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Examining the Accountability-Performance Link: The Case of Citizen Oversight of Police

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Abstract: The public administration literature on the accountability-performance relationship depicts a mixed picture, with some studies arguing that accountability leads to a deterioration in performance and others finding that it leads to an improvement in performance. To reconcile this paradox and in response to recent calls for quantitative examination of the relationship in different contexts, we examine the impact of accountability on effectiveness in the context of policing, where some have suggested that accountability can have deleterious impacts on public and police officer safety. Using survey data and panel data modeling, we examine the impact of citizen oversight of police on two measures of effectiveness – the violent crime rate and line-of-duty homicides of police officers (HPOs). We find that while oversight with a *broad* scope of authority decreases the violent crime rate and HPOs, oversight with a narrow scope of authority leads to an increase in the violent crime rate. Our findings suggest that it is not merely the existence of an accountability mechanism that influences performance; instead, it is the *scope of authority* of an accountability mechanism that determines its impact.

Introduction

In recent years, several police-involved shootings have focused attention on the fairness of policing practices and have generated concern about the potential erosion of police legitimacy in communities of color (Fisher, Somashekhar, & Lowery, 2015). These events have led civil rights activists to call for increased police accountability, ranging from appointing independent prosecutors for cases involving police violence, revising use-of-force policies, and establishing citizen oversight of police (see President's Task Force on 21st Century Policing, 2015).

Amidst the above calls, there is a concern that increased accountability of police could potentially blunt their effectiveness in fighting crime and possibly even reduce officer safety. Specifically, certain commentators have claimed that heightened public scrutiny in the wake of well-publicized police-involved shootings of citizens has generated accountability-induced fears among police officers. These fears may deter police officers from proactively engaging with disorderly individuals, investigating suspicious activity, or apprehending suspects (Mac Donald, 2015). This disengagement, it is argued, can embolden would-be criminals and lead them to commit violent crimes. Dubbed as the 'Ferguson effect,' some have taken this argument a step further, arguing that increased scrutiny and accountability of police can lead officers to become hesitant to use force to the point of endangering their safety (see Reese, 2014).

The above assertions mirror the arguments about the trade-off between accountability and performance, an area of long-standing interest for public administration scholars (Bovens, Goodin, & Schillemans, 2014; Dubnick, 2005; Halachmi, 2002; Jones & Bouckaert, 2017; Patrick, Plagens, Rollins, & Evans, 2018; Yang, 2002). While accountability has been argued by its proponents as leading to greater transparency and openness (Schedler, Diamond, & Plattner, 1999), expanding the opportunities for challenging abuses of authority (Elster, 2004), and

improving the quality of government services (see Thompson & Riccucci, 1998), it has a darker side that dampens PA scholars' enthusiasm for it. Specifically, critics have argued that complying with accountability requirements may consume public managers' time and energy to such an extent that it may distract them from their real work (see Schillemans, Van Twist, & Vanhommerig, 2013). Moreover, studies have found that an unwavering focus on accountability detracts from core organizational strengths (Romzek & Dubnick, 1987), leads to goal displacement (Pollitt, 2003, p. 47), triggers a range of counterproductive bureaucratic behaviors (Grizzle, 2002; Joaquin & Greitens, 2011), and may compromise organizational effectiveness (Koppell, 2005). Still, others have pointed out that the relationship between accountability and performance has not been extensively studied (Dubnick & Yang, 2011). Specifically, scholars have pointed out that prior studies have tended to define and conceptualize the potential roles of accountability rather than examining its quantitative impacts (Dubnick & Frederickson, 2014), and that studies exploring the impacts of accountability have tended to rely on case studies (e.g., Koppell, 2005). Also, researchers have expressed concern in the prior literature about the paucity of large-N quantitative studies that examine the relationship between accountability and performance and have also called for assessing the above relationship in different public organizational contexts (Han & Hong, 2019; Mikkelsen, 2018).

We respond to the above concerns by examining whether increased accountability of police has deleterious effects on their effectiveness as measured by the violent crime rate and line-of-duty homicides of police officers (henceforth referred to as homicides of police officers or HPOs). Specifically, we address whether citizen oversight agencies (COAs), a popular demand of police accountability proponents (American Civil Liberties Union, 1997), are associated with the deterioration in public and police officer safety as measured by the violent

crime rate and HPOs, respectively. COAs are government agencies through which citizen complaints against police are reviewed by people who are not sworn officers (Walker & Bumphus, 1992). Citizen oversight provides a means of accountability through which citizens seek to preserve the equilibrium of power between them on the one side and the government on the other, and thus to prevent abuses of power (see Behn, 2001, pp. 8–10).

The accountability-performance trade-off, long considered to be the classic dilemma of public administration (Self, 1972, pp. 277–278), is likely to be particularly acute in the context of policing given that police officers are expected to fulfill the *procedural* demands of their work (i.e., treating people fairly and with respect) as well as *performance* demands (e.g., deterring criminal activity, or apprehending suspects). As stated by the National Research Council in its report ‘Fairness and Effectiveness in Policing,’ “...policing is shaped by two public expectations. First, the police are called on to deal with crime and disorder, preventing them when possible, and to bring to account those who disobey the law. Second, the public expects their police to be impartial, producing justice through the fair, effective, and restrained use of their authority” (National Research Council, 2004). Balancing these dualistic goals may be challenging; however, as the rules for procedural fairness may hinder performance (Behn, 2001). For instance, police officers may feel compelled to use force when a person stopped for questioning, makes sudden movements or attempts to flee even if they have not committed any offense.

Nevertheless, it may not necessarily be the case that an increase in police accountability would hurt performance. As this paper argues, an increase in accountability through citizen oversight may enhance citizens’ perception of police legitimacy. An increase in police legitimacy may reduce citizen aggression towards police officers, which may reduce the homicides of police officers. Similarly, increased police legitimacy may make citizens more

likely to call upon the police to help resolve interpersonal conflicts, which, in turn, may reduce violent crime. However, there are no studies in the public administration literature that evaluate whether increased accountability influences homicides of police officers and violent crime one way or the other – which represents one of the significant contributions of the current study.

This article proceeds as follows: a literature review discusses findings from prior studies that have examined the accountability-performance link. We also provide background on citizen oversight, distinguish among different types of COAs based on their scope of authority, and argue that COAs with a broad scope of authority would be the most likely to enhance police legitimacy and lead to a reduction in the violent crime rate and HPOs. While we suggest that such COAs would reduce HPOs and violent crime through their effect on police legitimacy, our goal is to estimate the *gross* impact of COAs on HPOs and violent crime, not their impact on HPOs or violent crime *through* police legitimacy. Next, an examination of the methodology outlines the two-way fixed effects model used to assess the impact of oversight on the violent crime rate and HPOs. The findings are then presented and followed by a discussion in which we draw out the implications of the findings for the accountability-performance link. Finally, based on our findings, we reflect on the plausibility of the Ferguson effect hypothesis.

Literature Review: Accountability and Performance

The concept of accountability has been referred to as ‘chameleon-like’ (Sinclair, 1995) due to its changing nature based on the type of actors involved, their institutional locus, and whether the accountability mechanism seeks to prevent wrongdoing by shaping behavior, or seeks an account from the account-giver after the fact. Moreover, scholars in different fields have defined accountability differently. For instance, social psychologists have defined it as the “implicit or explicit expectation that one may be called on to justify one’s beliefs, feelings, and

actions to others” (see Lerner & Tetlock, 1999, p. 255). On the other hand, management scholars have defined it as “the extent to which a person’s behaviors are observed and evaluated by others, with important rewards and punishments contingent upon those evaluations” (Ferris, Mitchell, Canavan, Frink, & Hopper, 1995, p. 187).

Since we are interested in the impact of citizen oversight the definition of accountability that we use in this study is based on the concept of social accountability, which refers to “actions by civil society and citizens to push officeholders to report on and answer for their actions” (Brinkerhoff & Wetterberg, 2016). Social accountability can also be considered a mode of citizen involvement through which governments seek to involve citizens in administrative decision-making and management processes (Yang & Callahan, 2005). Citizen involvement occurs primarily at the administrator-citizen interface. It differs from political participation or civic engagement, which refers to a range of methods for citizen participation in the political process, such as voting in elections to individual volunteerism or organizational involvement for political ends.

Scholars of social accountability have divided it into reactive versus preventative approaches (De Angelis, Rosenthal, & Buchner, 2016). Reactive approaches refer to mechanisms that seek an account from bureaucrats or public officials for their decisions and actions and prescribe sanctions for wrongdoing (e.g., in the context of policing, a force review board that determines whether the use of force by a police officer was justified). Preventative approaches, on the other hand, refer to policies and procedures that shape bureaucratic behavior to minimize future misconduct (e.g., policies that prohibit police from engaging in car chases). Regardless of whether an accountability mechanism is reactive or preventative, it may have a deterrent effect as it seeks to induce bureaucrats to perform their duties appropriately.

Akin to accountability, the definition of performance is contested and open to debate with some saying that whether something is viewed as good or bad performance is “in the eye of the beholder” (Andrews, Boyne, & Enticott, 2006). The diversity of definitions of performance stem from the fact that scholars and managers have used a range of metrics to track different aspects of performance and because of the wide variety in the number of stakeholders who take an interest in the achievements of public organizations (for instance, see Federman, 2020). Nonetheless, most scholars consider performance to be a multidimensional concept and have developed models that inform the conceptualization of organizational performance in the public sector (Boyne, 2002, 2003; Organization for Economic Co-operation and Development, 2005).

In this study, we measure performance through effectiveness, which refers to the achievement of service objectives. Given that the police are expected to deter criminal activity, the first measure of police effectiveness that we use in this study is the violent crime rate. Furthermore, based on the notion that the relationship between police and community members is critically important and that officers need to protect themselves from physical harm, we use the number of HPOs as a second measure of police effectiveness.

Prior studies have identified several ways in which accountability may impact the performance of public organizations. Accountability has been found to improve organizational effectiveness vis-à-vis rational budgetary decision-making or policy implementation, for example, in performance-based budgeting (Gilmour & Lewis, 2006), school contracting out (Amirkhanyan, 2011), or school funding policy (Rabovsky, 2012).

The studies that have directly examined the question of trade-offs between accountability and performance include Han & Hong (2019), Mikkelsen (2018), Jennings & Rubado (2017), Romzek & Dubnick (1987), and Kim & Lee (2010). Han & Hong used data from the 2012

Federal Employee Viewpoint Survey (FEVS) to examine the impact of accountability in three human resource management (HRM) functions – staffing, performance evaluation, and compensation – on organizational unit performance as perceived by employees. They also found that accountability was directly and positively associated with employees' perception of overall performance. While this study suggests that accountability does not compromise organizational effectiveness in public organizations, its limitations include the fact that it is based on a cross-sectional sample, focuses on performance in the federal government, and measures accountability in the HRM systems as a *proxy* for accountability.

Mikkelsen (2018) used a 10-year panel data set on Danish public schools to examine whether there is a trade-off between effectiveness (i.e., average student GPA and student pass rate) and accountability (operationalized through a measure of grade inflation). Focusing on principal transitions and using a two-way fixed effects model, the author investigated whether trade-offs exist by testing the correlation between the principal effects for all outcomes with Pearson's *r*. She found no evidence of a trade-off between accountability and effectiveness. That is, principals who were able to secure high performance also succeeded in securing high accountability. Given that this study focused on Danish public schools, the author calls for additional studies of the accountability-performance trade-off using other performance measures in other geographic locales and organizational contexts, a gap that we seek to fill in the current study.

Jennings & Rubado (2017) used a fifteen-year panel data set consisting of communities with populations over 25,000 to examine the relationship between police agency policies and line-of-duty deaths of police officers. They examined whether the requirement that officers file a report when they point their guns towards people but do not fire potentially endangered officers

by discouraging them from withdrawing their firearms. They did not find any support for this hypothesis. Like the above studies, this study suggests that increased accountability of police officers is not associated with adverse performance outcomes.

While the above studies have documented no trade-offs between accountability and performance, others have found evidence for the existence of a trade-off. Specifically, studies that have examined the impact of simultaneous, conflicting accountability expectations from diverse actors have found that it has adverse consequences for individual and organizational performance. For instance, Romzek & Dubnick (1987) found that multiple accountability obligations arising from political, bureaucratic, and legal accountability hampered professional accountability and led to poor performance (also see Koppell, 2005). Similarly, Kim & Lee (2010) found that the employees of a nonprofit organization experienced job tension and lower performance when they were subject to compliance accountability (a combination of hierarchical and legal accountability), which conflicted with other types of accountability expectations that fostered improved performance.

One difference between the studies which have found there to be a negative relationship between accountability and performance compared to studies that have not is that the former have examined the impact of accountability expectations that conflict with an organization's core mission. In contrast, the latter have tended to focus on the impact of accountability that is *relevant* to an organization's mission. For instance, Romzek & Dubnick (1987), in their exploration of the role of conflicting accountability expectations at the National Aeronautics and Space Administration (NASA), argued that conflicting expectations from bureaucratic, legal, and managerial accountability detracted from *professional* accountability that was suited to NASA's technical mission. The existence of competing accountability foci, in turn, led to a series of

technical lapses that ultimately resulted in the Challenger disaster. The upshot of Romzek & Dubnick's argument is that while a public organization *can* face conflicting accountability expectations, its primary accountability mechanism should be *mission-relevant* (also see Kim & Lee, 2010).

On the other hand, the studies that have found a positive or no relationship between accountability and performance have tended to focus on accountability that is mission-relevant. For instance, Jennings & Rubado (2017) examined the impact of bureaucratic accountability that required police officers to fulfill specific reporting requirements if they had withdrawn their weapon but did not fire it. This reporting requirement aimed to reduce the rates of officer-involved gun deaths, i.e., it was relevant to the police's mission of deterring crime and disorder *while dealing with citizens in a "fair, effective and restrained" way* (National Research Council, 2004). Thus, we propose that the disparate findings on the accountability-performance link can be reconciled if the distinction between mission-relevant and mission-conflicting accountability taken into account.

We subject the above notion to further scrutiny by examining the impact of COAs, which represent a mission-relevant accountability mechanism on two measures of police performance. The accountability-performance link also deserves attention by scholars because the relationship has not been studied extensively using large-N data (Dubnick & Yang, 2011), and studies of the above relationship in the context of policing, or in the context of local government, are rare. While public administration scholars have increasingly studied police performance in recent years (Kang, 2019; Nicholson-Crotty, Nicholson-Crotty, & Li, 2018), studies of the impact of *citizen oversight* on police effectiveness are practically non-existent (also see Wright, 2020).

We address the above gap within the context of policing by assembling a novel data set spanning 35 years (i.e., 1981-2015) and use panel data modeling techniques to assess: (1) the impact of citizen oversight on the violent crime rate and HPOs, and (2) whether COAs had differential impacts on the above outcomes depending on their scope of authority.

Citizen Oversight Agencies

In most police agencies in the US, citizen complaints against the police are investigated by sworn officers within the internal affairs division of the same police agency. This internal investigative process creates a conflict of interest that can tilt or can be perceived to tilt the accountability process in favor of a police officer alleged to have engaged in misconduct. To enhance accountability and transparency in policing, COAs are agencies created by local governments that assess citizens' complaints against the police. These agencies may review findings made by the police agency's internal affairs division to assess whether the investigation was thorough and fair, and monitor trends in police misconduct. They may also recommend discipline and changes in policies and even conduct independent investigations into allegations of police misconduct if that authority is granted (Ali & Pirog, 2019).

Since the establishment of the oversight agency in Kansas City, Missouri, in 1969, the number of COAs in the US has gradually grown to at least 145 agencies nationwide as of 2017 (see S. Walker, 2001). While these agencies operate in a wide variety of contexts, such as at the county, town, university campus, or transit system levels – the bulk of COAs in the US is at the city level (see figure 1 for a map of COAs at the city level that we contacted for our survey).

[Figure 1 about here]

Although they have the broad aim of improving public trust in the local police agency, there is substantial variation across COAs in how they seek to attain their goals, and the size and

type of police agency overseen. Also, there is variation across COAs in terms of their governance structure, budgetary authority, and levels of staffing (De Angelis et al., 2016). The variation in COAs along the above dimensions has prompted prior researchers to classify them into various categories (Ali & Pirog, 2019; De Angelis et al., 2016; Walker, 2001). For instance, Ali & Pirog (2019) surveyed city-level COAs and classified them into investigative, monitoring, and review/audit agencies.

Investigative COAs have a retrospective orientation and hold the authority to classify citizen complaints, conduct independent investigations, issue investigation findings to the police, and recommend discipline to officers found guilty of misconduct (e.g., use of excessive force or racially-disparate policing). Such agencies are also likely to have substantial budgetary authority as well as a staff of paid, full-time employees (e.g., lawyers, investigators, and policy analysts), which reports to a citizen board.

Monitoring COAs emphasize active monitoring of police complaint investigations and are likely to have access to the internal affairs division's electronic databases, internal affairs files (including closed case files), which they use to analyze trends and patterns in police misconduct. Based on their analyses, these COAs are concerned with recommending changes to existing police policies to prevent *future* misconduct. They are likely to have fewer full-time staff and relatively smaller budgets compared to investigative agencies.

Finally, review/audit COAs often consist of a board of citizens that can review completed complaint investigations conducted by police. While these agencies may occasionally have access to police records and can send complaint investigations back to the police for further investigation, they are the least likely to have a full-time staff, budgetary authority, or the authority to recommend discipline or policy change. Thus, investigative agencies are often

considered to have the broadest scope of authority among the various kinds of COAs (De Angelis et al., 2016; Lewis, 1999; Walker & Archbold, 2014).

While the literature on COAs is still nascent, there are a few studies that have attempted to tease out their impact on policing outcomes. For instance, Ali & Pirog (2019) found that investigative citizen oversight agencies reduce the racial disparities in police homicides of citizens as well as disorderly conduct arrest rates (also see Brereton, 2000; Campeau, 2015; Terrill & Ingram, 2016). Taken together, the literature on the impact of COAs suggests that they can have an impact on institutional outcomes when they provide citizens meaningful opportunities to participate in the oversight process, have broad authority to monitor and sanction police misconduct, and are sufficient in terms of human and budgetary resources.

The current study contributes to the literature on accountability and performance as well as the literature on COAs, by expanding the set of outcomes associated with citizen oversight to include HPOs and violent crime as measures of police officer and public safety, respectively. We turn our attention to the development of expectations of the impact of oversight on these outcomes next.

Expectations of the Impact of Citizen Oversight on Public and Police Officer Safety

Impact of Citizen Oversight on HPOs

One reason why citizen oversight could lead to a reduction in HPOs is through its potential impact on procedural and distributive justice – two antecedents that have been found in prior research to contribute to police legitimacy (Kochel, 2014). While police legitimacy is defined as the perceived moral obligation to obey police authority voluntarily (Tyler, 1990), procedural justice is defined to be a characteristic of a process where people believe they have a voice and are treated with respect and dignity. Enforcement decisions are explained and are

based on objective criteria, and the process is protected by *accountability to higher authorities* (Leventhal, 1976). Distributive justice, on the other hand, refers to the equitable distribution of services without regard for characteristics such as race or class that are unrelated to the police mission (Kochel 2014).

There are multiple mechanisms through which citizen oversight may enhance citizens' experience of procedural justice vis-à-vis police encounters. First, following the establishment of a COA, heretofore marginalized citizens may come to view themselves as having recourse to higher authorities if they are mistreated by police, which in turn would improve their perception of procedural justice. Also, following the creation of a COA, especially one with a broad scope of authority, police agencies may consciously reduce stop-and-frisks or over-policing within minority neighborhoods, thereby increasing people's experience of procedural justice. As alluded to earlier, empirical research on accountability mechanisms as well as consent decrees suggests that this is a reasonable expectation. For instance, Campeau (2015) found that after a sharp increase in police oversight, officers reported being more restrained in initiating contacts with citizens that had the potential of escalating into a dangerous confrontation. On a similar note, Brereton (2000) reported a reduction in the incidence of police assaults on citizens after the establishment of a robust oversight agency.

Moreover, studies on the impact of consent decrees have also found that public perception of police often undergoes a marked improvement following the implementation of the decree (Davis, Ortiz, Henderson, Miller, & Massie, 2002; Stone, Foglesong, & Cole, 2009). Taken together, these findings imply that following the creation of a COA, over-policing and police aggression against citizens may well decrease, which, in turn, may improve citizens' perception of procedural justice vis-à-vis encounters with police. This improved perception

would strengthen police legitimacy, which in turn may reduce citizen aggression towards police officers, plausibly leading to fewer HPOs.

Similarly, there are various mechanisms through which COAs may impact citizens' judgments of distributive justice. For instance, following the establishment of a COA, police agencies may become more mindful of the racial disparity in the use of force against citizens as well as the racial disparity in arrest rates. This realization, in turn, may lead police agencies to reduce the intensity of policing within predominantly minority neighborhoods, become less likely to use excessive force, or be mindful of upholding the constitutional rights of citizens belonging to minorities. In other words, officers may adopt a more measured and restrained approach to policing because they would want to avoid the scrutiny from a COA that may result if policing outcomes reflect racial bias.

Recent research that shows COAs as leading to a substantive reduction in racial disparities in policing outcomes (see Ali and Pirog 2019) suggests that COAs can potentially lead to an improvement in black citizens' judgment of distributive justice in citizen-police encounters. Improvements in distributive justice would strengthen police legitimacy, which in turn would reduce citizen aggression towards police officers, plausibly leading to fewer HPOs.

Apart from the expected impact of citizen oversight on HPOs, a second issue to consider is whether the impact of COAs varies by their *scope of authority*. Given that investigative COAs are more effective than other types of COAs in reducing the racially disparate impact of policing, we expect that such COAs would be more likely to be associated with an increase in police legitimacy relative to other types of agencies. Consequently, such COAs would also be likely to lead to a reduction in HPOs. Conversely, we expect that COAs with relatively weak authority may potentially lead to an increase in HPOs.

Given that investigative COAs have the broadest scope of authority to conduct police oversight compared to other types of COAs, we propose the following hypothesis of their impact on HPOs.

Hypothesis 1: Investigative COAs will be associated with a reduction in HPOs.

Impact of Citizen Oversight on Violent Crime

Kane (2005) demonstrated that if citizens perceive the police to be legitimate, they are more likely to call upon them to help resolve interpersonal conflicts rather than resolving such conflicts personally, thus reducing violent crime (also see Kubrin and Weitzer, 2003). Moreover, if citizens perceive the police to be legitimate, they would be more likely to come forward with information that will lead to the apprehension of offenders (Tyler, 2004). A greater willingness among the public to report information to the police may have a deterrent effect on violent crime. Thus, we expect that the establishment of citizen oversight would be associated with a reduction in violent crime.

Institutional theory (DiMaggio & Powell, 1983; Meyer & Rowan, 1977) provides another explanation of why COAs might lead to an improvement in police legitimacy. Organizations exist within an institutional environment governed by certain myths and normative values. These myths begin to take a life of their own over time and ultimately become markers of what a “real” police organization should look like (Gau, 2014). If citizens are skeptical of the ability of police to hold themselves to account or to conduct efficacious investigations into allegations of misconduct, the creation of a COA may send a signal of increased transparency and fairness and have a calming effect on the public (Skolnick & Fyfe, 1993). This, in turn, may reduce aggression against the police and increase citizens’ willingness to call upon the police for help in resolving disputes and thus decrease the violent crime rate.

Akin to the impact of COAs on HPOs, we expect that COAs with investigative authority would be the most likely to impact citizens' judgments of procedural and distributive justice and hence enhance police legitimacy. Thus, COAs with such authority would *also* be the most likely to reduce the violent crime rate, whereas COAs with weaker authority may potentially increase it. Therefore, we hypothesize the following:

Hypothesis 2: Investigative COAs will be associated with a reduction in the violent crime rate.

Variables and Data Sources

Dependent Variables

The dependent variables are (i) the number of HPOs and (ii) the number of violent crimes per 100,000 adults (or the violent crime rate). These variables are defined as follows:

$$\mathbf{HPOs}_{mt} = \text{Number of officers killed in the line of duty}_{mt}$$

$$\mathbf{Violent\ Crime\ Rate}_{mt} = \left(\frac{\text{Number of violent crimes}_{mt}}{\text{Total population}_{mt}} \right) \times 100,000$$

Where m and t index city and year, respectively. The period chosen for both \mathbf{HPOs}_{mt} and $\mathbf{Violent\ Crime\ Rate}_{mt}$ is from 1981-2015. Data on HPOs were obtained from the Federal Bureau of Investigation's (FBI) Law Enforcement Officers Killed and Assaulted (LEOKA) program that compiles data on law enforcement officers killed feloniously at the police agency level. \mathbf{HPOs}_{mt} for each city-year were determined by aggregating the number of officers feloniously killed in each city-year in the LEOKA data.

Violent crimes include murder, forcible rape, robbery, and aggravated assault. Data on the violent crime rate (and its constituent parts) were obtained from the Uniform Crime Reports (UCR). These data have been used in numerous studies seeking to explain changes in the violent crime rate (in response to, for instance, anti-police protests in Ferguson, Missouri) (Pyrooz, Decker, Wolfe, & Shjarback, 2016); implementation of performance management systems

(Pasha, 2018a) as well as studies using the violent crime rate as a covariate (Chand, 2019; Chanin & Sheats, 2017; Kang, 2019; Pasha, 2018b).

While measurement error is a concern with using the UCR to measure the violent crime rate, it is allayed in the current study by the fact that we have focused on relatively large cities where crime recording practices are more reliable compared to smaller cities. Furthermore, the volume of criminal activity is higher and less subject to random fluctuation in the numerator compared to smaller cities (Maltz, 2006). Besides, UCR is the most comprehensive and widely used data set to measure police performance (Moore & Braga, 2003), and previous studies comparing UCR statistics with other sources in terms of victimization rates, mortality rates, and citizen perception surveys did not find significant discrepancies (Lynch & Jarvis, 2008; Serpas & Morley, 2008).

Independent Variables

Data on authorities of COAs were obtained from a survey of COAs conducted in 2017 that was sent to 114 COAs located in 111 distinct cities¹. Each COA in our sample had jurisdiction over the entire city's police agency. We conducted an exploratory factor analysis (EFA) of the tetrachoric correlations between the authorities held by COAs to determine whether these agencies could be divided into categories based on the scope of their authorities. We used EFA rather than confirmatory factor analysis (CFA) because our goal was to condense the authorities of COAs to describe and identify the number of latent constructs represented by those authorities without imposing a preconceived structure on the outcome (Child, 1990).

We used varimax rotation to obtain rotated factor loadings. Per the rotated factor loadings (see Appendix I), the COAs could be classified into four groups, which consist of investigative, monitoring, review/audit COAs (which we define in the same way as proposed by Ali and Pirog

(2019)) as well as a fourth category, i.e., weak-monitoring COAs. The agencies in the latter group have a retrospective monitoring role as they focus on analyzing data on trends and patterns in police misconduct and are likely to have full-time paid staff. However, such agencies are not likely to have the authority to access IA files, IA electronic databases, and evaluate or recommend changes in police policies. These differences render such agencies weaker than traditional monitoring agencies.

Subsequently, we obtained the predicted scores for each of the four factors, which also comprised our main independent variables. These include ***Investigative, Monitoring, Review/Audit***, and ***Weak monitoring***. These predicted scores are indices, with higher values denoting a more robust convergence with a specific type of COA. For instance, a COA with a high and positive predicted score for ***Investigative*** was more likely to have the attributes of an investigative COA.

Covariates

Age_{mt} denotes the age of the COA. We interacted age with the predicted factor scores to determine whether the impact of COAs changes over time. w_m and v_t are jurisdiction and year-specific fixed effects, respectively, and ε_{mt} is a mean-zero random error.

As an index of social capital in each jurisdiction, the number of civil rights organizations in each jurisdiction, a time-varying covariate, was obtained from the Internal Revenue Service (IRS) Masterfile. This variable was included as a measure of community voice, which could potentially influence policing practices as well as citizen attitudes towards the police. Other covariates include per capita income, percentage unemployment, difference in the percentage of blacks and whites in the city (i.e., percentage blacks minus percentages whites), and percentage of population in the city that is 25+ and has a bachelor's degree. All demographic variables were

obtained for census years from US census reports or the American Community Survey (ACS)², while the values for intercensal years were obtained through linear interpolation.

We also included an indicator variable that indicated whether a given jurisdiction was under federal investigation or was bound by an agreement to reform policing practices vis-à-vis use of force or racial profiling (e.g., through a consent decree, settlement agreement, or memorandum of agreement), which could potentially influence policing patterns. Table 1 presents summary statistics for the *treated* jurisdictions in our analysis.

[Table 1 about here]

Finally, data on the number of sworn police officers in each city-year were also obtained from the LEOKA reports.

Sample

The list of cities with COAs (n=111), along with the names, office, and email addresses of their directors/chairpersons, was obtained through web searches and from the website of the *National Association for Civilian Oversight of Law Enforcement* (NACOLE). NACOLE is a nonprofit organization that provides a platform for individuals and organizations working to establish citizen oversight of police in the US. This list was corroborated and supplemented with information provided by researchers who had previously studied COAs³.

Once the population list of COAs was compiled, the director of each COA was contacted via postal mail. In a letter, we introduced our study and informed them that they would be receiving an email containing a link to an online survey in about a week. Following the email, individuals who had not responded to the survey after two weeks were reminded via phone to complete the survey. Responses received up to two months after sending the initial email were included in the data set for the current study.

Of the 114 COAs (in 111 cities) which were contacted, 91 COAs located in 88 cities responded to the survey resulting in a city-level response rate of 79.27% (=88/111). Among the responding COAs, one had been created in 2016 because of which it was not used in our analysis. Another COA returned a survey that was only partially complete, and another ten COAs were in cities that had a population of fewer than 100,000 persons as of 2010. After removing these twelve cities from our sample, we had 76 treated cities (corresponding to 79 COAs) that could be used for analysis.

For the sample of untreated jurisdictions, we focused on cities with a 2010 population greater than 100,000, which were *not* in our list of COA-adopting cities. There were 157 such cities – and as a further check to ensure that these cities did not have a COA, we examined their local government websites, city charters, and searched newspaper articles on Lexis-Nexis announcing the establishment or operation of a COA. We did not find any reports of the establishment of a COA in any of the above 157 cities. Among the above 157 cities, however, UCR data from sixteen cities were often missing, rendering their inclusion in the sample impossible. After excluding these sixteen cities, there were 141 (=157-16) untreated cities available for analysis. Thus, overall, there were 217 (=76 treated+141 untreated) cities available for analysis in the sample⁴.

Empirical Strategy

The method chosen is a two-way fixed effects model that takes the following form:

$$\begin{aligned}
 Y_{mt} = & X_{mt}\beta + \delta \textit{Investigative}_{mt} + \tau \textit{Monitoring}_{mt} + \varphi \textit{Review/Audit}_{mt} \\
 & + \alpha \textit{Weak Monitoring}_{mt} + \pi \textit{Age}_{mt} + \theta (\textit{Investigative}_{mt} \times \textit{Age}_{mt}) \\
 & + \rho (\textit{Monitoring}_{mt} \times \textit{Age}_{mt}) + \vartheta (\textit{Review/Audit}_{mt} \times \textit{Age}_{mt}) \\
 & + \partial (\textit{Weak Monitoring}_{mt} \times \textit{Age}_{mt}) + w_m + v_t + \varepsilon_{mt} \quad (1)
 \end{aligned}$$

Where Y_{mt} represents each dependent variable and X_{mt} contains a vector of time-varying covariates. In the above model, city-specific fixed effects control for unobservable, city-specific, time-invariant characteristics of individual cities, which may be correlated with the treatment. Also, year-specific fixed effects control for secular trends in the dependent variables. Secular trends in the dependent variables can result from a variety of factors such as shifts in general policing patterns, such as Supreme Court decisions governing police-citizen interactions (e.g., *Tennessee v. Garner* (471 U.S. 1 [1985]) and *Graham v. Connor* (490 U.S. 386 [1989])). The above empirical strategy, in which the coefficients can be interpreted as within-city effects, is often used to evaluate the impact of a policy that is adopted at different points in time by individual jurisdictions (for instance, see Albalade, 2008).

Models for $HPOS_{mt}$ were estimated using fixed-effects Poisson regression, while models for the violent crime rate were estimated using fixed effects OLS regression. We used the Poisson regression for $HPOS_{mt}$ as it is a true fixed effects estimator (as opposed to the negative binomial) – and has been found to reliably estimate the effects of regressors as well as establish statistical significance even in the presence of over-dispersion (Wooldridge, 1999). All Poisson models accounted for unequal exposure to homicide risk by specifying the total number of sworn officers in each city-year as the exposure variable.

We modeled the violent crime rate using fixed-effects OLS regression. Models for each dependent variable accounted for intragroup correlation and heteroscedasticity using robust standard errors clustered at the city level. Furthermore, we also estimated models using the components of violent crime as dependent variables to gain a more granular view of the types of violent crime driving changes in the overall violent crime rate.

Regarding endogeneity, a concern is whether jurisdictions self-select into creating COAs. We tested for this by possibility by testing whether the parallel trend assumption is met for cities that established COAs versus those that did not, following the test used by Autor (2003). Model estimates and graphs from these tests are shown in Appendix II. Overall, these tests indicated that there is little or no self-selection into the creation of COAs.

Results

Model estimates for the impact of citizen oversight on HPOs and the violent crime rate are shown in tables 2 and 3, respectively. For each dependent variable, we started with a basic model containing a creation indicator that switches from zero to one in the year of creation of the COA as well as the age variable. The creation indicator remained zero for jurisdictions that did not establish a COA. In subsequent models, we substituted the creation indicator with the strong-investigative, monitoring, review/audit, and weak-monitoring factor scores for each jurisdiction which established a COA. Next, we added covariates to examine whether the observed effects change in their presence. Finally, we interacted the factor score variables with age to test whether the impacts of COAs change over time.

Impact of COAs on HPOs

Fixed effects Poisson regression estimates for the impact of COAs on HPOs are shown in table 2.

[Table 2 about here]

In model A, the coefficient of the creation indicator is negative and approaches significance at 10% ($\beta = -0.03$; $p=0.12$), which may suggest that while COAs, on average, do not have an impact on HPOs, there may be certain types of COAs that reduce HPOs. The age coefficient, while negative, is non-significant ($p=0.23$).

When we substitute the creation indicator with the predicted factor scores (model B), the coefficient for monitoring score turns out to be negative and significant ($\beta = -0.76; p=0.03$). However, when we added controls (in model C), none of the other factor score coefficients were significant at the 5% level.

Finally, when we interact age with the factor scores (model D), the main effect of investigative score remains insignificant ($\beta = 0.60; p=0.168$). However, the coefficient on the interaction term between investigative score and age becomes negative and significant ($\beta = -0.09; p=0.014$), which implies that investigative COAs reduce HPOs by approximately 9% each year. Figure 2 plots the marginal effect of investigative COAs on HPOs over time.

[Figure 2 about here]

The main effects for monitoring, review/audit, and weak-monitoring scores were statistically insignificant in model D, although the main effect for review/audit score approaches significance ($\beta = -0.59; p=0.094$). The interactions of these scores with age are also non-significant, which in turn implies that COAs with monitoring, review/audit, or weak-monitoring authority do not necessarily lead to a reduction (or a change) in HPOs.

Impact of COAs on the Violent Crime Rate

Model estimates for the impact of COAs on the violent crime rate are shown in table 3. In the first model, neither the creation indicator ($\beta = -44.08; p=0.468$) nor the age variable is significant ($\beta = -4.57; p=0.297$), although both coefficients are negative. When we control for the variation in scope of authority and subsequently add covariates, the coefficient for the investigative score is found to be negative and significant ($\beta = -200.45; p=0.035$). The coefficients for the other scope of authority scores are not significant.

[Table 3 about here]

When we interact age with the scope of authority scores, the investigative score coefficient remains negative and significant ($\beta = -244.89$; $p=0.011$), which suggests that a unit increase in investigative score is associated with a reduction of 244.89 in the violent crime rate. The coefficient for the interaction between investigation score and age is not statistically significant, which suggests that COAs with investigative authority are associated with a one-time reduction in the violent crime rate. Figure 3 plots the marginal effect of investigative COAs on violent crime over time.

[Figure 3 about here]

The main effect of the review/audit score is positive ($\beta = 116.01$; $p=0.058$), which suggests that review/audit COAs are potentially associated with an increase in the violent crime rate. This finding makes sense given that review/audit COAs have been found in prior research to have the narrowest scope of authority amongst the various types of COAs (Ali & Pirog, 2019; Walker & Archbold, 2014).

Table 4 disaggregates the impact of citizen oversight on various components of the violent crime rate. The estimates show that a unit increase in the investigative score is associated with a one-time reduction in the robbery rate ($\beta = -138.26$; $p=0.008$), while a unit increase in review/audit score is associated with an increase in the robbery rate that approaches significance ($\beta = 62.89$; $p=0.075$). This pattern of the significance of coefficients is broadly similar to the pattern in model H, where the investigative score coefficient is negative and significant, and the review/audit score coefficient is positive and approaches significance.

[Table 4 about here]

None of the coefficients in the rape rate regression are significant at 5%. On the other hand, in the murder rate regression, the coefficient on the interaction between monitoring score

and age is significant and positive ($\beta = 0.11$; $p=0.045$), which comports with the expectation that COAs with a narrow scope of authority would be associated with an increase in violent crime.

Model L regresses the aggravated assault rate on the scope of authority scores. Only the main effect of investigative score approaches significance ($\beta = -103.08$; $p=0.081$), while none of the other coefficients do so.

Thus, based on the results presented in table 4, we conclude that the impact of investigative oversight on violent crime is driven primarily by a reduction in the robbery rate, and to a modest degree by a reduction in the aggravated assault rate. While an increase in the monitoring score seems to be associated with an increase in the rape rate over time, this effect does not significantly influence the overall violent crime rate. The takeaway is that only an increase in the investigative score is associated with a reduction in the robbery rate and, thus, the violent crime rate. None of the other authority scores are associated with a statistically significant reduction in either the violent crime rate or any of its components.

Discussion

This study addresses the question of whether COAs have an impact on the violent crime rate and HPOs and whether their impact varies by their scope of authority. While prior studies have evaluated the question of the accountability-performance trade-off in the public administration literature, this question has not been examined extensively with large-N studies, especially in the context of policing. Furthermore, studies on the impact of COAs on police performance are practically non-existent.

Our preferred specifications (i.e., column D in table 2, and column H in table 3) show that investigative COAs lead to a 9% reduction in HPOs per year and a 21.1% ($=244.89/1159$)

one-time reduction in the violent crime rate⁵, demonstrating support for both hypotheses. These results suggest that COAs with investigative authority have a protective effect against HPOs as well as violent crime, whereas COAs with review/audit authority may lead to an increase in the violent crime rate. Thus, we find that while COAs with a *narrow* scope of authority can lead to an increase in the violent crime rate, COAs with a *broad* scope of authority lead to a decrease in the violent crime rate and a gradual reduction in HPOs. The implication is that it is not merely the existence of an accountability mechanism that can have an impact on performance; rather, it is the *scope of authority* of the mechanism that determines its impact.

How do our findings integrate with insights in the prior literature about the relationship between accountability and performance? As alluded to earlier, the prior literature suggests that accountability expectations that conflict with an organization's mission could potentially lead to a deterioration in performance. In contrast, accountability mechanisms that are mission-relevant are likely to lead to an increase in effectiveness. The current study contributes to the extant literature by suggesting that the scope of authority is a *second* critical dimension for theorizing the impact of accountability on performance. Thus, one could envision accountability mechanisms that vary along the dimension of mission-relevance, *as well as the* scope of authority. For instance, by bifurcating both the scope of authority and mission-relevance into two categories each, we can potentially envision four types of accountability that represent different combinations of the scope of authority and mission-relevance. These would include accountability that has a broad scope of authority and is mission-relevant; accountability that has a broad scope of authority and is not mission-relevant; accountability that has a narrow scope of authority and is mission-relevant; and accountability that has a narrow scope of authority and is not mission-relevant. Each of these subtypes of accountability may have different impacts on

performance. For instance, accountability that is mission-relevant and has a broad scope of authority may have a positive impact on performance. In contrast, accountability that is mission-relevant but has a narrow scope may have a negative impact because the narrow scope counteracts the positive impact of mission-relevance. We encourage researchers to examine how the scope of authority *interacts* with mission-relevance to influence performance in future studies.

Our study also carries implications for the Ferguson effect hypothesis alluded to earlier. Per this hypothesis, accountability-induced fears may deter police officers from engaging with suspicious or disorderly individuals who, in turn, may go on to commit violent crimes, or may make officers hesitant to use force to the point of endangering their safety. The current study's findings suggest that this expectation is rather simplistic. Specifically, our findings show that if an accountability mechanism has a broad scope of authority, it should have a protective effect against both HPOs and violent crime. On the other hand, if accountability has a narrow scope of authority, it may lead to an *increase* in the violent crime rate.

Our findings suggest that if the violent crime rate increased across major US cities post-Ferguson (Rosenfeld, 2016), the increase might have been relatively muted had more robust accountability mechanisms been in place. Said differently, if the threat of police accountability led to an increase in the violent crime rate in the aftermath of the events in Ferguson, it was likely because accountability mechanisms did not have a scope of authority that was *broad enough*. We believe that this is a reasonable expectation given that several scholars have noted that police accountability in the US suffers from a deficit. According to legal scholars Friedman and Ponomarenko (2015): "In a nation [United States] that prides itself on the rule of law, that glorifies its system of checks and balances, that speaks endlessly of democratic engagement and

the popular will, policing is an outlier” (also see Rushin, 2016; Schwartz, 2016; S. Walker & Archbold, 2014).

There are certain limitations of this study that ought to be acknowledged. First, we assumed that COAs’ authorities remain stable over time. This assumption is needed in a fixed-effects research design to rule out the presence of time-varying factors that may be confounded with the treatment. To allay concerns arising due to such confounders, we included several time-varying covariates in our preferred specifications. Also, we attempted to examine the sensitivity of our findings to this threat to validity using three procedures, which included: (1) searches of newspaper archives on Lexis-Nexis to establish whether any of the COAs’ authorities had changed over time, (2) removing from the sample those jurisdictions that established a COA before 2000 as a way of excluding those COAs whose authorities were most likely to have changed, and (3) offering an argument as to why the authorities of COAs are likely to remain stable. These procedures and their resulting implications are discussed below.

First, we examined newspaper archives on Lexis-Nexis for reports of policy changes in a random 25% subsample of COAs. We did not find any reports of changes in the authorities of any of the COAs, which, in turn, suggests that the authorities of COAs remained relatively stable. Nevertheless, one may still question whether information on the state of COAs obtained in 2017 can be ascribed as far back as the 1980s or 1990s, as a change in the authorities might not have been reported in the press. Therefore, we estimated ancillary models for each dependent variable using among the treated cities only those that established a COA *after* 2000 and compared the coefficients to those obtained in the preferred specifications above.

In the ancillary regression for HPOs (Appendix III, column D-2), the coefficient for the weak-monitoring score was positive and significantly larger than the corresponding coefficient in

the preferred specification for HPOs (model D). Nevertheless, this difference does not contradict the support for hypothesis 1.

In the ancillary regression for the violent crime rate (Appendix III, column H-2), none of the coefficients in the ancillary regression for violent crime rate were statistically different from the coefficients in the preferred specification for the violent crime rate (model H). Thus, the comparison of the preferred specifications and the ancillary regressions suggests that our findings are robust to a potential violation of the assumption of stability in COA authorities.

Third, we posit that the assumption of stability of COA authorities is plausible because COAs are politically sensitive entities that are often subject to intense contention between pro-police groups (e.g., police unions) and reform advocates (e.g., civil rights groups, minority citizens). This contention, in turn, makes it unlikely that COAs get established in the first place (there are only around 150 COAs in the entire United States compared to 18,000 police agencies nationwide) or that the authorities of such agencies change once they are established.

While the above arguments all suggest that the observed effects are not biased by the temporal instability of COA authorities, they do not entirely rule out such instability. As a result, caution should be exercised in attributing the obtained effects a causal interpretation.

Another concern pertains to the implications of the long duration of the data set for the definitions and reporting of violent crime. One may argue that the definitions and reporting practices of violent crime may have changed over 1981-2015, rendering an assessment of the sources of variation in the violent crime rate over the above period inappropriate. To test the robustness of the findings regarding the impact of citizen oversight on the violent crime rate, we conducted a parallel analysis that used a truncated data set from 2000 onwards. None of the

coefficients estimated from the truncated data were significantly different from the coefficients in our preferred specification⁶.

Overall, the results thus indicate that public managers should consider investigative COAs as an approach to improving public and police officer safety in their jurisdiction. If a jurisdiction already has a review/audit, monitoring, or weak-monitoring COA, then managers should consider enhancing its scope of authority to approximate that of investigative COAs, i.e., those with a substantial scope of authority to monitor and sanction misconduct, budgetary capacity, as well as the appropriate quality and quantity of human resources. Our findings imply that COAs with a relatively narrow scope of authority might not plausibly improve the public's perception of police legitimacy to the extent needed to reduce HPOs or violent crime and may potentially increase them.

Conclusion

Beyond the above findings, our unique contribution to the literature is three-fold. First, before this study, there had been little theorization or empirical study of whether and how citizen oversight may impact HPOs or violent crime. Thus, this is the first study that examines the impact of COAs on HPOs and the violent crime rate. We suggest a mechanism through which oversight may impact these outcomes, and empirically tease out the gross impact of COAs on HPOs and violent crime while accounting for variation in the type of citizen oversight, and propose the scope of authority as an analytical dimension of accountability that should be considered in future research.

Second, we contribute to the emerging *quantitative* public administration literature on the accountability-performance link as well as the cognate literature on the impact of accountability on police performance. While COAs have been functional in the US since at least the late 1960s,

currently operating in at least 145 US localities with a combined population of 70 million persons, there are very few evaluations of the impacts of COAs in the US (see Ali & Pirog, 2019; S. Walker & Luna, 2000, for exceptions). Our study contributes towards this literature to foster growth in research on this understudied, yet important, social-equity oriented institution.

Third, by focusing on COAs, we are responding to the calls for increased scholarly attention to “front-end” measures at the local government level that are intended to enhance civic participation and community-police relations, and that have the potential to forestall the growth in incarceration in the US. As noted by the National Research Council (2014) in its report “The Growth of Incarceration in the United States: Causes and Consequences,” too frequently policymakers and scholars have focused on “back-end” reforms on sentencing and incarceration as strategies for stemming the tide of mass incarceration in the US. While such back-end reforms have been found to reduce prison populations without compromising public safety (see Bartos and Kubrin, 2018; Kubrin and Seron, 2016), policy interventions such as COAs that forestall *entry* into the criminal justice system by reducing arrest rates and the violent crime rate would be more impactful for improving community-police relations without compromising public or police officer safety.

COAs represent an understudied institutional arrangement at the local government level, and despite having continuously existed in the US for several decades, studies of their impact are relatively scarce. They have gained prominence in recent years amidst calls for increased police accountability amidst a backdrop of several well-publicized incidents involving the use of excessive force by police officers. Researchers can build upon the current study by examining the topics we have suggested in the discussion above. We urge scholars in public administration to continue research in this neglected yet important area.

Notes

1. Three cities had more than one COA.
2. 1980, 1990, 2000, and 2010 values of these variables were obtained from US Census reports, while the values for 2015 were obtained from the ACS 5-year estimates.
3. Correspondence with the first author.
4. Names of the cities whose COAs responded to our survey have been kept confidential per Institutional Review Board (IRB) requirements.
5. As shown in the descriptive statistics (table 1), the average violent crime rate in the pre-period is 1158.94 crimes per 100,000 persons.
6. Results available with the corresponding author.

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Appendix I

Our goal was to classify agencies based on the type of authorities they possessed. To determine whether specific COA authorities load on to certain latent factors, we conducted a factor analysis using the tetrachoric correlations between the responses to specific questions in the survey. The use of tetrachoric correlation coefficients for factor analysis is considered more appropriate if the variables of interest are binary, or Bernoulli-distributed (Uebersax, 2000), as they are in the case of the survey questions that were used to determine the authorities of COAs.

Varimax rotation was used to determine final factor loadings. We ran the factor analysis on the tetrachoric correlations between the following thirteen yes/no type questions:

(1) Does your agency ever have the authority to:

- i. Classify the nature of a citizen-initiated complaint?
- ii. Review police complaint investigations (e.g., for thoroughness, completeness, accuracy)?
- iii. Conduct investigations that are independent of the police?
- iv. Audit and/or monitor police complaint investigations for compliance with investigative standards?
- v. Send complaint investigations back to the police for further investigation?
- vi. Recommend and/or issue investigation findings to the police?
- vii. Recommend discipline?

- viii. Evaluate and/or recommend changes in police policies, procedures, training, and/or management practice?
 - ix. Analyze data to identify trends and patterns in police misconduct?
 - x. Access closed IA police files?
 - xi. Access ALL IA police files?
 - xii. Access IA electronic databases?
- (2) A recoded indicator variable that equaled one if a respondent reported that the COA had at least one paid full-time employee, and zero otherwise.

Table A1.1 shows the output obtained from the factor analysis procedure. We retained the first four factors as their eigenvalues are greater than 1, and they cumulatively explain 83% of the variation in the thirteen variables. The output shows that the above authorities load on to the following four factors:

- a. Factor 1: Access all IA files (0.93), access closed IA files (0.71), access IA electronic databases (0.89), evaluate and/or recommend changes in police policies (0.95), and recommend discipline (0.52).
- b. Factor 2: Classify citizen-initiated complaints (factor loading=0.93), conduct investigations that are independent of the police (0.83), recommend and/or issue investigation findings to the police (0.91), recommend discipline (0.55), and indicator for the paid, full-time staff (0.52).
- c. Factor 3: Review police complaint investigations (0.97), audit/monitor police complaint investigations for compliance with investigative standards (0.83), and send complaint investigations back to the police for further investigation (0.51).

- d. Factor 4: Analyze data on trends and patterns in police misconduct (0.60), and the indicator for full-time paid staff (0.60).

Based on our reading of the literature, especially De Angelis et al. (2016), the first factor appears to be a typical representation of a monitoring COA, while the second and third factors appear to be consistent with strong investigative and review/audit COAs. The fourth factor is consistent with a weak monitoring COA – this is because unlike monitoring agencies (represented by factor 1), weak monitoring agencies are not likely to have the authority to Access all IA files (0.93), access closed IA files (0.71), access IA electronic databases (0.89), or evaluate and/or recommend changes in police policies (0.95).

Thus, we named the latent factors for the authorities, which seemed to load onto them. We then predicted the factor scores for the above four factors. The predicted factor scores for each agency thus represent an index that denotes the extent to which it emphasizes a strong investigative, monitoring, review/audit, or weak monitoring approach towards police oversight. These predicted factors scores were used in the regression models as independent variables.

Our classification scheme follows Ali & Pirog (2019) (see the literature review above to see how they define these COAs) with one modification, i.e., we consider the additional category of weak-monitoring agencies. While weak-monitoring agencies can analyze data on trends and patterns in police misconduct and are likely to have full-time paid staff, they are not likely to have the authority to access all IA files, closed IA files, IA electronic databases, or evaluate and/or recommend changes in police policies. These differences render such agencies weaker than traditional monitoring agencies.

[Table A1.1 near here]

Appendix II

We verified the fundamental identifying assumption of a fixed-effects design (per which pretreatment trends in the dependent variables in cities that established a COA should be the same as the pretreatment trends in cities that did not establish a COA) using multiple methods. Specifically, we used the graphical method from Autor (2003) to determine whether COA adopting cities and non-adopting cities had different pretreatment trends in the dependent variables. Estimates from this model are shown in table A2.1.

Autor's approach

We estimated the model in equation (1), but without the predicted factor scores. Instead, we added indicator variables for time leads (for two years before the establishment of a COA), an indicator for the year of adoption, as well as time lags. After estimating these alternate specifications both for HPOs and violent crime, we plotted the coefficients for the indicators above. Figure A2.1 shows the plotted coefficients, along with the 95% confidence intervals (CIs) when HPOs were the dependent variable, while figure A2.2 shows the plotted coefficients and CIs when the violent crime rate was used as the dependent variable.

Figure A2.1 shows that the pretreatment trends in HPOs for COA-adopting cities were, on average, not significantly different from the pretreatment trends for non-adopters. Moreover,

the coefficients for the post-treatment trends are significant and negative, which in turn suggests that the HPOs declined in COA adopting cities a few years after they adopted an agency.

Figure A2.2 shows the coefficients for the pre- and post-treatment indicators for the trend in the violent crime rate. Similar to figure A2.1, the pretreatment trend indicators were, on average, not different for COA-adopting cities compared to non-adopters.

[Figure A2.1 near here]

Nevertheless, figure A2.2 also shows that the post-treatment trends for all COA adopting cities, as a whole, were not different compared to the post-treatment trends for non-adopting cities. We believe that this does not necessarily suggest that any type of COA does not have an impact on the violent crime rate. Rather, figure A2.2 suggests that COAs, *as a whole*, do not lead to a change in the violent crime rate. Indeed, as the estimates presented in the preferred specification show (table 4, column H), only strong investigative COA lead to a decrease in the violent crime rate, whereas review/audit COAs lead to an increase.

[Figure A2.2 near here]

Appendix III

[Table A3.1 near here]

[Table A3.11 near here]

[Table A3.21 near here]

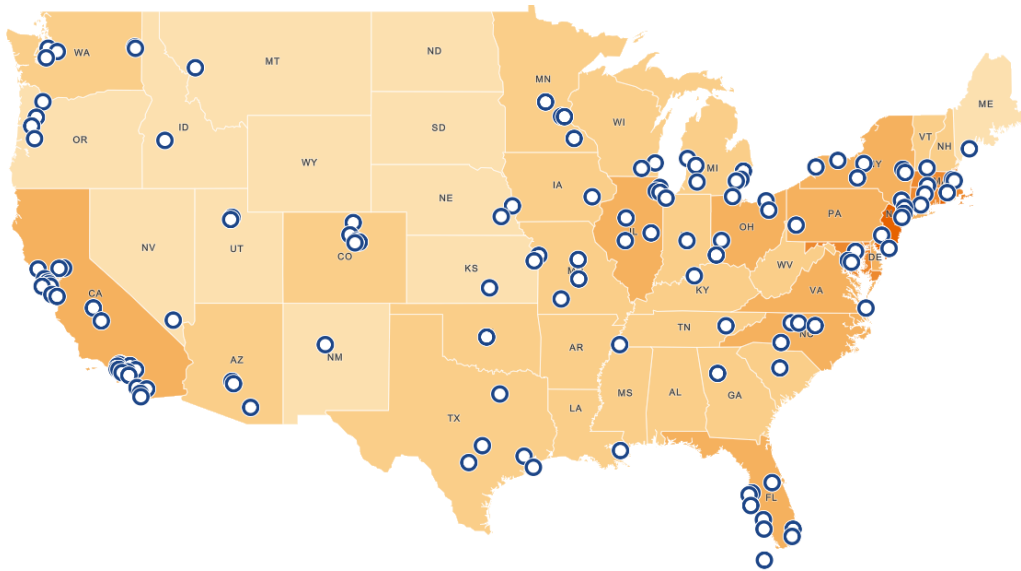


Figure 1: Geographic Dispersion of COAs in the contiguous United States

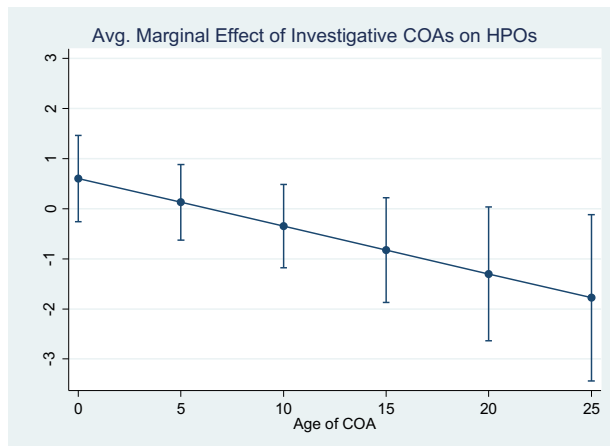


Figure 2: Marginal Effect of Investigative COAs on HPOs over Time

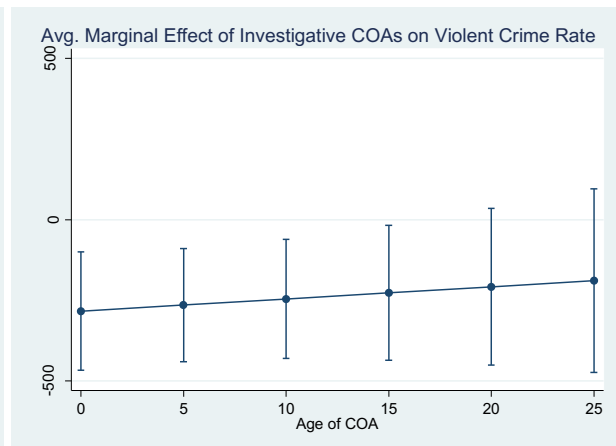


Figure 3: Marginal Effect of Investigative COAs on Violent Crime over Time

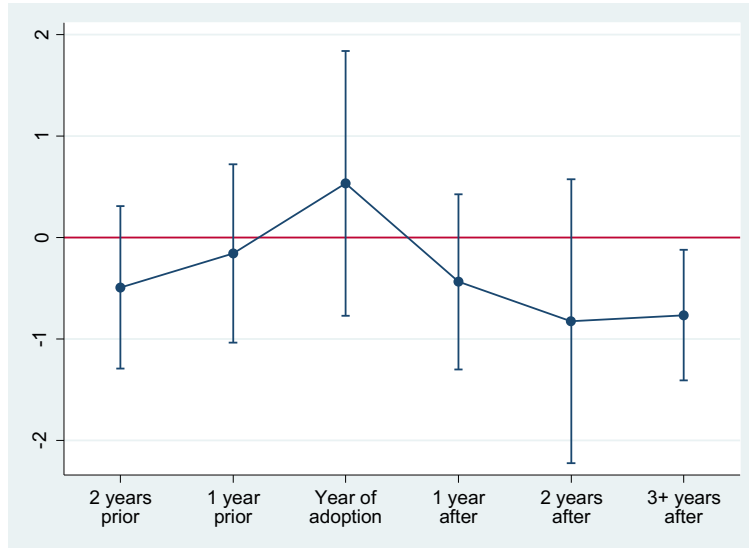


Figure A2.1 - Pre & post-treatment trends in HPOs

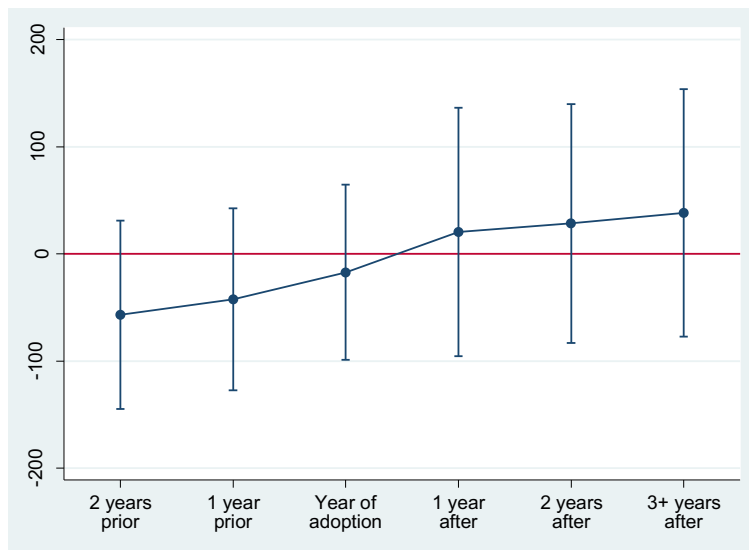


Figure A2.2 - Pre & post-treatment trends in the violent crime rate

Table 1 Descriptive Statistics

Variable	Mean	SD	Min	Max
Number of police officers killed per year in pre-period per 1000 sworn officers	0.17	1.88	0.00	62.50
Number of police officers killed per year in post-period per 1000 sworn officers	0.09	0.57	0.00	11.30
Violent crime rate in pre-period	1158.94	754.37	101.69	4352.8
Violent crime rate in post-period	999.84	547.17	108.19	3365.94
Percentage of COAs with authority to classify citizen-initiated complaint	48.89	50.26		
Percentage of COAs with authority to review police complaint investigations	83.69	37.12		
Percentage of COAs with authority to conduct independent investigations	46.73	50.16		
Percentage of COAs with authority to audit/monitor police complaint investigations	57.30	49.74		
Percentage of COAs with authority to recommend/issue investigation findings to pc	68.90	47.60		
Percentage of COAs with authority to access IA electronic databases	37.36	48.64		
Percentage of COAs with authority to recommend discipline and policy change	20.91	40.85		
Percentage of COAs with by-district governance	25.00	39.73		
Percentage of jurisdictions with at least one alternate accountability mechanism	64.54	48.05		
Percentage of jurisdictions under consent decree or court oversight	9.09	28.87		
COA budget (\$)	523,528.50	1,223,673.00	0.00	8,460,483.00
Number of full-time paid staff	9.18	14.32	0.00	70.00
Difference between proportion of blacks and whites (% blacks-% whites)	-46.08	30.83	-92.97	65.43
Per capita income (\$)	19,287.46	7,582.88	6,142.00	57,917.00
Unemployment rate (%)	7.24	3.19	1.30	32.50
Percentage of population 25+ with bachelors degree (%)	27.92	11.02	6.54	78.50
Number of civil rights organizations in the municipality	1.57	3.61	0.00	41.00
Population (as of 2015)	323,336.90	669,869.30	100,399.50	8,550,405.00

Table 2: Police Officer Homicides - Model Estimates

Independent Variables	Police Officer Homicides			
	(A)	(B)	(C)	(D)
Created	-.47			
Age	-.03	-.03	-.02	.08
<i>Scope of Authority</i>				
Investigative score		-.49	-.11	.60
Monitoring score		-.76**	-.29	-.55
Review/Audit score		.12	-.14	-.59*
Weak Monitoring score		.28	.60*	.41
<i>Scope of Authority Interaction with Age</i>				
Investigative Score \times Age				-.09**
Monitoring Score \times Age				-.01
Review/Audit score Age				-.03
Weak monitoring Score \times Age				.00
<i>All Other Covariates Included</i>	No	No	Yes	Yes
<i>Year and Jurisdiction-specific Fixed Effects Included</i>	Yes	Yes	Yes	Yes
<i>Exposure variable (number of sworn officers) included</i>	Yes	Yes	Yes	Yes
<i>Standard Errors clustered at Jurisdiction level</i>	Yes	Yes	Yes	Yes
Observations	4,304	4,287	4,278	4,278
AIC	2,337.71	2,322.01	2,316.22	2,307.634

* $p < .1$; ** $p < .05$; *** $p < .01$

Table 3: Violent Crime Rate - Model Estimates

Independent Variables	Violent Crime Rate			
	(E)	(F)	(G)	(H)
Created	-4.57			
Age	-44.08	-4.35	1.23	13.80
<i>Scope of Authority</i>				
Investigative score		-306.44***	-200.45**	-244.89**
Monitoring score		-23.72	65.80	71.60
Review/Audit score		116.23	91.19	116.01*
Weak Monitoring score		-42.44	50.34	124.11
<i>Scope of Authority Interaction with Age</i>				
Investigative Score \times Age				4.76
Monitoring Score \times Age				-3.82
Review/Audit score Age				-13.44
Weak Monitoring Score \times Age				-9.27
<i>All Other Covariates Included</i>	No	No	Yes	Yes
<i>Year and Jurisdiction-specific Fixed Effects Included</i>	Yes	Yes	Yes	Yes
<i>Exposure variable (number of sworn officers) included</i>	Yes	Yes	Yes	Yes
<i>Standard Errors clustered at Jurisdiction level</i>	Yes	Yes	Yes	Yes
Observations	7,466	7,449	7,404	7,404
AIC	103,808.1	103,416.8	102,186.8	102,153.1

* $p < .1$; ** $p < .05$; *** $p < .01$

Table 4: Components of Violent crime - Model Estimates

	Robbery Rate	Rape Rate	Murder Rate	Aggravated Assault Rate
	(I)	(J)	(K)	(L)
Independent Variables				
Age	.98	-.32	.05	12.70
<i>Scope of Authority</i>				
Investigative score	-138.26***	-4.93	.80	-103.08*
Monitoring score	-6.39	5.47	-.32	67.21
Review/Audit score	62.89*	-.12	-.61	57.28
Weak monitoring score	29.91	2.63	2.21	58.31
<i>Scope of Authority Interaction with Age</i>				
Investigative Score × Age	2.29	-.48*	.05	2.78
Monitoring Score × Age	3.32	-.23	.11**	-5.71
Review/Audit Score × Age	-4.96	.51	-.08	-9.43
Weak monitoring score × Age	-6.42	-.46	-.15*	-.24
<i>All Other Covariates Included</i>	Yes	Yes	Yes	Yes
<i>Year and Jurisdiction-specific Fixed Effects Included</i>	Yes	Yes	Yes	Yes
<i>Standard Errors clustered at Jurisdiction level</i>	Yes	Yes	Yes	Yes
Observations	7,043	7,039	7,043	7,044
AIC	85,884.66	59,564.44	56,280.98	92,965.86

* $p < .1$; ** $p < .05$; *** $p < .01$

Table A1.1 Rotated Factor Loadings (pattern matrix) and unique variances

Variable	Factor 1 (Monitoring)	Factor 2 (Investigative)	Factor 3 (Review/Audit)	Factor 4 (Weak Monitoring)	Uniqueness
Access closed IA files	.71	.18	.45	.02	.26
Evaluate and/or recommend changes in police policies, procedures, training and/or management practices	.95	.08	.19	.16	.05
Access all IA files	.93	.08	.19	.02	.09
Access IA electronic databases	.89	.09	.13	.04	.19
Recommend discipline	.52	.55	-.05	-.30	.33
Indicator for paid full-time staff	.41	.52	.12	.60	.17
Conduct investigations that are independent of police	.28	.83	.03	.35	.11
Classify citizen-initiated complaints	-.09	.93	.01	.15	.11
Recommend and/or issue investigation findings to the police	.13	.91	.04	-.23	.11
Review police complaint investigations	.11	-.09	.97	-.07	.03
Send complaint investigations back to the police for further investigation	.21	.17	.51	-.62	.29
Audit/monitor police complaint investigations for compliance with investigative standards	.31	.16	.83	.23	.13
Analyze data on trends and patterns in police misconduct	.48	.19	.31	.60	.27

Table A3.1: Violent Crime Rate - Model Estimates

Independent Variables	Violent Crime Rate			HPOs		
	Using all cities (treated and untreated) (H)	Using all untreated cities and treated cities with year of COA creation >=2000 (H-2)	Coefficients different at 5% level?	Using all cities (treated and untreated) (D)	Using all untreated cities and treated cities with year of COA creation >=2000 (D-2)	Coefficients different at 5% level?
Created						
Age	13.80	28.43***	No	.08	-.01	
<i>Scope of Authority</i>						
Investigative score	-244.89**	-283.85**	No	.60	.09	
Monitoring score	71.60	159.68		-.55	-.14	
Review/Audit score	116.01*	47.91	No	-.59*	-.44	
Weak Monitoring Score	124.11	32.97		.42	1.91**	Yes
<i>Scope of Authority Interaction with Age</i>						
Investigative Score × Age	4.76	-5.47		-.10**	-.17*	No
Monitoring Score × Age	-3.82	14.96		-.01	.08	
Review/Audit Score × Age	-13.44	-26.36*		-.03	.09	
Weak Monitoring Score × Age	-9.27	.57		.00	.03	
<i>All Other Covariates Included</i>	Yes	Yes		Yes	Yes	
<i>Year and Jurisdiction-specific Fixed Effects Included</i>	Yes	Yes		Yes	Yes	
<i>Standard Errors clustered at Jurisdiction level</i>	Yes	Yes		Yes	Yes	
Observations	7,404	6,073		4,278	3,245	
AIC	102,153.1	83,475.98		2,307.63	1,467.37	

* $p < .1$; ** $p < .05$; *** $p < .01$ **Table A3.11 – Test of Difference of
Regression Coefficients**

	Test of Difference
	Dependent Variable Violent Crime Rate
$\beta_{investigative\ score}$	$t = 1.54, p = 0.124$
$\beta_{review/audit\ score}$	$t = -0.81, p = 0.42$
β_{Age}	$t = -0.83, p = 0.41$

**Table A3.21 – Test of Difference of
Regression Coefficients**

	Test of Difference
	Dependent Variable HPOs
$\beta_{investigative\ score}$	$t = 1.19, p = 0.24$
$\beta_{weak\ monitoring}$	$t = -1.69, p = 0.04$