Original Article

De-policing, police stops, and crime

Zachary A. Powell

Abstract Contemporary discussions on policing focus on the impact of intense external scrutiny on proactive policing practices. Some commentators suggest negative feedback directed at law enforcement inhibits police willingness to engage in proactive police practices. This effect, known as 'de-policing', endangers communities due to officer disengagement in crime prevention techniques. To examine this effect, previous research relies on crime data to examine de-policing; few studies explore how officer-initiated actions, such as a stop, shift in the wake of a de-policing effect. Using data from the Stanford Open Policing Project, this paper examines how officer-initiated behaviour (vehicle and pedestrian stops) changes after a negative public scrutiny shock (in this case, the shooting of Michael Brown). Further, the study examines how crime rates changed after Brown's death. The findings of this paper suggest police proactivity declined and crime increased after Michael Brown's death in Ferguson, Missouri. Policy implications, future research avenues, and theoretical enhancements to de-policing are discussed.

In May 2020, the world watched as Derek Chauvin, a police officer in Minneapolis, kneeled on George Floyd's neck for over 8 min in front of several bystanders (Hill *et al.*, 2020). The video of Floyd's murder spread like wildfire, igniting weeks of protests in the USA and across the globe. The depth of the public outburst pushed many municipalities to rethink public safety budgets as calls for defunding the police and law enforcement abolition grew louder. For the first time in years, severe negative external scrutiny was directed at law enforcement agencies across the USA, demanding action to redress long-standing police misconduct.

During the Trump administration, there was considerable resistance to implementing any action intended to reform law enforcement agencies in the USA.[1] In 2018, the Department of Justice (DOJ) issued a memo announcing the curtailment of law enforcement reform efforts (Benner, 2018). The justification for this change was couched in the belief that negative external scrutiny demotivated police officers and led to officer disengagement in proactive police practices. Officer disengagement, dubbed 'de-policing', is believed to endanger communities as a lack of law enforcement proactivity could lead to increases in crime. In effect, one heard the benefits of police reform were outweighed by the threat of crime.

Under the Biden administration, the renewed calls for systematic police reform have not fallen on deaf ears. Merrick Garland, Attorney General of the DOJ under the Biden administration, announced the end of the Trump-era ban on federal-level investigations into problematic police departments and initiated investigations into the Louisville (KY), Minneapolis (MN), and Phoenix (AZ) Police Departments

School of Criminology and Criminal Justice, Center for Criminal Justice Research, California State University, San Bernardino, CA, USA. E-mail: zachary.powell@csusb.edu

[1] A reviewer noted that de-policing rhetoric started before the Trump administration (in particular, former Federal Bureau of Investigation Director James Comey. One can read an overview of Comey's sentiment on the issue in Graham (2015).

(Benner, 2021; Johnson, 2021; Nakamura, 2021a,b). Changing this policy signals a willingness for the DOJ to intervene and correct long-standing patterns of misconduct. One could assume this policy change demonstrates the Biden administration's commitment to improving law enforcement interactions with the public (especially when there is vocal support for such measures).

A renewed interest in police reform, however, may rekindle fears about the unintended consequences of law enforcement criticism and correction. Given these fears, one should continue to search for evidence in favour or against the de-policing hypothesis. The recent change in federal policy by the Biden administration limits one's ability to examine present and future police patterns. Thus, one must confront the past to uncover a possible future in law enforcement.

This paper advances de-policing research by considering whether a source of negative external scrutiny (e.g. the national protests following the shooting of Michael Brown) created a de-policing effect. Using panel data from the Stanford Open Policing Project (SOPP) (Pierson *et al.*, 2020), an interrupted time-series design was used to investigate changes in police proactivity by examining police-initiated stops and crime rates. The results of this study suggest officers altered their behaviour after a period of negative scrutiny, indicative of a de-policing effect. Further, there was an observed increase in crime associated with the Ferguson Effect. The rest of this paper serves as a means to place the current study within the wider literature, describe the research design and statistical methods used in the paper, and outline study implications.

Review of literature

De-policing

De-policing, defined as the normative decline in proactive police practices due to negative external sources, is believed to constrain proactive police activities (Mac Donald, 2017; Chanin and Sheats,

2018). Police officers, fearful of public retribution for job-related mistakes (such as an unlawful arrest, illegal searches, death/injury of a person) or public criticism of lawful behaviours, hesitate before engaging with the public or second-guess their decision-making during an incident. Pausing, then, reduces the likelihood of a police officer from manufacturing an encounter in public (such as an investigative stop) or escalating an encounter in some way (such as an arrest or use of force). Due to demotivation and fear of public retribution, officer disengagement may result in more criminal activity.

Sources of de-policing

De-policing occurs in response to an outside triggering event. Media coverage of law enforcement injustice can spark public outrage towards police misconduct. Certain stories provoke the public, stirring up pessimistic memories and feelings related to the police. The advent of social media and modern news cycles amplifies adverse sentiment and initiates law enforcement demotivation and, theoretically, officer disengagement from their duties.

Before George Floyd's death in 2020, the most infamous police event in recent years was the 2014 shooting of Michael Brown in Ferguson, Missouri. Brown's death sparked civil unrest in Ferguson and around the country, initiated a federal investigation into Ferguson's police department, and led to the belief that the so-called 'Ferguson Effect' affected law enforcement organizations across the USA (Gonzales and Cochran, 2017; Hosko, 2018). Ferguson, then, has served as a breakpoint for studies on the consequences of de-policing (Shjarback *et al.*, 2017; Rosenfeld and Wallman, 2019).

To date, the evidence related to de-policing and crime remains an open question. Survey data suggest officers with strong personal beliefs of agency legitimacy and one's personal legitimacy are likely to continue pursuing community partnerships (Wolfe and Nix, 2016). At some level, police supervisors play a role in shielding their officers from negative feedback by communicating a strong support system filled with respect for the challenges faced by officers (Nix and Wolfe, 2016, 2018a, 2018b). Some police officers expressed feelings of low morale and demonstrated an unwillingness to be proactive in

their duties (Davis et al., 2005; Deuchar et al., 2019; Gau et al., 2022; Marier and Fridell, 2020; Nix and Wolfe, 2018a, 2018b; Stone et al., 2009). Others highlight that public sentiment has turned decidedly negative against police work and heightens the fear of the public choosing to fabricate charges against an officer as a means of retribution (Nix and Pickett, 2017).

In a study of police departments in Missouri, the fallout from the shooting of Michael Brown and the resulting protests appeared to impact police stop rates in several law enforcement agencies. One year after the events in Ferguson, MO, traffic stops declined but demonstrated no appreciable effect on crime rates (Shjarback et al., 2017). In a similar vein, Rosenfeld and Wallman (2019) suggested decreases in arrest rates may not lead to increases in homicides. A recent study submitted that officer disengagement was sourced to widespread cynicism that existed among officers before protests began (Marier and Fridell, 2020).

De-policing effects tend to be studied as a universal effect, one that impacts most, if not all, police departments in America. While plausible, one may suspect de-policing effects to be relatively diffuse and may not impact every agency. Instead, one may expect to see stronger de-policing effects if negative external scrutiny is targeted at a particular agency. Federal consent decrees, authorized by Section 14141 of the 1994 Violent Crime Control and Law Enforcement Act, provide a means to study this phenomenon as the statute allows for court-mandated police reform. Police departments that are believed to engage in long-standing official misconduct are targeted for investigation.

Qualitative evidence from officers employed by targeted agencies points to low morale and disillusionment during the consent decree process (Davis et al., 2005; Stone et al., 2009). Officers suggest the variety of changes proposed by the consent decree, coupled with the knowledge that one works for a 'bad' police department, creates a sense of fear when conducting new job duties. The specific targeting from the federal government inspired two separate studies to examine its effects on crime rates at the local level (Chanin and Sheats, 2018; Rushin and Edwards, 2017). Both studies conclude that little, if any, de-policing effects occurred within each jurisdiction targeted by the DOJ.

Police stops

Police stops are advertised as a proactive approach to combating crime in many cities as they change the nature of conventional patrol work. Rather than simply driving around a city, officers change their behaviour while on duty (Wilson and Boland, 1978). The stop allows one to investigate suspicious activities, search for illegal materials, question individuals, and frisk people for contraband (Braga and Weisburd, 2012; Epp and Erhardt, 2020; Ratcliffe et al., 2011; Rosenfeld and Fornago, 2014; White and Fradella, 2016; Wilson and Kelling, 1982; Zimring, 2013). Police officers can also use their stop powers to purposively disrupt someone's daily activities to communicate the strength of a police department.

The efficacy of police stops on crime is somewhat uncertain. For example, Rosenfeld and Fornago's (2014) analysis of stops, questions, and frisks (SQF) in NYC demonstrated no appreciable crime deterrent effect on robbery and burglary rates over a 10-year period. In some cases, there are instances where the consequences of who is stopped dampen enthusiasm for the practice. Indeed, one study suggested the New York Police Department (NYPD) preferred to increase investigative stops, citing a crime deterrent effect. However, there was ambiguous evidence to support this claim (Weisburd et al., 2014, pp. 148–149). Some micro-level studies suggest that targeted, persistent stop efforts limit the amount of crime in society. MacDonald et al. (2016) demonstrate that aggressive stop strategies in NYC corresponded with reductions in many criminal acts. This effect was most salient when officers refined their investigative stop approach; increasing the number of stops, without using selective criteria, did not substantively impact crime (MacDonald et al., 2016).

In a study of de-policing effects, Shjarback et al. (2017) focused on traffic stops and crime rates in a sample of Missouri police departments. Their study examined changes in traffic stop behaviour after the shooting of Michael Brown in Ferguson, MI. The authors suggested traffic stops declined in the year after Brown's death (relative to the previous

year). Traffic stops tended to be more targeted and uncovered more contraband, suggesting that fewer stops and a more discerning search behaviour contributed to higher 'hit rates'. The observed traffic stop reductions did not appreciably impact crime rates for the sample of Missouri police departments (Shjarback *et al.*, 2017).

Capellan *et al.* (2020) built on this body of research by examining the impact of public scrutiny on crime in NYPD precincts. Their analysis, controlling for media effects and pedestrian stops, studied crime changes. The results of a multilevel mediation analysis indicate increased public scrutiny may have lowered crime rates.

The pressure to stop people often relates to the departmental policy emanating from administration (Eterno *et al.*, 2016). In agencies focused on crime control, one may face vertical pressure flowing downwards to stop people as a check on crime. One can use a stop as a crime deterrent strategy but it is often costly in terms of police resources and, potentially, community relationships (Epp *et al.*, 2014; Weisburd *et al.*, 2015; Wooditch and Weisburd, 2016).

If one assumes that police officers rely on stops to prevent crime, then one can classify investigative stops as a form of police proactivity. A stop does not occur unless the officer initiates the action. One can then extrapolate that de-policing effects, if they exist, may inhibit an officer's willingness to initiate contact with the public.

Current study

This paper aims to contribute to existing body of research by examining whether public scrutiny (after Brown's death) leads to fewer police-initiated stops in the USA. If one assumes the statements from de-policing are true, then:

> H1: After anti-police protests, one should expect fewer police-initiated stops.

The available literature on de-policing effects focuses on police proactivity in general; no specific statement is made with respect to which type of police proactivity should decrease. Based on this information, one should expect de-policing to yield similar effects across stop type. Therefore:

> H1a: After anti-police protests, one should expect fewer police-initiated vehicle stops.
> H1b: After anti-police protests, one should expect fewer police-initiated pedestrian stops.
> H1c: After anti-police protests, one should expect stops, in general, to decrease.

By deconstructing stops into separate categories, this paper advances the work of Shjarback *et al.* (2017) to uncover underlying patterns across different types of stops.

As a consequence of police inactivity, crime rates are believed to increase. One can then hypothesize:

> H2: After anti-police protests, one should expect crime rates to increase.
> H2a: After anti-police protests, one should expect violent crime to increase.
> H2b: After anti-police protests, one should expect property crime to increase.

Data and methods

Design

This study uses an interrupted time-series analysis (via natural experiment) to assess whether negative external scrutiny following the death of Michael Brown produced changes in law enforcement stop behaviour and crime (Chanin and Sheats, 2018; Rushin and Edwards, 2017; Shadish *et al.*, 2002; Shjarback *et al.*, 2017). Brown's death sparked a series of public protests, riots, and demonstrations that occurred without the influence of an external experimenter. The incident, resulting impact, and known time of impact allow one to adopt this approach.

Sample

Police stop data are difficult to obtain due to law enforcement agencies harbouring a distrust for academic research and the lack of a national mandate to collect and disseminate police activity data (Alpert and MacDonald, 2001). One data set, the SOPP, provides an opportunity to study the nuances of police behaviour across several police agencies

in the USA (Pierson *et al.*, 2020). Stop data from the SOPP may contain information with respect to the date/time of a stop, demographic information on the individual stopped by police, and the details concerning the nature of the stop. Additional details can be found at the SOPP website (https://openpo-licing.stanford.edu/data/).

A panel data set was constructed using 44 local-level agencies in the USA that provided monthly stop data from 2011 to 2016, allowing for a maximum of 2,628 observations.[2] This date range was selected as it provides an adequate pre-intervention period and supplies the best coverage for agencies who participated in SOPP. Importantly, agencies in the sample are from a variety of states in America; this allows for better external validity than found in previous de-policing studies (see e.g. Capellan *et al.*, 2020; Chanin and Sheats, 2018; Gau *et al.*, 2022; Shjarback *et al.*, 2017; c.f. Marier and Fridell, 2020; Rushin and Edwards, 2017)

One should note that proponents of the de-polic-ing effect predict a widespread impact. No distinction is made between agencies impacted by negative external scrutiny or agencies that are immune to the effect. Put simply, there is no control group in this study. Instead, the statistical approach used in this paper attempts to account for agency and time influences that may impact law enforcement stop patterns and crime rates.[3]

Outcome variables

The SOPP data set collects information from a number of police departments in the USA and collates a number of variables. For the first outcome of interest, *Vehicle Stops* are used as an indicator for traffic stops initiated by police officers. *Pedestrian Stops* demonstrate law enforcement stops of a person on the street.[4] A third variable, *Total Stops*, adds vehicle stops and pedestrian stops together; one should note this variable only exists for agencies that report Vehicle *and* Pedestrian stops. Counts for each month are used as the dependent variables with the population of each jurisdiction (described later) serving as an exposure term (Cameron and Trivedi, 2013).

De-policing advocates point to changes in crime rates as a consequence of reduced police proactiv-ity. Crime outcomes are important to consider as they are the primary metric used to evaluate police effectiveness (Monkkonen, 1992). Thus, this study considers how *Violent Crime* and *Property Crime* changed after Michael Brown's death. Monthly UCR data were used for each variable and collected from concatenated files available at ICPSR (Kaplan, 2021b). Each variable is constructed as a rate per 100,000 people and then rounded to the nearest whole number (Osgood, 2000). Figures 1–5 illus-trate the outcome variables used in this study. For illustration purposes, each variable is transformed into a logged rate per 100,000 people. A dashed line indicates the month of Michael Brown's death.

Explanatory variables

The month of Michael Brown's death serves as the breakpoint of interest in this study. Brown's shooting occurred in early August of 2014 and was followed

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[2] The data used in this paper exclude state police agencies, St. Petersburg (FL), Arlington (TX), Santa Ana (CA), Louisville (KY), Owensboro (KY), Oakland (CA), and Little Rock (AR). These local agencies were not included because their data do not cover the study period. State agencies do not have the same duties as local agencies and are not directly comparable to local police departments. Further, Baltimore (MD) was excluded from pedestrian stop models as their data is somewhat erratic.

[3] One should also note that a bifurcation occurs within the data. Some law enforcement agencies do not provide pedestrian stop information and only report vehicle stops. There are no police departments that report only pedestrian stops and no vehicle stops. As a result, the sample size changes depending on the outcome studied in a particular regression equation.

[4] Some agencies provide traffic stop data, others provide traffic and pedestrian stop data. The data from SOPP include an indicator to show if a stop was 'vehicular' or 'pedestrian'. The data description files from the SOPP provide details on agen-cy-specific classification strategies if department data did not specify a specific type of stop. For example, one department's files a stop as SS (subject stop); these were then counted as pedestrian stops. In other instances, a stop classification was based on encounter type (e.g. vehicle, bicycle/pedestrian) or call description field. For one department, an incident was not always a pedestrian or vehicular stop (e.g. barking dog). Missing values for stop type were imputed in those kinds of situa-tions. Readers are encouraged to read agency-specific classification rules available at the SOPP website.
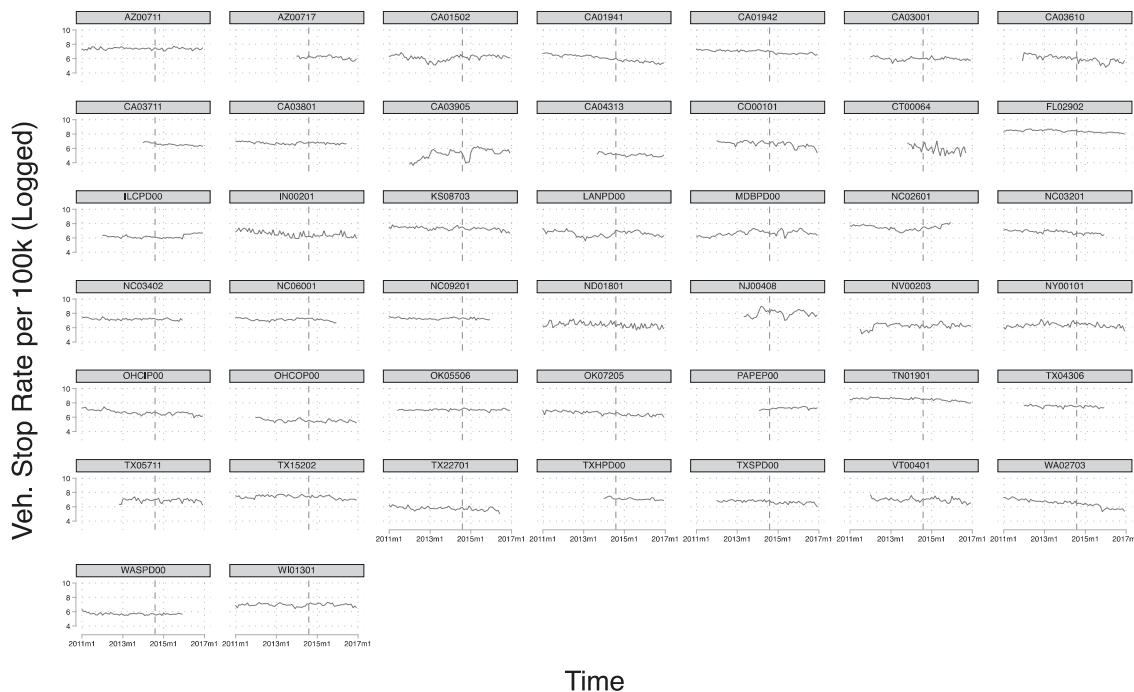
Figure 1: Logged vehicle stop rate per 100,000 people by agency, January 2011–December 2016. The dashed line in each graph indicates the date of Michael Brown's death (August 2014).

by an outpouring of civil unrest negative sentiment directed at law enforcement. Based on the speed of changes in behaviour associated with de-policing, and the permanence of an effect, one can assume the onset of police changes occurred abruptly and yielded a permanent effect (or, at a minimum, through the observed end of the study period).[5] A pre-/post-intervention variable (labelled the *Ferguson Effect*) was created to indicate the months before Brown's death (coded as 0) and the months after Brown's death (coded as 1).

Classic strain and social disorganization theories point to pre-existing social conditions as drivers of delinquency. Poverty, for example, evinces poor economic structures within a community and could serve as a driver of crime commission (Pratt and Cullen, 2005; Messner and Rosenfeld, 2006; Merton, 1938). There are, of course, limits as to

how one measures and accounts for local economic conditions in a particular area. Many desirable indicators are neither available for all municipalities nor provided on a regular basis. However, some useful estimates of local unemployment (at the Metropolitan Statistical Area level of geography) are available at the monthly level from the Bureau of Labor Statistics. Monthly *Unemployment* data were obtained for all months between 2011 and 2016.

As another control for community-related factors, a *Community Deprivation* score was created by collecting data on median income (logged and reversed), percentage of families living in poverty, education attainment (percentage of population 25 years or older with a high school diploma or higher, reverse coded), and the percentage of single-parent households with children under 18. These items were then standardized and summed together to

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[5] Alternative intervention periods were examined during the analysis process (e.g. 1 month, 6 months, 12 months, and so on). The abrupt/permanent effect is best supported by the extant literature and the results of supplementary analyses. Results from these models are available in the supplemental files.
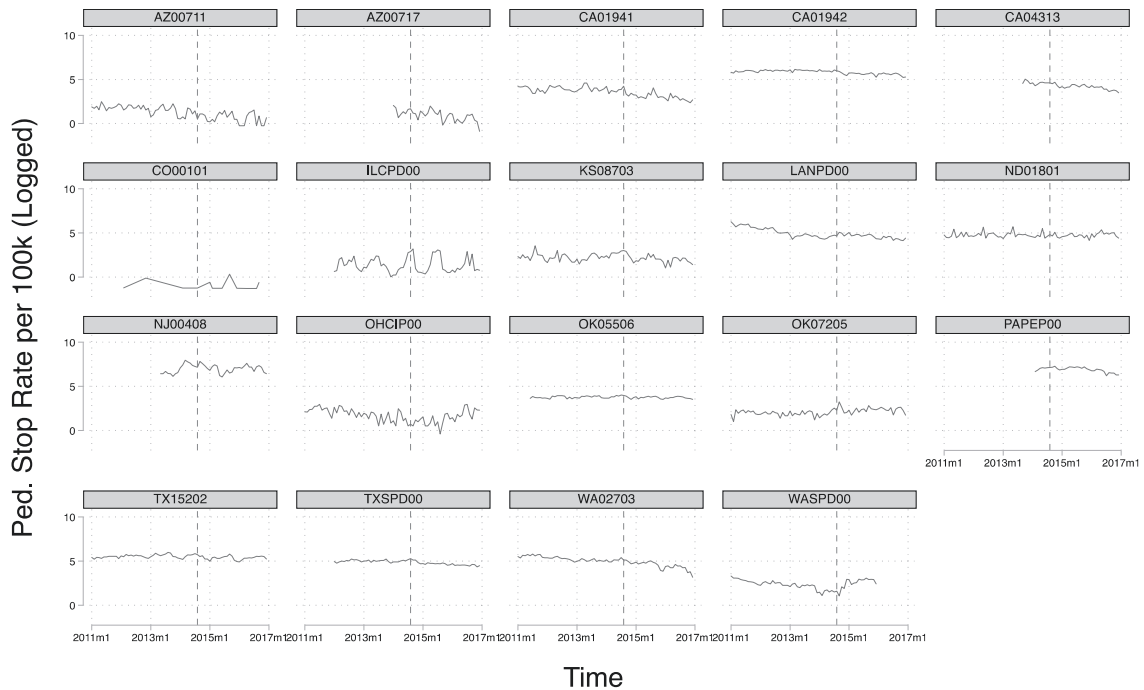
Figure 2: Logged pedestrian stop rate per 100,000 people by agency, January 2011–December 2016. The dashed line in each graph indicates the date of Michael Brown's death (August 2014).

avoid collinearity issues. All variables loaded onto one factor and had a Cronbach's alpha of 0.88. Data were collected from the American Community Survey (Five-Year Estimates). In addition, *Percent Non-White* was created and used in the analyses.

In order for a stop to occur, an officer must flag down a driver or pedestrian on a public roadway or pathway. In jurisdictions with more officers per capita, one would expect more opportunities to stop a person. To operationalize this construct, the *Officer Rate* was created by dividing the number of officers employed by an agency by the population in a jurisdiction and multiplying by 1,000. Officer employee data were obtained via LEOKA files published by ICPSR (Kaplan, 2021a)
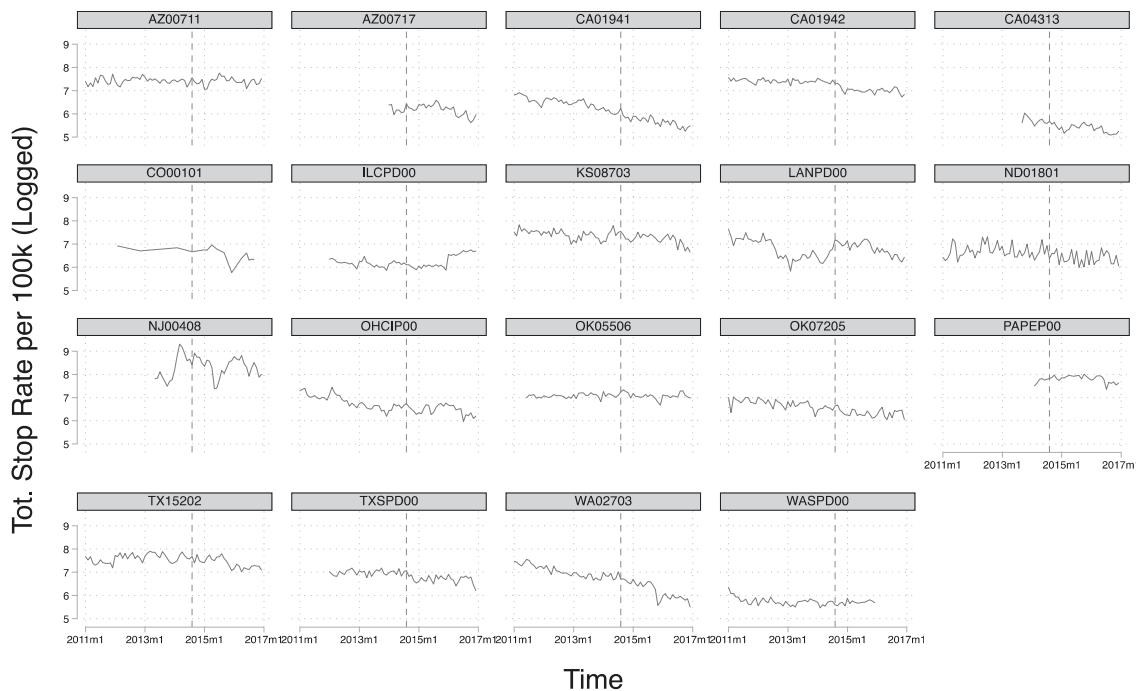
The outcome variables used in this study are treated as counts. To account for variation in the stop frequency in a community, one must control for the possible exposure (or opportunities)

for a stop to occur. Population data were obtained from LEOKA (Kaplan, 2021a) and are recorded as monthly observations to act as the exposure term. In all stop models, population is used as an exposure term. The crime rate models are rounded rates per 100,000 people so no exposure term is used (Osgood, 2000). Summary statistics for all variables are included in Table 1.[6]

Analytic method

Police departments in the USA are notorious for extreme decentralization and fragmented organization (Monnokken, 1992; Alpert and MacDonald, 2001). Despite each agency conducting the same job (respond to crime, manage interpersonal disputes, etc.), there are substantial variations across law enforcement entities. These differences manifest themselves in terms of department culture,

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[6] Data and code for this project can be found at the Harvard Dataverse: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/LIPZYN&faces-redirect=true.

Figure 3: Logged total stops rate per 100,000 people by agency, January 2011–December 2016. The dashed line in each graph indicates the data of Michael Brown's death (August 2014).

the policed population, geographic location, local socio-political structure, and so on. There are, in theory, an infinite number of factors to control for when examining police stops. Some modelling techniques are useful when one is interested in accounting for local-level variation in agency behaviour.

A fixed-effects negative binomial regression approach is used to study stop behaviour in this paper. Fixed effects allow one to control for unobserved differences between each panel and account for variation attributed to time (Allison and Waterman, 2002; Allison, 2009). This mitigates harmful effects from omitted variable bias and places more trust in a statistical analysis. Agency fixed effects are controlled for by demeaning variables by panel group (Allison, 2009). A series of month dummies were used to account for any variations attributed to time (such as seasonality and history effects; Shadish *et*

al.,).[7] Prior to analysis, the explanatory variables indicated potential problems with non-stationarity. Independent variables were logged and differenced (except the *Ferguson Effect* and *Community Deprivation* variables) to account for this problem. Further, as a check against heteroskedasticity and serial correlation, bootstrapped standard errors (with 5,000 repetitions) were estimated for each regression (Mooney and Duval, 1993). Coefficients were exponentiated and interpreted as incident rate ratios (Cameron and Trivedi, 2013).

Results

Table 2 shows the results for vehicle, pedestrian, and total stops for all included agencies. Not all agencies report pedestrian stops (hence, the sample size difference between the vehicle and pedestrian/

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[7] The month dummies control for every month between January 2011 and December 2016 (less one to avoid perfect collinearity). This approach accounts for seasonality and is more robust than including a set of seasonal dummies alone.
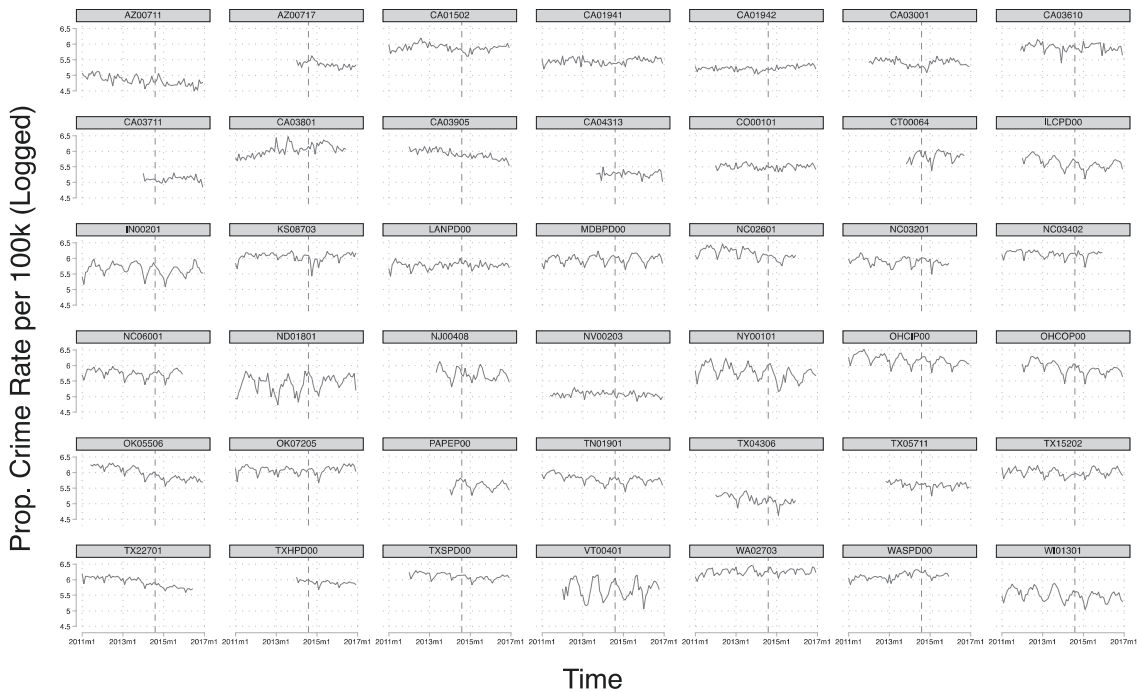
Graphs by ORID

Figure 4: Logged property crime rater per 100,000 people by agency, January 2011–December 2016. The dashed line in each graph indicates the data of Michael Brown's death (August 2014).

total stops models). In Model 1 of Table 2, it appears vehicle stops decreased by about 36% post-Ferguson. Pedestrian stops showed a significant change, decreasing by about 47% after the death of Michael Brown. Consistent with vehicle and pedestrian stop patterns, the total number of stops decreased by about 38%. This lends support to the notion that law enforcement agencies in this sample significantly (statistically and substantively) reduced the number of contacts with the public.[8]

Table 3 provides information about the crime rate models and offers a straightforward interpretation. After Michael Brown's death, violent crime rose about 15% and property crime increased by 11% through the end of the study period (December 2016). These findings are consistent with news stories discussing increases in violent crime after the 2016 UCR were released (Berman, 2017; Williams, 2017).

Discussion and conclusion

Police officers possess the power to dramatically alter the life trajectory of anyone who comes in contact with an officer. Imbued with professional discretion, search and seize tools, and the power to use force (Walker, 1993), the police have a mighty strength to control the population. When equipped with these powers, one can proactively increase contact between law enforcement police and the public to deter crime.

The contribution of this study lies in its identification of changes in police proactivity after an external shock to law enforcement practices. There was evidence in favour of a de-policing effect after Michael Brown's death; vehicle, pedestrian, and total stops declined after Brown's death. Further, there was evidence of crime increasing after the events in Ferguson. This suggests the police, in the wake of

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[8] Similar findings can be found if one use creates rounded stop rates per 100,000 people.
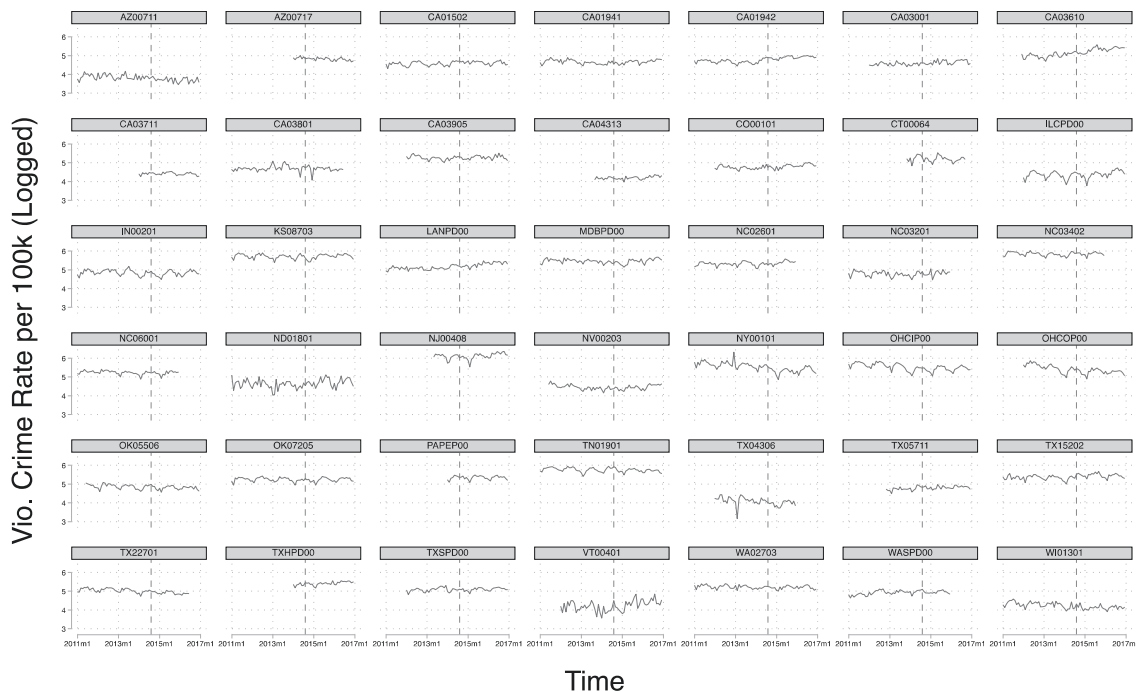
Figure 5 : Logged property crime rater per 100,000 people by agency, January 2011–December 2016. The dashed line in each graph indicates the data of Michael Brown's death (August 2014).

Table 1: Summary statistics

	Min.	Max.	Mean	Std. dev.	*n*
Veh. stops	112	61,124	6,366.34	9,253.63	2,676
Ped. stops	1	22,881	1,668.94	4,271.37	1,137
Tot. stops	228	73,923	8,890.96	14,504.89	1,137
Violent crime (per 100,000, rounded)	24	580	165.84	86.92	2,554
Property crime (per 100,000, rounded)	89	676	333.01	112.61	2,552
Ferg. eff.	0	1			2,686
Unemp. (%)	2	17.1	6.35	2.39	2,686
Comm. dep. score	−6.60	13.66	−0.06	3.50	2,686
Percent non-White (%)	11.6	95.6	52.81	18.47	2,686
Officer rate (per 1,000)	0.89	5.43	2.14	0.97	2,686
Population	42,160	4,007,905	610,478,8	747,433	2,686

a major police–citizen event that draws substantial negative scrutiny, may disengage from proactive police practices and result in possible increases in crime.

This study adds to the existing literature in a few ways. Police departments from across the country were studied to examine changes in stop behaviour after a period of public protests using an interrupted time-series design. Consistent with prior research, officers appeared less likely to engage in proactive police practices (Capellan *et al.*, 2020; Gau *et al.*, 2022; Marier and Fridell, 2020; Shjarback *et al.*,

Table 2: Fixed-effects negative binomial regression—police stops

Var.	Model 1: Vehicle	Model 2: Pedestrian	Model 3: Total
Ferg. eff.	0.64***	0.53**	0.62**
	[0.51, 0.81]	[0.35, 0.82]	[0.44, 0.87]
Unemp.	0.81	0.19	0.84
	[0.58, 1.13]	[0.02, 1.53]	[0.57, 1.22]
Comm. Dep.	0.87	2.25	0.93
	[0.70, 1.07]	[0.78, 6.47]	[0.64, 1.34]
Pct. non-White	3.96	19645	14.21
	[0.06, 233.66]	[2.12e–06, 1.82e+14]	[0.09, 2025.91]
Officer rate	0.87	0.80	0.66
	[0.34, 2.20]	[0.31, 2.06]	[0.19, 2.32]
n	2,628	1,120	1,120

Note: Results are presented as incident rate ratios. Standard errors were bootstrapped for 5,000 repetitions. The population of a law enforcement's jurisdiction was used as an exposure term. Bracketed terms indicate the 95% confidence interval for an estimate. Month dummies are suppressed from view. $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

Table 3: Fixed-effects negative binomial regression—Crime

Var.	Model 1: Vio. Crime	Model 2: Prop. Crime
Ferg. EFf.	1.15***	1.11**
	[1.06, 1.24]	[1.03, 1.20]
Unemp.	0.87	0.92
	[0.71, 1.06]	[0.82, 1.03]
Comm. dep.	0.98	1.07
	[0.89, 1.08]	[0.97, 1.17]
Pct. non-White	0.95	0.49
	[0.09, 10.17]	[0.01, 18.04]
Officer rate	0.83	0.92
	[0.58, 1.20]	[0.82, 1.03]
n	2,512	2,510

Note: Results are presented as incident rate ratios. Standard errors were bootstrapped for 5,000 repetitions. Bracketed terms indicate the 95% confidence interval for an estimate. Month dummies are suppressed from view. $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

2017). This study, then, adds to existing research by demonstrating some proactive police practices change in the wake of public scrutiny directed at law enforcement.

Protests against the police, if vocal enough, appear to curb a police practice intended to thwart crime (White and Fradella, 2016). Yet, as shown by study findings, violent crime may increase as a response to lowered police proactivity. One wonders if the trade-off for protesting against police is worth an increase in crime. The findings from this study contribute to an ongoing societal conversation about balancing effective social control with the restriction of social control tools.

In some ways, reducing police stops through negative public scrutiny may be beneficial. A police stop creates a contact between the police and the public and can shape the way one views law enforcement one's views of the legitimacy of the police. Changes in stop behaviour at the local level could impact opinions of a local department and change police-community relationships (Baćak and Nowotny, 2020; Gibson *et al.*, 2010; Kramer and Remster, 2018; Vitale, 2017; Warren, 2011). Due to fewer police–community interactions, one may see a police department and community benefit in other ways. If there are fewer police–citizen interactions, then one may expect to see less police misconduct, a lower number of citizen complaints, and a decrease in civil lawsuits filed against a law enforcement agency. One may observe improvements in police–community relationships as a result of public protests that decry police misconduct.

Perceptions of law enforcement could be studied by examining the content and sentiment of social media posts directed at police departments. Over time, one can observe how opinions towards law enforcement change over time. This approach allows one to assess dynamic fluctuations in public sentiment and provide insight into the short- and long-term effects of police behaviour on public attitudes towards police. Moreover, one can then assess how police engagement efforts (intended to repair police–community relationships) impact public perceptions.

Setting aside the possible positive side effects of reduced police–community contacts, there were observed changes in violent crime after Michael Brown's death. This finding is consistent with media stories that showed a nationwide increase in violent crime; Brown's death may serve as an important marker as to why violent crime increased in 2015

and 2016 (Berman, 2017; Williams, 2017). Outside of the costs of violent crime to society (Cohen, 1988, 1990; Wickramasekera *et al.*, 2015), the increase in crime informed the Trump administration's decision to reduce police reform efforts (Benner, 2018). If the de-policing hypothesis is true, protesting against police misconduct thwarted law enforcement reform.

Despite the finding related to stops and crime, it was not determined how police stops and crime directly affect one another. Stops and crime rates exist in a system; one can infer that changes in crime affect changes in stops and vice versa. To the extent this is true, the relationship between stops and crime must be estimated appropriately to capture the dynamics between the two variables (Brandt and Williams, 2007). Unveiling the true relationship between stops and crime will inform the true extent of a proactive police action and its ability to arrest delinquency in the short and long terms.

De-policing research, so far, tends to focus on officer sentiments and crime outcomes. While useful, de-policing research may yield additional discoveries. In particular, one could direct their focus towards the events that occur within a traffic stop. Officers possess a variety of means to escalate and/ or control a situation; de-policing may inhibit an officer's decisions within an encounter. In some situations, one may see officers demonstrate a hesitancy to use force (James *et al.*, 2016; Worrall *et al.*, 2018). If officers change their use of force behaviour, there may be both negative and positive consequences to this behavioural shift.

Further, one should not dismiss the assumption that officers feel less motivated or disconnected from their mission in the wake of negative external scrutiny as some studies indicate officers may experience confusion and disillusionment during these periods (Davis *et al.*, 2005; Stone *et al.*, 2009). These feelings may be prevalent within a law enforcement agency; however, officers may externalize their feelings in other ways, unrelated to their chief mission of combating and preventing crime. Negative external scrutiny may produce elevated levels of stress, lack of sleep, negative emotions, or maladaptive coping behaviours. In the future, researchers should explore the impact of public scrutiny on officer mental health and coping behaviours. Scholars

should also examine how police organizations support officers after periods of intense external scrutiny (see Nix and Wolfe, 2018a,b.)

One should not read too deeply into the findings produced by this study. Police departments participating in the SOPP differ from others by virtue of their participation in the program. The available data do not provide enough contextual information (such as the reason for the stop) needed to refine one's understanding of when/why stops shifted in the observed time period. A new research study should consider how the quality of police officer stops changes over time. In this instance, one may be concerned with the ratio of 'hit' stops (e.g. leading to arrest, searching person and finding contraband, etc.) changes in the face of negative external scrutiny. Assuming de-policing effects instil a hesitation or fear of initiating police–citizen contacts, one might expect that officers choose to intervene only when clear and convincing evidence suggests trouble may be afoot. One may expect officers to become more selective when making stop decisions which may lead to higher hit rates (see MacDonald and Braga, 2019)

De-policing represents an important area to study with respect to police protests and police reform. As conversations on these issues grow louder in volume, it becomes increasingly important to unpack the theoretical and practical impacts of police inactivity. One can hope that a nuanced discussion about police reform and its downstream effects continues to develop.

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