino, percent

2. A small percentage of officer observations (.04%) were over one hour in length. These were recoded to a maximum of one hour.

Asian, and percent other race are included at this level. By including demographic composition at the level of the precinct, it is possible to see whether the characteristics of the precinct exert an independent effect on the six dependent variables. While the residential racial composition may be one factor driving the observed results of the stop-and-frisk program, it is also anticipated that the level of crime within a precinct will influence the nature of the program. To control for this, the precinct-level felony rate per 1,000 was included in the analysis.³ The felony rate is comprised of four types of offenses: murder and non-negligent manslaughter, robbery, felony assault, and felony weapons possession. These offenses are likely to contribute to an officer's perception of the level of crime within a precinct. As a final control, the total precinct population is included.

Data limitations

Several limitations to the stop-and-frisk data exist. Although the NYPD's Stop, Question and Frisk Database provides the necessary information to examine disparities in post-stop outcomes, it does not contain a complete record of stops. It is estimated that a UF-250 is completed for between 10 and 70% of stops, leaving a large percentage unrecorded (Jones-Brown et al., 2013). The racial composition and circumstances surrounding these stops are unknown. However, it would be reasonable to believe that the majority are conducted on non-whites. Whether these stops are more likely to result in a frisk or the use of force is less clear. Due to this lack of completeness, stops recorded on the UF-250 are likely a non-random sample of all stops and the relationships observed in the data may not be generalizable.

In addition to the lack of completeness, the data analyzed for this study can only be used to make inferences about precincts. Precinct-level crime rates are not necessarily representative of the precinct as a whole. Most precincts in New York City are large and heterogeneous in terms of crime and racial composition. Therefore, it is possible that the values on the precinct-level variables may not be characteristic of the locations where stops most frequently occur. However, the stop-and-frisk data does include a measure that indicates whether an officer believed the stop occurred in a high-crime

3. Given that there could be a reciprocal relationship between stops and crime rates, endogeneity is a possibility. However, the assumption is that the stop itself reduces crime—whether by removing weapons from the street, acting as specific deterrence for the individual who is stopped, or general deterrence for others. It is less clear whether the post-stop outcomes (other than a productive search) would exhibit endogeneity with crime rates or whether this would be an artifact of the stop itself. For example, police use of force is unlikely to impact the crime rate. Additionally, instrumenting with time, in this case using one year lags, would be inappropriate. The assumption is that the impact of stop and frisk is short-lived—what happened one year ago will not impact the current level of crime (Rosenfeld & Fornango, 2014). To accurately address endogeneity, one would ideally want to conduct an analysis using weekly stop-and-frisk data.

area. Additionally, there is no available information on the racial composition of the on-street population within precincts. During the day, the street population is going to consist of tourists, service workers, commuters, and residents. Therefore, the racial composition of the on-street population that is subject to being stopped may not correspond to the racial composition of the precinct. Unfortunately, this cannot be resolved by analyzing post-stop outcomes at a different unit of analysis (i.e. census tracts or blocks). Using a smaller unit of analysis has the potential to make it less likely that the racial composition of the unit matches the racial composition of the on-street population. Given the smaller size of blocks, people will be more likely to pass between Census blocks than between precincts.

It is also true that many policing decisions are made at the precinct level. For example, Weisburd et al. (2014) note that decisions that come out of Compstat meetings are made by “middle managers” within precincts. Operation Impact, which began in 2003, specifically focuses on high crime locations. While these locations represent smaller units, they do not have a one to one correspondence with Census blocks. Furthermore, the identification of these locations was the result of decisions that took place at the level of the precinct, made collaboratively between precinct commanders and crime analysts (Weisburd et al., 2014). Because decisions regarding deployment are made at the level of the precinct and an officer’s perception of the level of crime (which is included in the data) drive stop-and-frisk, precinct level data were used.

Estimation and Results

The primary goals of this study were addressed via two estimation techniques. First, logistic regression was used to estimate the effect of race on the six dependent variables. Precinct fixed-effects were controlled for by including a series of dummy variables. Second, multilevel logistic regression models were estimated to determine the effects of individual-level race and precinct-level residential racial composition on the six outcomes. The precinct-level felony rate was controlled for to see if the racial composition has an effect on the outcomes net of crime rates.

Table 1 displays descriptive statistics for the variables used in the analyses. Table 2 displays the dependent variables by race. The first row of each variable in Table 2 shows the percentage that each race contributes to the overall outcome (i.e. 7.2% of those frisked were white). Non-white persons make up the majority for each outcome—with blacks accounting for approximately half of those who are frisked, searched, issued a summons, and arrested. The same pattern holds true for use of force. Although the individual elements comprising the composite force measure are not estimated, they are included here. Table 2 also shows that the majority of those who produce a productive search for an officer are non-white.

Table 1 Descriptive statistics

Variable	Mean	SD	Minimum	Maximum
<i>Level 1</i>				
Frisk	.56	—	0	1
Search	.09	—	0	1
Summons	.07	—	0	1
Arrest	.07	—	0	1
Use of force	.23	—	0	1
Productive stop	.03	—	0	1
Black	.53	—	0	1
Latino	.32	—	0	1
Asian	.03	—	0	1
Other	.03	—	0	1
Age	28.24	11.79	12	75
Male	.93	—	0	1
Weight/height	29.62	4.79	12.63	133.33
Observation time	2.44	3.59	0	60
Refusal	.09	—	0	1
Threat	.01	—	0	1
Night	.60	—	0	1
High crime area	.58	—	0	1
<i>Level 2 (Precinct)</i>				
Percent black	30.94	25.30	.75	88.40
Percent Latino	32.37	20.52	5.81	74.82
Percent Asian	9.94	11.10	.00	62.39
Percent other race	2.76	2.24	.90	15.47
Felony rate per 1,000	37.59	229.42	7.17	5040.00
Misdemeanor rate per 1,000	102.51	742.39	15.88	16320.00
Precinct population (in 1000s)	117.09	50.27	.03	247.35

Notes. All values at level 1 are means across 76 precincts with a total *N* of 596,890 stops for race variables, 591,526 stops for gender variable, 601,823 for night variable, and 601,285 stops for all other variables.

The second row of each variable in Table 2 displays the percentage of each race that was subject to the outcome (i.e. 43.9% of whites were frisked). While chi-square tests indicate that all of the differences are significant ($p < .001$), some of this is due to the large sample size. Therefore, it is more meaningful to examine the magnitude of the differences as opposed to the level of significance. Clearly, the percentage of blacks and Latinos who are frisked is much greater than the percentage of whites who are frisked. However, the differences for being searched, issued a summons, or arrested appear to be minimal. The magnitude of the differences is also large for the use of force. 22.8% of blacks and 26.0% of Latinos experienced some form of force against them. This compares to 16.5% of whites. While the differences between races for producing a productive stop are small, they are likely

Table 2 Outcome percentages by race

	White	Black	Latino	Asian	Other
<i>Result of stop</i>					
Frisk***	7.2	53.8	33.6	2.7	2.7
	<i>43.9</i>	<i>57.3</i>	<i>59.5</i>	<i>46.2</i>	<i>50.5</i>
Search***	9.6	50.8	34.0	3.2	2.5
	<i>9.6</i>	<i>8.9</i>	<i>9.9</i>	<i>8.9</i>	<i>7.6</i>
Summons***	9.1	50.7	33.5	3.8	3.0
	<i>7.0</i>	<i>6.8</i>	<i>7.5</i>	<i>8.1</i>	<i>7.1</i>
Arrest***	9.1	52.8	32.5	3.2	2.4
	<i>6.8</i>	<i>6.8</i>	<i>7.0</i>	<i>6.7</i>	<i>5.5</i>
<i>Use of force</i>					
Any force***	6.6	52.3	35.9	2.4	2.8
	<i>16.5</i>	<i>22.8</i>	<i>26.0</i>	<i>16.9</i>	<i>21.4</i>
Hands***	6.3	52.3	36.2	2.4	2.8
	<i>14.1</i>	<i>20.3</i>	<i>23.4</i>	<i>14.8</i>	<i>19.1</i>
Wall***	7.0	50.4	38.1	1.9	2.6
	<i>2.6</i>	<i>3.3</i>	<i>4.1</i>	<i>2.0</i>	<i>2.9</i>
Ground***	6.4	57.4	31.2	2.5	2.5
	<i>.3</i>	<i>.5</i>	<i>.4</i>	<i>.3</i>	<i>.4</i>
Baton	5.7	67.1	25.0	1.1	1.1
	<i>.0</i>	<i>.0</i>	<i>.0</i>	<i>.0</i>	<i>.0</i>
Pepper spray	9.4	56.1	30.0	2.8	1.9
	<i>.0</i>	<i>.0</i>	<i>.0</i>	<i>.0</i>	<i>.0</i>
Handcuffs***	8.8	54.5	31.1	3.2	2.4
	<i>3.4</i>	<i>3.7</i>	<i>3.5</i>	<i>3.4</i>	<i>2.8</i>
Weapon drawn**	8.9	58.0	27.0	4.1	2.1
	<i>.2</i>	<i>.2</i>	<i>.2</i>	<i>.2</i>	<i>.1</i>
Weapon pointed***	7.6	57.4	29.8	2.5	2.8
	<i>.3</i>	<i>.3</i>	<i>.3</i>	<i>.2</i>	<i>.3</i>
<i>Result of search</i>					
Productive search***	12.8	50.4	32.3	2.6	1.9
	<i>4.3</i>	<i>2.9</i>	<i>3.1</i>	<i>2.5</i>	<i>2.0</i>
Contraband found***	11.5	53.3	30.7	2.6	2.0
	<i>2.4</i>	<i>2.0</i>	<i>1.9</i>	<i>1.5</i>	<i>1.3</i>
Weapon found***	14.8	46.1	34.8	2.6	1.8
	<i>2.0</i>	<i>1.1</i>	<i>1.4</i>	<i>1.0</i>	<i>.7</i>

Notes. Chi-square significant at ** $p < .01$; *** $p < .001$; Italicized numbers indicate the percent of each race subject to the outcome.

meaningful. Few individuals of any race result in a productive search for an officer, so a difference of 1.4 percentage points between whites and blacks and 1.2 percentage points between whites and Latinos can reasonably be viewed as meaningful. Indeed, the percent of whites who produce a productive stop is nearly 50% higher than the percent of blacks and Latinos who do so.

Logistic regression results, 2010

Table 3 displays the results of the individual-level logistic regression models. Coefficients are presented as odds ratios. Compared to whites, blacks are significantly more likely to have force used against them and to be frisked. The odds of force being used are 18% higher for Blacks and 17% higher for Latinos. Similarly, the odds of being frisked are 47% higher for blacks and 32% higher for Latinos. This relationship persists for use of force even when controlling for refusal to comply and verbal threats made by the stopped person. These two measures could not be included in the model estimating the odds of being frisked because they perfectly predicted the outcome. There is no difference between blacks, Latinos, and whites in the odds of being searched. While there are differences by race in the odds of being issued a summons, the association is negative. The odds are 31% lower for blacks and 10% lower for Latinos.

Table 3 Logistic regression predicting result of stop, 2010

	Force	Frisk	Search	Summons	Arrest	Productive
Black	1.18*** (.05)	1.47*** (.10)	.96 (.04)	.69*** (.04)	1.03 (.03)	.58*** (.06)
Latino	1.17*** (.04)	1.32*** (.06)	.97 (.03)	.90* (.05)	1.02 (.03)	.68*** (.06)
Asian	.96 (.05)	.94 (.05)	.85*** (.04)	1.15* (.08)	1.01 (.05)	.59*** (.05)
Other	.97 (.06)	1.02 (.06)	.75*** (.05)	.79*** (.05)	.76*** (.06)	.40*** (.05)
Age	.99*** (.00)	.98*** (.00)	1.00 (.00)	1.02*** (.00)	1.00** (.00)	1.00 (.00)
Male	1.83*** (.07)	3.58*** (.11)	1.24*** (.06)	.77*** (.03)	.66*** (.02)	1.05 (.06)
Weight/height	1.00** (.00)	1.00 (.00)	1.01*** (.00)	1.01** (.00)	1.01*** (.00)	1.01*** (.00)
Time	1.00 (.00)	1.00 (.00)	1.01* (.00)	.98** (.01)	1.02*** (.00)	1.01 (.01)
Refusal	2.92*** (.17)	—	2.09*** (.09)	1.50*** (.08)	1.80*** (.08)	1.82*** (.09)
Threat	2.41*** (.23)	—	2.35*** (.21)	2.09*** (.14)	2.00*** (.15)	1.07 (.09)
Night	1.19*** (.06)	1.25*** (.04)	.87*** (.03)	1.11* (.05)	.74*** (.03)	.82*** (.04)
Crime area	.90* (.04)	.88*** (.03)	.84*** (.04)	.93 (.05)	.74*** (.03)	.87*** (.04)
N	587,479	532,269	587,479	587,479	587,479	587,479

Note. Odds ratios presented.
* $p < .05$; ** $p < .01$; *** $p < .001$.

There is no difference by race in the odds of being arrested. Most notably, blacks, and Latinos are significantly less likely to lead to a productive stop for officers. The odds are 42% lower for blacks and 32% lower for Latinos.

Stops that took place in an area defined by the officer as high in crime reduced the odds for all outcomes except the issuance of a summons. Because stop-and-frisk is concentrated in high crime areas (see Weisburd et al., 2014), it could be expected that these outcomes would be more likely to occur in these locations. Reduced odds suggest that the standard of reasonable suspicion used by officers in these locations may be less than the standard used in areas with lower rates of crime.

Multilevel logistic regression results, 2010

Multilevel analysis is appropriate when a significant proportion of the total variance in an outcome is explained by the group level (Snijders & Bosker, 1999). This can be determined by calculating the intraclass correlation. Accounting for the grouping of the six outcomes by precinct explains 11% of the variance for use of force, 3% for being frisked, 4% for being searched, 5% for being issued a summons, 5% for being arrested, and 4% for a productive search occurring. All are significant ($\chi^2 < .001$) indicating that multilevel models are appropriate for the data. Tables 4–6 display the estimates of the multilevel logistic regression models. Coefficients are presented as odds ratios. Column 1 of each outcome displays the main effects, while columns 2 and 3 contain interaction terms between racial composition at the precinct-level and individual-level race. The results mirror the estimates from the individual level analysis. Compared to whites, the odds of force being used are 18% higher for blacks and 17% higher for Latinos. Precinct-level racial composition also has an impact on the use of force. Each percentage point increase in the Latino population within a precinct increases the odds of force being used by 1.4%. A similar pattern holds for the odds of being frisked. The odds of blacks being frisked are 48% higher, and the odds of Latinos being frisked are 31% higher. Each percentage point increase in the black population increases the odds of being frisked by .5%, and each percentage point increase in the Latino population increases the odds by 1.5%. Each percentage point increase in the black population reduces the odds of being searched by .4% but increases the odds of being issued a summons by 1.2%. Each percentage point increase in the Latino population increases the odds of receiving a summons by .9%. Precinct-level racial composition has no effect on the odds of being arrested or the odds of a productive stop occurring. Like the previous logistic regression results, officer perception of crime level is associated with reduced odds for each of the six outcomes. The estimates for the felony rate reveal negative relationships with the odds of a being frisked, searched, arrested, and of yielding a productive stop. Intuitively, one may expect these relationships to be positive; however, this need not be the case. If stops are disproportionately

Table 4 Multilevel logistic regression predicting use of force and frisk, 2010

	Force—main effect	Force—black int.	Force—Latino int.	Frisk—main effect	Frisk—black int.	Frisk—Latino int.
Level 1						
Black	1.181*** (.017)	1.218*** (.021)	1.186*** (.017)	1.477*** (.016)	1.413*** (.019)	1.480*** (.017)
Latino	1.168*** (.017)	1.162*** (.017)	1.133*** (.022)	1.306*** (.015)	1.316*** (.015)	1.289*** (.020)
Asian	.955 (.023)	.950* (.023)	.956 (.023)	.932*** (.017)	.938*** (.017)	.933*** (.017)
Other	.969 (.027)	.960 (.027)	.976 (.027)	1.007 (.022)	1.021 (.023)	1.010 (.022)
Age	.989*** (.000)	.989*** (.000)	.989*** (.000)	.977*** (.000)	.977*** (.000)	.977*** (.000)
Male	1.828*** (.028)	1.830*** (.028)	1.828*** (.028)	3.544*** (.042)	3.542*** (.042)	3.544*** (.042)
Weight/height	1.004*** (.001)	1.004*** (.001)	1.004*** (.001)	1.002*** (.001)	1.002*** (.001)	1.002*** (.001)
Time	1.004*** (.001)	1.004*** (.001)	1.005*** (.001)	1.006*** (.001)	1.006*** (.001)	1.006*** (.001)
Refusal	2.914*** (.029)	2.915*** (.029)	2.914*** (.029)	—	—	—
Threat	2.409*** (.090)	2.410*** (.090)	2.409*** (.090)	—	—	—
Night	1.210*** (.008)	1.210*** (.008)	1.210*** (.008)	1.245*** (.007)	1.245*** (.007)	1.245*** (.007)
Crime area	.903*** (.007)	.903*** (.006)	.903*** (.006)	.891*** (.005)	.891*** (.005)	.891*** (.005)
Level 2						
% Black	1.006	1.007	1.006	1.005**	1.004*	1.005**

(Continued)

Table 4 (Continued)

	Force—main effect	Force—black int.	Force—Latino int.	Frisk—main effect	Frisk—black int.	Frisk—Latino int.
% Latino	(.004) 1.014*** (.004)	(.004) 1.014*** (.004)	(.004) 1.014*** (.004)	(.002) 1.015*** (.002)	(.002) 1.015*** (.002)	(.002) 1.014*** (.002)
% Asian	1.011 (.008)	1.011 (.008)	1.011 (.008)	1.011** (.004)	1.011** (.004)	1.011** (.004)
% Other	.944 (.035)	.943 (.034)	.944 (.035)	.974 (.018)	.975 (.018)	.974 (.018)
Felony	.999 (.001)	.999 (.001)	.999 (.001)	.999*** (.000)	.999*** (.000)	.999*** (.000)
Population	1.001 (.002)	1.001 (.002)	1.001 (.002)	1.001 (.001)	1.001 (.001)	1.001 (.001)
Intercept, γ_{00}	.068*** (.019)	.067*** (.018)	.069*** (.019)	.230*** (.034)	.245*** (.035)	.241*** (.034)
<i>Interactions</i>						
% Black \times Black		.999*** (.000)			1.002*** (.000)	1.000 (.000)
% Latino \times Latino			1.001* (.000)			
<i>Random effects</i>						
Intercept, τ_{00}	.630	.630	.630	.323	.322	.323
σ^2	34,306***	34,312***	34,140***	12,874***	12,683***	12,844***
χ^2	587,479	587,479	587,479	587,479	587,479	587,479
N						

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 5 Multilevel logistic regression predicting search and summons, 2010

	Search—main effect	Search—black int.	Search—Latino int.	Summons—main effect	Summons—black int.	Summons—Latino int.
Level 1						
Black	.962* (.017)	.977 (.021)	.955* (.017)	.686*** (.015)	.621*** (.017)	.692*** (.015)
Latino	.976 (.017)	.974 (.018)	1.023 (.025)	.895*** (.019)	.904*** (.019)	.842*** (.025)
Asian	.853*** (.026)	.851*** (.026)	.851*** (.026)	1.152*** (.038)	1.162*** (.039)	1.154*** (.038)
Other	.753*** (.029)	.745*** (.029)	.745*** (.029)	.786*** (.033)	.802*** (.033)	.797*** (.033)
Age	.998*** (.000)	.998*** (.000)	.998*** (.000)	1.020*** (.000)	1.020*** (.000)	1.020*** (.000)
Male	1.235*** (.024)	1.235*** (.024)	1.235*** (.024)	.770*** (.015)	.769*** (.015)	.770*** (.015)
Weight/height	1.008*** (.001)	1.008*** (.001)	1.008*** (.001)	1.006*** (.001)	1.006*** (.001)	1.006*** (.001)
Time	1.010*** (.001)	1.010*** (.001)	1.010*** (.001)	.977*** (.002)	.977*** (.002)	.977*** (.002)
Refusal	2.092*** (.027)	2.092*** (.027)	2.092*** (.027)	1.504*** (.024)	1.504*** (.024)	1.504*** (.024)
Threat	2.350*** (.010)	2.350*** (.009)	2.350*** (.009)	2.083*** (.103)	2.082*** (.103)	2.083*** (.103)
Night	.873*** (.008)	.873*** (.008)	.873*** (.008)	1.078*** (.012)	1.078*** (.012)	1.078*** (.012)
Crime area	.839*** (.008)	.840*** (.008)	.840*** (.008)	.932*** (.010)	.932*** (.010)	.932*** (.010)
Level 2						
% Black	.996* (.002)	.996 (.002)	.996* (.002)	1.012*** (.003)	1.010*** (.003)	1.012*** (.003)
% Latino	1.004 (.002)	1.004 (.002)	1.004 (.002)	1.009*** (.003)	1.009*** (.003)	1.008*** (.003)

(Continued)

Table 5 (Continued)

	Search—main effect	Search—black int.	Search—Latino int.	Summons—main effect	Summons—black int.	Summons—Latino int.
% Asian	1.002 (.004)	1.002 (.004)	1.002 (.004)	.997 (.005)	.997 (.005)	.997 (.005)
% Other	1.030 (.022)	1.029 (.022)	1.030 (.022)	.999 (.025)	1.001 (.025)	.999 (.025)
Felony	.999* (.000)	.999* (.000)	.999* (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)
Population	.999 (.001)	.999 (.001)	.999 (.001)	1.000 (.001)	1.001 (.001)	1.001 (.001)
Intercept, γ_{00}	.078*** (.013)	.078*** (.013)	.078*** (.013)	.025*** (.005)	.026*** (.005)	.026*** (.005)
<i>Interactions</i>						
% Black \times Black		.999 (.001)			1.003*** (.001)	
% Latino \times Latino			.999** (.001)			1.002** (.005)
<i>Random effects</i>						
Intercept, τ_{00}	.368	.368	.367	.432	.431	.431
σ	5,528***	5,517***	5,491***	5,118***	5,049***	5,110***
χ^2	587,479	587,479	587,479	587,479	587,479	587,479
N						

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 6 Multilevel logistic regression predicting arrest and productivity, 2010

	Arrest—main effect	Arrest—black int.	Arrest—Latino int.	Productive—main effect	Productive—black int.	Productive—Latino int.
Level 1						
Black	1.036 (.022)	1.085*** (.027)	1.040 (.022)	.580*** (.016)	.564*** (.019)	.571*** (.016)
Latino	1.025 (.022)	1.017 (.022)	1.001 (.029)	.679*** (.019)	.682*** (.019)	.758*** (.030)
Asian	1.011 (.035)	1.004 (.035)	1.012 (.035)	.581*** (.031)	.583*** (.031)	.578*** (.031)
Other	.762*** (.035)	.751*** (.034)	.766*** (.035)	.404*** (.029)	.407*** (.029)	.394*** (.028)
Age	1.005*** (.000)	1.005*** (.000)	1.005*** (.000)	1.005*** (.001)	1.005*** (.001)	1.005*** (.001)
Male	.658*** (.012)	.658*** (.012)	.658*** (.012)	1.097** (.034)	1.097** (.034)	1.098** (.034)
Weight/height	1.012*** (.001)	1.012*** (.001)	1.012*** (.001)	—	—	—
Time	1.019*** (.001)	1.019*** (.001)	1.019*** (.001)	1.006** (.002)	1.006** (.002)	1.006** (.002)
Refusal	1.801*** (.028)	1.802*** (.028)	1.801*** (.028)	1.828*** (.040)	1.828*** (.040)	1.828*** (.040)
Threat	1.997*** (.010)	1.998*** (.010)	1.997*** (.010)	1.074 (.095)	1.073 (.095)	1.075 (.095)
Night	.740*** (.008)	.741*** (.008)	.740*** (.008)	.813*** (.013)	.813*** (.013)	.814*** (.013)
Crime area	.738*** (.008)	.738*** (.008)	.738*** (.008)	.865*** (.013)	.865*** (.013)	.865*** (.013)
Level 2						
% Black	.997 (.002)	.998 (.002)	.997 (.002)	1.001 (.002)	1.001 (.002)	1.002 (.002)
% Latino	1.004 (.002)	1.004 (.002)	1.004 (.002)	1.002 (.002)	1.002 (.002)	1.004 (.002)

(Continued)

Table 6 (Continued)

	Arrest—main effect	Arrest—black int.	Arrest—Latino int.	Productive—main effect	Productive—black int.	Productive—Latino int.
% Asian	1.001 (.005)	1.001 (.005)	1.001 (.005)	.999 (.004)	.999 (.004)	.999 (.004)
% Other	1.015 (.023)	.018 (.023)	1.015 (.023)	1.012 (.021)	1.013 (.021)	1.012 (.021)
Felony	.999* (.000)	.999* (.000)	.999* (.000)	.999** (.000)	.999** (.000)	.999** (.000)
Population	.997** (.001)	.997** (.001)	.997** (.001)	.996*** (.001)	.996*** (.001)	.996*** (.001)
Intercept, γ_{00}	.101*** (.018)	.098*** (.017)	.101*** (.018)	.059*** (.010)	.060*** (.010)	.058*** (.009)
<i>Interactions</i>						
% Black \times Black		.998*** (.001)			1.001 (.001)	.997*** (.001)
% Latino \times Latino			1.001 (.001)			
<i>Random effects</i>						
Intercept, τ_{00}	.395 4,739 587,479	.394 4,690 587,479	.395 4,713 587,479	.350 1,979 587,479	.351 1,975 587,479	.349 1,962 587,479
σ						
χ^2						
N						

* $p < .05$.; ** $p < .01$.; *** $p < .001$.

increased in high crime areas, many of these stops are unlikely to produce these outcomes.⁴ Notably, individual-level race remains one of the strongest predictors of a productive stop, with the odds for blacks 42% lower than the odds for whites and the odds for Latinos 32% lower.

Columns 2 and 3 of Tables 4–6 display the estimates of the interaction terms. Effect sizes are displayed in Table 7. The values show the effect of individual-level race at the 25th, 50th, and 75th percentiles of either percent black or percent Latino. For example, looking at use of force, at the 25th percentile (population is 7.01% black), the effect of percent black for blacks is 1.255 times the effect of percent black for whites. The coefficient for the interaction (Table 4) is .999, indicating that the effect gets smaller as the black population gets larger. At the 75th percentile (population is 51.65% black), the effect of percent black for blacks is reduced to 1.166 times the effect of percent black for whites. Thus, as the size of the black population increases, the odds of African Americans experiencing use of force decreases, and the risk becomes more similar to the risk experienced by whites—although it is still significantly higher. For Latinos, however, the odds that force will be used relative to whites increase as the size of the Latino population increases.

Compared to whites, African Americans are significantly more likely to be frisked, and the odds of being frisked increase as the size of the African American population increases. While African Americans and Latinos are less likely to receive a summons, the odds decrease as the size of their respective populations increases. The interaction effect of arrest shows that African Americans are at a slightly increased risk of being arrested when the size of the black population is small. However, at the 75th percentile, there is no difference in the precinct effect between blacks and whites. Finally, compared to whites, both blacks and Latinos are less likely to result in a productive search for an officer. For Latinos, the odds depend on the composition of the precinct. In a precinct where they comprise a small percentage of the population (25th percentile: 15.74% of the population), the effect of Latino population size is 28% lower than it is for whites. However, at the 75th percentile (50.14% Latino), the effect is 36% lower than it is for whites.

While there are several significant interaction effects, and the sizes of the interaction effects are substantively meaningful, they are not necessarily surprising. For example, African Americans are more likely than whites to be frisked, and the effect of racial composition is larger for blacks than it is for whites. Thus, compared to whites, blacks are more likely to be frisked in precincts with large concentrations of African Americans—suggesting that whites may not experience out-of-place policing here. The interaction effects showing reduced odds are more interesting. Latinos, for example, are less likely than

4. As part of Operation Impact, rookie officers are assigned to hotspots. If officers disproportionately increase stops in high crime areas relative to the number of crimes, the relationship between crime rates and the likelihood of observing a productive stop will be negative.

Table 7 Odds ratios of significant interaction effects, 2010

Race effect		Race effect	
<i>Force</i>			
% Black × Black		% Latino × Latino	
At 25th percentile	1.255***	At 25th percentile	1.153***
At 50th percentile	1.200***	At 50th percentile	1.162***
At 75th percentile	1.166***	At 75th percentile	1.185***
<i>Frisk</i>			
% Black × Black		% Latino × Latino	
At 25th percentile	1.431***	At 25th percentile	—
At 50th percentile	1.481***	At 50th percentile	—
At 75th percentile	1.554***	At 75th percentile	—
<i>Search</i>			
% Black × Black		% Latino × Latino	
At 25th percentile	—	At 25th percentile	1.005
At 50th percentile	—	At 50th percentile	.991
At 75th percentile	—	At 75th percentile	.955*
<i>Summons</i>			
% Black × Black		% Latino × Latino	
At 25th percentile	.641***	At 25th percentile	.868***
At 50th percentile	.682***	At 50th percentile	.882***
At 75th percentile	.744***	At 75th percentile	.921***
<i>Arrest</i>			
% Black × Black		% Latino × Latino	
At 25th percentile	1.081***	At 25th percentile	—
At 50th percentile	1.044*	At 50th percentile	—
At 75th percentile	.993	At 75th percentile	—
<i>Productive</i>			
% Black × Black		% Latino × Latino	
At 25th percentile	—	At 25th percentile	.721***
At 50th percentile	—	At 50th percentile	.698***
At 75th percentile	—	At 75th percentile	.642***

Note. 7.01% of a precinct's population is black at the 25th percentile, 25.42% at the 50th percentile, and 51.65% at the 75th; 15.74% of a precinct's population is Latino at the 25th percentile, 25.26% at the 50th percentile, and 50.14% at the 75th.
* $p < .05$.; ** $p < .01$.; *** $p < .001$.

whites to lead to a productive search for an officer. While there is no significant main effect of percent Latino, the interaction shows that as the Latino population increases, the odds of Latinos leading to a productive search

Table 8 Logistic regression predicting result of stop, 2014

	Force	Frisk	Search	Summons	Arrest	Productive
Black	1.09 (.08)	1.31*** (.08)	.94 (.08)	.71 (.13)	.91 (.10)	.54*** (.09)
Latino	1.10 (.07)	1.14* (.06)	1.12 (.08)	.91 (.17)	1.12 (.11)	.70** (.09)
Asian	.86 (.09)	.99 (.12)	.91 (.09)	.52* (.17)	.89 (.12)	.68 (.16)
Other	1.37 (.27)	.92 (.13)	.70 (.16)	.43 (.20)	.61 (.26)	.33*** (.13)

Notes. *N* = 34,222 for force, search, and arrested; 29,579 for frisk; 33,955 for summons; 34,106 for productive.
p < .05.; ** *p* < .01.; *** *p* < .001.

is reduced. This could suggest that Latinos are over-stopped in predominately Latino precincts, possibly without reasonable suspicion.

Logistic regression results, 2014

To see if reduced reliance on stop-and-frisk lessened the effect of race on the post-stop outcomes, logistic regression models were re-estimated using data on stops from 2014. During 2014, 45,787 stops were recorded by the NYPD. Unlike previous years, there is a substantial amount of missing data from the recorded stop-and-frisk data for 2014. Depending on the outcome being analyzed, 25–35% of the cases were excluded.⁵ Results of the 2014 analyses are presented in Table 8. Because there are few differences from the 2010 analysis, only the effects of the race variables are shown. The most notable changes between 2010 and 2014 can be observed in the odds of force being used and the odds of a summons being issued. While blacks and Latinos were more likely to have force used against them and less likely to receive a summons in 2010, there was no effect of race on either outcome in 2014. The stopping of blacks and Latinos was still associated with greater odds of a frisk taking place and reduced odds of a productive stop.

Sensitivity Check

Because the population at risk of being stopped does not necessarily correspond to the residential population in some locations, it is necessary to examine what happens when these precincts are removed from the analyses.

5. Only 2.3% of cases were excluded in the analysis of 2010 stops.

If the removal of these precincts does not substantively change the results, the choice of the precinct as the unit of analysis is strengthened. To retain precincts where the population at risk of being stopped more closely corresponded to the population composition of the precinct, twelve precincts were deleted. Seven precincts in Lower Manhattan and precincts containing entry/exit points to the Brooklyn Bridge, Manhattan Bridge, and Williamsburg Bridge were deleted. These included Precincts 1, 5, 6, 7, and 9 in Manhattan and Precincts 84 and 88 in Brooklyn. Precinct 84 also includes the Downtown Brooklyn Business District, the Fulton Street Mall, and areas surrounding Atlantic Avenue. Precinct 88 contains the entry point to Brooklyn from the Williamsburg Bridge and includes the Atlantic Center Shopping Complex. Precincts around Times Square (Midtown South—Precinct 14 and Midtown North—Precinct 18) and Central Park (Precinct 22) were excluded. Precinct 44 in the Bronx (containing Yankee Stadium) and Precinct 110 in Queens (containing Citi Field) were also excluded. Deleting these precincts and re-estimating the models did not change the results.

Discussion

This analysis shows that blacks and Latinos are more likely to be frisked and to have force used against them. Multilevel models show that the percent of blacks and the percent of Latinos in a precinct increase the odds of being frisked, and the percent of Latinos in a precinct increases the odds of being subject to the use of force. Even after accounting for the demographic structure of the precinct, officer perception of crime level at the location of the stop, and the felony rate of a precinct, the odds of being frisked or having force used are greater for blacks and Latinos. This suggests that the level of crime within a precinct is not driving the racial disparities observed at the individual-level. Rather, the precinct-level residential racial composition has a distinct effect on the nature of stop-and-frisk—with frisks and the use of force being targeted toward predominately black and Latino communities. While stop-and-frisk is intended to be used more often in high crime areas, which are more likely to be comprised of blacks and Latinos, it is plausible that officer conducted frisks and the application of force are not used in response to criminal activity (Gelman et al., 2007; Weisburd et al., 2014).⁶ This analysis shows that the level of crime has very little to do with either outcome. In fact, the negative relationships of officer perception of crime and the felony rate with the outcomes suggest that stop-and-frisk, and the subsequent negative outcomes, are disproportionately used against non-whites and that the level of reasonable suspicion may be lower than it would be for whites.

6. Percent black is positively related with the felony rate included in this analysis ($p < .001$). Percent Latino and percent white are negatively associated with the felony rate ($p < .001$).

Disentangling the mechanisms through which these disparities are produced, however, is difficult. While individual racism may be one reason for the disproportionate stopping of blacks and Latinos and the disparities that occur afterward, the racial composition of patrol officers may suggest otherwise. In 2010, 53% of patrol officers were non-white. Because patrol officers are more likely to conduct a stop-and-frisk, it seems unlikely that the magnitude of the disparities could be directly attributed to racial animus—although it certainly explains some of the observed disparities. Moving up the command structure, however, the NYPD becomes increasingly homogenous. In 2010, 43% of detectives, 39% of sergeants, 24% of lieutenants, and 18% of captains were non-white (El-Ghobashy, 2011). Diversity becomes increasingly important at higher levels of command because the individuals occupying these positions set department policy. When individuals in supervisory positions promote certain policies, such as those that emphasize conducting stops and making arrests, patrol officers often respond to departmental expectations (Engel et al., 2002). Therefore, regardless of the race of the officer, if blacks and Latinos are viewed as easy targets to stop, officers will conduct a disproportionate number of stop-and-frisks on blacks and Latinos. This then opens up the possibility that the use of force and frisks will be applied disproportionately.

It is also possible that blacks and Latinos are more likely to refuse police demands or threaten police. Use of force, then, is a response to this behavior as opposed to racial animus or implicit biases on the part of the officer. Terrill and Mastrofski (2002) found that officers in Indianapolis, Indiana and St. Petersburg, Florida were more likely to apply force when suspects behaved antagonistically. However, nonwhites were still more likely to have force applied independent of antagonistic behavior. 2010 stop-and-frisk data shows that, compared to whites, a slightly higher percentage of stops of blacks and Latinos are characterized by a refusal to comply with commands or by engaging in threatening behavior.⁷ However, it is not possible to determine the causal relationship between antagonistic behavior and the application of force. While force may be applied in response to such behavior, it is possible that stopped individuals become uncooperative in response to mistreatment by police. It is also plausible that identical behavior may be seen as threatening when engaged in by blacks or Latinos but is viewed as non-threatening when engaged in by whites. Either way, this analysis, like Terrill and Mastrofski's (2002), shows that race still exerts a significant effect net of the stopped individual's behavior.

It is not possible to determine if implicit biases lead officers to disproportionately stop blacks and Latinos and use force and frisk them more frequently. However, simulation studies have shown that police officers are more

7. 7.2% of white stops involved refusal to comply with demands, compared to 10% of black stops, and 8.5% of Latino stops. .4% of white stops involved threats, compared to .7%, of black stops, and .5% of Latino stops.

likely to mistakenly shoot unarmed black suspects than unarmed white suspects (Correll et al., 2007). Despite this, there is evidence that this can be changed (Plant & Peruche, 2005). After repeated exposure to situations where the presence of a weapon was unrelated to the race of the suspect, this differential response between black and white subjects disappeared. While it is unclear if simulation exercises carry over to the field, the results of such studies are promising. Repeated training, in the form of computer simulations and field exercises, can be used to train officers and may aid in reducing or eliminating biases. While simulation studies examine use of force on the part of the officer, it is plausible that such training could reduce disparities between non-whites and whites in the odds of being frisked. Most concerning, however, is the fact that officers may hold implicit biases toward non-white persons in the first-place. This indicates that rigorous training must be given to officers, both in the academy and on a continual basis after they enter the field.

Conclusion and Implications

Like other studies, this analysis revealed that stopping blacks and Latinos led to very few productive encounters (Gelman et al., 2007; Jones-Brown et al., 2013; NYCLU, 2014). The individual-level analysis showed that, compared to whites, stopping blacks and Latinos reduced an officer's odds of finding contraband. The multilevel analysis showed that the racial composition of a precinct had no impact on the odds of completing a productive stop. Interestingly, the interaction between individual-level Latino race and percentage Latino is negative. This indicates that stopping Latinos in precincts with large concentrations of Latinos is less likely to result in a productive stop for officers. This suggests that the stopping of nonwhites, particularly Latinos, is a relatively random process, one that may not truly reflect reasonable suspicion. However, the higher percentage of productive stops for whites suggests that the standard of reasonable suspicion may be higher for whites. While the overall percentage of productive stops for whites is low, it is significantly higher than the percentage for blacks and Latinos. Blacks and Latinos are more likely to have force used against them and are more likely to be frisked, even after controlling for precinct characteristics. The persistent effect of individual-level race suggests that biases may be present.

Although stop-and-frisks can be an effective policing tool, there appears to be a need to better train patrol officers on what constitutes reasonable suspicion. Part of this could include addressing any implicit or explicit biases that officers might hold. There is evidence that even police officers believe whites are treated better than non-whites by law enforcement personnel. In a nationally representative sample of 925 police officers, 17% indicated that officers treat whites better than non-whites, and 11.1% indicated that officers are more likely to use physical force against blacks and other minorities (Weisburd,

Greenspan, Hamilton, Williams, & Bryant, 2000).⁸ However, Weisburd et al. (2000) also found that nearly 90% believed proper supervision could prevent officers from abusing their authority. Given that fact that many NYPD officers are opposed to performance goals as currently defined, organizational change that minimizes the importance of “numbers” such as arrests and summons can reduce situations where force might be used.

While stop-and-frisks will continue to be conducted in New York City and other cities throughout the United States, the controversy is unlikely to disappear.⁹ Clearly, some stops will be productive—removing weapons and drugs from the streets. However, there is a great cost for unproductive stops, particularly when they are seen as intrusive or illegitimate (Tyler, Fagan, & Geller, 2014). The disproportionate stopping of blacks and Latinos and the use or threat of force is likely to reduce police legitimacy. Using a sample of 18–26 year old males in New York City, Tyler et al. (2014) found that the number of stops a person experienced was not associated with reduced perceptions of police legitimacy. However, level of intrusiveness mattered. The use of force or the threat of force significantly reduced legitimacy. General perceptions of police behavior can also impact legitimacy. When individuals believed that there were many stops in a neighborhood and that many of those stops were intrusive, they reported lower perceptions of police legitimacy. This suggests that it may be more beneficial for officers to work toward making stop-and-frisk less intrusive as opposed to just reducing the number of stops. While we should be concerned about the number of stops that occur in American cities, we should also be concerned with what happens after a person is stopped. Substantial disparities in outcomes exist, with blacks and Latinos often receiving more negative treatment than whites. Minimizing these disparities, reducing intrusiveness, and increasing the efficiency of stops are suitable goals for departments that regularly conduct stop-and-frisks.

Disclosure statement

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8. Agreement differs by race. 11.9% of white officers, 51.3% of black officers, and 23.4% of other minority officers believe that whites are treated better. 5.1% of white officers, 57.1% of black officers, and 12.4% of other minority officers believe that physical force is more likely to be used against blacks and other minorities.

9. It is important to note that other nations conduct stop-and frisks and face charges of racial bias in policing. In a study of England and Wales, it was found that blacks were less likely to be stopped in Cheshire but more likely to be stopped in West Midlands (Chainey & Macdonald, 2012). These issues are not unique to the United States, and it is worth considering how race impacts policing outcomes in different nations.

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