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Research Article

Do White Law Enforcement Officers Target Minority Suspects?

Abstract: *The debate over possible bias in the use of deadly force has recently been exacerbated by highly publicized killings of African American males around the country. While much research has been conducted examining police behavior, little has been done to investigate the impact of race on police behavior. This article aims to answer this question: are white police officers more likely to use lethal force on minority suspects or people of a specific race? To answer this question, the authors construct a data set of all confirmed uses of lethal force by police officers in the United States in 2014 and 2015. They find that although minority suspects are disproportionately killed by police, white officers appear to be no more likely to use lethal force against minorities than nonwhite officers.*

Evidence for Practice

- The vast majority of people killed by police are armed at the time of their fatal encounter, and more than two-thirds possess a gun.
- African Americans are disproportionately killed by police officers nationwide.
- The disproportionate killing of African Americans by police officers does not appear to be driven by micro-level racism. Rather, it is likely driven by a combination of macro-level public policies that target minority populations and meso-level policies and practices of police forces.
- Fundamental macro-level policy changes, as well as changes to meso-level organizational practices, are necessary to address the root causes of racial disparities in police killings.

On August 9, 2014, Michael Brown, an 18-year-old black man, was fatally shot by a white police officer in Ferguson, Missouri. The shooting sparked protests and heightened racial tensions around the country. The events in Ferguson quickly gave rise to the Black Lives Matter movement, which sought to draw attention to persistent racial disparities in policing, especially the disproportionate use of force against African Americans. Subsequent killings of black men by white police officers further inflamed tensions and increased the pitch of the national conversation. On October 20, 2014, 17-year-old African American Laquan McDonald was shot and killed by a white Chicago police officer. On April 9, 2015, Walter Scott, an African American man in South Carolina, was shot in the back eight times while running away from a white police officer. On February 25, 2016, Greg Gunn, another African American man, was killed outside his neighbor's home by a white police officer in Montgomery, Alabama. Charleena Lyles was three months' pregnant when, in June 2017, she was killed by police officers responding to an attempted burglary that Lyles herself had reported. These and other high-profile police killings have led many to speculate that white police officers may target nonwhite suspects when exercising lethal force. However, rigorous study of the use of lethal force by police is extremely difficult. There are very little data on police-citizen interactions, and even police uses of force are not well accounted for—indeed, the federal government only recently passed a law, the Death in Custody Reporting Act of 2013, requiring police departments to report uses of lethal force (see Hehman, Flake, and Calanchini 2017). Even so, uses of deadly force have garnered considerable attention from scholars. Much of this work has found significant differences in the application of lethal force by police. Numerous studies have suggested that black suspects are killed by law enforcement officers at disproportionate rates relative to their representation in the population (see Ross 2015). The widespread belief of racialized policing in general—and racialized police killing in particular—has had a deleterious effect on levels of trust between minority citizens and law enforcement officers (Brunson and Gau 2015).

The causes of the disproportionate killing of African Americans by police are not well understood. The

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dominant explanation for disproportionate police violence and police bias in general is what has been called the "rotten apple" theory of police misconduct (Haider-Markel and Joslyn 2017; Mummolo 2018). Criminologists, psychologists, and sociologists have routinely argued that the police profession attracts people with certain personality traits, including "machismo, bravery, authoritarianism, cynicism, and aggression" (Twersky-Glasner 2005, 58). White police officers in particular have been found to hold more racially biased attitudes than nonpolice white citizens (LeCount 2017). Moreover, some studies have suggested that police work fosters or reinforces aggressiveness, authoritarianism, and racial bias on the job (Griffin and Ruiz 1999; Hargrave, Hiatt, and Gaffney 1988; Legewie 2016; Sellbom, Fischler, and Ben-Porath 2007).

These studies tend to treat all problems of policing as individual, which is to say officer-level, phenomena. Many police departments and organizations (such as police unions) defend this perspective, arguing that high-profile incidents of egregious police misconduct are attributable to a few "bad apples" rather than larger systemic problems. Scholars are beginning to push back against this narrative, as studies have shown that at least some forms of police misconduct are demonstrably institutional (Epp, Maynard-Moody, and Haider-Markel 2017; Legewie 2016; Mummolo 2018).

The narrative around police killings of black suspects is not exceptional, then: people on different sides of the issue suggest that "bad apples"—in this case, racist white cops—are to blame for an undeniable problem. In this article, we seek to answer this question: are white law enforcement officers more likely to use lethal force on minority suspects or people of a specific race? This is an important question with major policy implications for policing in a diverse society. That is, the disproportionate killing of minority suspects is a well-established problem, but the causes of that problem are not well understood, and many scholars, pundits, and activists defend the "bad apple" theory, even if only implicitly.

If the racial disparity in police killings is in fact driven by white officers, then the appropriate remedies may be to reduce "interracial policing," retrain white police officers to improve or change their relationships with citizens of different racial and ethnic backgrounds, reform police recruitment procedures, and the like. If micro-level officer racism is not the root cause of the discrepancy in police killings, however, then policy makers and activists should look elsewhere to address the problem. In other words, if the root problem is systemic—that is, institutional—in nature, then reforms aimed at remedying the problem of "bad apples" will be insufficient at best. Rather, appropriate reforms for a fundamentally institutional problem would include addressing institutionalized racism in criminal policy and in the practices of police departments nationwide that result in overpolicing of minority populations, increasing oversight of police uses of force, and the like. For these reasons, the question of the basic causes of racial disparities in police killings has not only important theoretical implications for scholars studying police-citizen interaction but also profound real-world implications for policing a diverse society.

Past Studies on Police Uses of Force

While police killings of suspects have become less common over the last four decades (Zimring and Arsiniega 2015), the persistence of substantial racial disparities in killings has generated significant controversy. Numerous scholars have sought to uncover the basic causes of this troublesome pattern. Research has relied primarily on two approaches to this question: first, analysis of observational data, usually incident reports of deadly police encounters collected in the Federal Bureau of Investigation's supplementary homicide reports, and second, laboratory-based "shoot/don't shoot" experiments in which participants—sometimes including police officers—respond to images of suspects and objects that may or may not be weapons presented to them in quick succession. Taken together, this robust body of scholarship suggests that police killing of suspects occur largely independent of the factors that many would expect to drive such phenomena, including local violent crime rates, neighborhood demographics, and the like. Current research is conflicted as to whether implicit racial bias influences officers' decisions to use lethal force. However, to our knowledge, no study has directly assessed the racial composition of officer killings of suspects.

Recent observational studies have netted a range of important insights into the factors that contribute to uses of lethal force by law enforcement. For example, Lee, Vaughn, and Lim (2014) used spatial analysis to examine the relationships between neighborhood factors, characteristics of the involved parties, and police use of force. In particular, they used neighborhood crime rates within police command areas to estimate the impact of neighborhood criminal activities on the police force while controlling for demographic characteristics of the officers and citizens involved and the behavior of both parties to the incidents. First, Lee, Vaughn, and Lim noted that the average citizen in a use-of-force incident was 29 years old, male (88.1 percent), and nonwhite (70.4 percent), while the average officer was 34 years old, male (94.7 percent), and white (70.4 percent). Second, they found that officers relied on weaponless tactics in almost half of all encounters with citizens involving force (so-called soft empty hand control and hard empty hand control techniques). When police employed weapons in these encounters, they were more likely to rely on nonimpact weapons such as Tasers (18.8 percent) and pepper spray (26.6 percent) than impact weapons (3.3 percent). Most important for our purposes, Lee, Vaughn, and Lim (2014) found no significant relationships between citizen race and officer race on the level of force used in police-citizen encounters.

In another recent study, Legewie (2016) found that murders of police officers by black men in New York City resulted in significant short-run increases in police uses of force against black citizens, but when police were murdered by white or Hispanic people, no evidence of a corresponding increase in uses of force against white or Hispanic populations was observed. Legewie theorized that this increase in uses of force against African Americans after the murder of a police officer was attributable to racial bias in policing generally, but his data do not allow for leverage as to the source(s) of that racial bias—that is, whether the bias was institutional or individual (or both).

Other studies have focused more specifically on officer-involved killings of citizens. In one such study, Smith (2003) examined rates of police killings of felons in cities with populations greater than 100,000 to see whether police department makeup—the racial and gender diversity of a city's police force—effected rates of police

violence. Smith found that police force makeup had no effect on rates of police killings. In other words, departments with more minority or female officers had no fewer police-caused homicides. Smith did find one factor that was consistently associated with higher levels of police killing: the proportion of a city's population that was African American. That is, net of controls, the larger the black population share, the higher the rate of police homicides.

More recently, Ross (2015) examined the extent of racial bias in the shooting of American civilians by police officers in recent years by using a geographically resolved, multilevel Bayesian model in analyzing the U.S. Police Shooting Database for estimating the county-level risk ratios of being shot by a police officer as a function of the race/ethnicity of a suspect as well as the individual's status as armed or unarmed. Ross found that the median probability across counties of being black, unarmed, and shot by police was 3.49 times the probability of being white, unarmed, and shot by a police officer. The median probability across counties of being Hispanic, unarmed, and shot by an officer was 1.67 times the probability of being white, unarmed, and shot by an officer. Further, Ross found that, nationwide, the average risk of being shot by a police officer was the same for unarmed black suspects as it was for armed white suspects. Thus, Ross's study suggests significant bias in the killing of unarmed African Americans relative to unarmed white Americans. Additionally, Ross contends that a number of county-level factors indicate that police shootings were most likely to emerge in police departments located in larger metropolitan counties with low median incomes and a sizable portion of black residents, especially in cases of extreme economic inequality in the county. Ross found no evidence, however, that the observed racial discrepancy in police shootings was a function of county-level crime rates.

Following this vein of research, Klinger et al. (2016) examined detailed case attributes using a micro-spatial analysis of 230 police shootings in St. Louis, Missouri, between 2003 and 2012 to examine social determinants of the use of deadly force by the police, racial disparities in police shootings, or the degree to which racial disparities may reflect biased or discriminatory police behavior. Here, the authors examined the influence of neighborhood characteristics such as violent crime rates and socioeconomic factors on the racial composition of police shootings. Suspects involved in this study were typically young black males, while two-thirds of the shooters were non-Hispanic whites, and one-third were non-Hispanic blacks. The study suggests that the racial and economic composition of the neighborhood were largely unrelated to the frequency of police shootings, and violent crime rates have only a small effect on the rate of police shootings.

In another study of the relationship between neighborhood factors and police killings, Hehman, Flake, and Calanchini (2017) found no evidence that population factors, economic conditions, or local violent crime rates influence police killings. They did find some evidence, however, that implicit racial bias, measured using the Implicit Association Test (IAT), of white residents in the region was significantly associated with the disproportionate use of lethal force on black suspects. Hehman, Flake, and Calanchini interpreted this finding as evidence that prevailing racial attitudes in a community may shape the decisions officers make in these life-or-death encounters.

In summary, these observational studies have found scant evidence that local violent crime rates drive the racial disparity in police shootings. The evidence from these studies regarding the influence of other neighborhood level factors, such as racial composition, economic inequality, and unemployment on police uses of lethal force is decidedly mixed. One study found some indirect evidence that implicit racial bias may be a factor contributing to the disproportionate killing of black suspects. A number of scholars have sought to more directly test the theory that officer bias may influence the killing of black suspects in experimental settings.

In one such study, James, Vila, and Daratha (2013) examined the influence of race and ethnicity on police use of deadly force in the line of duty using a robust experimental study design involving randomized controlled trials across three experiments. Participants—police, military, and civilian samples—were placed in high-fidelity computerized training simulators that resembled real-life deadly force encounters. The samples were analyzed on decisions to shoot white, black, and Hispanic suspects in potentially deadly situations. James and colleagues found that participants displayed significant bias *favoring* black suspects in their decisions to shoot, rather than discriminating against them. Specifically, the participants took longer to shoot black suspects than white or Hispanic suspects. In addition, participants were significantly more likely to shoot unarmed white suspects than black or Hispanic suspects. Moreover, participants were significantly more likely to fail to shoot armed black suspects than white or Hispanic suspects.

Cox et al. (2014) investigated the influence of suspect race, officer race, and neighborhood characteristics on officers' shooting mistakes. Using a realistic plastic gun apparatus and both dynamic video stimuli and still pictures (to observe differences or similarities between stimulus types), the researchers examined 54 police officer samples for both reaction times and error rates for still picture blocks, then for the video blocks. For picture blocks, they found the tendency to err by failing to shoot armed suspects, rather than mistakenly shooting unarmed suspects. Further study indicated that officers made fewer errors on unarmed black suspects relative to armed suspects or unarmed white suspects. However, the study did find that "interracial patrolling"—white officers in minority neighborhoods and vice versa—increased the rate of officer errors.

In another experimental study of actual police officers, James, James, and Vila (2016) examined possible racial biases in police decisions to shoot. In this study of 80 active patrol officers (civilians were also tested for comparison),[1] subjects were faced with highly realistic, custom-made, high-definition video scenarios in simulators. The officers also took the IAT to investigate any association between race and threat. The study found that officers took 200 milliseconds longer to shoot armed black suspects than armed white suspects, holding other variables constant, such as suspect demeanour, language, dress, distance from participant, movement, location, sounds and light levels, constant. IAT scores revealed that most officers showed moderate (40 percent) or strong (38 percent) levels of implicit bias. However, the authors argued that implicit bias was unrelated to decisions to shoot in a deadly force judgment and decision-making simulator. Findings reveal, despite clear evidence of implicit bias against black suspects, that officers were slower to shoot armed black suspects than armed

white suspects and less likely to shoot unarmed black suspects than unarmed white suspects.

These experimental studies, then, cast some doubt on the common assertion that racial disparities in police killings are a function of racial bias on the part of police officers. The literature is hardly dispositive, though. If anything, these studies indicate a long list of factors that *appear not to be* significantly related to police killings: local violent crime rates, neighborhood demographic factors, and explicit racial bias, to take some prominent, if unexpected, examples. One central question from the contemporary debate over police violence remains wholly unaddressed, likely because of the the dearth of available data, in this literature: is the racial disparity in killings driven, in whole or in part, by the disproportionate killing of minority suspects by white police officers?

This question is crucially important for two reasons. First, if white police officers *are* disproportionately killing minority suspects, that finding would lend credence to the racist cop narrative advanced by many activists. On the other hand, if white police officers *do not* disproportionately kill minority suspects, or black suspects in particular, that would corroborate the experimental findings of the research discussed earlier, and cast deep doubt on the racist cop narrative. However, the existing laboratory experiments, despite their rigor and admirable attempts to mirror real-world conditions, are necessarily lacking the high degree of external validity necessary to draw firm conclusions on this important question. Second, and perhaps more importantly, the answer to this question has important policy implications. If the racial disparity in minority killings by police is driven by white police officers, this may indicate the need to reduce "interracial policing"—in particular, the policing of minority neighborhoods by white police officers. If white officers are not the driving force behind the racial disparity in killings, however, then the policy remedies are rather different. In this case, the appropriate remedies may include officer training techniques that emphasize de-escalation, as well as larger changes in public policy that result in the overpolicing of minority neighborhoods more generally.

Theoretical Perspective and Expectations

We theorize that racial disparities in police killings are driven by a combination of macro-level criminal policies and meso-level organizational factors, not by micro-level racism. In a recent study, Epp, Maynard-Mooney, and Haider-Markel (2017) found that African American motorists were disproportionately stopped for "investigatory stops" by police officers of all races (cf. Antonovics and Knight 2009). In a similar vein, Nicholson-Crotty, Nicholson-Crotty, and Fernandez (2017) found that an increase in the number of black police officers on a police force does not necessarily reduce the incidence of fatal encounters between police and African American citizens, although they did find that such encounters decline after forces reach a "critical mass" of black officers. Earlier work suggests that police force diversification does not reduce police-caused homicides (Smith 2003). In summary, these studies strongly suggest that there is more at work here than intergroup bias among officers on the ground. For these reasons, we contend that the same processes that drive disparities in investigatory stops and the like are at work in police uses of force, including killings.

Macro-level factors include well-established racial disparities in criminal policy and policing across-the-board (e.g., Alexander 2012; Miller 2010; Weaver 2007). To take just one example, the "war on drugs" has been disproportionately waged on minority populations, such as by targeting drugs that are more often used by poorer and minority groups compared with white residents or the more affluent (e.g., Provine 2007). The discriminatory effects of these policies have been inflamed by American's taste for punitive justice, especially for black offenders (Bobo and Johnson 2004; Enns 2016).

Meso-level organizational factors include policies at the police force level, both formal and informal, as well as the use of various methods to engage the general population as well as suspects, and the amount and type of training. In many places, policies at the police force level such as stop-and-frisk (or more recently, the "investigatory stop") institutionalize differential treatment of minority suspects (e.g., Epp, Maynard-Moody, and Haider-Markel 2017; Legewie 2016). For example, the U.S. Department of Justice's investigation of the behavior of police officers in Ferguson in the aftermath of the killing of Michael Brown found "a pattern or practice of unlawful conduct": the department was targeting black residents for fees and fines and treating them as a source of "alternative revenue" for the city (DOJ 2015). A study of traffic stops in San Francisco found significant "racial disparities regarding S.F.P.D. stops, searches, and arrests, particularly for Black people" (San Francisco Blue Ribbon Panel 2016, 28; see also Eterno, Barrow, and Silverman 2017). In sum, these policies have the cumulative effect of leading to disproportionate policing of minority communities in general and of minority citizens in particular.

It is well known that organizational rules and culture powerfully shape individual (bureaucratic) behavior on the job. In other words, the bureaucratic organization itself is an interactive place where the behavior and belief among individuals are assimilated and disseminated (Adams and Balfour 2015; Wilkins and Keiser 2004). In this sense, all manner of public-police interactions, including even the use of deadly force, are heavily influenced by the policies and norms of police departments (see generally Gerrish 2016; O'Toole and Meier 2015; Jennings and Hall 2012; Wilson 1978).[2] Additionally, differences in training regarding how to respond to perceived threats and how to interact with citizens and suspects, as well as police force culture, can have profound effects on the use of police violence (see, e.g., Balko 2014; Eterno, Barrow, and Silverman 2017; Lersch and Mieczkowski 2005; Prenzler, Porter, and Alpert 2013). With respect to department-level operational policy in particular, Mummolo (2018) found that department-level policy changes can profoundly impact police officer behavior on the ground. In particular, Mummolo (2018) showed that a memorandum from New York City Chief of Patrol James P. Hall requiring that officers submit a narrative justifying stops of people suspected of criminal action (the infamous stop-question-frisk encounters) dramatically reduced the number of police stops *and* increased the "hit rate" of such stops (the fraction of stops which produce a violation).[3]

In light of the evidence presented in the studies discussed in the preceding section, we expect these macro- and meso-level factors, and not micro-level police officer racism, are responsible for the disproportionate killing of black and other minority suspects

(Griffin and Ruiz 1999). Put differently, we contend that racial discrepancies in police killings are an artifact of racial disparities in policing more generally: criminal policy and even police departments may target black and minority citizens, but we do not believe that individual officers of any race are intentionally targeting African Americans for lethal force. To be clear, unintentional—which is to say, institutional—disproportionate killing of African Americans is no less racist than micro-level targeting. The distinction is crucial, however, because institutional (macro- or meso-level) causes require very different remedies than micro-level targeting (see generally Legewie 2016; Mummolo 2018).

Recent studies indicate that roughly 75 percent of American police officers are white (Ashkenas and Park 2015; Reaves 2015). The large predominance of white police officers, then, means that, all else being equal, white officers will likely be responsible for most police killings—specifically, about 75 percent of them. Furthermore, if black residents are disproportionately killed by police, they will be disproportionately killed by white police officers, precisely because police departments are predominantly white. Thus, we expect that African Americans and other minority suspects are disproportionately killed by white police officers, *but not significantly more than by officers of other races*. Put differently, we expect that police killing of suspects will be spread more or less evenly spread across officer race, indicating that factors other than the officer's race drives the observed discrepancies in police killings.

Data and Variables

We constructed an original database of all confirmed uses of deadly force by police officers in the United States in 2014 and 2015. We chose 2014 and 2015 because these are the first years for which there are complete data during the contemporary moment of heightened salience of police killings of citizens, especially young black men. The database was constructed in a multistep process. We began by drawing on data gathered by Killed By Police, a nongovernmental entity that tracks police killings reported in the news and updates its data set each day. We chose this source as a base because the site links each killing with a news story that we could locate online. In order to ensure that the accuracy of the data, we cross-checked it with two other websites that collect data on police killings (lethaldb.silk.co and FatalEncounters.org).[4] All three data sets have been used by other scholars studying police killings (Lott and Moody 2016; Nicholson-Crotty, Nicholson-Crotty, and Fernandez 2017).

The Killed By Police data contained the victim's name, race, age, date of birth, gender, date and time of killing, city, state, and a news account of the killing. We supplemented these data with other variables available in news accounts and other police killing data sets, including local population demographics, cause of death, geographic location of the killing, type of offense, presence of a nonpolice witness, and whether there was a warrant for the suspect. One important variable for our analyses is the presence and type of weapon—that is, whether a suspect had a gun, some other type of weapon, or was unarmed. In some cases, it was impossible to ascertain from existing sources whether a victim was armed at the time of his death; even so, we were able to collect these data for more than 83 percent of the killings in our data set.

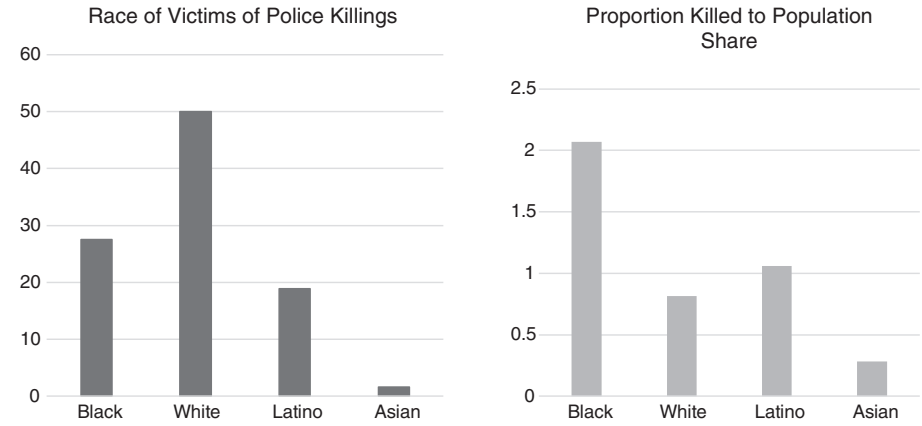
Most importantly for our purposes, we also coded for a range of variables about the officers whenever possible, such as officer race and gender, years of police service, and type of officer. Because of missing data, we had to thoroughly analyze every news story that we could locate on each killing. In some cases, we determined the race of the officer based on the name and physical appearance in photographs in the news stories. For example, in the case of Dino Smith Jr. in Nashville, Tennessee, the news story revealed that Michael Gooch and Josh Reece were the officers who shot the suspect. There were pictures of both officers on the website (Metro Nashville Police Department 2014). In other cases, the news stories simply stated the race of the officer. For example, Christopher Maurice Jones was shot by Officer Nicholas Stone in Berkeley, Missouri; in this case, the race of the officer was indicated in the local media account of the incident (Kohler 2014). Unfortunately, in many cases (32.02 percent), we were unable to determine the race of the officer involved.

After constructing the data set with the total number of people killed by police ($n = 1{,}108$ in 2014, $n = 1{,}200$ in 2015), we coded for whether the killing was accidental or nonaccidental.[5] The killing was considered accidental or unusable when a person was hit by a police officer's car while the officer was in pursuit of another person; a person died when the evidence was clear that the officer was targeting a known suspect (e.g., babies in cars or hostages); or the person was killed by an officer who was off duty and committing a crime. Thus, our data consider only intentional "line-of-duty" killings (even if the officer was off duty at the time of the incident). This procedure netted a final count of 1,952 (860 in 2014, 1,092 in 2015) nonaccidental police killings that were used for the analyses in this study.

Analysis and Findings

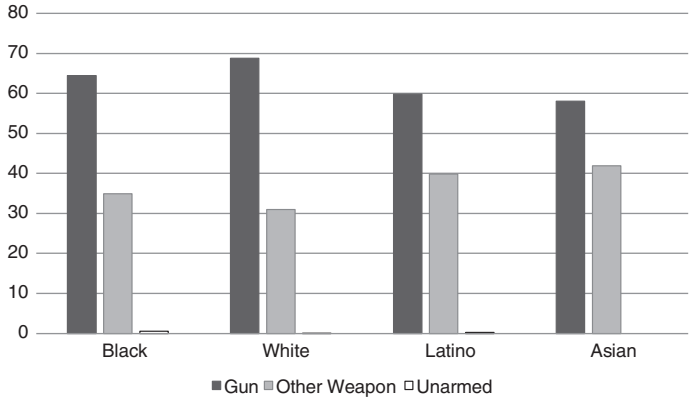
We begin by presenting basic trends in officer killings in our data. Figure 1 depicts the trend graphically. The panel on the left in figure 1 shows that a bare majority of victims of police killings are white (51 percent), followed by black (28.1 percent) and Hispanic/Latino victims (19.3 percent), while only a small fraction of victims are Asian American (1.7 percent). The panel on the right in figure 1 presents a ratio of the percentage of victims of police killings for each race to the proportion of that race in the population at large. Here we see that African Americans are killed by police more than twice as often as we would expect, all else being equal, given their share of the general population. That is, while only about 13 percent of the American population is black, 28 percent of people killed by police are black. Latinos are killed slightly more often than we would expect and white citizens considerably less often, while Asian Americans are killed by police far less often than we would expect if killings were randomly distributed throughout the population.

Another component of the national debate is that police are wantonly killing unarmed suspects, especially if they are black. We find no support for this claim in our data. Figure 2 depicts whether people killed by police possessed a gun, possessed some other type of weapon, or were unarmed at the time of the incident that resulted in their death. Overall, the majority of people killed by police were armed with a firearm at the time of their death. This is true for every racial subgroup of victims except Asian Americans. Most



Notes: Population shares calculated from 2014 census data. African Americans are killed at more than twice the expected rate given their share of the population. Hispanics and Latinos are killed slightly more often than expected as well. Whites are killed by police somewhat less often than their expected share, while Asian Americans are killed much less often than expected given their relative size in the population.

Figure 1 Racial Breakdown of Victims of Police Killing



Notes: In our data, less than 1 percent of victims of police killings were unarmed. Across all racial groups, 65.3 percent of those killed possessed a firearm at the time of their death.

Figure 2 Percentage of People Killed by Police Who Are Armed, by Race

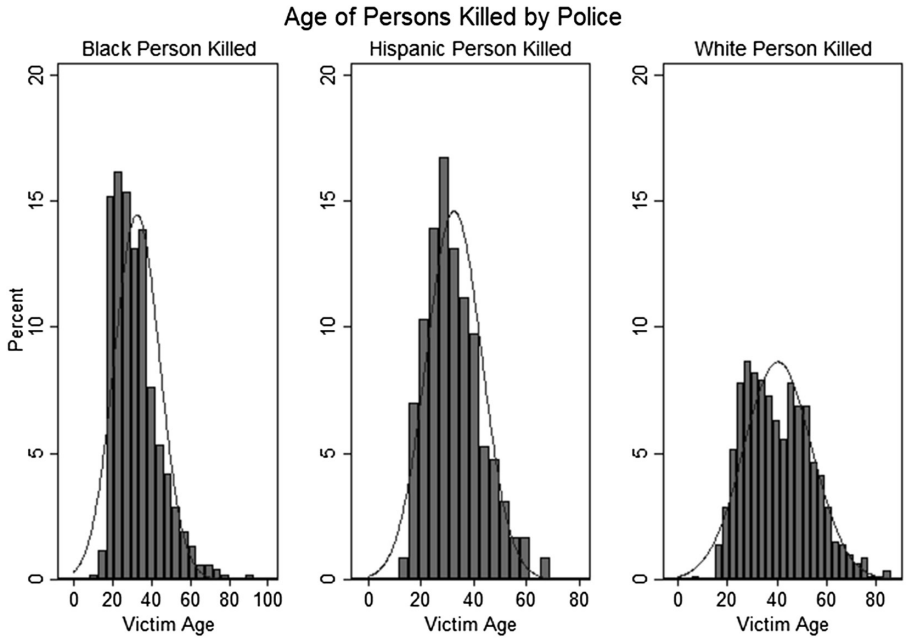
importantly, less than 1 percent of the victims of police killing in our data were unarmed. In other words, police killings of unarmed suspects—especially unarmed black men—garner massive media coverage (and not without reason), but they are far less common than the prevailing narrative suggests.

Next, we turn to the age of people of different racial groups killed by police, as age—particularly youth—is a major component of the national narrative regarding police violence against minority populations. Figure 3 presents histograms that depict the age distribution of people killed by police for whites, African Americans, and Hispanic/Latinos, respectively. The histograms indicate that the average age of minority individuals killed by police is considerably younger than the average age of white individuals killed by police. The mean age among black individuals killed by police is 32.5 years (median is 30 years), the mean age among Hispanic/Latino individuals killed is 32.5 years (median is 31), while the mean age among white individuals killed is 40.3 years (median is 39). Furthermore, figure 3 indicates that the age distribution for black individuals killed is much more skewed (and skews younger) than the distributions for the other groups. Distribution skewness for black victims is 1.2 (highly skewed) and 0.7 (moderately skewed) for Hispanic/Latino victims, while it is only 0.4 (slightly skewed) for white victims.

As a last word on the basic demographics of those killed by police, we note that while police violence against women is more common than often thought and is underreported (e.g., Ritchie 2017), 95.5 percent of people killed by police are men. In other words, while women are undoubtedly often victims of police violence, it is relatively rare for women to be killed by police (see figure 4). Among all women killed by police, white women, as expected based on their representation in the overall population, represent a larger percentage of the total population of females killed compared with black and Hispanic/Latina women. The average age of white and black female victims is skewed upward at 40.9 and 39.2 years, respectively, while the average age for Hispanic/Latina female victims is considerably younger at 30.7 years.

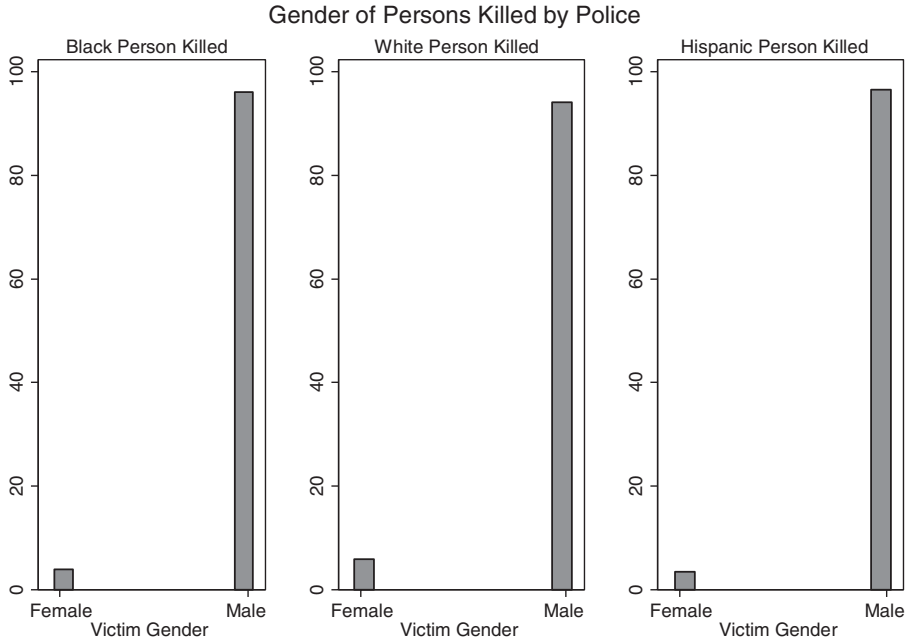
This brings us to our central question: is the disproportionate killing of African Americans by police driven by white police officers? To answer this question, we present a simple contingency table that depicts the percentage of those killed by police officers within each racial group who were killed by white and nonwhite officers, respectively. As noted earlier, police departments in the United States are disproportionately white: while white citizens make up only 61 percent of the total U.S. population, roughly 75 percent of police officers are white. For this reason, we expect that most police killings of people of all races will be done by white officers; however, we *do not* expect that white officers will use lethal force on black or other minority suspects disproportionate to their share of the police force. Table 1 depicts the core finding in two contingency tables; figure 5 depicts the relationship graphically.

These analyses presented in table 1 and figure 5 clearly indicate that the disproportionate killing of black suspects is not driven by white police officers. In our data, just under 84 percent of the officers are white,[6] thus white police officers actually kill slightly fewer black and Latino suspects, and slightly more white suspects, than we would expect if the killings were random. Nonwhite officers



Notes: The histograms present the age distributions of black, Hispanic/Latino, and white persons killed by police, respectively. The distributions are overlaid with a kernel density plot that smooths the distribution and indicates the mean (peak of curve).

Figure 3 Age of People of Different Races Killed by Police



Note: The histograms present the gender distributions of black, white, and Hispanic/Latino persons killed by police, respectively.

Figure 4 Gender of People of Different Races Killed by Police

correspondingly kill slightly more black and Latino suspects, and slightly fewer white suspects, than we would expect if the killings were randomly distributed among officers. Moreover, while African Americans are disproportionately killed by police, they are killed at much higher rates by nonwhite officers than by white officers. This is likely due to the fact that minority police officers tend to be assigned to minority neighborhoods, and therefore minority officers have more contact with minority suspects.

Next, we turn to the important question of whether there are racial disparities in officer killings of unarmed or less threatening suspects. However, as noted earlier, the extremely low number of killings of unarmed suspects undercuts this claim from the start. Indeed, there are so few killings of unarmed suspects that those killings ($n = 4$) cannot be statistically scrutinized. Instead, we compare rates of officer killings of suspects of different races conditional on the *type* of weapon a suspect had at the time of his or her death:

Table 1 Percentage of People Killed by Police, by Officer Race and Victim Race

Race of Victim	Race of Officer	
	Nonwhite	White
Black	33.7	28.2
	(33)	(145)
White	29.6	59.2
	(29)	(304)
Latino	32.6	10.5
	(32)	(54)
Asian	4.1	1.9
	(4)	(10)
Total	100%(98)	99.8%(513)

Notes: Frequency reported in parentheses. Pearson chi-squared: 44.36, $p < .001$. Totals may sum to less than 100 because of rounding.

Figure 5 Graphical Depiction of Victim Race by Officer Race

Table 2 Racial Makeup of People Killed by White and Nonwhite Police Officers, When Armed with a Gun versus Other Weapons

Race of Victim	Race of Officer			
	Victim Had Gun		Victim Had WeaponOther than Gun	
	Nonwhite	White	Nonwhite	White
Black	28.2(11)	25.4(69)	29.7(11)	24.3(35)
White	33.3(13)	64.5(175)	35.1(13)	54.2(78)
Latino	35.8(14)	8.8(24)	32.4(12)	17.3(25)
Asian	2.5(1)	1.1(3)	2.7(1)	4.2(6)
Total	99.8(39)	99.8%(271)	99.9%(37)	100%(144)

Notes: With gun: Pearson chi-squared: 26.48, $p < .001$; with other weapon: Pearson chi-squared: 5.89, $p = .117$. Totals may sum to less than 100 because of rounding.

a gun or some other weapon. Table 2 presents the contingency tabulations; figure 6 depicts the findings graphically. The findings presented in table 2 and figure 6 show that white officers are not disproportionately killing lower-threat (non-gun-wielding) minority suspects. Overall, the pattern of findings here reinforces those presented in table 1 and figure 5: patterns of police killings appear to be driven by who polices what communities.

With these basic findings in mind, we turn now to multivariate analysis to account for the possibility that contextual factors, such as characteristics of the officer, the suspect/victim, their interaction, or the community in which the incident took place, influence the likelihood that white officers kill black or other minority suspects. In other words, we conduct multivariate analyses to confirm the robustness of the relationship identified in the nonparametric analyses. We rely on existing research to identify potentially important control variables. Prior studies have focused primarily on two types of contributing factors to police killings: individual-level characteristics, such as officer race and victim race, class, and the like (e.g., Nicholson-Crotty, Nicholson-Crotty, and Fernandez 2017; Paoline, Gau, and Terril 2018), and ecological characteristics, including local population characteristics (racial demographics, poverty, etc.), local crime rates, and so on (e.g., Lee, Vaughn, and Lim 2014; Nix et al. 2017; Ross 2015; Smith 2003).

To test the robustness of our findings, we estimate a series of multinomial logistic regression models. In the first model, we regress victim race against a number of variables capturing the individual-level characteristics of the victim and the police officer, including the victim's age, whether the victim had warrants, and whether the commission of a violent crime led to the interaction between the officer and the victim. In the second model, we regress victim race against a series of measures of community-level (i.e., ecological) factors, such as the city size, population demographics and economics, minority population shares, and crime rate. In the third model, we consider all of these covariates together. We utilize multinomial logistic regression to estimate the models because the outcome of interest is a categorical placement variable (i.e., the race of the victim). In all models, the omitted comparison group is white victim. Additionally, we omit Asian Americans from these analyses because there are not enough Asian Americans in our data ($n = 31$) to validly estimate the models for that racial group. The findings are presented in table 3.

Data for the community-level covariates were gathered from a variety of sources. We gathered zip-code-level median income data as part of our original data-gathering process; for the analysis, we group these data into income quintiles using data from the Brookings Institution's Tax Policy Center. We take this approach to estimating the effect of socioeconomic class because it is highly unlikely that police would often know exactly what socioeconomic class any individual suspect is part of. Rather, we think officers likely assume the class characteristics of suspects on the basis of neighborhoods and communities. Population data from the U.S. Census Bureau were gathered for every city in which a police killing took place, including the racial composition of the population at the zip code level. In order to address potential differences in effects across cities of different sizes, we group cities into five categories based on size: small towns (population under 50,000), large towns (50,001–150,000), small cities (150,001–250,000), medium cities (250,001–500,000), and large cities (over 500,000). Finally, we utilized the Federal Bureau of Investigation's Uniform Crime Reports to measure the city-level violent crime rate.

The models presented in table 3 strongly reinforce the bivariate analyses. In the first model (presented in the two columns at left), which considers individual-level factors, we see that officer race is negatively signed and statistically significant; this indicates that a person killed by a white police officer is significantly less likely to be either black or Latino, compared with white, net of controls. In these models, victim age is also significant and negatively signed, indicating that black and Latino victims of police killings are on

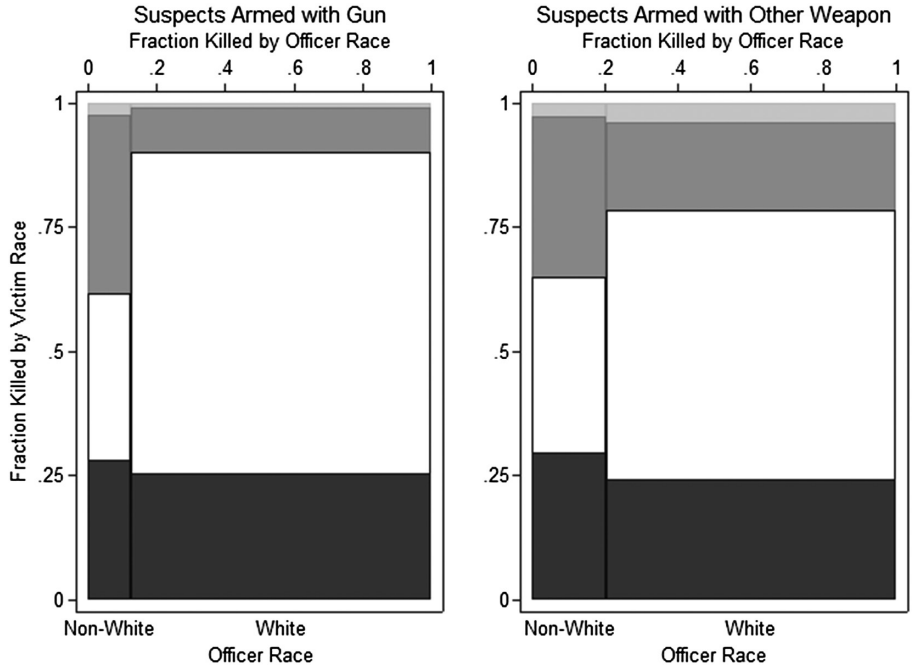


Figure 6 Graphical Depiction of Victim Race by Officer Race, by Suspect Weapon Type

Table 3 Community, Officer, and Suspect/Victim Characteristics Do Not Significantly Influence Police Killings

	Individual-Level Factors		Community-Level Factors		Combined Model	
Variables	Black	Latino	Black	Latino	Black	Latino
Officer white	–0.68*	–1.58***	–0.14	–0.61	0.12	–0.35
	(0.32)	(0.33)	(0.38)	(0.38)	(0.46)	(0.43)
Victim age	–0.04***	–0.03*			–0.03**	–0.04**
	(0.01)	(0.01)			(0.01)	(0.01)
Victim had gun	–0.03	–0.52			–0.03	–0.73
	(0.23)	(0.28)			(0.30)	(0.38)
Violent crime led to interaction	0.12	0.22			0.08	0.32
	(0.24)	(0.29)			(0.30)	(0.37)
Victim had warrant	–0.25	0.01			–0.37	–0.20
	(0.26)	(0.34)			(0.34)	(0.42)
Black population share (zip)			0.07***	0.01	0.07***	0.01
			(0.01)	(0.01)	(0.01)	(0.02)
Hispanic population share (zip)			0.04***	0.07***	0.04***	0.07***
			(0.01)	(0.01)	(0.01)	(0.01)
Violent crime rate (city)			4.99	4.42	8.82	–2.58
			(7.63)	(10.98)	(7.47)	(25.01)
Median income (quintile, zip)			0.08	–0.01	–0.10	–0.18
			(0.19)	(0.24)	(0.25)	(0.25)
City-size fixed effects						
Population 50–150 K			–0.47	–0.17	–0.49	–0.45
			(0.35)	(0.38)	(0.44)	(0.43)
Population 150–250 K			(0.48)	0.25	0.76	–0.43
			(0.41)	(0.59)	0.48	(0.81)
Population 250 K–500 K			0.54	–0.71	0.58	–0.94
			(0.43)	(0.76)	(0.47)	(0.86)
Population Over 500 K			–0.00	–0.04	–0.20	–0.38
			(0.37)	(0.43)	(0.49)	(0.50)
Constant	1.23*	1.32*	–2.61***	–2.59**	–1.45	–0.41
	(0.49)	(0.53)	(0.73)	(0.91)	(1.06)	(1.01)
Observations	469	469	558	558	448	448

Robust standard errors in parentheses.
***$p<.001$; **$p<.01$; *$p<.05$.

average significantly younger than white victims. The influence of the other individual-level factors, including whether the person killed had a gun and whether a violent crime led to the fatal interaction, were not statistically distinguishable for black, white, and Latino victims.

In the second model, which considers community-level factors (presented in the two center columns), officer race does not appear to be significantly related to victim race. More precisely, white officers are no more (or less) likely to kill black or Latino individuals than white individuals. Furthermore, this model

indicates, unsurprisingly, that as the share of the black population rises, a person killed by a police officer is increasingly likely to be black (relative to being white); the same is true for Latinos given increasingly Latino population share. Very interestingly, though, the model also indicates that a victim of lethal force is increasingly likely to be black (relative to white) as the Hispanic/Latino population share rises, but Latinos are not significantly more likely to be killed as the black population share increases. Importantly, though, we find no evidence that neighborhood violent crime rates, poverty, or city size meaningfully influence the likelihood that people killed by a police officer will be members of minority populations (relative to whites), after controlling for minority population share.

Finally, the third model (presented in the columns at right) includes both individual- and community-level factors. In this combined model, we see again that black and Latino victims are significantly younger than white victims, net of controls. And we see again that the race of victim is significantly related to the share of the local population that belongs to his racial group, but not to local violent crime or poverty. Finally, this model indicates that officer race is not significantly related to victim race. Most importantly for our purposes, these models, taken together, strongly indicate that white police officers are no more likely than nonwhite officers to kill black suspects, net of controls. Additionally, the models indicate, consistent with prior research, that community factors and crime factors do not much influence the incidence of police killings (e.g., Cox et al. 2014; Ross 2015). The fact that the relationships presented in the model are almost uniformly null is consistent with our expectations: the models indicate that police killings in general, and killings of members of various racial groups in particular, do not hinge on police officer, suspect, or community-level factors.

In summary, our analyses clearly indicate two things: African Americans are disproportionately killed by police, and this disproportionate killing is *not* driven by white officers targeting black suspects. Consistent with prior research, our study finds no support for the popular narrative of the "racist white cop" as being the key driver of the killing of black suspects. The present research provides real-world corroboration of recent laboratory experimental research finding no evidence of race-based targeting of suspects for killing. Indeed, we find that nonwhite officers kill both black and Latino suspects at significantly higher rates than white officers, likely because of the high rate of deployment of minority officers in minority neighborhoods. Further, we find that the overwhelming majority of suspects killed by police are armed, and fully two-thirds are armed with a gun, when they are killed.

Conclusion

This study began with the observation that many perceive, as a result of recent shootings of young African American males, that white law enforcement officers are more likely to exercise lethal force when the suspect is a young black man, even when suspect is unarmed. This perspective has been fueled by the tendency of media to fixate on such cases, even though our data indicate that these cases are highly unusual. It is perhaps unsurprising, though, that these egregious cases of lethal police misconduct receive massive media attention: the controversial, the unpopular, the unusual, and the bizarre are all well-known indicators of "newsworthiness" (e.g., McCombs 2014; Straubhaar, LaRose, and Davenport 2009; Strother 2017).

One unfortunate feature of the media focus on atypical cases is the persistence of the "bad apple" theory of police misconduct: disproportionate killing of young African American men, the theory goes, is driven by racist white cops—the bad apples. However, much research in organizational theory suggests that the problem of disproportionate killing may be fundamentally institutional. In this article, we present and analyze a new and comprehensive data set of all police killings in 2014 and 2015 to address this fundamental question in current policy debates: is the disproportionate killing of black suspects driven by the targeting of minorities by bad apples?

The research presented here strongly suggests that the answer to this question is no: we find that white police officers actually kill black and other minority suspects at lower rates than we would expect if killings were randomly distributed among officers of all races. The fact that a majority of police officer killings are committed by white officers is a function of the predominance of white officers in police departments nationally. In other words, white officers do not kill black suspects at a higher rate compared with nonwhite officers. Simply stated: in our study of actual police killings, as well as in prior laboratory experiments involving officer shoot/don't shoot trials, there is no compelling evidence that micro-level racism drives the killing of black suspects. This finding is strongly indicative that the bad apple theory of police conduct has limited explanatory value when it comes to police killings of African Americans. In sum, our findings indicate that an institutional and organizational perspective offers greater leverage for explanation of disproportionate killings of citizens of different racial groups.

To be very clear, we are not arguing that the disproportionate killing of black suspects is racially innocuous. Indeed, law enforcement officers of all races disproportionately kill black suspects. The killing of black suspects is a police problem, not a white police problem. We believe that the disproportionate killing of black suspects is a downstream effect of institutionalized racism in macro-level criminal policy and meso-level organizational factors within many police departments. Put differently, our research contributes to the perspective that persistent racial disparities in police killings are driven primarily by prior disparities in racial policing generally: disproportionate killing is a function of disproportionate police contact among members of the African American community. In this light, the finding that minority police officers are actually more likely to kill minority suspects is not surprising, given that many police departments make efforts to assign minority police to minority neighborhoods.

Addressing this important problem will not be easy. Our research, along with prior work on the topic, suggests that the necessary remedies for this problem involve high-level policy changes in the criminal code along with changes in many organizational features that combine to produce observed racial disparities in policing in America. Changes in the criminal code might include eliminating differential legal treatment of drugs used by white citizens compared with members of minority groups (e.g., Provine 2007). Moreover, other fundamental changes in noncriminal policy could dramatically improve differential rates of policing, such as

policies to improve the educational and employment opportunities of minorities, especially in blighted urban neighborhoods (e.g., Lucas 2001). Meso-level reforms might include eliminating "investigatory stops," which are a key source of racial differences in police-citizen interactions (e.g., Epp, Maynard-Moody, and Haider-Markel 2017; Mummolo 2018), and removing incentives for police officers to make formal and informal contact with citizens and suspects and to meet ticketing and arrest quotas (e.g., Balko 2017; Mummolo 2018; see also DOJ 2015).[7] Lastly, we note that police departments may engage in what Adams and Balfour (2015) refer to as "administrative evil." That is, many behaviors such as "investigatory stops" are not viewed as inherently wrong despite the implications of engaging in this racially motivated behavior. As a result, it is important that police departments thoroughly examine their formal and informal processes so as to discern whether these processes create a culture that has negative implications for people of a particular race or status.

This article presents systematic analysis of police killings of civilians drawn from an original data set of all confirmed police killings in the United States in 2014 and 2015. Still, its limitations must be acknowledged. First, our data, while comprehensive, cover only two years of police killings, and these two years may not be strongly representative of larger overall trends. The second limitation, and perhaps the largest problem in doing this sort of research, is created by the lack of mandatory reporting of police shootings—there is no authoritative source of data on the subject. Absence of official (i.e., police department) reporting means we must rely on news media coverage of police killings. However, as local media is in decline around the country, there is tremendous variation in the extent and depth of coverage of killings. Ultimately, this leads to incomplete data on many police killings, and incomplete data makes sound analysis challenging. Finally, the issue of police killings—especially of black men—has become extremely salient since the killing of Michael Brown in August 2014. As a result of this increased salience of police killings, it is possible that police forces may be even more secretive about use-of-force incidents and even more protective of their officers, which could lead to ever-increasing data problems in the future. Even so, future work should seek to expand on our efforts to build comprehensive data sets of all confirmed killings going both backward and forward in time. Additionally, scholars interested in police uses of force would do well to further probe the organizational sources of discriminatory policies.

Police officers have a difficult and sometimes dangerous job, and the realities of the job sometimes make it necessary to use force—even lethal force—on citizens. Long-running racial discrepancies in the way that force is applied to suspects, however, have significantly eroded trust between law enforcement and the public whom they serve. This unfortunate state of affairs is unlikely to improve until fundamental changes in public policy and policing are undertaken.

Notes

1. Sample characteristics were as follows: 71 male, 9 female; 76 white, 1 Asian, 2 Hispanic; average age was 40.4 years; average police force experience was 14.5 years.
2. Recent survey research has found that white police officers are more racially biased and more likely to see African Americans as inherently violent than white nonpolice officers (LeCount 2017). With this in mind, we note that individual-level racism among police is not wholly independent from institutional racism; rather, institutional racism is perpetuated in part by organizations' internal climate, policies, and procedures, which are themselves in part functions of individual officer attitudes (see Griffith et al. 2007).
3. Unfortunately, Mummolo's (2018) data do not speak to whether this reduction in overall stops also reduced the policy's disproportionate impact on minority populations, especially the African American community (see Legewie 2016).
4. FiveThirtyEight audited the Killed By Police data set and found it to be highly reliable (see Fischer-Baum and Johri 2014).
5. These numbers are slightly different from those presented by Killed By Police, because the Killed By Police data set includes, but does not assign a number to, people who were killed while in police custody. For example, in 2014, the data set created by Killed By Police indicated that 1,114 people were killed by police. However, we excluded 6 people (Valerie Morrow, December 14; Richard Tavera, December 7; Christina Tahhahwah, November 17; Mark E. Cannon Jr., August 30; Joseph Murphy, August 14; and John Patrick Walter, April 20) who died while in police custody. Similarly, for 2015, Killed By Police indicates 1,222 people killed, but a number of these died in police custody. To take an example, on January 14, 2015, 10 people were killed when a prison bus was involved in an accident. In summary, the numbers we report do not exactly match the Killed By Police totals for reasons such as these just listed.
6. One could reasonably ask whether this fact alone—that white officers appear to be overrepresented in a database of police killings—is not prima facie evidence that police killings are driven by white officers. However, because we only have reliable officer race data for about 36 percent of our data, we believe the data that currently exist are insufficient to draw that conclusion.
7. Additionally, some police departments around the country have garnered praise for recent changes in recruitment and training that have drastically reduced violent police-citizen interactions and improved police-public relationships (Lantigua-Williams 2016). For example, the Dallas Police Department recently retrained its officers in emotion management in high-stress situations and in dealing with suspects with mental challenges, and this effort seems to have improved public relations for the department.

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