



De-policing and crime in the wake of Ferguson: Racialized changes in the quantity and quality of policing among Missouri police departments[☆]

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ARTICLE INFO

Keywords:

Police
De-policing
Ferguson Effect
Crime rates

ABSTRACT

Purpose: This study explored whether police departments have engaged in “de-policing”—withdrawal from active police work—in response to unprecedented levels of negative attention, as well as the correlates of changes in police behavior.

Methods: Using data from 118 of the 121 police departments serving jurisdictions over 5000 residents in Missouri, we examined changes in both the quantity (rates of vehicle/traffic stops, searches, and arrests) and quality (“hit rates” from searches) of policing from 2014 to 2015 and whether de-policing corresponded with year-over-year changes in crime rates.

Results: The findings revealed a – 0.11 standardized change in stops (around 67,000 fewer stops in 2015 than 2014) and a 0.17 standardized change in hit rates (nearly 2 percentage points). Multivariate models indicated that departments serving larger African-American populations conducted fewer stops ($\beta = -0.44$), searches ($\beta = -0.37$), and arrests ($\beta = -0.27$) in 2015 compared to 2014, although race was unrelated to changes in hit rates. Changes in police behavior had no appreciable effect on total, violent, or property crime rates.

Conclusions: The negative attention and increased scrutiny of law enforcement appears to have had an impact on traffic stops and hit rates in Missouri. Given the racialized findings, training and community-outreach programs should aim to increase mutual trust among the police and African-American communities. Also, increasing organizational justice within departments might be one way to improve officer morale and increase motivation in the current policing climate.

1. Introduction

American police have been subjected to an unprecedented amount of public and governmental scrutiny in recent years. The shooting death of Michael Brown in August 2014 in Ferguson, MO sparked civil unrest, a social media outburst, and galvanized the Black Lives Matter movement. This series of events led to widespread speculation that officers are *de-policing*—retreating from active police work in reaction to the negative publicity that has been placed on police agencies across the country. Anecdotally, politicians, journalists, scholars, law enforcement executives, and the current President have either hinted at or explicitly discussed how recent events including Ferguson may have led to de-policing in departments across America. Notably, during a speech delivered to the University of Chicago Law School on October 15th

2015, FBI Director Comey stated:

“I don't know whether this explains it entirely, but I do have a strong sense that some part of the explanation is a chill wind blowing through American law enforcement over the last year. And that wind is surely changing behavior.” (Schmidt and Apuzzo, 2015)

In short, the de-policing argument suggests that officers are withdrawing from proactive styles of law enforcement as a way to avoid getting caught up in a controversial use-of-force incident.

It also has been suggested that the recent increase in violent crime in the United States stems from such de-policing behavior (Mac Donald, 2016) as law enforcement shirks from proactive strategies known to impact crime (Braga, 2005; Braga and Weisburd, 2012; Weisburd et al., 2010). Collectively, the connection between public scrutiny, de-poli-

[☆] Author's note: A previous version of this manuscript was presented at the 2016 American Society of Criminology conference in New Orleans, LA. The authors would like to thank the anonymous reviewers, the editor, and Justin Nix for their helpful comments and suggestions.

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cing, and crime has become known as the “Ferguson Effect.” The evidence indicates that crime rose in 2015 compared to 2014 for certain specific offenses, including violence (see Mac Donald, 2015), but rigorous and systematic research has challenged whether the rise can be pinned on a Ferguson Effect (Pyrooz et al., 2016; Rosenfeld, 2015, 2016; Towers and White, 2017). Only one study to date has examined whether de-policing has occurred in the wake of Ferguson and whether such behavior was associated with changes in crime (Morgan and Pally, 2016). Importantly, this study was confined to a single city—Baltimore.

This raises several important questions: did the high-profile deadly force incident in Ferguson and the subsequent widespread protests and social media attention lead to de-policing? If de-policing occurred, was it associated with changes in the crime rate as the Ferguson Effect hypothesis would suggest? To date, there have been few studies on de-policing in general (see Morgan and Pally, 2016; Oliver, in press; Rushin and Edwards, in press) and the evidence is mixed in those analyses that do exist. Allegations of de-policing are more likely to be based on political rhetoric, speculation, and media sources (Leo, 2001; Mac Donald, 2001, 2015) as opposed to comprehensive, data-driven analysis. Rigorous empirical inquiry has not kept pace with contemporary accusations of de-policing in the wake of high-profile events involving law enforcement.

The current study examines de-policing among municipal police agencies in Missouri—arguably “ground zero” for the alleged Ferguson Effect—by addressing three main issues. First, we assess the extent to which de-policing occurred among 118 law enforcement departments serving municipalities with over 5000 residents in the state by examining changes in both the quantity (i.e., standardized rates of traffic/vehicle stops, searches, and arrests) and quality (i.e., contraband “hit rates”) of policing from 2014 to 2015. This represents, to our knowledge, one of the largest studies of de-policing to date. Much of the de-policing literature focuses solely on the quantity of policing (e.g., stop rates or arrests) changes after an exogenous event like a high-profile shooting or consent decree (Morgan and Pally, 2016; Rushin and Edwards, in press). While important, this type of inquiry does not consider whether the quality of policing is influenced by an environmental jolt. High-profile police shootings may lead to de-policing in the form of reduced stop, search, or arrest rates, but perhaps this is a good thing if it also corresponds to increased success rates of finding contraband (Fagan and Ash, in press).

Second, and consistent with previous theoretical hypotheses (see Cooper, 2002), we also test the impact that a jurisdiction's proportion of African-American residents might have on de-policing. Namely, we explore whether jurisdictions with higher percentages of African-American residents—those areas most impacted by the negative attention from police shooting incidents—are more prone to de-policing. Finally, we examine whether any observed de-policing behavior is associated with changes in the crime rate across the Missouri agencies included in our sample. The overarching goals of our study are to (1) provide the most comprehensive test of one of the leading mechanisms believed to be a result of the events in Ferguson; (2) identify whether the characteristics of municipalities—particularly racial demographics—are associated with police behavior changes; and (3) determine the extent to which de-policing is indeed related to crime rate increases, as anticipated by leading proponents of the Ferguson Effect thesis.

2. An overview of de-policing research “Pre-Ferguson”

The term “de-policing” has a negative connotation and refers to officers retreating from active police work in response to an event that generates criticism of the police, such as a riot, consent decree, civil lawsuit, or a high-profile deadly force incident. William Bratton (1998), then commissioner of the New York Police Department, and George Kelling (1998) were among the first to discuss the potential consequences of officers disengaging from proactive law enforcement activities. They described de-policing as a causal factor that could lead

to increases in crime due to reductions in the level of guardianship provided to communities. It has been argued that de-policing is often a reaction to racially-charged issues, such as oversight/lawsuits from allegations of racial profiling and civil unrest/riots due to deadly force incidents involving minorities. Thus, there may be a racial component to de-policing. On the one hand, the negative effects of de-policing might be more pronounced if they occur in structurally disadvantaged minority communities (Cooper, 2002)—the very communities that tend to suffer from higher rates of crime and victimization to begin with. On the other hand, there may be benefits to de-policing, particularly when policing has been used, as in the case of traffic stops, as a means to generate revenue for communities (Fagan and Ash, in press). Morgan and Pally (2016) outline how de-policing, particularly in minority communities, might alleviate the negative effects (e.g., strained community relations) of aggressive order maintenance/broken windows policing tactics (e.g., “stop, question, and frisk”) and limit highly discretionary stops and arrests, which are often viewed as controversial (Epp et al., 2014; White and Fradella, 2016).

Whether departments and their officers do less in response to external investigations and oversight by the U.S. Department of Justice's Civil Rights Division (§ 14141) is one of the more common sources of concern regarding de-policing. The few empirical tests of de-policing that have been conducted in the context of Justice Department oversight have yielded mixed and inconclusive results. At the department level, Stone et al. (2009) found no evidence of de-policing in terms of reductions in either pedestrian and motor vehicle stops by the Los Angeles Police Department in the wake of the agency's federal consent decree. However, a Vera Institute of Justice evaluation of the Pittsburgh Bureau of Police uncovered evidence of de-policing after that agency entered into a consent decree with the Justice Department. Focus groups conducted among sergeants and front-line staff revealed that “officers were often unwilling to go above or beyond minimal requirements of their assignments” following the enactment of the consent decree (Davis et al., 2002, pg. 51).

A number of other exogenous shocks have been investigated in a de-policing context. Shi (2009) found a de-policing effect within the Cincinnati Police Department following an April 2001 riot, which erupted after a controversial deadly force incident involving an unarmed black teenager. Misdemeanor arrests, arrests for drug and drinking-law violations, and arrests in African-American communities decreased significantly after the April 2001 riot. Conversely, Schultz and Withrow (2004) found that departments in their sample of 14 cities did not experience reductions in traffic stops after mandatory reporting policies (a form of externally instituted control) on drivers' race/ethnicity were implemented, which was argued at the time to dramatically alter law enforcement reporting behavior. There is also ample support in the literature that officers do not change their behavior in the face of civil lawsuits (Garrison, 1995; Hughes, 2001; Kappeler, 2001; Novak et al., 2003; Scogin and Brodsky, 1991; Vaughn and Coomes, 1995; Vaughn et al., 2001). Novak et al. (2003), for example, found that officers who were sued in a civil proceeding or personally knew another officer being sued were no less likely to initiate encounters, conduct searches, use force, or make arrests.

3. De-policing in the social media era

The new era of social media diffuses the effects of high-profile police shootings, such as the one that occurred in Ferguson, across the nation (and internationally). Twitter, Facebook, and other social media platforms, coupled with the ubiquity of smartphones and their ability to capture high-resolution videos, permit people to witness first-hand controversial police behaviors. The process of social media contagion allows coverage of such incidents to spread quickly and to exert an impact in other jurisdictions. For example, social media may allow the actions of police officers in Chicago to affect citizen responses to the police in an entirely different city or state. In the aftermath of high-

profile police shootings over the past few years, it has become common to see sustained public protest and, in some cases, violent riots. Such public protest is a classic example of citizens challenging the legitimacy of the police. In fact, the term “Ferguson Effect” itself symbolizes a crisis in police legitimacy and suggests that officers may respond by withdrawing from some of their duties (see [Nix and Wolfe, 2017](#); [Wolfe and Nix, 2016](#)). The Ferguson Effect, or YouTube Effect as William Bratton refers to it, would anticipate a police pullback from proactive policing out of concern for becoming part of the next viral video.

3.1. Studies and media reports of aggregate agency output

[Morgan and Pally \(2016\)](#) performed arguably the most rigorous investigation into de-policing in the wake of several high-profile deadly force incidents. Using recorded crime incidents and arrests in Baltimore, they examined trends for pre- and post-Ferguson (August 2014) as well as pre- and post-Freddie Gray¹ (April 2015). They found that, between August 2014 and April 2015 following the death of Brown in Ferguson, arrests decreased substantially although recorded crime incidents held stable; declines in arrests were largest for less serious, high-discretion offenses (e.g., driving violations; disorderly conduct). Arrests declined even further after the death of Freddie Gray in Baltimore police custody in April 2015—a pattern that persisted after removing arrests that occurred during the week of unrest (see also [Fischer-Baum and Flowers, 2015](#)). These reductions are consistent with claims that the Baltimore Police Department pulled back from law enforcement activity in response to the events in Ferguson and their own city. Yet, the analysis did not support the connection between de-policing and increased crime.

Several media reports also addressed de-policing in cities that have experienced high-profile police shootings of minority citizens; however, these examinations are largely descriptive in nature. [Arthur and Asher \(2016\)](#), for example, reported that the Chicago Police Department experienced a significant drop in arrests for homicides and nonfatal shootings as well as other crimes (e.g., drug offenses) since the video of the shooting death of Laquan McDonald was released on November 24th, 2015. Taken alone, this does not necessarily imply that de-policing occurred. Clearance rates, particularly for homicide, are partially a function of citizen cooperation. [Desmond et al. \(2016\)](#) recently showed that public crime reporting can decline in the aftermath of a high-profile police-related event. In this way, changes in arrest behavior may be a function of changes in police behavior, citizen cooperation, or both. [Asher \(2016\)](#) found reductions in drug arrests from the Baton Rouge (LA) Police Department after the killing of Alton Sterling. Finally, [Knapp \(2016\)](#) reported a 51% decrease in traffic stops among the North Charleston (SC) Police Department in the nine months following the shooting of Walter Scott compared to the same period the year prior.

3.2. Officer perceptions

In addition to studies of department-level behavior, other research has examined whether the current social and political climate has impacted police officers' perceptions of their job, the citizens they serve, and confidence in their authority. [Wolfe and Nix \(2016\)](#) surveyed a sample of sheriff's deputies in a southeastern state and found that a non-trivial portion of respondents indicated that they had become less motivated to enforce the law as a result of the recent negative publicity surrounding their profession (the survey was conducted approximately six months after Brown's death in Ferguson). Importantly, deputies who were sensitive to the negative publicity also reported less willingness to work with members of the community to solve local problems. Wolfe and Nix concluded that this was tentative support for the argument that

de-policing is one manifestation of the Ferguson Effect. However, this relationship was confounded by deputies' perceptions of supervisor organizational fairness. In another study, [Nix and Wolfe \(2016\)](#) revealed that a substantial portion of officers in their sample felt that unfavorable media coverage of the police had negatively impacted their colleagues and that citizens' evaluations of the police had deteriorated since the incident in Ferguson. Lastly, [Nix and Wolfe \(2017\)](#) showed that post-Ferguson publicity was negatively associated with police officers' self-legitimacy—defined as confidence in their authority as law enforcement officers. When taken together, these studies suggest that recent high-profile police shootings have the potential to result in de-policing behavior among officers who are far removed geographically from the locations of those sentinel incidents. Negative publicity surrounding police use of force may lead to reduced motivation and confidence, and communicate to officers that the public does not support their role.

Findings from a recent report by the [Pew Research Center \(2017\)](#) seem to confirm such speculation about de-policing among American law enforcement. In a nationally representative sample of approximately 8000 police officers, nearly three-quarters (72%) reported that their departmental colleagues are now less willing to stop and question suspicious persons. It is important to note that, similar to the Nix and Wolfe studies referenced earlier, the Pew study did not measure police behavior directly, but simply officers' perceptions of their fellow officers' reluctance to perform some of their law enforcement duties. Still, a majority of officers believe that tensions with the minority community have reached a tipping point, and that police work is more difficult today as a result of these high-profile incidents.

4. Extending de-policing research

As noted, there are few empirical studies of de-policing in general and even fewer examining de-policing in the contemporary context (i.e. “post-Ferguson”). This study explores the extent to which de-policing occurred between 2014 and 2015 among Missouri police agencies in the wake of Ferguson. We anticipate that Missouri agencies engaged in fewer stops, searches, and arrests post-Ferguson. [Hypothesis 1](#) examines changes in the *quantity* of policing.

Hypothesis 1: The quantity of policing—as measured by stops, searches, and arrests—will decline in Missouri police departments in the post-Ferguson era.

We also argue for a more nuanced approach to exploring de-policing, one that encompasses a broader range of police behavior. Indeed, much of the de-policing literature gauges the quantity of de-policing. Missing from such studies is an examination of whether the *quality* of policing changes in the aftermath of an exogenous event. One way to assess this issue is by examining changes in policing output such as “hit rates”—the percentage of police searches that result in found contraband. Historically, scholars have observed that police are more likely to search African-American drivers and pedestrians but that such searches yield lower contraband hit rates relative to searches of white citizens ([Knowles et al., 2001](#); [Persico and Todd, 2008](#)). If de-policing were to occur, we may witness an increase in hit rates, as officers rely less on imprecise hunches and focus more attention on articulable reasonable suspicion. [Hypothesis 2](#) addresses that issue.

Hypothesis 2: The quality of policing—as measured by contraband hit rates—will improve in the post-Ferguson era.

An important gap in our understanding of de-policing processes is whether racial context shapes the extent to which exogenous shocks condition policing behavior. After all, the civil unrest that takes place after a police shooting typically occurs in cities characterized by strained police relations with minority communities. In other words, race plays a central role in the negative publicity surrounding police use of deadly force. Given the racially focused nature of recent high-profile police shootings and the historically tenuous nature of police-minority

¹ Gray, a 25-year old African-American city resident, died in police custody from a spinal chord injury sustained during a transport in a police van following a foot pursuit and his arrest for possession of an illegal switch blade ([Stolberg and Nixon, 2015](#)).

relations (Kennedy, 1997; National Advisory Commission on Civil Disorders, 1968; Walker et al., 2012), it is reasonable to expect that the demographic composition of cities will affect the level of de-policing in the wake of Ferguson. If police officers are indeed withdrawing from their responsibilities in response to the heightened public scrutiny of their profession, we would anticipate this to occur to a greater degree in the environments most likely to have strained police-community relations, that is, the communities with a greater composition of African-American residents. This leads to *Hypothesis 3*.

Hypothesis 3: Jurisdictions with higher proportions of African-American residents will see a greater reduction in the quantity of policing post-Ferguson.

Additionally, we may observe an increase in hit rates within predominately African-American jurisdictions because officers may have become more cautious of stopping people in situations that do not have reasonable suspicion and be more “selectively certain” in conducting such stops and searches.

Hypothesis 4: Jurisdictions with higher proportions of African-American residents will experience increases in the quality (i.e., increased hit rates) of policing post-Ferguson.

Finally, only one known study to date has examined whether there is a connection between de-policing behavior and crime in the post-Ferguson era. Morgan and Pally (2016) found that arrests declined in Baltimore in the aftermath of the deaths of both Michael Brown and Freddie Gray. This was an important study but it is critical to note that it was confined to a single city, and changes in arrest behavior may be partially confounded with changes in crime reporting behavior (Desmond et al., 2016). This underscores the need for replication and extension. We build upon this study by exploring de-policing behavior within traffic stops and focusing on numerous police jurisdictions. If the entirety of the Ferguson Effect argument is supported, we should not only observe de-policing behavior, but also subsequent changes in crime rates. *Hypothesis 5* explores this issue.

Hypothesis 5: De-policing behavior in the form of reduced traffic stops, searches, and arrests will be associated with increases in crime rates.

5. Methods

5.1. Data

The data used in this study were drawn from several sources, including (1) agency-specific vehicle/traffic stop reports from the state of Missouri for 2014 and 2015, (2) the FBI's Uniform Crime Reports for 2014 and 2015, and (3) 2014 estimates from the U.S. Census Bureau's American Community Survey (ACS). In 2000, the Missouri state legislature passed Senate Bill No. 1053, which requires law enforcement agencies in the state to report specific information for all vehicle/traffic stops conducted in a calendar year. For example, each agency is mandated to provide statistics on the number of traffic stops and the driver's race, as well as whether a search was conducted, contraband was found, or an arrest was made following each stop. Departments submit their stop data to the office of the Attorney General, who publishes annual agency-specific reports for public use.² Because the law allows the Governor to withhold state funds from agencies that do not comply, compliance rates are exceptionally high and have remained stable since reporting became required. Indeed, 97.7% of the law

² Missouri's vehicle stop reports can be found at “ago.mo.gov/home/vehicle-stops-report”. Yearly reports are usually published around June of the following year. The 2016 data, for example, were not available during the time of writing but should be published around June 2017. Additionally, departmental reporting of traffic stop data in Missouri has been ongoing since 2000. We argue that such reporting has become routine for agencies by 2014/15.

enforcement agencies in the state provided 2014 and 2015 traffic stop data to the Missouri Attorney General (Koster, 2015, 2016).

The Missouri Office of the Attorney General reports departmental traffic stop data as yearly totals. Analyses of the Ferguson Effect generally, but also de-policing specifically, using annual data stands in contrast to some of the novel and rigorous research that examines outcomes using monthly or weekly intervals (Maguire et al., in press; Morgan and Pally, 2016; Pyrooz et al., 2016; but see Rosenfeld, 2015, 2016). While yearly aggregates of vehicle/traffic stop data are perhaps less than ideal, these data offer considerable advantages for the research questions we study. Indeed, what the data lack in terms of temporal granularity, which is easier to capture while studying single agencies (Asher, 2016; Morgan and Pally, 2016), is made up for in breadth and the ability to study change across many of the states' local police departments. Thus, we can examine if police departments in an entire state underwent systematic changes in de-policing, while also identifying the correlates of greater or lesser change. This allows us to make broader inferences with respect to our findings.

In the absence of more fine-grained temporal intervals, year-over-year change is the next most appropriate temporal unit (Rosenfeld, 2016). We are studying changes in the quantity and quality of policing from 2014, which is viewed as “pre-Ferguson,” to 2015, which is viewed as “post-Ferguson.” The shooting of Michael Brown took place on August 9th, 2014 and some of the most violent protests and intense media scrutiny occurred directly following the announcement that Darren Wilson would not be indicted on November 24th, 2014 (Davey and Bosman, 2014). This means that our results would be conservative to the extent that changes in policing occurred in 2014 rather than in 2015, that is, the events of Ferguson corresponded with changes in policing activity that drove down the quantity of policing and increased in the quality of policing in 2014. We assessed the sensitivity of our research design strategy to an alternative assumption, and found that the results presented herein reveal a statistically and substantively similar story.³ We elected to proceed with the year-over-year change research design because agency-years is the most appropriate unit of analysis and results in a more straightforward interpretation.

The sample consists of 118 of the 121 local law enforcement agencies serving municipalities with populations exceeding 5000 persons. Similar to prior research using policing data from the Missouri Office of the Attorney General (Rojek et al., 2004), this population threshold was employed to ensure reliability in the counts of traffic stops, searches, and arrests. If we included departments with small base rates for stops and/or searches in less populated jurisdictions, even slight year-over-year changes could result in large differences. While 121 local law enforcement agencies throughout Missouri satisfied the threshold criteria, three agencies were missing Uniform Crime Report data and were removed from the analysis.⁴ These 118 departments account for more than three quarters of the 1.9 million traffic stops recorded by municipal agencies in the state between 2014 and 2015 and provide services to about 53% of Missouri's 6 million

³ We divided the quantity and quality of policing in 2014 across the pre- and post-Ferguson periods by using the exogenous events of August as the cut-point. Eight months of 2014 ($y^* = 0.666$), along with 12 months of data from 2013, were used to construct a 20-month pre-Ferguson period. Four months of 2014 ($y^* = 0.333$), along with 12 months of data from 2015, were used to construct a 16-month post-Ferguson period. All of our policing measures were standardized by month to account for unequal exposure periods. This exercise in sensitivity resulted in three main findings. First, our monthly and yearly approaches to measure de-policing in the pre- and post-periods were highly correlated: stops ($r = 0.86$), searches ($r = 0.87$), arrests ($r = 0.86$), and hit rates ($r = 0.80$). Second, our pre- and post-Ferguson comparisons were substantively and statistically larger using this approach than what is reported in the main results: stops ($ES = -0.14$, $t = 2.53$), searches ($ES = -0.06$, $t = 0.99$), arrests ($ES = -0.10$, $t = 1.93$), and hit rates ($ES = 0.27$, $t = 3.84$). Third, our correlate of primary theoretical interest, the African-American composition of communities that police agencies serve, was statistically identical in terms of sign and significance with de-policing outcomes, although the effect sizes were slightly larger. Overall, this leads us to conclude that our year-over-year approach is valid and that our findings are robust to alternative assumptions.

⁴ The three agencies included Chillicothe (population = 8528, % African American = 2.5), Dardenne Prairie (population = 12,116, % African American = 4.6), and DeSoto (population = 6449, % African American = 2.2).

residents. It is important to note that while the sample is more representative of municipal police departments in Missouri, it is unclear how generalizable the findings might be to law enforcement agencies across other states in the country.

5.2. Measures

5.2.1. Dependent variables

We focus on four outcomes related to changes in the quantity and quality of policing. In terms of the quantity of policing, we examine vehicle/traffic stops as well as searches and arrests stemming from those stops. *Stops* refers to the total number of times in a calendar year that police officers in a department pull over drivers of motor vehicles for alleged violations of any motor vehicle statute or ordinance. *Searches* are the total number of times in a calendar year that officers in a department engage in investigatory actions of a driver and his/her vehicle by conducting a search of the vehicle and person. *Arrests* include the total number of times in a calendar year that officers in a department take a driver into custody for the violation of a criminal law(s). Each of these outcomes, recorded originally as raw counts, were converted into rates per 10,000 persons.

In terms of the quality of policing, we examine contraband hit rates derived from traffic/vehicle stops. *Hit rates* are the proportion of searches derived from vehicle stops yielding drugs, weapons, or other contraband confiscated by police.

Two additional steps were undertaken to conduct our analyses. First, all of the outcomes were standardized across agency-years to have a mean of 0 and a standard deviation of 1 (i.e., z-score). Second, we computed year-over-year change scores by subtracting standardized values in 2014 from 2015, where positive and negative values indicate year-over-year increases and decreases, respectively, in the outcomes. Together, this allows us to determine if and how much change occurred across the periods, and to determine the extent to which the covariates of de-policing that we describe below are associated with these changes.

Finally, to assess the de-policing-crime link, Uniform Crime Report data were used to calculate a municipality's crime rate in 2014 and 2015. We focused on total, violent, and property crime. Similar to the police activity measures described above, these three outcome measures were standardized across agency-years and year-over-year change scores were computed.

5.2.2. Covariates

In addition to understanding whether de-policing occurred between 2014 and 2015, we are also interested in the extent to which changes in the quantity and quality of policing are endogenous to the racial composition of a jurisdiction. In an effort to test for a racialized de-policing effect, the *percent African American* ($mean = 9.63$; $SD = 14.43$) population was included as the key covariate in the study, which was drawn from the 2014 American Community Survey.

Several other covariates were included in this study as well. We examined whether being closer in distance to Ferguson was a salient factor associated with de-policing. *Proximity to Ferguson* was measured by calculating the geodesic distance from a given municipality to Ferguson, Missouri in miles (divided by 10). It ranged from 0 to 26 with a mean of 11.33 ($SD = 9.22$). Next, we were interested in whether de-policing was more likely to occur if an agency experienced their own shooting-related event in 2015. Using an online database maintained by the Washington Post,⁵ *fatal police shooting* was measured as a dummy variable that captures whether a department experienced a deadly

shooting of a citizen in 2015 (1 = yes); 5.93% of the departments in the sample had experienced such an event. UCR data were used to calculate a municipality's violent crime rate per 10,000 persons for 2014 ($mean = 30.62$; $SD = 31.99$). Additional items were drawn from the 2014 American Community Survey, including the *driving-age population* (16 years old and above, divided by 5000) ($mean = 4.16$; $SD = 8.65$), *percent poverty* ($mean = 26.68$; $SD = 12.98$) and *percent unemployed* ($mean = 8.87$; $SD = 7.21$). Summary statistics for the covariates are presented in Table 1.

5.3. Analytic strategy

The analysis proceeded in three main steps. First, to test Hypotheses 1 and 2, a series of paired sample *t*-tests were used to compare mean rates of vehicle/traffic stops, searches, and arrests, as well as contraband hit rates from 2014 ("pre-Ferguson") to 2015 ("post-Ferguson"). Second, to test Hypotheses 3 and 4, a series of ordinary least squares (OLS) regression models were estimated to relate the African-American composition of a city, as well as our additional study covariates, to year-over-year standardized changes for each of the outcome variables. Finally, we examine whether changes in policing activity corresponded with changes in crime rates. The OLS models report robust standard errors. All covariates were mean-centered where the intercept represents the mean year-over-year change. None of the variance inflation factors exceeded 2.5 in all of our models. Recognizing that we have nearly the entire population of police agencies in Missouri serving populations exceeding 5000 persons, we report both statistical (i.e., standard errors and *t*-statistics) and substantive (i.e., *y* standardized coefficients in the tables, *x-y* standardized coefficients where appropriate) significance in our findings.⁶

6. Results

6.1. Change in the quantity and quality of policing

The paired *t*-tests reported in Table 2 provide mixed evidence for the existence of de-policing among Missouri police departments. On the one hand, there were clear reductions in the number of stops performed by Missouri police departments. We observed a year-over-year reduction of about one-tenth of a standard deviation. The effect size, while not large, is noteworthy because it translated into nearly 67,000 fewer stops in these 118 agencies in 2015 than in 2014. On the other hand, the data also show that a reduction in the total number of stops did not correspond with a systematic reduction in searches or arrests across the agencies included in the study (i.e., global effects). While the values were negative, and there were indeed fewer searches and arrests stemming from stops in 2015 than there were in 2014, neither of the differences reached statistical significance nor were the standardized effects substantively significant. In terms of the quantity of policing, this suggests mixed evidence of a de-policing effect. This is noteworthy because the violent crime rates increased by 0.12 standard deviations between 2014 and 2015, although overall ($\Delta 0.017$) and property ($\Delta 0.002$) crime remained largely unchanged.

In terms of the quality of policing, the contraband hit rate increased between 2014 and 2015. For every 100 searches that a police agency conducted for drugs, weapons, or any other contraband, they confiscated items 26.7% of the time in 2014 but 28.6% of the time in 2015. At first glance a 1.9 percentage point change might appear rather trivial, or perhaps a reflection of minor, yearly fluctuations. However, an effect

⁵ The database can be accessed at "<https://www.washingtonpost.com/graphics/national/police-shootings/>" and has been used in prior studies (Nix, Campbell, Byers, & Alpert, in press). In fact, scholars have recently begun to utilize independent online databases to conduct timely policing research, such as killedbypolice.net (Campbell, Nix, & Maguire, in press) and the Officer Down Memorial Page (Maguire et al., in press).

⁶ Null hypothesis significance testing is common practice in macro-level criminological research even when full population data are analyzed. For example, Rosenfeld and colleagues' (2007) important work on the impact of order-maintenance policing practices on crime trends in New York City relied on null hypothesis significance testing even though they analyzed near-complete precinct data. Other examples abound in this literature (See Towers and White, 2017, in *Significance*, the journal of the Royal Statistical Society).

Table 1
Summary statistics for the study variables ($N = 118$).

Variables	Mean	(SD)	Min	Max
Proximity to Ferguson ÷ 10	11.41	(9.25)	0	26
Fatal police shooting	5.93	–	0	1
Violent crimes per 10,000 persons	30.62	(31.99)	0	168
Driving-age population ÷ 5000	4.23	(8.75)	1	73
% African American	9.80	(14.57)	0	80
% Poverty	26.60	(12.98)	0	65
% Unemployed	8.93	(7.21)	2	68

Table 2
Descriptive statistics and standardized year-over-year change for quantity and quality of policing outcomes per capita ($N = 118$).

Variable	2014 ^a		2015 ^a		Standardized change		
	Mean	(SD)	Mean	(SD)	Mean	(SD)	t-statistic
Stops	3604.68	(1874.43)	3404.79	(1801.70)	– 0.11	(0.58)	2.04*
Searches	211.54	(156.71)	209.91	(189.87)	– 0.01	(0.62)	0.17
Arrests	173.72	(182.12)	161.84	(150.96)	– 0.07	(0.74)	1.05
Hit rate	26.71	(12.40)	28.59	(9.69)	0.17	(1.02)	1.80 [#]

NOTE: includes cities in Missouri with populations exceeding 5000 persons. Paired *t*-tests were used to determine if year-over-year changes were statistically significant. The denominator for per capita rates is 10,000 persons. All variables were agency-year standardized.

ABBREVIATIONS: (SD) = standard deviation; *t*-statistic = absolute value of *t*-statistics.

* $p < 0.05$

[#] $p < 0.10$ (two-tailed test)

^a Per 10,000 persons

size of 0.17, while modest by conventional standards, reveals a year-over-year difference that is consistent with our directional hypothesis. Indeed, we anticipated that the searches police officers conduct will be of higher quality and more likely to yield contraband when police agencies are subject to the intense pressures brought on by the legitimacy crisis and distrust in law enforcement in the social media era of policing.

Overall, there is some evidence to support our hypotheses with respect to a de-policing effect—both in terms of the quantity and quality of policing—among Missouri law enforcement agencies. This analysis also revealed that there was considerable variability in year-over-year changes in stops, searches, arrests, and hit rates across the 118 agencies. It is important to note that we are not observing regression to the mean. Table 3 contains totals (including sheriff's departments) and year-over-year percent changes in stops, searches, arrests, and hit rates for the state of Missouri between 2010 and 2015. The 2014 to 2015 change in stops and arrests was greater than the absolute value of the prior three years combined. The hit rate was nearly of the same magnitude. This finding was observed in the aggregate in Missouri despite the fact that an additional 20 law enforcement agencies reported data in 2015 than in 2014. Something was indeed occurring among Missouri law enforcement agencies that resulted in such a major shift in police behavior, and it appears consistent with the

Ferguson Effect argument. We now turn to our bivariate analyses to determine if any of our covariates—but especially the racial composition of cities—are related to changes in the quantity and quality of policing.

6.2. Bivariate analyses

Table 4 presents zero-order correlations for the covariates and outcome variables. We find initial support for Hypothesis 3, but not Hypothesis 4. Regarding the quantity of policing outcomes, percent African American is negatively correlated with changes in vehicle/

traffic stops ($r = -0.37$; $p < 0.05$), searches ($r = -0.30$; $p < 0.05$), and arrests ($r = -0.21$; $p < 0.05$). However, neither percent African American nor any of the additional covariates were statistically significantly correlated with changes in contraband hit rates, which suggests that there may be unobserved factors—specific to the community or to the police agency—that are the sources of changes in hit rates. We now turn to the multivariate analyses, focusing especially on whether the percent of African Americans in a jurisdiction is related to changes in the quantity of policing when accounting for alternative explanations.

6.3. Multivariate analyses of changes in policing

Table 5 displays the results from a series of OLS regression models predicting year-over-year standardized changes in stops, searches, arrests, and hit rates. Models 1 to 3 largely reaffirm the findings from the bivariate analyses presented in Table 4. As the African-American composition of a jurisdiction increased, the number of vehicle stops, searches, and arrests decreased from 2014 to 2015. Even though searches and arrests across agencies in the state of Missouri included in the study were largely unchanged between 2014 and 2015, as evidenced by null intercepts in Models 2 and 3, this was not the case for jurisdictions with a larger composition of African-American residents.

Table 3
Yearly frequency and change in the quantity and quality of policing across Missouri Law Enforcement Agencies, 2010–2015.

Year	2010	2011	2012	2013	2014	2015
N	630	631	617	613	622	642
Frequency						
Stops	1,688,720	1,654,360	1,635,477	1,679,565	1,681,382	1,579,488
Searches	111,616	128,547	104,535	106,631	100,038	94,901
Arrests	83,919	81,345	78,584	81,510	81,849	71,055
Hit Rates	22.13	22.52	23.41	23.92	25.11	27.94
Change						
Stops		– 2.00%	– 1.10%	2.70%	0.10%	– 6.10%
Searches		15.20%	– 18.70%	2.00%	– 6.20%	– 5.10%
Arrests		– 3.10%	– 3.40%	3.70%	0.40%	– 13.20%
Hit Rates		1.80%	4.00%	2.20%	5.00%	11.30%

Table 4Zero-order correlations between the independent and outcome variables ($N = 118$).

	1	2	3	4	5	6	Stops	Searches	Arrests	Hit Rate
1 Proximity to Ferguson ^a	–						0.21 [*]	0.01	– 0.09	– 0.14
2 Fatal police shooting	0.13	–					– 0.03	0.12	0.00	0.01
3 Violent crime rate ^b	0.05	0.41 [*]	–				– 0.03	– 0.03	– 0.06	– 0.03
4 Driving-age population ^c	0.07	0.68 [*]	0.48 [*]	–			– 0.03	– 0.04	– 0.06	0.04
5 % African American	– 0.26 [*]	0.09	0.45 [*]	0.22 [*]	–		– 0.37 [*]	– 0.30 [*]	– 0.21 [*]	0.06
6 % Poverty	0.00	0.01	0.06	0.06	0.23 [*]	–	– 0.01	– 0.06	– 0.12	– 0.14
7 % Unemployed	0.01	– 0.01	0.19 ^{#a}	– 0.01	0.13	0.03	– 0.11	– 0.07	– 0.05	– 0.12

NOTE: the sample includes 118 cities in Missouri with populations exceeding 5000 persons and non-missing data. Zero-order correlations are reported.

^{*} $p < 0.05$ [#] $p < 0.10$ (two-tailed test)^a $\div 10$ ^b Per 10,000 persons^c $\div 5000$ **Table 5**OLS Regression Models Relating Year-Over-Year Standardized Change in the Quantity and Quality of Policing to the Independent Variables ($N = 118$).

Variable	Model 1 Vehicle stops per capita		Model 2 searches per capita		Model 3 arrests per capita		Model 4 hit rates	
	<i>b</i>	<i>t</i> -statistic	<i>b</i>	<i>t</i> -statistic	<i>b</i>	<i>t</i> -statistic	<i>b</i>	<i>t</i> -statistic
Proximity to Ferguson ^a	0.007	1.14	–0.007	1.23	–0.013	1.50	–0.01	0.97
Fatal police shooting	–0.277	1.48	0.584	0.84	0.164	0.47	–0.21	1.05
Violent crime rate ^b	0.004	2.66 [*]	0.003	1.76 [#]	0.002	0.95	–0.00	0.52
Driving-age population ^c	0.002	0.39	–0.012	0.95	–0.006	0.72	0.01	1.42
% African American	–0.018	4.26 [*]	–0.016	4.20 [*]	–0.014	2.53 [*]	0.01	1.28
% poverty	0.004	0.91	0.001	0.38	–0.003	0.83	–0.01	0.93
% unemployed	–0.007	1.16	–0.004	0.67	–0.003	0.64	–0.02	1.28
Constant	–0.109	2.20 [*]	–0.009	0.17	–0.072	1.06	0.17	1.81 [#]
<i>F</i> -test	3.72 [*]		3.18 [*]		2.59 [*]		1.99 [#]	
<i>R</i> -Squared	19.27%		13.96%		8.03%		6.36%	

NOTE: The sample includes 118 cities in Missouri with populations exceeding 5000 persons and non-missing data; robust standard errors are reported; coefficients are interpreted as a one-unit increase in x corresponds with a b standard deviation change in y . All covariates were mean-centered.ABBREVIATIONS: $b = x$ unstandardized, y standardized coefficients; t -statistic = absolute value of t -statistics.^{*} $p < 0.05$.[#] $p < 0.10$ (two-tailed test)^a $\div 10$ ^b per 10,000 persons^c $\div 5000$

Indeed, a 10-percentage point increase in the number of African-American residents corresponded with -0.18 , -0.16 , and -0.14 standard deviation changes in stops, searches, and arrests, respectively from 2014 to 2015. This is evidence of the racialized de-policing effect that was hypothesized from the outset, albeit with respect to the *quantity* of policing only.⁷ If the quantity of policing is changing in Missouri, it is occurring in jurisdictions with a greater composition of African-American residents.

Consistent with the bivariate findings, we observed no relationship between the African-American composition of a jurisdiction and our operationalization of the *quality* of policing. In fact, none of the covariates in our multivariate OLS model were related to changes in contraband hit rates, again suggesting that there are alternative sources of such variation. Indeed, the 0.17 standard deviation increase in hit rates represents a non-trivial year-over-year change, but an explanation of this change is not found in covariates used in this study. It is also worth noting that proximity to Ferguson and whether a jurisdiction had a fatal police shooting, two potentially meaningful predictors, played no role in any of our de-policing outcomes.

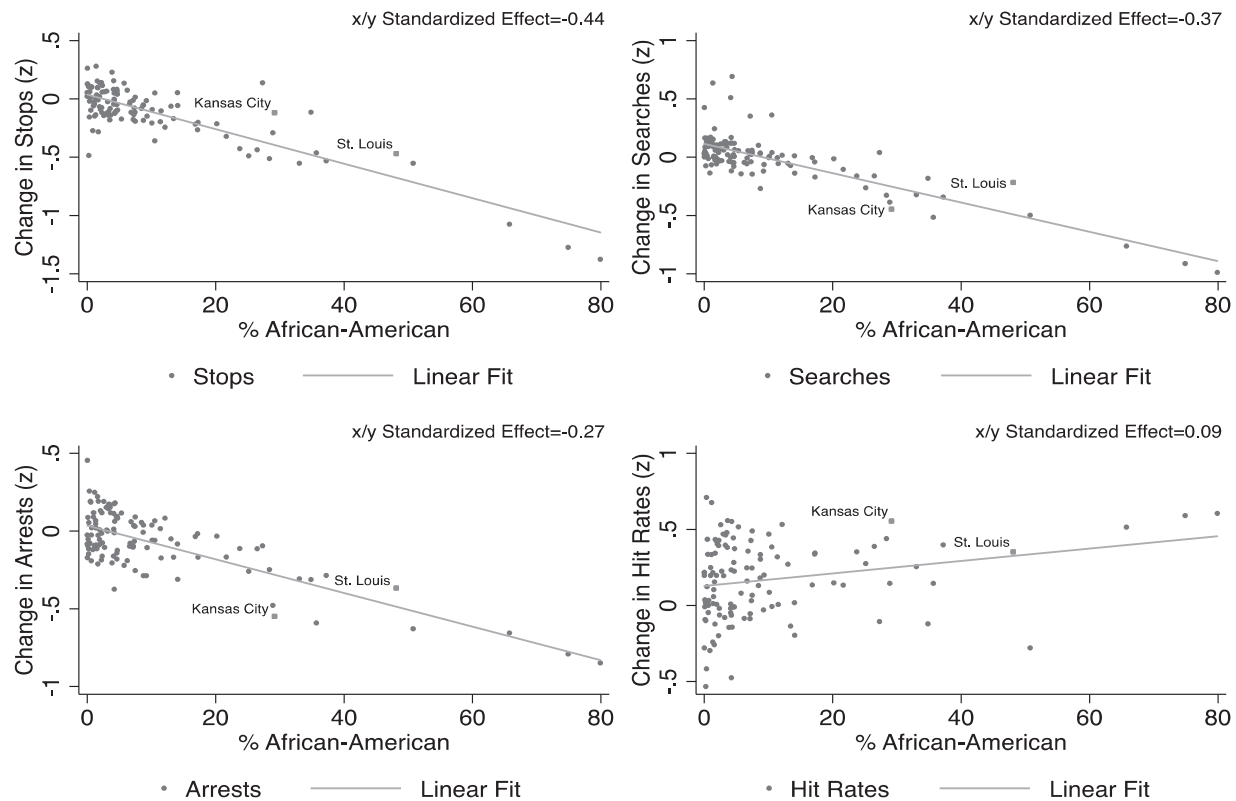
⁷ Some might wonder whether year-over-year changes in crime rates could explain away the relationship between the African-American composition of residents and the quantity of policing. Changes in total, violent, or property crime rates could not account for this relationship.

We provide a summary of our findings in Fig. 1, which plots across four quadrants the composition of African Americans in a jurisdiction with the linear prediction of the four de-policing outcomes. Fully standardized effects are reported in the upper right hand corner of each quadrant. This figure captures the key takeaways from our results with respect to Hypotheses 3 and 4. The standardized effects for the quantity of de-policing are modest to moderate, while the non-statistically significant standardized effect for contraband hit rates was below 0.10.

6.4. Bivariate and multivariate analysis of the depolicing-crime link

Table 6 presents the bivariate and multivariate results of OLS models that relate differences in policing to differences in crime across Missouri agencies. Any positive standardized coefficients indicate that year-over-year increases in police activity—more stops, searches, and arrests, and better hit rates—corresponded with year-over-year increases in total, violent, or property crime. Alternatively, consistent with the depolicing-crime thesis, negative standardized coefficients indicate that year-over-year reductions in police activity correspond with year-over-year increases in crime.

Our results support neither of these perspectives. Across the 12 bivariate models and the three multivariate models, we observe no statistical or substantive relationship between changes in policing activity and changes in crime. To be sure, the relationship between



Note: y-axis = standardized changes in de-policing outcomes; x-axis = % of the population that is African-American in a jurisdiction; cities with populations exceeding 200,000 person are labeled.

Fig. 1. Relationship between African-American composition of cities and linear prediction of de-policing outcomes ($N = 118$).

vehicle stops and crime are indeed in the direction hypothesized by proponents of the depolicing thesis, where reductions in stops correspond to increases in total, violent, and property crime. However, none of the standardized coefficients even approach a modest effect size of 0.10. Further, when turning to the multivariate models, the stops-crime relationship is negligible at best. This leads us to conclude that there is neither a statistically or substantively significant relationship between changes in police activity and crime rates across the 116 agencies with valid crime data included in this study.

7. Discussion

This is a challenging time for American police. Officers now find themselves in the “social media era of policing” where many of their actions are potentially captured on video, uploaded to websites, live streamed, and viewed by millions of people. A number of deadly force incidents involving minority citizens, many of which were captured on video and disseminated through various forms of media, have led to civil unrest, placing the law enforcement community under an unprecedented level of scrutiny. There have been allegations of a new nationwide crime wave caused, in part, by de-policing (Mac Donald,

Table 6

OLS regression models relating year-over-year standardized change in UCR total, violent, and property crime to change in the quantity and quality of policing ($N = 116$).

Variable	Δ UCR total crime		Δ UCR violent crime		Δ UCR property crime	
	β	t-statistic	β	t-statistic	β	t-statistic
Bivariate						
Δ Vehicle stops	-0.067	1.56	-0.050	0.67	-0.067	1.47
Δ Searches	-0.017	0.54	0.009	0.15	-0.021	0.62
Δ Arrests	0.014	0.40	-0.027	0.73	0.021	0.54
Δ Hit Rates	-0.012	0.57	-0.001	0.35	-0.011	0.55
Multivariate						
Δ Vehicle stops	-0.013	0.23	-0.016	0.18	-0.012	0.21
Δ Searches	-0.018	0.42	0.078	0.81	-0.035	0.70
Δ Arrests	0.011	0.38	-0.045	0.93	0.020	0.63
Δ Hit Rates	-0.029	1.15	-0.020	0.66	-0.028	1.13

NOTE: The sample includes 116 cities in Missouri with populations exceeding 5000 persons and non-missing data; robust standard errors are reported; coefficients are fully standardized and interpreted as a standard deviation change in x corresponds with a standard deviation change in y. Multivariate models include controls for proximity to Ferguson, police shooting, 2014 violent crime rate, driving-age population, % African American, % poverty, and % unemployed.

ABBREVIATIONS: t-statistic = absolute value of t-statistics.

* $p < 0.05$

$p < 0.10$ (two-tailed test)

2015, 2016). Surprisingly, little empirical research has been conducted on de-policing and whether police behavior changes in response to high-profile events. The research reported here provides an investigation of de-policing in the wake of Ferguson. We found mixed evidence of the quantity of de-policing among local Missouri agencies; departments made about 67,000 fewer vehicle/traffic stops in 2015 compared to 2014, but this pattern was not substantively significant for searches and arrests stemming from those stops. Perhaps this is in response to recent legislative changes in Missouri intended to address the use of traffic stops as a means of generating municipal revenue.⁸ What was substantively significant was the observed increases in hit rates, as it appears officers were making better stops and conducting searches that more consistently yielded contraband. Furthermore, we found consistent evidence of a racialized de-policing effect. Departments made fewer vehicle/traffic stops, searches, and arrests in 2015 relative to 2014 in jurisdictions with larger African-American populations. Thus, a major finding of this study is that context—especially the racial composition of cities—shapes de-policing behavior. Importantly, however, changes in police behavior were neither statistically nor substantively related to changes in crime rates, a point we will return to shortly.

Speculation about the causes of this racialized de-policing effect warrants further discussion. De-policing may be a reaction to officers' sense of "self-preservation" in this era of social media scrutiny of government institutions. The dialogue and public discourse surrounding American law enforcement over the last three years has centered on race, as black males constitute nearly all of the recent highly publicized cases of police deadly force and in many cases their names have become well-known to the public (see, e.g., Michael Brown, Philando Castile, Eric Garner, Tamir Rice, Freddie Gray, Walter Scott, Laquan McDonald, and Alton Sterling). In response, we have seen the growth of the Black Lives Matter movement, and there have been countless demonstrations across U.S. cities—some of which have turned disruptive and violent. These events and the current climate led then President Obama to convene the President's Task Force on 21st Century Policing in December of 2014 (Ramsey and Robinson, 2015), the first national-level committee directing attention toward issues of race and law enforcement since the Kerner Commission in the late 1960s.

Accordingly, it makes sense that officers are more likely to shy away from active police work in the very jurisdictions, and perhaps neighborhoods, that have higher African-American populations. Indeed, 75% of officers in a nationally-representative sample agree that recent high-profile incidents have aggravated tensions between police and African-American residents in their communities (Pew Research Center, 2017). Perhaps the topics of de-policing and self-preservation can be linked to Muir's (1977) seminal explanation of officers engaging in "avoidance behavior" and Worden's (1995) categorization of some officers "laying low" (see also Kappeler, Sluder & Alpert, 1998; Paoline, 2004). Future work should continue to survey or interview officers about their motivations/rationale for engaging in de-policing behavior.

It is nothing new to suggest that citizen race impacts police behavior—the police are more likely to stop, search, arrest, and use force against African Americans (Epp et al., 2014; Fagan and Ash, in press; Fagan and Davies, 2000; Fridell and Lim, 2016; Hurst, Frank & Browning, 2000; Kane, 2002; Lee, Vaughn & Lim, 2014; Petrocelli, Piquero & Smith, 2003; Smith, 1986; Smith, Rojek, Petrocelli & Withrow, 2017; Terrill & Reisig, 2003). Donald Black's (1976) theory of law anticipates such racial disparities. Police officers who hold more prestige and social status than a particular group become power brokers and are more likely to apply law to those in

more disadvantaged social positions. Consistent with this argument, the police are likely to apply more law (e.g., stop, search, and arrest) against African-American citizens (Black, 1976; Rojek et al., 2012; Smith, 1986).

The results here demonstrate that jurisdictions with higher percentages of minority residents are more prone to de-policing. This empirical observation is consistent with Black's (1976) view on the behavior of law; political mobilization by African Americans may have signified a narrowing of the social standing gap between the police and African-American citizens that was responsible for disparities in police-citizen contacts such as stops, arrests, and searches. Black's theory anticipates a hydraulic/reciprocal relationship between citizens and the police. Less law should be applied to groups that are closer in social position to the police. Therefore, de-policing may be the necessary response to the increased social standing of African Americans (regardless of whether the change is perceived or real, or whether it is short or long-lived). It is important to note, however, that our data cannot explicitly speak to this explanation. It is entirely possible that de-policing may be more pronounced in jurisdictions with larger racial minority populations as police officers respond to the scrutiny and increased danger they perceive in such communities (Mac Donald, 2016). Future research is necessary to help uncover the causal mechanisms behind de-policing behaviors.

Could de-policing be a good thing? Officer beliefs that the current climate has made the job riskier and has increased tensions between the police and the African-American community—leading the police to feel reluctant to carry out some of their law enforcement duties (Pew Research Center, 2017)—are certainly issues that must be addressed. However, if a negative event causes officers to retreat from aggressive tactics (e.g., frequent pedestrian stops) and high discretion arrests/citations for "quality of life" offenses, then such a change might be beneficial from a public perception and perceived legitimacy standpoint (see Gau and Brunson, 2010; Morgan and Pally, 2016). A substantial body of research finds that unfavorable citizen perceptions of police are, in part, the result of contentious personal and vicarious experiences with officers (Brunson, 2007; Decker, 1981; Webb and Marshall, 1995; Weitzer and Tuch, 2002). Often, those who view the police negatively cite harassment and unfair targeting/profiling in addition to officer demeanor characterized as discourteous and verbally abusive (Brunson, 2007; Gau and Brunson, 2010; Weitzer, 2000). Thus, reductions in these types of aggressive strategies might limit the opportunities for antagonistic police-citizen interactions. Agencies reducing the number of traffic stops may reflect a recalibration of sorts regarding the type of service they believe the public demands. In this way, de-policing may be a necessary outcome of a true democratic policing function. The key will be for future research to disentangle whether such a relationship exists and, if so, if it comes at the cost of increased crime. But it is important to note that de-policing may result in reduced positive contacts between the police and citizens. Police engagement with citizens involves more than arrest, it can also involve supportive interactions. Any disengagement should measure both supportive as well as enforcement actions by the police.

Our results suggest that de-policing does not come at the cost of increased criminal activity in Missouri. This is contrary to a central feature of the Ferguson Effect argument (Mac Donald, 2016). Prior to our study, there was virtually no empirical evidence directly supporting or refuting the de-policing-crime link. Police agencies in Missouri have indeed changed their behavior regarding traffic stops in the post-Ferguson era, most likely as a result of the intense public scrutiny following the shooting death of Michael Brown and grand jury decision not to indict then-Officer Darren Wilson. Yet, such a pullback in police activity has not led to more crime. It is possible that with time, this relationship will change. If de-policing of this type creates less guardianship, would-be offenders may become more emboldened to carry drugs, guns, and other contraband that would have otherwise been discovered during more frequent traffic stops. This would open the

⁸ The Missouri Legislature addressed Mack's Creek Law (RSMO 479.359 and RSMO 479.353) in the 2015 session. The former statute addressed the percentage of municipal revenue that could be generated through traffic fines and the latter addressed limits to the amount of fines for traffic citations as well as eliminating confinement for traffic violations. These could also be viewed as attempts to shackle police actions.

door for more crime in the upcoming years. On the other hand, if fewer traffic stops are something that communities—particularly minority areas—wish to see, we would not anticipate higher crime rates to stem from such de-policing. Rather, the decline in discretionary police enforcement activity would be a welcome response from the communities at the heart of the legitimacy crisis—minority communities demanding changes in police behavior. For now, we find no support for the de-policing-crime component of the Ferguson Effect argument in our sample of police agencies.

This study suggests a number of other avenues for future research. The outcomes of interest examined here are but a few of the potential ways to study de-policing. In terms of departmental output, there is no shortage of variables to consider. For example, scholars could examine other forms of proactive behavior, such as pedestrian stops and community engagement. Only one measure of the “quality” of policing was included in the analyses—contraband “hit” rates. Yet, there are certainly other factors that are included in “policing quality” and whether it improves or deteriorates following a negative event and the resultant scrutiny that ensues. Perhaps residents are in a better position to judge, and community surveys of officer performance in the field might be able to measure any potential change. Researchers should continue to pay attention to “quality” in addition to “quantity” as it relates to de-policing. Additionally, it is imperative to monitor trends in department outcomes as well as officer behavior and perceptions.

Although the current study used organizations as the unit of analysis, future work might explore de-policing at smaller units of analysis: police districts, precincts, patrol beats, or census tracts (see Klinger, 1997). Adding more geospatial specificity might permit researchers to take a more nuanced look into de-policing. For example, does the level of de-policing vary across precincts, beats, tracts, etc., and how might factors like crime, economic disadvantage, and the percentage of minority citizens influence de-policing across these geospatial units? Future studies may also wish to study de-policing at the individual officer-level by exploring characteristics such as race, experience, and complaint history, and how these interact with citizen characteristics. Other potential sources of de-policing at the officer level may include perceptions of organizational justice or self-legitimacy, to name a few (Nix and Wolfe, 2016, 2017).

Finally, future research should examine the organizational characteristics of departments and the role such characteristics play in moderating de-policing. Initial studies have highlighted the importance of sergeants and upper-level management, particularly how front-line officers view those members in supervisory/leadership positions. Wolfe and Nix (2016), for example, found that the negative publicity surrounding the events in Ferguson led officers to be less willing to engage in community partnerships. More importantly, this relationship was rendered insignificant once sheriff's deputies' perceptions of organizational justice—defined as employee evaluations of fairness and treatment by supervisors/leadership in the workplace—were taken into consideration. Put differently, officers' perceptions of fair treatment from their supervisors served as a protective factor that negated the relationship between negative publicity directed toward law enforcement and willingness to work with the community to solve problems (see also Oliver, *in press* for a similar finding). As such, organizational justice training might be one way to address low officer morale and reduced motivation. Ensuring organizational justice within a department likely translates into beneficial work-related outcomes, such as front-line officers believing that they are/will be supported by their leaders (in spite of a lack of community support) and, thus, not feeling the need to de-police. Other organizational characteristics may also be important in this context, including the representation of women and minorities in command and line-level positions.

The current legitimacy crisis faced by the police is at the root of this issue. To address this problem we must find ways to improve community trust in the police. In doing so, however, it is necessary to help officers trust the public too. Improving police-community relations is a

two-way street, and the burden of reform cannot rest squarely on one party's shoulders. A delicate balance must be reached between holding police accountable, while not making it impossible for officers to fulfill their job responsibilities.

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