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Examining the Validity of Traffic Stop Data: A Mixed-Methods Analysis of Police Officer Compliance

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Abstract

Police departments rely on administrative rules to set organizational priorities and establish systems of accountability. To that end, several departments require officers to submit data describing every traffic stop they conduct as a way of tracking officer activity and identifying any race-based disparities. This paper draws on an analysis of San Diego Police Department traffic stop records, as well as officer survey and interview data, to examine the validity of the traffic stop data gathered and the compliance-related motivations of officers. Findings indicate a 19 percent error rate in stop data submitted between 2014 and 2015, amidst evidence of substantial underreporting. Qualitative data suggest that officers see the policy as redundant and an infringement on more pressing aspects of their job. They doubt the ability of external stakeholders to interpret the data objectively and report a loss of morale, largely attributed to the perception that their actions are inaccurately racialized.

Keywords

racial profiling, data validity, police compliance, police accountability, officer motivation

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The operation of public organizations is predicated on the order and predictability that rules provide (Bozeman & Feeney, 2011; Weber,1947/2009). Rules define individual-level professional duties and boundaries, while setting in place the structure for organizational and individual decision-making (Burns & Stalker, 1961; Weber, 1947/2009). They also serve as the foundation for bureaucratic accountability (Hupe & Hill, 2007).

There is a robust, multidisciplinary literature that examines how and why bureaucrats respond to rules designed to shape or alter behavior in accordance with non-mission-based values like transparency and lawfulness (e.g., Brehm & Gates, 1999; Martin et al., 2013; Tummers et al., 2015). The research presented here examines rule compliance in the context of police traffic stops. Compliance can be defined as "a behavioral state in a specific time, situation, and place that conforms (completely or partially) to behavioral directives, such as those embodied in laws, social norms, and organizational policies" (Siddiki et al., 2019, p. 4). We consider the motivations and behavior of San Diego Police Department (SDPD) officers, mandated to collect data documenting the race and gender of the drivers they stop, why each stop was initiated, and the legal outcome of each encounter.

Traffic stop data collection is an important policy area within which to examine compliance. Well-documented racial disparities in the enforcement of traffic stops around the country are a significant component of an ongoing discussion of race and policing in the United States. "Driving while Black" has long been part of the lexicon, short hand for the assumption that Black drivers are subject to differential treatment by police (Harris, 1999; Lamberth, 1998). The costs of this disparity are incredibly high: Several high-profile police-involved deaths have originated with traffic stops involving Black drivers (e.g., LaFraniere & Smith, 2016), a fact some researchers have highlighted to explain the low levels of police trust and legitimacy in many minority communities (Tyler & Wakslak, 2004).

Traffic stops are highly discretionary; individual officers maintain substantial authority over who is stopped and have wide legal berth in justifying their decisions (Goldstein, 1960; Walker, 1993). As a result, both internal and external regulation of the issue is rather difficult. Data collection has become a critical tool in this regard. In 2015, for example, President Obama's Task Force on 21st Century Policing urged all law enforcement agencies "to collect, maintain, and analyze demographic data on all detentions (stops, frisks, searches, summons, and arrests)" (p. 24). Several jurisdictions, including departments in states like North Carolina, Missouri, Maryland, and Texas, are subject to statewide mandates (National Conference of State Legislators, 2018). Others have adopted data collection efforts at the behest of local oversight initiatives (e.g., St. Paul, Minnesota) (St. Paul.gov, n.d.) or voluntarily (e.g., San Diego) (Baker, 2014).

Despite the proliferation of data collection efforts, little is known about the behavior of the officers subjected to such mandates. In other words, stakeholders – lawmakers, police executives, police oversight organizations, and members of the media and the public – are underinformed about the quality of the records being produced, with little insight into the likelihood that officers are recording stops either incompletely or inaccurately, or simply choosing not to document stops at all.

In an effort to help fill this gap, this study draws on an analysis of over 250,000 traffic stop records, in addition to survey and interview data gathered from SDPD officers, to address three questions:

1. How do officers perceive of the requirement that they document and report on the details of the traffic stops they conduct?
2. To what extent do officers comply with these requirements?
3. How do officers explain their compliance/non-compliance decision-making?

Our audit of SDPD data records shows substantial evidence of officer non-compliance, in the form of unrecorded traffic stops, and negligence, as evidenced by error-ridden stop records. These results are consistent with previous research. Our primary contribution to the literature on racial profiling and bureaucratic behavior are qualitative insights into the motivations of officers subject to data collection mandates. The analysis suggests that officers see the Department's traffic stop mandate as redundant, duplicative of existing data collection efforts, and an impediment to meaningful police work. Officers also described a lack of trust in agency leadership and external stakeholders, including members of the media and the public, largely attributed to a perceived ignorance of the traffic stop process and a biased view of law enforcement.

Traffic Stop Data Collection

Information drives the practice and management of law enforcement in the United States. Police leadership is increasingly reliant on data to set enforcement priorities and allocate personnel and other organizational resources (Ferguson, 2017; Goel et al., 2017). Data is also crucial to the oversight of police practices. The performance of several legal and administrative accountability mechanisms, including civil and criminal court systems, state and federal agencies, and civilian review boards, is predicated on this same administrative information.

There is also a long history of research that draws on these data to gain insight into police behavior. A deep literature exists on the enforcement of traffic stops, with analysis of administrative records detailing the extent to which driver race shapes the likelihood of being stopped, searched, and arrested (Pierson et al., 2019). This work has been used as evidence in high-stakes civil litigation

(Gelman et al., 2007), driven institutional reform efforts (U.S. DOJ, 2017), and motivated recent legislation.

Designed to eliminate the use of race, gender, and other physical characteristics from police enforcement decision-making, The Racial and Identity Profiling Act (RIPA) of 2015 requires California law enforcement agencies to collect and submit to the State's Attorney General detailed information about all police-initiated traffic, pedestrian, and bicycle stops, including the race and gender of the person stopped, the reason for the stop, and the actions taken by the officer during the stop (Sec. 3, Art. 999.226). The law also requires affected departments to submit to the California Attorney General all data collected (Sec. 3, Art. 999.227). Officers in at least twenty other states are required to record and report on similar demographic and incident-related data for every traffic stop conducted in the jurisdiction (National Conference of State Legislators, 2018).

The central premise of such oversight efforts – that the data will deter unlawful behavior and help state regulators hold such action to account – is based on the assumption the data collected are a valid indication of what officers do on a daily basis. The proliferation of legislation like RIPA has no doubt increased understanding of existing racial disparities in policing. The overwhelming number of peer-reviewed studies using administrative data to examine traffic enforcement is evidence of this fact.

And yet, the large majority of studies on traffic stop enforcement omit discussion of data validity. Of the over 100 papers and reports we reviewed, just 19 addressed data quality in any meaningful way. As is shown in Table 1, 17 studies evaluated the extent to which submitted forms either included incorrect information or lacked requisite data,[1] while eight addressed the rate at which officers failed to record traffic stops. Beyond the fact that data issues have been dramatically understudied over time, three themes are worth noting.

First, the extant research suggests rather clearly that available traffic stop data is not a valid description of police behavior. As Wallace et al. (2016) note, a five percent error rate is the widely accepted threshold for distinguishing high-quality data (see also, Engel et al., 2007, 2008 Fridell, 2004). Note that in this instance and throughout the remainder of the paper, error rate denotes the percentage of stop records submitted with either missing or incorrect data. As Table 1 shows, only one such jurisdiction – Cincinnati, whose error rate fell well below five percent in the final two years of a five-year study – met this standard. Perhaps even more concerning than the high error rates and inconsistent data quality is the lack of scholarly attention to unrecorded stops. It seems likely that this is a reflection of both the challenge of acquiring the underlying data needed to consider the issue and the high degree of uncertainty that characterizes interpretation of a disparity between the number of stop cards submitted and alternative forms of tracking police activity, for example, dispatch records or court-sanctioned citation records.

Table 1. Empirical Literature Examining Traffic Stop Data Validity.

Author	Jurisdiction	Error rate (% missing data)	Non-compliance rate (% unrecorded)
GAO (2000)	Philadelphia, PA	50*	NA
Smith & Petrocelli (2001)	Richmond, VA	NA	36
Cordner et al. (2002)	San Diego, CA	NA	40
Engel et al. (2006)	Cleveland, OH	6.7	NA
Warren et al. (2006)	State of North Carolina	NA	"up to a third"
Grogger and Ridgeway (2006)	Oakland, CA	13.8	NA
Engel et al. (2007)	State of Arizona – Year 1	14.1	NA
Engel et al. (2008)	State of Arizona – Year 2	10.4	NA
Cherkauskas et al. (2009)	State of Arizona – Year 3	7.8	NA
Riley et al. (2005)	Cincinnati, OH – Year 1	30.4	17–22
Ridgeway et al. (2006)	Cincinnati, OH – Year 2	24.8	12.2
Schell et al. (2007)	Cincinnati, OH – Year 3	24.1	9.7
Ridgeway et al. (2008)	Cincinnati, OH – Year 4	0.8	5.0
Ridgeway (2009)	Cincinnati, OH – Year 5	0.5	1.7
Wallace et al. (2016)	Maricopa Cty, AZ – Year 1	10.8	NA
Wallace et al. (2017)	Maricopa Cty, AZ – Year 2	5–6	NA
Wallace et al. (2018)	Maricopa Cty, AZ – Year 3	5–6	NA
Hunt et al. (2017)	Greensboro, NC	22	NA
Smith et al. (2017)	San Jose, CA	9	NA

*Data on driver race only.

Second, the transition from paper data collection forms to electronic forms appears to have improved data quality. In the early-2000s, after the first wave of state-level data collection legislation, several jurisdictions commissioned traffic stop analyses. At that point, officers in places like Sacramento, Los Angeles, and San Diego, were documenting traffic stops by hand. This early procedure led to error rates as high as 40 and 50 percent (Cordner et al., 2002; Farrell et al., 2003; see also, Greenwald, 2001). Engel et al. (2007) published the first of three disparate impact evaluation reports for the Arizona Department of Public Safety, just as the agency was transitioning from a paper to an electronic form. A comparison of 1,000 stops documented by both types of form showed an error rate of 26.5 percent on the paper forms, a finding the authors attributed to 'system errors,' rather than officer non-compliance or negligence.

Third, data quality seems to improve in response to organizational attention to the matter. In Cincinnati, a team of researchers from RAND conducted a five-year review of traffic stop data gathered (electronically) by Cincinnati Police Department (CPD) officers. In year one, over 30 percent of stop records had at least one error; in years two and three, the error rate dipped down to just below

25 percent (Riley et al., 2005). After focused attention on the inclusion of stop location data, which accounted for the bulk of the error rate in the study's early period, the error rate in years four and five dropped nearly to zero (Ridgeway, 2009). Engel et al. saw a similar if steadier decline in Arizona. In 2007, their audit of some 460,545 electronic traffic stop records showed an error rate of 14.1 percent (Engel et al., 2007). The error rate dropped to 10.4 percent the following year (Engel et al., 2008), falling to 7.8 percent in 2009 (Cherkauskas, Smith, Lytle, & Moore, 2009).

RAND also saw a decline in unrecorded stops during their 5-year review of the Cincinnati Police Department. In year one, the authors estimated a 17 to 22 percent discrepancy between dispatch logs and stop records submitted by CPD officers. In year two, the non-compliance rate had dropped to 12.2 percent, and by year five, it was less than one percent.

In sum, the available evidence suggests that some officers have chosen not to comply with their department's data collection mandate. In some cases, non-compliance has manifested in stop cards that include either inaccurate or missing data; in others, officers have neglected to submit stop cards altogether. Despite these data, there is relatively little known about the motivations driving non-compliance. In the section that follows, we draw from an array of social science literature to develop a framework for understanding this behavior.

Rule Compliance

Police officers, like teachers, and other front-line workers, operate with considerable autonomy and broad discretionary authority. An officer alone determines which driver shall be stopped, cited, searched, or arrested, and does so without an immediate supervisor monitoring the propriety of their behavior (Lipsky, 2010; Maynard-Moody & Musheno, 2003). The challenge this set of circumstances presents for regulators, whether police chiefs, state legislators, or federal court judges, is well-established in the social science literature (e.g., Davis, 1975; Goldsmith, 1990; Trinkner et al., 2018), and evidenced by the record of non-compliance discussed above.

Decision-making is driven by an individual's psychological composition and the existence of human flaws, inconsistencies, and cognitive biases (Klein et al., 1993). Central to operation of these factors is the assumption that human beings are boundedly rational actors (Pogarsky et al., 2017; Simon, 1972). That is, police officers, like the rest of us, are goal oriented, yet limited in their ability to process information and internalize other external stimuli (Siddiki, 2018; Worden, 1989). Further, we each assign different weights to the costs and benefits of our decisions. Some officers, for example, are driven by material rewards; others by the fear of losing social currency or in-group acceptance; still others are more risk averse than their colleagues, and so on (Bradford et al., 2014; Van Maanen, 1975).

In this vein, certain rules may present conditions or shift incentives to a point where the benefits of non-compliance outweigh the costs of sanction. For example, economists and rational choice theorists have argued that non-compliance may be a logical and even defensible response to policies that increase the cost of on-the-job error or abuse (Pierre & Peters, 2017; Shi, 2009). Policing scholars have examined this thought process in the context of organizational response to scandal.

Prendergast's (2001, 2002) research on the Los Angeles Police Department's (LAPD) organizational reform in the wake of the 1992 Rodney King incident illustrates this perspective clearly. An analysis of monthly arrest rates showed that officer productivity declined shortly after the riots. Data showed that fewer arrests were recorded, with the steepest declines measured in areas where officer discretion was highest, including narcotics- and prostitution-related arrests. Prendergast (2001, pp. 20–21) explained her findings in the language of cost-benefit analysis: Organizational reforms designed to increase punishment for excessive force like that used against King "may have backfired, by reducing the incentives for officers to do their primary job, namely, confronting and arresting criminals."

A similar logic extends to data collection initiatives like the one that exists in San Diego. These requirements are motivated by an effort to document officers' use of discretion in an area of policing widely believed to perpetuate racial inequality (e.g., Rojek et al., 2012; Smith & Petrocelli, 2001). To an officer who does not see driver race as affecting their own decision-making or the distribution of traffic stops more broadly (Welsh, Chanin, & Henry, 2020), data collection only redounds to their detriment. As one Boston Police Department union representative noted in response to the release of a report analyzing the racial distribution of traffic stops conducted across the state of Massachusetts, "Police officers, already second-guessed and harangued by the media, will respond [to the release of the report] by not enforcing traffic laws, out of a legitimate and real fear of being forced to participate in the manufacture of their own noose" (Dedman, 2004).

Opposition to data collection is likely not limited to individual factors, like the fear of being characterized as racist. Formal and informal organizational factors have also been shown to directly affect compliance-related decision-making (Siddiki et al., 2019). There is evidence to suggest that public actors are less likely to adhere to rules that conflict with the normative or cultural influences shaping their professional lives (Halperin & Clapp, 2007; Klein & Sorra, 1996). Among the dominant strains of the police subculture, particularly that maintained by officers working at the street level, is an action orientation and the preeminence of crime fighting (Loftus, 2010; Paoline, 2003). From this perspective, data collection mandates interfere with an officer's ability to fight crime. For example, after calling California's data collection legislation "terrible," the president of the Long Beach police officer union noted that

"We have contact with the public all the time that requires no documentation, no paperwork. Now, the amount of time we have to spend doing documentation and paperwork has gone up. The time doing menial tasks has gone up" (Christensen & Hamilton, 2015).

The response to such laws is also consistent with the strain of officer culture that is skeptical of external oversight generally (Walker & Archbold, 2018; Wells & Schafer, 2007). Regulation by non-police is viewed as being inherently inefficient and ineffective; only police are knowledgeable enough about the profession to institute oversight seen as being both necessary and unobtrusive (Walker, 1977). The president of the LAPD officer union suggested as much while arguing against RIPA:

> Sometimes when people get pulled over they claim it's because they are Black, or Hispanic or white. Unless you can get into the officer's mind when he's doing that traffic stop, there is no way to prove it was because of race — unless he or she admits it .... It is impossible to look at statistics and prove racism (Christensen & Hamilton, 2015).

Various formal organizational-level efforts to shift bureaucrats' perspective on rule compliance are also worth highlighting. The most direct effort in this regard is the specific oversight and enforcement systems put in place. Following the logic of deterrence theory, it is relatively common practice for agencies to shape behavior through policies that aim to increase the certainty of detection or the severity of punishment associated with non-compliance (Herath & Rao, 2009; Pogarsky & Piquero, 2004). Though as one recent study has shown, this approach may be complicated by the view among officers that the use of increased penalties is unjust (Harris & Worden, 2014).

Indeed, there is a growing literature documenting the compliance-related benefits of efforts to promote organizational justice. Officers who believe their agency is a fair, inclusive, and just place to work are less likely to engage in misconduct or other non-compliant behavior (Miller & Maloney, 2013; Wolfe & Piquero, 2011). Trust between those subject to a rule and those charged with enforcement is central to this dynamic (Scholz & Lubell, 1998). As Haas et al. (2015) demonstrate, support for and compliance with organizational use of regulations correlates with officers' level of trust in their immediate supervisors.

There is also evidence to suggest that officer non-compliance may increase in response to feelings of anger and alienation by agency policy and managerial practice (Henry, Chanin, & Welsh, 2018; Sutton, 2015). Anthony Walker, President of the Prince George's County, Maryland Fraternal Order of Police, illustrates this perspective clearly, noting that officers in his union engaged in an enforcement "slowdown" out of frustration with "leadership, with the media and with the overall perception of the agency" (Stockwell, 2001; see also, Wolfe & Nix, 2016).

In the case of top-down, centralized bureaucracies like police departments, the behavior of mid-level supervisors is often an extension of the orientation and agency priorities established at the top of the organization (Fernandez & Rainey, 2006). Leaders who are actively committed to promoting compliance and skilled in disseminating organizational priorities can have a significant effect on the behavior of front-line staff (Bingham & Wise, 1996). In Pittsburgh, for example, former police chief Robert McNeilly was credited with driving the implementation of federal consent decree reforms (Davis et al., 2002), many of which attempted to limit officer discretion and intensify use of force oversight, championing the process in the face of vocal opposition from the officer union (Chanin, 2014). According to Vic Walczak, legal director for the ACLU of Pennsylvania, McNeilly's success was in part owed to his work fostering trust and confidence among the rank and file: He deserves "a lot of credit.... He brought the department into compliance with the consent decree faster than anyone thought possible" (Fuocco, 2006). Similar credit has been given to Chief William Bratton's role in promoting the implementation of the LAPD's consent decree reforms (Stone et al., 2009).

Beyond a committed leadership, several individual and organizational-level factors have been shown to affect bureaucratic compliance. The following section describes the data and method used to examine how these various components shaped SDPD officer motivation and behavior.

Study Context, Data, and Method

The data used for this research are drawn from four sources: (1) administrative records of 259,569 traffic stops conducted in San Diego between January 1, 2014 and December 31, 2015; (2) judicial records from 183,402 traffic citations written over the same period; (3) a mixed-methods survey completed by 365 SDPD officers; and (4) semi-structured, one-on-one interviews with 52 SDPD officers. These data were gathered as part of a year-long analysis conducted by the authors at the behest of the San Diego City Council.

Under the SDPD policy, upon completing a traffic stop, officers are required to submit what is known as a Vehicle Stop Card.[2] The stop card's electronic entry form allows officers to record driver race, gender, age, and residency status (whether the person is a City of San Diego resident), as well as descriptive details of the stop, including when, where, and why it occurred.[3] Officers are also required to track whether the encounter led to the issuance of a citation, a field interview, search or seizure, the discovery of contraband, or an arrest.[4] These data, as well as judicial citation records, were transferred to the research team by SDPD staff.

Our audit of the stop card records included an analysis of missing data and incomplete records submission, both in general and by driver race and stop location.[5] We also compared the volume of citations included in officer Stop

Card records with official citation records in an effort to estimate what if any underreporting exists.

The online survey consisted of 36 questions about officers' perceptions of crime, safety, traffic enforcement, and race. In addition, officers were given the opportunity to leave qualitative comments at the end of each of the survey's seven sections. On two separate occasions during the six weeks the survey was open, the SDPD Chief of Police sent emails to all sworn officers (n = 1858) requesting that they complete the survey. Of the 365 officers who responded, 55.6 percent identified as White, while 14 percent identified as Latinx, 3 percent as Asian/Pacific Islander (API), 2.5 percent as Black, and 12.9 as Other; 12.1 percent of respondents gave no response. The sample was split relatively evenly between Patrol Officers (49 percent) and Sergeant or above (38.6 percent), with some 59.5 percent claiming at least 11 years on the job (Chanin, Welsh, Nurge, & Henry, 2016).

As a follow-up to the survey, the research team conducted one-on-one, semi-structured interviews with 52 SDPD officers. The officers were drawn from SDPD's nine patrol divisions, with administrators in each division scheduling volunteer participants between shifts so as to maximize officer availability. The interview sample was mostly male (87 percent) and White (55 percent). Non-White officers identified as Latinx (20 percent), Black (10 percent), API (2 percent), or mixed ethnicity (10 percent). Respondent professional experience averaged 9.5 years (Authors, 2016). As with the survey respondents, the demographic profile of the interview sample fairly closely mirrors the SDPD overall: In 2015, 84 percent of SDPD officers were male, 63.5 percent White, 21.2 percent Latinx, 9.1 percent API, and 6.3 percent Black (Authors, 2016).

The interviews touched on traffic enforcement in the context of race and crime, as well as data collection, transparency, and officer morale. The specific focus of our questions was driven by our interpretation of the quantitative survey data and informed by preexisting research. Following a deductive process, the first author coded the transcripts using several codes generated by the literature reviewed above (e.g., rule compliance) and related to traffic enforcement, the stop cards, and the data collection process more broadly.

Findings

Evidence of Non-Compliance

Our audit of the stop card data found that 49,443 of the 259,569 traffic stop data cards submitted between January 1, 2014 and December 31, 2015 were missing at least one required data point, resulting in an error rate of 19.0 percent, as is documented in Table 2. Of the 144,164 stop cards submitted in 2014, 17.4 percent were missing at least one data point: 9.0 percent of stop cards failed to include driver demographic data, 6.1 percent were missing only post-stop

Table 2. Information Missing From the 2014 and 2015 Datasets.

Stop feature	2014	2015
Demographic/stop description		
Driver race	0.2% (n = 222)	<0.1% (2)
Driver age	6.0 (8,655)	0.0 (0)
Driver gender	0.2 (213)	0.2 (232)
Residency status	3.2 (4,622)	9.9 (11,372)
Stop location	2.3 (3,160)	2.9 (3,315)
Reason for stop	0.2 (212)	0.0 (0)
Stop time	0.3 (482)	0.4 (408)
Stop date	0.0 (0)	0.0 (0)
Post-stop outcomes		
Citation issued	7.7% (n = 11,126)	14.2% (n = 16,352)
Field interview conducted	2.8 (4,045)	14.2 (16,352)
Search conducted	1.4 (2,044)	8.2 (9,447)
Arrest	1.3 (1,872)	7.7 (8,845)

2014: N = 144,164; 2015: N = 115,405

data, and 2.3 percent were missing some of both. More than one-fifth (21.1 percent) of the 115,405 stop cards submitted in 2015 were incomplete, with nearly half of those missing both demographic and post-stop information.

Across both years, officers were less likely to omit demographic data than they were information pertaining to post-stop outcomes. Several of these variables included relatively high levels of missing information, including whether the officer issued a citation (10.6 percent), administered a field interview (7.9 percent), or conducted a search (4.4 percent).

These findings are consistent with qualitative comments submitted as a part of the officer survey and in one-on-one interviews. For example, in response to a question about behavior during and after a traffic stop, one officer admitted flatly to non-compliance with the data collection mandate: "I do not [complete the data card], I do not. I try, but I forget, because again, although we have had them for years . . . . [M]ost of us are pretty lazy and we do not do them, like screw this . . . ". Another officer, who has been with the SDPD for over two decades, described officer efforts to deceive supervisors as to the racial distribution of their stop behavior:

> Of course, the demographic forms, officers cheat on those. And in order to get the real deal on what the statistics are, you need to look at the actual citation. Because officers sometimes don't enter that information or . . . they will change it, you know. And they'll say, "Hey, I stopped a white guy," and really, it was a Hispanic guy or, "I stopped a male," and really, it was a female or whatever.

To that end, Table 3 presents missing data by driver race. Stop cards submitted following stops involving either Black (21.1 percent) or Latinx (21.0) drivers were statistically significantly more likely to include missing data than stops involving either Asian/Pacific Islander (17.0 percent) or White (17.7 percent) drivers.[6] On the surface, the data in Table 4, which describe the distribution of missing information by patrol division, also suggest a loose correlation between subject race and data quality. The highest percentage of incomplete stop cards were filed by officers on patrol in communities of color (Southeastern, Central, and Southern), while cards submitted by officers in divisions with fewer

Table 3. Incomplete Stop Cards Submitted in 2014 and 2015, by Driver Race/Ethnicity.

	Stop cards submitted	Missing demographic data	Missing post-stop data	Missing both types of data	Total incomplete
API	41,021	2,625 (6.4%)	2,429 (6.4%)	1,922 (4.7%)	6,976 (17.0%)
Black	28,535	2,136 (7.5)	2,577 (7.5)	1,302 (4.6)	6,015 (21.1)
Latinx	77,934	5,258 (6.7)	5,584 (6.7)	5,563 (7.1)	16,405 (21.0)
White	111,855	7,051 (6.3)	8,082 (6.3)	4,690 (4.2)	19,823 (17.7)
Total	259,345	17,070 (6.6)	18,672 (7.2)	13,477 (5.2)	49,219 (19.0)

Note. These data exclude missing data for the discovery of contraband, the seizure of property, and driver race. The 224 stop records submitted without driver race/ethnicity data account for the difference between the totals listed in Table 3 and that listed throughout the rest of the paper (259,569).

Table 4. Incomplete Stop Cards Submitted in 2014 and 2015, by Patrol Division.

Patrol division	Percent Black/ Latinx residents*	Stop cards submitted	Missing demographic data (%)	Missing post-stop data (%)	Missing both types of data (%)	Total incomplete (%)
Central	48.6%	29,692	1,429 (4.8%)	3,070 (10.3%)	1,756 (5.9%)	21.1%
Eastern	20.5	31,788	1,505 (4.7)	2,217 (7.0)	2,217 (4.6)	16.3
Mid-City	48.9	27,692	1,309 (4.7)	2,304 (8.3)	1,034 (3.7)	16.8
Northeastern	13.1	31,692	950 (3.0)	1,242 (3.9)	1,242 (3.2)	10.1
Northern	14.7	37,203	1,872 (5.0)	3,567 (9.6)	3,567 (2.6)	17.2
Northwestern	7.8	16,306	903 (5.5)	802 (4.9)	784 (4.8)	15.3
Southeastern	63.8	19,292	1,773 (9.2)	1,866 (9.7)	1,002 (5.2)	24.1
Southern	76.3	29,351	705 (2.4)	1,362 (4.6)	3,791 (12.9)	20.0
Western	21.0	30,078	1,247 (4.1)	2,242 (7.5)	2,242 (2.6)	14.2
City-wide total	*32.4*	*253,094*	*11,693 (4.6)*	*18,672 (7.4)*	*12,603 (5.0)*	*17.0*

Note. Missing data totals do not include the 6,475 stop records submitted without stop location information, which explains the discrepancy between the city-wide totals listed here and those refrenced elsewhere in the paper.
*City of San Diego (2015).

Black and Latinx residents (Northeastern, Western, and Northwestern) were among the least likely to omit required information. These data suggest that in some combination, driver race, stop context, and the influences of one or several organizational factors (e.g., leadership, culture, formal or informal accountability systems), may have influenced compliance-related behavior.

In addition to evaluating the quality of data submitted by SDPD officers, we also compare data drawn from SDPD stop cards with those gathered from physical citations written by SDPD officers in an effort to estimate the number of traffic stops that went unrecorded in during the study period. The underlying premise of this comparison is that because traffic citations are subject to judicial oversight (i.e., if there is either no record of the citation issued or there are errors or omissions on the citation record, then the citation is legally unenforceable), they offer a valid indication of officer activity, as compared to stop card records, which are not subject to external verification.

Judicial records indicate that the SDPD wrote 183,402 citations in 2014 and 2015, a total some 26.1 percent greater than the 145,490 stop card records showing the issuance of a citation. In Table 5, we document these disparities by driver race both to make projections about the number of stops that appear to have gone unrecorded and to assess the extent to which unrecorded stops clustered in a way that disproportionately affected certain drivers. We estimate that SDPD officers conducted approximately 67,351 stops without submitting a stop card.[7]

Though there are marginal differences seen in the comparison of stop card and judicial citation records by driver race (e.g., API drivers account for 16.14 percent of citations documented by stop card and 18.49 percent of judicial citations), there is little to substantiate the view that they are the product of

Table 5. Comparing Judicial Citation Records With Stop Card Citation Records.

Driver race	Stop cards issued	Stop card citation records	Citation rate*	Judicial citation records	Projected traffic stops	Unrecorded stops
API	41,021	23,483 (16.14%)	57.25%	33,919 (18.49%)	59,247.16	18,226.16
Black	28,535	13,160 (9.04)	46.12	17,040 (9.29)	36,947.09	8,412.09
Latinx	77,934	44,165 (30.36)	56.67	55,674 (30.35)	98,242.46	20,308.46
White	111,855	64,682 (44.46)	57.83	76,769 (41.85)	132,749.44	20,894.44
Total	*259,569*	*145,490 (100.0)*	*56.10*	*183,402 (100.0)*	*326,919.79*	*67,350.79*

Note. Projected traffic stops were calculated by dividing the judicial citation record total by the citation rate (e.g., 33,919/.5725 = 59.247.16). Unrecorded stops were calculated by subtracting total stop cards issued from the total projected traffic stops (e.g., 59,247.16 – 41,021 = 18,226.16). The slight difference between the total projected stops listed (326, 919.79) and the total generated by adding race-specific projections (327,186.15) is attributed to rounding.

*Based on 2014 and 2015 stop card records.

racial animus or other racially-motivated behavior on the part of SDPD officers. Because the judicial records provided little information beyond subject race, we are unable to provide a more thorough analysis of other factors that may affect our projections (e.g., if police officers were more likely to record stops that resulted in a citation than those that led to a warning, the number of unrecorded stops may be higher than our projected total) or further explain the discrepancy between stop records and physical citations.

Ultimately, even with these limitations in place, the combination of low-quality stop card data and evidence of unrecorded stops suggests non-compliance with SDPD's data collection mandate. The following section describes the results of our qualitative inquiry into the motivations of officers.

Officer Motivations

Misuse of Resources. The first theme to emerge from both the qualitative responses to the officer survey and our interviews was the cost of data collection in terms of officer time. A majority of respondents felt the data collection efforts captured information that is available through other means, including traffic citations and written warnings given, along with the daily log officers submit to their supervisors at the end of each shift. In short, officers justified non-compliance by expressing frustration with a process they felt infringed on their ability to do their jobs. One officer suggested that "'race cards' or as you call them Stop Cards are another example of things that were conceived in the Department of Redundancy Department." Other officers referred to the stop cards as a "waste of time and money," while using language like "tiresome," "redundant," "nonsensical," "burden[some]," and worthless," to express frustration with the "double work" of submitting the stop cards.

In a similar vein, several officers questioned their own ability to identify the race or ethnicity of a driver before making a stop, a view seemingly used to indemnify them from blame for racially disparate stop patterns, in the process justifying non-compliance. A comment from another officer reflects this thinking clearly:

> Traffic Stop Data is a "JOKE!" The reality is 99% of vehicle stops are done when officers notice violations from behind the violator vehicle. The race or gender of the individual is not even identified until the officer makes contact with the vehicle operator.

Various respondent officers also suggested repeatedly that the data gathered by the SDPD does not accurately capture the race or ethnicity of the driver, and further, that putting officers in the position of recording these data is problematic. In some cases, non-compliance is offered as a solution to indecision about

how to frame the racial or ethnic classification of certain drivers. As another officer indicated, "... asking a person, "Which kind of Asian are you?" is offensive. When I have to ask a mixed-race person for their race, it offends them. I usually leave the race box blank." Another officer noted, "There are also several different ethnicities that comprise the race box on the forms, thus being inaccurate for most data collection ....[P]lus I feel it is rude (and have been told this by persons I have stopped) to ask the race when it is not apparent ....So the collection is flawed from the start." Results from the officer survey lend support to these findings: 72 percent (254 of 353) of respondents either disagreed or strongly disagreed with the statement, "The stop cards are a worthwhile policy."

To some, the stop card mandate was not simply an unnecessary bureaucratic process, but rather a reflection of the Department's wider misuse of resources. According to one mid-level supervisor, "Robbing Peter to pay Paul will have its own set of consequences. [B]udgets and professionally trained officers are a finite commodity." Given their unique organizational perspectives, it is not uncommon for front-line staff and leadership to maintain distinct views on the most effective way to allocate agency resources (Reuss-Ianni, 2011). And yet, the opinions of some officers seemed to reflect more than just varying perspectives. The view of one officer highlighted a lack of trust in the motives of agency leadership: "... adding another rule or policy amidst the 4" three ring binder full of other policies and procedures because someone is trying to use politics to assert a particular view gets tiresome." Another officer was even more explicit: "The chief wants every contact or positive citizen event memorialized to make the her look good."

It is also worth highlighting respondent officers' near universal lack of support for the data collection effort generally. Though some respondents discussed the external demand for such a process and the concomitant pressure on Department leadership, very few if any officers were willing to accept that data collection improved their day-to-day professional lives or promoted either public safety or organizational legitimacy.

This lack of trust in the motives of police leadership is consistent with the compliance literature and seems to support the view that officers see noncompliance not only as an act of self-preservation, but an act of political dissent.

Skepticism of outside Understanding. A significant number of officers voiced frustration with the way their stop patterns are perceived by outsiders, including members of the public, the media, the political class, and advocacy groups. Some of this frustration was driven by the sense that those outside of the Department do not understand how police do their jobs. In the context of traffic stops, respondent officers believe that non-police are ignorant of the several factors other than driver race that shape stop patterns, including the influences

of SDPD's staffing formula. The view of one officer is representative of what most other respondents stated:

> Again, the data is tainted. The public sees a disproportionate amount of stops made on minorities, but they are not told the number of officers for the neighborhoods. If Southeastern SD has a higher number of officers, compared to Northeastern Division, obviously there will be more stops made in Southeastern Division, thus showing a higher rate of stops on minorities.

Others felt the need to assert that driver behavior, not race, determines who is stopped. As one officer noted, "We stop people who commit infractions, not races/ethnicities." Another officer expressed a similar sentiment, emphasizing the importance in acknowledging the flaw in using the data gathered to evaluate officers without the insight gained by doing the job:

> Traffic stop data cards can be very misleading because the underlying assumption is that all members of society commit traffic violations in exact proportion to their population. However this data is virtually meaningless unless we see the data on the driving capabilities of this particular group . . . .To do so will give false impressions of what is really happening.

In other cases, officers pointed to the importance of stop location and the demographic profile of their patrol areas in determining who is stopped. According to one officer, "If I work an area with mainly minorities, I am going to stop more minorities. This fact is never talked about." Several officers suggested that an area's racial composition in tandem with geographic crime rates drive stop patterns, not officer bias. The view of one officer is reflective of comments made by several others:

> There is no consideration for the majority of a specific race/ethnicity in an area where the traffic stop took place, nor the ratio of crime from specific race/ethnic group to the amount of people of that race/ethnic group in an area.

Interestingly, this view seems to conflict with the notion held by many officers that proper evaluation of the data is complicated by the suggestion that determining the appropriate San Diego-area demographic benchmarks against which to compare police stop patterns poses a significant challenge for analysts. As one officer notes, "It is difficult to account for our true demographic because of our city bordering with Mexico and large Military population." It also is worth considering the extent to which officers are able to accurately discern the demographic or criminogenic profile of the neighborhoods within which they police (Grunwald & Fagan, 2019).

Several SDPD officers also expressed a clear doubt about the ability of the public to interpret traffic stop data objectively. According to one respondent, "Citizens create their own reality with statistics, to support their narrative." Another argued that "No matter what the 'Numbers' show, a segment of the public will never be satisfied." A third officer's perspective makes the point even more forcefully:

> People only get the information they want to hear. If it shows the police stop a huge number of Caucasians the data is wrong. If a high number of Black or Hispanics are stopped then the Police are racist.

In line with this view is the fairly strong sense among officers that the media wittingly portrays an anti-police bias, as one noted, "I don't believe the data cards help because if it shows anything negative it will be magnified by the media. If the data cards are fine no one will care."

Harmful to Morale

Whereas many officers relied on rational arguments to justify or explain non-compliance, including the need to cope with requirements they felt were duplicative and expressions of mistrust of those charged with interpreting the data collected, others emphasized the emotional toll the policy has taken. Several respondents described feeling as though the very act of completing the stop card offended their personal sense of justice and racial neutrality. One officer expressed regret at "having to prove I'm not a racist after every traffic stop" while another suggested that the stop cards "make SDPD officers feel they are being accused of racism and biased policing." A third officer stated plainly that "the mandate to complete the data stop cards hurts morale."

While some officers described their frustration along organizational lines, others emphasized the damage to morale done by public reaction to the data. The views of one officer are representative:

> The assumptions made about the content of our character based on flawed conclusions made from comparing stop data to overall population without taking into account staffing levels at these neighborhoods is demoralizing. I do not enjoy being called a racist. I do not enjoy hearing people say there is systematic racism in our law enforcement agencies. It is insulting.

The officer makes clear that what is bothersome is that members of the public have based their judgments of him and the SDPD on a faulty premise. A second officer makes a similar argument, suggesting that officer morale suffers when officers are falsely accused of racism, rather than lauded for their crime control efforts. It is also worth noting the expression of frustration directed at SDPD

leadership for their unwillingness to effectively support front-line officers baselessly accused of racism:

> The problem arises when that is reported on face value without the context of overall crime patterns and the ethnicities involved in those crimes. That is a morale killer. When virtually ALL of your shootings and violent crimes are committed by gang members of minority groups and SDPD makes stops of said gang members or persons who fit the description of said criminals then SDPD should be congratulated for doing a good job to maintain San Diego's status of America's safest large city. Instead minority advocacy groups accuse SDPD of being racist and no one in department leadership steps up to explain what is going on then we have a problem, which is a morale killer. Every police officer I know goes to work to catch criminals and stop violent crime regardless of the race of the perpetrator.

Discussion and Conclusion

This mixed methods research examined the extent to which SDPD officers complied with the organizational data collection mandate and their compliance-related motivations. We found both quantitative and qualitative evidence of non-compliance. Analysis of nearly 260 thousand stop records submitted over two years revealed an error rate of 19 percent.[8] Several officers also stated in interviews that they have refused to submit the requisite data following a traffic stop or refused to conduct traffic stops as a means of avoiding the reporting requirements.

Analysis of the interview and qualitative survey data provided several insights into why such non-compliance may occur. Several officers expressed that the Department's data collection efforts were ultimately a waste of both time and resources. These findings are consistent with research on the importance of adequate resources in promoting rule compliance and highlight the need for regulators to think strategically about the organizational context within which such rules are implemented (Hupe & Hill, 2007). In the case of San Diego, these sentiments are likely tied to the SDPD's ongoing staffing shortage (Sorenson, 2018). Defined by a rash of staff transfers and difficulty recruiting new officers, these conditions have contributed to "less proactive policing, significantly increased response times and overwhelmed investigators," according to San Diego Police Officer Association representatives (Chen, 2017).

Operating under these circumstances, it is no surprise that certain officers expressed frustration with work they believed to be superfluous and inconsistent with their primary operational charge. One sergeant described the stop card as "just one more thing to do," noting that her officers were "out there to make arrests, they want to. It's like, 'Oh, now I gotta fill out this stupid stop card out.'" Both survey and interview data made clear that officers saw this

requirement as detrimental to crime control and offering little value to enhancing police-community relations.

A portion of these comments were likely driven by opposition to an accumulation of regulations. Police tend to oppose most external oversight and are resentful of paperwork generally (Loftus, 2010; Violanti et al., 2016). Indeed, a majority of officers framed their comments in terms specific to data collection and dissemination particularly. Some officers felt as though being required to document their stop behavior was akin being labeled as racist. To others, compliance meant gathering and submitting data to be consumed by the media, organized interest groups, and members of the public, each of whom were likely to arrive at unfounded conclusions based either on ignorance of the traffic stop process or blind anti-police bias. Still others reflected on the fact that officer morale was detrimentally affected as a result. Very few officers felt these costs were mediated by benefits to themselves or the Department. Just 27 percent of survey respondents felt that traffic stop data had the potential to increase community trust in the Department.

These findings highlight a series of organizational failures – and potential areas of improvement. First, it there is little evidence that officers were given any other insight about the policy or its implementation, suggesting that agency leaders assumed that hierarchical authority alone would drive compliance. And according to a portion of our officer sample this assumption was correct in some cases; multiple officers reported that they comply with the policy simply because their supervisors ask them to. Yet not a single officer we spoke with gave any indication that they knew what the data showed or how it was used by the organization. Several officers, in other words, were ignorant about the policy, felt threatened by the data it generated, and had no individual or organizational stake in its success.

Implementation scholars have long warned of the challenges created by policy that is hoisted on an organization by external actors who have not considered its implementation (O'Toole, 2000; Pressman & Wildavsky, 1984). The same logic extends to policies that originate at the top of a bureaucracy and filter down to the street level with nothing beyond a mandate (Franklin, 2000; Lipsky, 2010). As an antidote, scholars suggest that agencies should engage in the type of strategic planning that incorporates the views of front-line staff and other bureaucratic stakeholders about the policy implementation process (Engel et al., 2006). An inclusive approach to rule-making and enforcement would build trust and foster the type of organizational legitimacy that can drive compliance (Bradford et al., 2014).

In the context of data collection mandates, such an approach should at minimum involve informing patrol officers the purpose of the rule, the ends it will serve, both at the agency and individual officer levels. Informing officers of the steps the Department will take to ensure that external stakeholders will receive the data with the background information necessary to properly interpret and

contextualize the findings would help to develop needed trust in the regulators (Bardach & Kagan, 1982).

Further, such an approach would solicit the views of street-level officers on the process of recording and submitting the requisite information. In the SDPD's case, this exchange might include discussion of data duplication, the perceived conflict between data collection and crime control, and the effects such efforts have on officer morale, among others. Of course, such an approach is predicated on agency leadership questioning "the assumption that [they] ought to, or do, exercise the determinant influence over what happens" after a policy or rule is established (Elmore, 1979, p. 604).

It also presupposes that agency personnel at all levels of the organization have a stake in and genuine commitment to policy compliance. Though it is difficult to discern something as nebulous as 'commitment,' the fact that many of the officers we spoke with seemed to either minimize the problem of race-based disparities, place blame on external actors, including members of the media and the interested public, or deny it outright, suggests an unwillingness to recognize the legitimacy of the very problem data collection is in place to address. It is logical to assume therefore that motivation to comply with such a policy is negatively affected. Our findings reflect an overall resistance among line personnel to data collection and to science-driven policing more broadly, even as police leadership may publicly tout these values. As Harris (2012) notes – and as our data underscore – while this resistance may be rooted in a variety of individual-level factors such as cognitive dissonance and bias toward maintaining the status quo, it is reinforced at every turn by institutional and political dynamics that perpetuate an insular culture and disincentivize officer buy-in to transparency.

The absence of clear internal accountability measures is also indicative of a weak organizational commitment to the issue. The officers we interviewed were generally unfamiliar with the nature of the oversight in place. We were not able to identify a formal quality assurance review or a systematic approach to evaluating the validity of the stop card data. The survey data support these observations: 45 percent of respondents disagreed or strongly disagreed with the statement "Officers who submit incomplete or inaccurate stop cards are held accountable," while another 30 percent were "not sure." Steps to clarify both the oversight system and the costs of non-compliance would likely improve data validity and reduce the volume of undocumented stops.

As the first empirical research to examine officer non-compliance with data collection mandates, these findings deepen theoretical understanding of officer motivations in this context. This work also helps to inform the development of police officer reporting requirements, agency-level accountability systems, and external efforts to promote both data collection and compliance with

constitutional law. In light of AB 953's ongoing implementation, we also hope this work shines light on the value of valid data and the steps needed to capture it.

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Notes

1. It is nearly impossible to characterize the nature of these errors. The point of this figure is to illustrate how little attention has been paid to the issue and the need for more careful consideration of officers' (non)compliance-related motivations.
2. The SDPD adopted the data collection protocol voluntarily in 2000. After several years, the Department ceased requiring officers to document traffic stops out of a perceived lack of public interest in the issue. In January 2014, the Department reinstated the policy. According to former Chief William Lansdowne, racialized enforcement had "become a national issue" and the SDPD "wanted to get in front of it" (Baker, 2014).
3. The reporting officer is solely responsible for classifying the race/ethnicity of the driver. The accuracy of this determination is impossible to validate, which is to say that racial misidentification, whether the product of innocent mistake or otherwise, is necessarily omitted from our calculation of the SDPD error rate.
4. It is also worth highlighting that the stop card form does not prompt officers to record the specific location of the stop, the officer's race, gender, rank, or organizational affiliation, or the subject's demeanor or behavior. These several factors that have been shown to help explain officer decision making and inform the analysis of traffic stop and post-stop outcomes (e.g., Engel et al., 2012; Rojek et al., 2012).
5. In addition to our audit, the research team conducted a comprehensive disparate impact analysis of these data. Findings showed that driver race had little consistent, statistically significant effect on SDPD stop patterns (Authors, 2016). Analysis of post-stop outcomes showed substantial disparities across races. Black and Latinx drivers were more likely to be searched following a stop and despite these disparities, were less likely to be found with contraband. Police subjected Black drivers to field interviews at more than twice the rate of similarly situated White drivers. Interestingly,

we found little difference by race in the arrest and citation patterns of SDPD officers. In a 2018 study, we find some evidence to suggest that these patterns are at least partially attributable to a "catch and release" strategy, whereby officers subject minority drivers to disproportionately aggressive post-stop enforcement – field interview, search – and release the driver with no formal sanction – citation, arrest – in the absence of contraband or other evidence of criminal liability (Authors, 2018).

6. At the time of the data collection, the SDPD stop card did not prompt officers to document the exact location of the stop. Rather, stop data were aggregated by patrol division (n = 9). We were also unable to acquire data from the SDPD that allowed us to link particular officers with their traffic stop records, and as such we are unable to either examine officer-level patterns or aggregate by officer demographics.
7. According to stop card records, 56.1 percent of drivers stopped by SDPD were issued a citation. Working backward from the total judicial citations – 183,402 – the citation rate of 56.1 percent produces a projected stop total of 326,920 (183,402/.561 = 326,920). The difference between the projected total and the stop card total, 259,569, is 67,351.
8. It is difficult to know how the traffic stop data card error rate we identify compares to error rates associated with other data captured by the SDPD officers. It is worth acknowledging the possibility that it may simply be a reflection of the poor overall quality of police administrative data. Indeed, the problem of data quality is not unique to either traffic stop data or the SDPD; scholars have raised the issue in several different contexts, from problematic official crime statistics to incomplete use of force data (e.g., Harmon, 2012; Logan & Ferguson, 2016; Skogan, 1974). In any case, this is an issue that warrants further attention from police leaders and policy makers.

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