Going the Extra Mile: the Cost of Complaint Filing, Accountability, and Law Enforcement Outcomes in Chicago*

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Abstract

In the attempt to protect and serve the community, police often receive complaints from civilians with whom they interacted. This setting makes policing fraught with agency problems. I use new, detailed administrative data to study the costs and benefits associated with filing a complaint against the police in Chicago. I exploit the fact that complaints without affidavits are considered null and variation in distance to the oversight agency to study the effect of civilian oversight on policing. An administrative change of location of the reporting center provides a quasi-experimental setup for the identification strategy. A difference-in-differences analysis suggests that a one standard deviation increase in traveling distance to the reporting center decreases the likelihood of a signed complaint by 6.2 percent for allegations of constitutional violations and 16.3 percent for failure to provide service complaints. In non-white residential areas, higher injury rates due to use of force and a higher level of force used per arrest were observed as distance from the reporting center increased. Individuals who benefit most from oversight are those with lowest valuation of complaining. I simulate counterfactual scenarios under a policy that would reduce the cost of signing the complaint. This policy would largely increase the number of investigations and the sustained rates for failure to provide service complaints in the most violent police districts. On the other hand, for allegations of constitutional violations, this policy would reduce sustained rates overall and marginally increase the number of investigations. This research sheds light on the tradeoffs that arise when increasing the cost of reporting police misconduct.

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1 Introduction

Law enforcement's mission in the United States is to both protect society and preserve community trust (Lum and Nagin [2017]). By the very nature of their work, police officers interact with a broad cross-section of society— bystander civilians, victims of a crime, and offenders. On occasion, civilians may seek to file a complaint against an officer. Both the police and civilians have private information about their interaction with each other, and mixed incentives to reveal it truthfully: this makes policing fraught with agency problems. However, understanding the causes and consequences of alleged officer misconduct is crucial because society delegates to the police the authority to enforce its laws, including the right to use force when needed.

Although there is a growing public concern regarding police behavior, there is not yet research that credibly attempts to quantify the willingness of citizens to hold officers accountable by filing complaints against the police. This paper studies the costs and benefits of civilian oversight of the police.

Information surrounding allegations of misconduct against the police is often transmitted via a complaint process, as is common in other bureaucratic organizations (Prendergast [2003]). Yet, complainants and others often wonder whether their actions matter. Members of the public can expose an officer's unlawful behavior (excessive use of force, false arrest, or verbal abuse) or mistakes (failure to provide service) through the complaint process. Beyond the issue of effective management of officer misconduct, however, it is also important to understand the ways in which the exercise of accountability (through the civilian complaint process) affects the quality of policing. While on one hand, civilian complaints can deter police from engaging in misconduct in the first place, officers may also react to complaints by cutting down on their policing to avoid complaints (Prendergast [2001, 2002], Shi [2009]).

Police officers are required to act within the confines of the US Constitution and other relevant law. If a police officer violates the Constitution or other applicable law during an encounter with a civilian, there are limited ways the violation can be detected. An oversight agency or the department may have a system to routinely audit police behavior without provocation, though the effectiveness of these audits has not been empirically analyzed (Walker [2007]; Hickman and Poore [2016]). A civilian who believes their Constitutional rights have been violated has two options: to sue law enforcement agencies or to report the violation to an oversight agency. Civil lawsuits are very costly for local governments which often bear the financial burdens of liability (Schwartz [2014, 2016])[1]. Complaints are generally easier to file than a lawsuit, and are the most readily available form of civilian feedback a police department can access (Walker and Macdonald [2008]). Mandated reform agreements have included provisions for "improved citizen complaint

[1]The payouts in misconduct cases for the ten largest local police departments was $1.02 billion from 2010 to 2014 (Elinson and Frosch [2015])

systems." To give a sense of scope, the Department of Justice[2] has required sweeping overhauls of forty law enforcement agencies since 1997[3]. Finally, yet importantly, when citizens do not trust their police to act within the law, they are less likely to contribute to public safety by reporting crimes and testifying against suspected criminals (Tyler and Fagan [2008], Desmond et al. [2016], Lum and Nagin [2017]).

A primary obstacle to the empirical study of police misconduct has been the lack of readily available public data that links allegations of misconduct to demographic information about the complainant and administrative information about the officers (Bureau of Justice Statistics). Another challenge is to find a measure of cost of reporting misconduct that varies exogenously in order to make causal arguments. There is very little relevant academic research that directly tries to assess the influence of civilian oversight on police misconduct, arrests, crime, and other measures of police performance. Last but not least, there is also little empirical work on the tradeoff between enforcing the law and building community trust (Manski and Nagin [2017]).

I address these questions by using novel datasets from the Chicago Police Department on allegations of officer misconduct, use of force, and crime data in the city from January 2011 to July 2014. I take advantage of an administrative change in Chicago that changed the cost of registering an allegation of misconduct against a police officer. Chicago is unusual in that complainants may initiate complaints remotely, but, in order for the complaint to be investigated, the complainant must sign an affidavit in person at a single location within the city. At the end of 2011, the city changed the location. This altered the cost of signing the complaint in a manner that varied geographically. For residents who live close to the original location, the cost of signing the affidavit rose; for residents who live close to the new location, it fell. I use these changes to study the ways in which the varied costs of filing a complaint affects several aspects of policing and civilian willingness to complete a complaint.

The analysis considers two types of civilian complaints: those alleging a failure to provide service and those alleging a violation of an individual's constitutional rights during an attempt by an officer to enforce the law (search, verbal abuse, and excessive use of force). This division in the classification of complaints enables me to distinguish civilians who filed a complaint because they desired help from the police (e.g.: potential victim of a crime) from civilians who are treated as potential suspects by the police and feels that their constitutional rights are violated. One can reasonably believe that these two types of complainants have different incentives when alleging an officer misbehaved.

This paper makes the following contributions. First, I provide the first empirical estimates of civilian willingness to complain against the police. I find that increased distance to the reporting center deters civilians from completing their allegation of police misconduct. Second, I use

[2]The Violent Crime Control and Law Enforcement Act of 1994, 42 U.S.C. § 14141 allows the U.S. Justice Department (DOJ) to review the practices of law enforcement agencies that may be violating people's federal rights.

[3]See details here

distance to the oversight agency as a proxy for cost of monitoring the police, since areas that are farther away from the reporting center are less likely to be investigated because of the higher likelihood of missing affidavits (see Figure 5). This enables me to study the effect of civilian oversight on complaints, use of force incidents, and crime outcomes. I find that non-white residential areas that are harder to monitor because of their increased distance from the reporting center are subject to more aggressive policing, and that Black residential areas report lower rates of index crimes. Finally, I estimate a simple model of a complainant's decision to complete the affidavit and investigator 's decision to sustain the complaint provided that the affidavit requirement is met. This model allows me to compute the civilian's valuation of their complaint and to perform counterfactual scenarios where I evaluate the effect of removing the affidavit requirement on the number of officer that are going to be held accountable of their actions and on the rates at which complaints are sustained. Individuals who benefit most from oversight are those with the lowest valuation of their complaint.

I start the analysis by using a difference-in-difference design based on the administrative change of location for the oversight agency. I show that civilians who live farther from the oversight agency are much less likely to sign the affidavit, which is necessary for an investigation of the misconduct and full feedback to the police department. In fact, each additional 3.6 miles an incident (i.e a one standard deviation) occurs from the reporting center relates to a decrease in the likelihood of a signed affidavit by 8.6%. Civilians are less sensitive to distance when the allegation is related to a serious offense from the officer: a standard deviation in traveling distance to the reporting center relates to a decrease in the likelihood of a signed affidavit by 6.2% for serious complaints and 16.3% for allegations related to failure to provide service.

In this context, using distance[4] as a proxy for monitoring price derives from the idea that interactions between officers and civilians that occur farther away from the reporting center are less likely to be investigated because of the civilian's higher opportunity cost of traveling to complete the complaint by signing the affidavit. I employ a reduced form approach to study the effect of distance on complaint outcomes, crimes, arrests, and use of force patterns. This approach sheds the light on the effect of monitoring price on police performance. This paper is not the first to study the effect of oversight on police performance. Prendergast [2001, 2002], Shi [2009], and Heaton [2010] study the impact of police scandals on police performance. A primary difference between my design and those studies is that I study oversight in an environment free of major scandals involving the police. A scandal could potentially alter both the behavior of civilians and the police. An advantage of my research design is that the administrative change of the oversight agency is unknown to the majority of the officers and the civilians, at least in the short run, and thus not a catalyst for major behavioral changes.

Beats[5] that are farther away from the oversight agency are more difficult to monitor because

[4]Or other traveling cost such as traveling time by car or public transit

[5]A police beat is a tract of land designated for police patrol. Currently, the Chicago Police Department has divided

civilians are less likely both to complain and to complete their complaint by signing the affidavit. Moreover, for incidents that occurred in Hispanic residential areas, distance does not seem to have a statistically significant effect on the probability of a signed affidavit. The effect of distance is small compared to white and Black residential areas, and non-significant). Data aggregated at the beat level also suggests that complaints about incidents that occurred farther away from the oversight agency have a higher likelihood of being sustained. The results are, however, only significant for Black residential areas.

The number of use of force incidents increases with distance in non-white residential areas. In particular, civilians in Hispanic neighborhoods are more likely to be subject to a high level of force the farther away the incident occurs from the oversight agency. Incidents in Black residential areas have a higher number of civilian injuries if they occurred farther away from the oversight agency. I also find that, in the short run (12 months after the location change of the oversight agency), residential areas that are more difficult to monitor had a significantly higher number of use of force reports and a higher reported level of force per arrest. The results for the complaint and use of force outcomes suggest that non-white areas that are more difficult to monitor are more likely to be subject to more aggressive policing.

For the complaints and use of force outcomes, I use a placebo test to supplement the regression evidence on robustness of prior location change and differential trends. The placebo test replaces the actual location change that occurred in December 2011 with a location change in May 2011 and then reruns the difference-in-differences analysis from January to November 2011 to show that nothing mechanical drives the results. I find that the results of the falsification tests are relatively small and statistically non-significant; therefore, I conclude that the estimates for the complaints and use of force outcomes are not related to events that would have potentially occurred prior to the true location change.

One justification of aggressive or proactive policing is that it can help reducing crime (Manski and Nagin [2017]). Prendergast [2001, 2002] suggest that more police oversight yields to worse crime outcomes, due in part to less aggressive policing. I find that more oversight yields to lower reported crimes for the whole city, but that the results seem to be driven by Black residential areas. The effect of reporting cost is non-significant for non-Black residential areas. The results for arrests go in opposite directions for index and non-index crimes: areas that are harder to monitor have a higher number of arrests for index crimes, but a lower number of arrests for non-index crimes. Unlike with the use of force and complaint results and because placebo tests fail for some crime outcomes of interest, it is difficult to conclude, given my design, that civilian oversight causally impacts the number of crimes, arrests, and clearance rates.

To perform a counterfactual scenario and compute civilians' valuation of their complaint, I estimate a model of civilian willingness to complete their complaint, accounting for the investiga-

the city into 22 geographical Police districts. Each of the 22 police districts currently has between 9 and 16 beats.

tor's decision to sustain the complaint. This model provides insight into the effect of reducing the cost of completing a complaint and makes out-of-sample predictions. Using maximum likelihood, the model estimates both the probability that the civilian signs the affidavit, and the probability that the investigator sustains the complaint, assuming that the affidavit is signed. The model assumes that the unobserved heterogeneity of the investigator and the beat affect both the civilian and investigator decision. To ease the interpretation of the parameter estimates, I compute civilian willingness to pay to complete the complaint using Capps et al. [2003]. Closed form solution of the willingness to pay can be derived using the fact that the error term from the civilian's utility function are type 1 extreme value (Small and Rosen [1981]).

For the counterfactual scenario, I evaluate the effects of removing the traveling requirement to the oversight agency to complete the complaint, while holding everything else constant. Under the alternative scenario, the share of investigated complaints would increase by 5.11% and 37.58%, respectively, for serious and failure to provide service allegations. This alternative policy would significantly increase the number of investigated complaints that affect potential victim of a crime (failure to provide service), especially in violent neighborhoods. Overall, this alternative policy would, on average, raise the share of sustained complaints for failure to provide service by 8.1%, but lower the share of sustained complaints about serious allegations by 9.77%.

Prendergast [2003] and Shi [2009] provide theoretical models of officer behavior when police departments want to minimize crime, minimize errors (misconduct), and minimize wage expenditures. One of the key elements of the officer utility function is oversight (when an officer receives a complaint), which is a function of the probability of investigation, the probability of a sustained complaint, and the penalty for the officer if found guilty. By estimating civilians' willingness to complete their complaint, the proposed model provides the first empirical estimates of civilian oversight. This research shows that although minority civilians have a high valuation of their complaint, there is little chance that their allegation will be sustained.

Although the public debate on police misconduct mainly focuses on police use of force (Fryer [2016]), this paper documents that increasing the cost of reporting officers' alleged wrongdoing mainly hurts civilians requesting the help from the police in the city's most violent neighborhoods. However, there is an inverse relationship between addressing complaints that allege a constitutional violation and complaints that allege a failure to provide service. A higher level of contact between officers and civilians—i.e., more aggressive policing—should intuitively lead to lower crime rates. A side effect of more aggressive policing, however, is an increase in the likelihood of officer use of force. A greater rate of incidents of force though leads to an increase in the other type of complaint: those alleging violations of rights. Meanwhile, minimal levels of policing will only exacerbate the number of complaints alleging a failure to provide service. Thus, a single policy change cannot effectively minimize both type of complaints simultaneously.

Non-white civilians are more likely to live farther away from the oversight agency and are less likely to complete a complaint. The mechanisms of accountability—namely the complaint

process—begin to fail as distance from the oversight agency increases. Officers assigned to these far-flung areas, who are statistically less likely to be disciplined as a result of a complaint than their colleagues, can operate with a greater degree of impunity. Moreover, the levels of violence in these distant neighborhoods seems to demand an aggressive response from the police—a response that leads to higher levels of use-of-force incidents. As a result of these dynamics, the cost of police violence in Chicago falls disproportionately on the shoulders of the city's most vulnerable residents: non-white civilians living in poor and violent neighborhoods with the least access to/ability to engage in the processes of oversight [mechanisms of accountability]. These dynamics may suggest why police can afford to be more aggressive with non-white civilians.

The paper is organized as follows. Section 2 briefly reviews related literature. Section 3 provides background information on the complaint process in Chicago. Section 4 describes the administrative data used for the analysis. Section 5 presents the empirical methods and the results. In Section 6, I develop a model of civilian willingness to complete her complaint accounting for the investigator decision to sustain the complaint if the affidavit is signed. Section 7 and 8 estimate civilians' valuation of their complaint and presents counterfactual scenarios. Section 9 concludes.

2 Motivation and relation to the literature

This paper aims to shed some light on the issue of officer misconduct by quantifying civilians' willingness to complain against the police and by analyzing the effect of oversight on other measures of police performance, such as use of force and misconduct outcomes. To ground this work, I reference three main areas of research on policing: that which investigates the relationship between race and the practice of policing, that which looks at the factors governing public perceptions of the police, and that which examines the impact of increased civic oversight on policing.

First, the economic literature on crime and policing that originated with the seminal work of Becker [1968] mostly focuses on the objective of protecting society through the deterrence of crime (Glaeser [1999]). Chalfin and McCrary [2017] provides a detailed overview on the effect of police, punishments, and work on crime from the last two decades. This paper analyzes the effect of oversight on traditional measures of police performance taken from the crime literature, such as crime rates, arrest rates, and clearance rates.

Although crime outcomes are important measures of police performance, the economic literature gives little importance to other aspects of policing such as its impact on community trust, use of force, and protection of individual rights. Lum and Nagin [2017] and Manski and Nagin [2017] argue that crime prevention and community relations should be the predominant feature of policing objective functions. Lum and Nagin [2017] suggest some steps to recalibrate organizational incentives within agencies, including taking into account citizen's complaints. However, Walker (2007) argues that there is no credible social science research that studies police misconduct and

tries to propose solutions to reduce civilian complaints or police use of force. This paper aims to shed some lights on the issue by quantifying citizens' willingness to complain against the police and by analyzing the effect of oversight on other measures of police performance such as use of force and misconduct outcomes.

This article relates to a number of articles that demonstrate that police reduces enforcement efforts when faced with increased oversight, a dynamic that eventually yields higher levels of crime. Prendergast [2001, 2002] examines time series data from the Los Angeles Police Department from 1994 to 2001; he finds that as a result of increased oversight, officers were less likely to pursue "aggressive" policing in factors such as use-of-force, officer-involved shootings, assaults on officers, and arrest rates. Shi [2009] and Heaton [2010]] exploited quasi-experimental events, such as public scandals that generated increased media attention and judicial scrutiny of police agencies, to examine the effect of increased oversight on officer conduct. Shi [2009] studied the effect of the heightened scrutiny as a result of the 2001 Cincinnati riots and found that communities with higher percentage of Black people experienced even greater reductions in arrests. Heaton [2010] notes a similar trend with data on motor vehicle theft in New Jersey, suggesting that a public racial-profiling scandal contributed to the significant decline of minority arrests for motor vehicle theft. Because the identification strategy of these papers rely on an increase in oversight generated by an increased in media attention and judicial scrutiny (DOJ) after a scandal[6], it is difficult to: (1) assess the role of civilians in police oversight independently of the other monitors (DOJ and other institutions), and (2) understand the causes and consequences of the misconduct of individual officers independently of the stigmatization of the whole force. This paper investigates the impact of civilian oversight on police performance in an environment that only focuses on allegedly "poorly" behaved officers, rather than an environment that villainized and scrutinized the whole force. Moreover, in response to a scandal, civilians may file more complaints, officers might reduce their efforts to police, or both. The potential of altered behavior from both civilians and the police makes it difficult to identify the effect of oversight on policing (e.g: Desmond et al. [2016]).

A different strain of the literature documents public perceptions of the police. Studies have found public opinion of police is influenced by factors like race, neighborhood conditions, the media, public scandal, and personal experience with law enforcement personnel (Van Craen and Skogan [2015]). Within neighborhoods, Weitzer [1999] finds that class is an important factor in explaining citizens' perception of police misconduct by drawing on survey data from Washington, DC. Kane [2002] finds that structural disadvantage,[7] population mobility, and racial tension yielded higher rates of officer misconduct and argues that social disorganization makes it more

[6] In those three studies, the DOJ was running an investigation on those police Departments at some point during the sampling period of those studies.

[7] The author defines structural disadvantage as a function of percentages of persons in poverty, households receiving public assistance, male unemployment, adult unemployment, low educational attainment, youth, and female-headed households with children.

difficult for citizens to organize against abusive/poor policing. With regards to race, minorities and liberal citizens tend to have a more negative perception of the police compared to their white and conservative counterparts (Weitzer and Tuch [2004]). This literature provides a starting point to describe citizen sentiment on police misconduct and understand the factors that are correlated with those opinions. However, those studies do not provide any information on: (1) citizen willingness to report misbehavior through complaints and their perception about law enforcement using exogenous source of variations, and (2) how complaint outcomes might vary depending on citizen characteristics and incentives. This paper aims to address these two points.

Finally, this paper contributes to the literature on race and policing in America. Researchers have tried to assess the level of racial disparities in police interactions with the public. Numerous studies document the presence of discrimination in policing for traffic stops (Knowles et al. [2001], Anwar and Fang [2006], Grogger and Ridgeway [2007], Ritter and Bael [2009]), stop-and-frisk (Gelman et al. [2007], Ridgeway and MacDonald [2009], Goel et al. [2016]), traffic tickets (Anbarci and Lee [2014], West [2015], Goncalves and Mello [2017]), and uses of force (Fryer [2016]). However, some of these studies assume that the behavior of the civilian is exogenous. One can argue that civilians change their behavior in response to their belief that police is biased (e.g: Kalinowski et al. [2017]); if civilians do alter their behavior, it is difficult to identify the effect of race on policing. This study documents the racial disparity that exists in civilians' decision to report police misconduct. I document that there are racial disparities in the cost of complaining for civilians. This cost is a function the civilian's willingness to pay to complete a complaint and the probability that the complaint is sustained. If one believes that the cost of policing is a function of detecting officer error, as in the theoretical models of Prendergast [2001] and Shi [2009], these results have important implications for the contemporary practice of policing.

3 Background

3.1 Institutional context

Since 2007, Chicago's oversight agency, the Independent Police Review Authority (IPRA), has collected all allegations of misconduct against Chicago Police Department (CPD) members. Allegations originate from the public or from other officers in the Department. Complaints are classified according to one of the twenty main categories[8].. This research is primarily interested in categories of complaint that involve civilians: failure to provide service, use of force, verbal abuse, arrest or locked up procedures, and search. The process of filing a complaint has two main stages:

1. The complainant initiates his/her complaint by phone, in person at the oversight agency's location, by mail, with any CPD supervisor at any district station, or over the internet.

[8] See here for details about allegation categories

2. The complainant must then sign a sworn affidavit to certify that the allegation is true and correct. Since the end of 2010, the oversight agency has required that the complainant must physically appear at the oversight agency office to sign the affidavit[9]. At this point, the complaint is filed and investigated. The State of Illinois requires that any person making an allegation of misconduct against a Chicago police officer complete this step. In the event the complainant does not sign the affidavit, the investigation is terminated and the allegations are classified as "not sustained".

The first stage to file a complaint is straightforward and easy for the complainant because of the number of alternatives available and the option of not being physically present to file a complaint. However, the second stage requires the complainant to be physically available to sign the affidavit at the oversight agency location. This requirement may be difficult to meet for individuals who live far away from the oversight agency or for those who are working during weekdays. Hence, individuals might fail to meet the affidavit requirement because they have a high opportunity cost of signing the affidavit (i.e. commuting time, commuting fees, and forgone wages if working).

Once a complaint is received and the affidavit is signed, an investigator is assigned to conduct a comprehensive investigation of each complaint. When the investigation is completed the allegations are classified as "sustained," "not sustained," "exonerated," or "unfounded." For the remainder of the paper, I classify "exonerated" and "unfounded" as "not sustained." Additionally, if an accused officer cannot be identified, I classify the complaint as "not sustained." The officer does not need to answer the investigators until the affidavit requirement is met. In the event that no affidavit is received, the investigation is terminated, classified as "not sustained," and no record of the complaint remains on the officer's disciplinary history. A complaint with a signed affidavit remains on the officer's disciplinary history for five years after the complaint is issued. At the end of the investigation, the oversight agency sends a letter to both the complainant and the CPD members reflecting the findings and recommended discipline, if any. The police department is in charge of enforcing the final discipline determined for each allegation. It is important to stress that the complainant does not receive any compensation at the end of the process. If the complainant wants to sue the member of CPD, it has to be done independently from the complaint process through the oversight agency.

This research focuses on the period between January 2011 and July 2014 for two reasons. First, complaints filed prior to 2011 are excluded from the analysis because the complainant was not required to be physically present at the oversight agency and the investigator could travel to the complainant. For those cases, it is difficult to isolate civilian willingness to travel to complete the complaint. Secondly, since late March 2014, lists of past complaints against Chicago police officers are available to the public for review. These complaints were made public as the result of

[9]See Rapid Pilot Program, page 19: The oversight agency changed its intake procedure in order to make the investigative process more efficient.

a lawsuit, Kalven vs. the City of Chicago & the Chicago Police Department, under the Freedom of Information Act (FOIA). The data was made available to a nonprofit organization, Invisible Institute, in July 2014 and the Chicago police union, the Fraternal Order of Police (FOP), notified its members in August 2014[10].

3.2 Oversight agency location

On December 19, 2011, the oversight agency moved from a rented space on the South Side of Chicago to the Near West Side of the City. The new site of the oversight agency is located in a building owned by the City of Chicago.

The former South Side location was near the Chicago police headquarters and accessible by two subway lines and an expressway. The new location is accessible by bus but not by subway. Hence, the change of location increased the travel time to file a complaint for someone residing on the South Side, and decreased the travel time for someone living on the Near West Side. The two location are about 6.3 miles apart from each other using the Manhattan Distance metric and 4.9 miles by euclidian distance.

Figures 1-3 depict the oversight agency before and after its location change with respect to the distribution of race, income, and complaints within the city. Figure 1 indicates that the oversight agency moved closer to neighborhoods with a high proportion of Hispanic and white residents, but farther away from the black population of the South Side. Figure 2 suggests that the North Side of Chicago tends to be wealthier than the South and West Sides. Thus, the oversight agency moved closer to more affluent neighborhoods. Finally, Figure 3 shows that the oversight agency moved away from neighborhoods with a high concentration of allegations of police misconduct.

4 Data

4.1 Data sources

This section describes the datasets that are used for the empirical analysis. My primary analysis focuses on complaints, crime data, and civilian injuries data spanning January 2011 to December 2014. I supplement those datasets with distance and travel times from each beat centroid to the oversight agency locations using data from Google Distance API. I merge complaints and crime data with demographics and socioeconomic indicators by census block obtained from the U.S. Census Bureau 2010-2014 American Community Survey's five- estimates.

Complaints Data The complaint data contains all recorded allegations of misconduct filed against an officer from 2001 to 2016. The allegations can come from another officer (an internal complaint)

[10]See Kalven Court Decision

or from a civilian (an external complaint). Each complaint contains information on involved police officers, complainant demographics, and incident location. The data includes both internal and external complaints filed against officers and does not account for appeals or subsequent hearings. I do not have information on the residence of the complainant; however, the location of the incident might provide some useful information, since it can serve as a loose proxy indicator of the complainant's residence.

The dataset provides information about the final finding of the investigation. The outcome variable has the following classification: disciplined, not-sustained, open- investigation, sustained, and unknown. The finding variable provides an explanation of the outcome and has the following descriptions: exonerated, missing affidavit, not sustained, sustained, unfounded, unknown, sustained. I also supplement the finding variable by identifying the complaints with missing officer information. For the purpose of this study, I restrict attention to general conclusions from the investigation rather than their recommendations. I restrict my attention on civilian complaints with identified officers and final outcomes (i.e I do not consider unknown outcomes or unknown officers). Because I am interested in whether or not the complaint was investigated, I use another classification for the purpose of my research question: no affidavit, not sustained (not sustained, exonerated, or unfounded), and sustained (sustained or disciplined). Additional information about the classification is provided in Appendix A.2

Use of force and civilian injuries Information on civilian injuries comes from the 2004-2016 Tactical Response Reports (TRRs). The TRR is a form that officers are required to complete for incidents involving the use of force. The form provides detailed information about the incident, type of force, subject demographics, and involved officer information (demographics, unit assignment, injury, etc). Moreover, a TRR is also necessary if the subject is injured or allegedly injured.

Chicago crime data The crime data reflects reported incidents that occurred in Chicago from 2001 to present. Each incident contains information about the crime, such as location, date, type, and whether or not an arrest was made. For each beat, I compute the monthly number of total incidents and arrests for index crimes (violent and property crimes), and non-index crimes (less serious offenses). I do not include beats that are located outside of Chicago. Beats that do not have any residents are also removed from the sample. The resulting sample contains a total of 265 beats with 43 months of observational data.

Traveling cost I use the proximity of the incident location to the oversight agency as a proxy for the opportunity cost of filing a complaint. I consider spherical distance, driving time, and travel time by public transportation. For each beat, I compute the travel times (car and public transit) from beat centroid to the oversight agency locations using data from Google Distance API

in December 2016[11].

American Community Survey (ACS) American Community Survey (ACS): Using the 2010-2014 ACS data, I compute block level aggregates to characterize demographics and neighborhood demographics. The numbers are adjusted to 2014 dollars by Social Explorer. I average the block median income at the beat level. I also compute the share of Black, Hispanic, white, and other race at the beat level to identify whether or not the beat has a majority of Black civilians.

4.2 Sample construction

In order to study the effect of allegations of misconduct on police performance, I construct two datasets: complainant's data and beat level data.

Complainants data The analysis focuses on incidents that occurred between January 2011 and July 2014. As discussed in section 3.1, this period is appropriate for studying civilian willingness to complain against the police. Because misconduct records were not accessible to the public and there was no major scandal, the behavior change of police officers or civilians is less of a concern. I exclude from the sample incidents with missing location or if they occurred outside of Chicago, including the suburbs. The resulting sample contains a total of 15,039 complaints for the analysis of the Raw data provided in the Appendix B. The Raw complainants data is helpful in order to describe the type of misconduct that officers are accused of. Among those complaints, 6,763 come from civilians (e.g. failure to provide service, use of force, verbal abuse, arrest, locked up procedures, and search). Table A.1 provides details about the sample construction.

Beat Level Data The beat level data helps us understand the effect of signed affidavits and traveling cost on different policing outcomes. I restrict the analysis on allegations of misconduct that are coming from civilians. For each beat, I merge the monthly crime data to the use of force and injuries data, ACS data, and complaint data.

4.3 Descriptive analysis

4.3.1 Civilian complaints data

Table **1** reports the frequency distribution of civilian complaint categories by complainant race for incidents that occurred between January 2011 and July 2014. That sample only consider complaints with known final outcome (i.e., sustained, not sustained, and those with a missing affidavit). About 70.5 percent of the complaints are related to use of force, verbal abuse, arrest, locked up procedures, and searches. This suggests the presence of a large degree of heterogeneity among

[11] I use the "sphdist" routine from Stata to compute the spherical distance.

complainants. Hispanic and Black civilians are more likely to complain about events that have greater consequences for their criminal records, but are also seen as a positive indicator for officer performance, whereas white civilians are more likely to complain about issues related to quality of the service provided by the police (e.g, response time for a 911 call or a failure to arrest a suspect). Accounting for 29.5 percent of the total complaints, failure to provide service (FPS) complaints represents significant portion of the complaints. It is important to note that FPS complaints are most likely filed by complainants who are potentially victims of a crime or who seek police help, whereas serious allegations are filed by complainants who are potentially viewed as criminal by police officers.

Table 2 presents some summary statistics of civilian complaints by distance bins from the oversight agency location. About 71 percent of the complaints are serious and 29 percent are complaints related to failure to provide service. Incidents that occurred closed to the oversight agency, i.e., less than three miles away, have a higher share of failure provide service (33 percent). On the other hand, incidents that occurred three to six miles from the oversight agency, have a higher share of serious complaints (73 percent). The average travel time to sign the affidavit is about 21 minutes by car and 50 minutes by public transportation. Incidents that occurred less than three miles from the oversight agency have a more affluent population. The average hourly wage within the three-mile radius of the new oversight agency is about $26, versus the $18-$20 of the rest of the city. Blacks, Hispanics, whites, and individuals of unknown race respectively represent 68 percent, 12 percent, 15 percent, and 5 percent of the complainants. The share of Black complainants in- creases as the distance from the oversight agency increases, whereas whites have the highest share of complainants living less than three miles from the oversight agency. The highest share of Hispanic complainants live less than nine miles from the oversight agency. Looking at age characteristics, we find that approximately 14 percent of the complainants are less than 30 years old and 49 percent are between 30 and 49 years old. The median age of the accused officers is slightly higher for incidents that occurred less than 3 miles from the oversight agency: 42 years old, versus 40-41 years old for incidents that occurred more than three miles from the agency. Between 31 and 33 percent of the incidents involved a non-regular police officers, i.e. higher ranked or specialized officers. The racial distribution of the accused officers varies geographically. Incidents that occurred farther away from the oversight agency have a higher share of accused Black officers. The share of accused Hispanic and white officers is higher for incidents closed to the oversight agency. The summary statistics on the racial distribution of civilians, and on where officers get their complaints (weakly) suggest that there is some (voluntary or not) geographical allocation of officers based on their race and ethnicity. As a confirmation to Figure 1, which depicts racial segregation in Chicago, Hispanic and white civilians are more likely to live closer to the oversight agency than Black civilians. Table 2 suggests the need to condition for complainant demographics and incident characteristics, as distance to the oversight agency is clearly correlated with other complainant characteristics that may themselves affect an individual's decision to sign the affi-

davit.

To explore the effects of distance and location change on the probability of a completed complaint, Figure 4 plots the probability of a signed affidavit by distance to the oversight agency at both the old and new reporting centers. According to the graphic, the share of signed affidavit was higher at the old location (50.7%) than at the new location (43.7%). Moreover, at the old location, complaints resulting from incidents that occurred twelve or more miles or more from the reporting center were less likely to be completed (i.e., to contain a signed affidavit) than those resulting from incidents that occurred less than twelve miles away. For the new location, complaints are on average less likely to have a signed affidavit the farther away the incident occurred from the oversight agency. This graph suggests that the location change had an impact on the likelihood of signed affidavit. Because the oversight agency moved farther away from the areas with a high concentration of complaints (see figure 3), one can infer that the increased distance and/or traveling cost had a deterring effect on the willingness of individual civilians to complete their complaint by signing the affidavit.

In order to provide additional evidence of the negative relationship between traveling cost and the number of completed complaints, I then analyze how travel distance to the oversight agency affects an individual's willingness to file a complaint and to sign the affidavit. Figure 5 plots the probability that a complaint will include a signed affidavit by distance to the oversight agency. Figure 5a plots the probability of a signed affidavit and includes a histogram of the number of complaints by traveling distance. This graphic displays the expected result: incidents that occur farther away from the oversight agency are less likely to have a signed affidavit. The number of complaints declined with distance, for incidents that occurred more than three miles away from the oversight agency. Figure 5b plots the demeaned signed affidavits rate as well as two residualized versions. The first residualized signed affidavits rate using complainants characteristics. The second accounts for accused officers and incidents characteristics. Consistent with what I will present in the regression specifications below, Figure 5b suggests that the overall relationship between the probability of signed affidavits and travel distance is not very sensitive to the inclusion of these covariates.

4.3.2 Beat level data

In order to understand the context in which complaints are filed, it is important to account for the environment in which police officers are working. The aggregation of the data at the beat level helps us to understand how the cost of traveling to the reporting center affect misconduct, use of force, and policing.

Table 3 presents some summary statistics by beats from January 2011 to July 2014. I present the data for the whole city, beats with a majority[12] of Black residents, beats with a majority of Hispanic

[12]Majority: share of a racial or ethnic group (Black, Hispanic, or White) larger than 50 percent in a beat

residents, and beats with a majority of white residents. According to that table, compared to non-Black residential areas, Black residential areas are, on average, farther away from the reporting center (about 2-2.20 miles farther away). White residential areas have a lower traveling time by car and transit compared to member of minority groups. Income disparity and racial segregation that are depicted in Figures 2 and 1 are also confirmed by Table 3. White residential areas are more affluent than those of other racial and ethnic groups. For instance, the average income in white beats is more than twice the average income in Black beats. Finally, the average number of police officers in the district is higher in non-White areas.

5 Empirical analysis

This section analyses the effects of traveling costs on the likelihood of having a full investigation, provided that the officer is identified by the individual when they filed the complaint. I use distance and traveling times by car and public transit from the incident to oversight agency location as a proxy for the cost of filing a complaint against a police officer. The change of location of oversight agency after December 2011 provides us a quasi-experimental design to study the opportunity cost of filing a complaint, and more specifically, to sign the affidavit. I exploit the fact that the cost of signing the affidavit varies by police beat, and that this cost exogenously changes when the location of the oversight agency change.

The economic literature often uses distance or traveling time as a proxy for opportunity cost or a measure of the individual's willingness to travel to get education (Card [1995], Duflo [2001], Dahl [2002]), receive healthcare treatment (Einav et al. [2016], Gowrisankaran et al. [2014]), migrate (Black et al. [2015]), consume (Davis et al. [2016]), or apply to disability programs (Deshpande and Li [2017]). Provided that the accused officers are identified, a complaint is fully investigated if the affidavit is signed. Thus, I restrict the analysis to closed allegations with known final outcomes and consider the following final findings: sustained, non-sustained, and missing affidavit.

5.1 Complainants data

5.1.1 Setup

I start my analysis by examining the relationship between distance traveling costs (distance or traveling time) and the probability to sign the affidavit, I estimate the following linear probability model for individual i in beat b and in month t:

$$Sign_{ibt} = C_{bt}\beta + X_i^{'}\delta + \alpha + \gamma_t + \varepsilon_{ibt} \tag{1}$$

The variable $Sign_{ibt}$ is equal to 1 if the outcome is sustained or not sustained and to 0 otherwise. The vector X_i contains a set of controls for complainant age, race, gender, and information about

the incident. The time fixed effects and the constant are given by γ_t and α. The error term ε_{ibt} is assumed to have non-constant variance and standard errors are clustered at the police district and community area level. The vector of traveling costs is captured by C_{bt} which is specified as a linear function. The coefficient of interest, β, captures the effect of traveling cost on probability to sign the affidavit. The estimated coefficients from equation 1 might suffer from an omitted variable bias due to unobserved factors that are correlated with traveling cost. The bias can come from permanent differences between police beats, as well as biases from different trends over time. In order to address the bias due to unobserved heterogeneity, I estimate the following difference-in-differences model:

$$Sign_{ibt} = C_{bt}^{'}\beta + X_{i}^{'}\delta + \alpha_b + \gamma_t + \varepsilon_{ibt} \tag{2}$$

such that equation 2 augments model from equation 1 by including police beat fixed effects that are given α_b. The vector of traveling costs is captured by $C_{bt}^{'}$ which is specified as either linear or step functions. I am interested in coefficients β which capture the effect of distance on the probability of signing the affidavit. The fact that the cost is time varying at the beat level and because of the exogenous location change of the oversight agency over time, enables me to identify the causal effect of β. The identification strategy also relies on the notion that the site change of the oversight agency locations and traveling cost should not be correlated with complainant and incident characteristics. This would be consistent with the idea that traveling cost varies quasi-randomly from incident to incident given the change of location of the oversight agency.

5.1.2 Results

Table 4 presents the results from equation 4. Panel A displays the estimates for all complainants. Panel B, C, and D present the results for Black, Hispanic, and white complainants respectively. Separating the results by race enables me to document the heterogeneity of the results by complainant's race. Columns 1-3 present the results for all type of civilian complaints, columns 4-6 only accounts for serious civilian complaints, and columns 7-9 present the results for complaints related to failure to provide service. Columns 1-3 present the results for all type of civilian complaints, columns 4-6 only accounts for serious civilian complaints, and columns 7-9 present the results for complaints related to failure to provide service. For Panel A, the average probability that an individual will sign the affidavit is 46 percent, 52 percent, and 31 percent for the three categories. A standard deviation (3.6 miles) increase in distance reduces the probability of signed affidavit by 2.3 percent -3.5 percent depending on the type of complaint[13]. Overall, Table 4 suggests that distance does not have a statistically significant impact on the likelihood to sign the

[13]The interpretation is given by $\frac{\partial y}{\partial C} \cdot \frac{SD(C)}{\overline{y}} = \beta \cdot \frac{SD(C)}{\overline{y}}$, based of coefficient β, standard deviation of the traveling cost ($SD(C)$), the dependent variable (y), and mean of the dependent variable ($\overline{y}$)

affidavit. The effect is marginally significant when pooling failure to provide service and serious complaints together (columns 1 and 3). According to Panel B C, and D suggest that distance does not have a statistically significant effect on the probability to sign the affidavit for most of the specifications.

Panel A of Table 5 displays the estimates from the equation 2 which accounts for beat's unobserved heterogeneity of the beats. Incidents that occurred farther away from the oversight agency are less likely to have a signed affidavit. A standard deviation increase in distance reduces the probability of signed affidavit by 8.6 percent , 6.2 percent , and 16.3 percent for the whole sample, serious complaints, and failure to provide service complaints respectively. The results are statistically significant at the 5 percent level when controlling for officers and complainants' characteristics. Table A.10 finds that the results for equation 2 hold when using a nonlinear specification of distance (step functions). The coefficients from Table 5 are two to three times larger relative to the results from Table 4. This suggests that not accounting for beat fixed effect biases down, in absolute value, the effect of distance on the probability to sign the affidavit.

Panel B, C, and D of Table 5 display the estimates from the equation 2 by complainant's race. On average, Black complainants are less likely to sign the affidavit compared to white and Hispanics. For instance, for all types of complaints, the average probability to sign the affidavit is 44 percent, 51 percent, and 55 percent for the all the Blacks, Hispanics, and white complainants respectively. The effect of distance is negative for most of the specifications, but it is statistically significant only for Black complainants for all type of complaints and for failure to provide service. For all types of complaints, a standard deviation increase in distance reduces the probability of signed affidavit by 10.6 percent and 5.6 percent for the Black and Hispanic complainants respectively. For white complainants, the effect of distance on the probability to sign the affidavit is positive but small and not statistically significant. For complaints related to failure to provide service, Black complainants are almost two times less likely to sign the affidavit compared to whites (25 percent for Blacks vs 48 percent for whites). Moreover, a standard deviation increase in distance reduces the probability of signed affidavit by 40.3 percent for allegations related to failure to provide service from a Black complainant. For incidents related to serious misconduct, Blacks are also more sensitive to distance compared to the other ethnic or racial groups. A standard deviation increase in distance reduces the probability of signed affidavit by 6.2 percent, 1.9 percent, and 1.2 percent for the Black, Hispanic, and White complainants respectively. The results for serious complaints are statistically significant when pooling the racial and ethnic groups (Panel A), but not significant when one separates the results by the complainant's racial or ethnic group. Once again, not accounting for beat fixed effects potentially attenuates the effect of distance on the probability to sign the affidavit.

In order to understand the short term effect of the policy, Table 6 presents the effect of distance on the probability of signed affidavit during a symmetrical period of time around the the location change of the oversight agency in December 2011. I look at the effect of distance in the six, nine,

and twelve-month periods around the move of the reporting center. In order to have sufficient degrees of freedom for the estimation and to compute the standard errors, I estimate equation 2 with district fixed effects, rather than beat fixed effects[14]. This approach is necessary when conditioning on complainant race (Panel B, C, and D). Panel A of Table 6 suggests that distance has a statistically and economically significant impact for all types of complaints and for complaints related to failure to provide service. For instance, from January 2011 to December 2012, a standard deviation increase in distance reduces the probability of signed affidavit by 7.5 percent and 20.9 percent for all type of allegations and for complaints related to failure to provide service, respectively. The results are smaller and not statistically significant for allegations involving serious misconduct: during the twelve-month period around the location change, a standard deviation increase in distance reduces the probability of signed affidavit by 4.6 percent . Panel B, C, and D suggest that the results are driven mostly by Black complainants who are less likely to complete a complaint that is related to failure to provide service.

5.1.3 Threats to validity and robustness

This section briefly discusses supplemental evidence that supports the assumptions underlying the results and robustness tests. Appendix D explores the robustness of the results across different specifications. I briefly summarize the main conclusions.

I use a placebo test to supplement the regression evidence on robustness to prior location change and differential trends. The placebo test replaces the actual location change that occurred in December 2011 with a location change in May 2011 and then reruns the main specification from January to November 2011, equation 2, to show that nothing mechanical drives the results. Overall, according to Table 7, the results are relatively small and statistically non-significant; therefore, these falsification tests reveal that the estimates are not related to events that would have potentially occurred prior to the true location change.

Overall, for the effect of traveling costs on positive findings, the results remain reasonably robust across a variety of alternative specifications. I find that distance from the incident location to the oversight agency affects complainants' willingness to complete their complaint against a police officer. First, the coefficients of interest stay stable including and excluding different sets of controls, such as the demographics of the complainants and incident characteristics. Secondly, I show that the results are robust in response to a variety of travel cost measures. The first type is related to the opportunity cost of time that is captured by distance, travel time by car, and travel time by transit from the oversight agency to the incident location. The results using the alternative travel costs (time by car and transit) regressions can be found in Tables A.14 and A.15.

I find that the results for equation 2 hold when using alternative functional forms for: travel

[14]In other context of the paper, I also adopt this approach when the specification does not have enough observation to perform inference.

costs (step function), error term (logit), and district fixed effects rather than beat fixed effects. This indicates that the results are not sensitive to functional form. For nonlinear traveling distance, I display the coefficients in Table A.10 and A.11. Table A.13 reports the results using a logit with district fixed effect specification, rather than a LPM with beat fixed effect. The results are similar to the main specification and confirm that a higher traveling cost reduces the likelihood of traveling to sign the affidavit.

Unless specified, standard errors are clustered at the district and community area level. As an additional robustness check, I also perform the analysis with standard errors clustered at the beat level and police district level. Those alternative specifications does not affect the inference of the analysis.

5.2 Beat level data

5.2.1 Setup

This section perform reduced-form analysis to investigate the effect of the location of the oversight agency on various outcomes. Similarly to equation 2, I estimate a the following DID model at the beat b and month t level such that:

$$y_{bt} = C'_{bt}\beta + X'_{dt}\delta + \alpha_b + \gamma_t + \varepsilon_{bt} \tag{3}$$

The time and beat fixed effects are given by γ_t and α_b. The error term ε_{bt} is assumed to have non constant variance and standard errors are clustered at the police district and community area level. The vector of traveling costs is captured by C'_{bt} which is specified as either linear or step functions. The vector X_{dt} contains a set of controls for the police district characteristics over time such as average monthly salary and number of officers in the district.

The analysis at the beat level provides an opportunity to study the effect of monitoring (distance or traveling time) on police performance. Recall that police agencies are supposed to both prevent crime and preserve trust in the communities they are serving (Lum and Nagin [2017]), thus I do not limit my analysis to crime outcomes to measure police performance. Due to data limitation, I only consider the following set of outcomes, y_{bt}: complaints, use of force and civilian injuries, and crimes. I am interested in the effect of traveling cost on outcomes that measures both the extensive margin (per 1,000 capita) and the intensive margin. Because of the presence of zeros in the data (months without complaints, signed affidavits, crime, arrest, injuries, and use of force in a given beat), I chose to analyze per 1,000 capita levels, rather than percentage changes or logs.

For the complaint outcomes, I consider the number of complaints per 1,000 capita, the number of complaints with signed affidavit per 1,000 capita, the share of complaints with signed affidavit, and the share of complaints that are sustained. This set of outcomes helps our understanding of the relationship between civilian oversight and officers' likelihood to be investigated and penal-

ized.

For the use of force and civilian injuries outcomes, I consider the number of TRRs per 1,000 capita (i.e. the number of use of force reports per 1,000 capita), the number of civilian injuries per 1,000 capita, whether or not there was incident with high level of force (interaction involving use of Taser or firearm), and the number of incidents involving reported force per arrest. This set of outcomes help us understand the relationship between civilian oversight and police use of force.

Finally, I analyze the relationship between civilian oversight and crime outcomes (index and non-index). For each type of crime, I consider the number of reported offenses per 1,000 capita, the number of reported offenses with an arrest per 1,000 capita, and the clearance rates which I define as the number of reported crimes with an arrest over the number of reported crimes.

To account for the fact that Blacks, Hispanics, and whites do not live in the same neighborhoods (because of the effects of segregation and income disparity), I perform the analysis separately for those groups. For each set of outcomes, I report the results for the whole city, beats with a majority of Black residents, beats with a majority of Hispanic residents, and beats with a majority of white residents. For the interpretation of the results, I rely on the standard deviations of traveling distance which are 3.5, 3.6, 2.4, and 3.4 the whole city, beats with a majority of Black residents, beats with a majority of Hispanic residents, and beats with a majority of white residents respectively.

5.2.2 Complaints

Table 8 presents the monthly effect of distance from the incident location to the oversight agency on complaint outcomes at the beat level: number of complaints per 1,000 capita, signed affidavit per 1,000 capita, share of signed affidavit, and share of sustained complaints.

This table suggests that beats that are farther away from the oversight agency are more difficult to monitor because civilians are: less likely to complain and less likely to complete their complaint. O A standard deviation in traveling distance to the reporting center causes a decrease in the number of complaints per 1,000 capita and signed affidavits per 1,000 capita by 11.6 percent and 26.1 percent . The share of signed affidavits drop by 10.8 percent for beats that are a standard deviation away from the oversight agency. The results are statistically and economically significant for beats that are majority Black: a standard deviation in traveling distance to the oversight agency causes a decrease in the number of complaints and signed affidavits by 7.2 percent and 17.9 percent, respectively. Beats that are predominantly composed of Hispanic and white residents tend to show similar patterns for the share of signed affidavits, but the effect is only statistically significant for shares of signed affidavits in white residential areas.

Moreover, columns (7) and (8) of Table 8 suggest that the rate at which complaints are sustained increases with distance, but the results are only marginally significant for beats that are predominantly composed of Black residents. In beats that are majority Black or Hispanic: a stan-

dard deviation in travel distance to the oversight agency relates to a 39.8 percent to 28.0 percent increase in sustained rate. A standard deviation in travel distance to the oversight agency relates to a 10.4 percent increase in sustained rate for white residential areas.

Table A.19 finds qualitatively similar results when focusing on the short term effect of the policy nine and twelve months around the location change of the oversight agency.

This set of results strongly suggests that beats that are farther away from the oversight agency are more difficult to monitor. Civilians are on average less likely to report misconduct and to complete their complaint if they are farther away from the reporting center.

5.2.3 Use of force and civilian injuries

Table 9 presents the monthly effect of distance from the incident location to the oversight agency on use of force outcomes at the beat level: number of incidents reporting use of force (TRR), any use of high level of force (interaction involving use of Taser or firearm), number of incidents involving reported force per arrest, and number of civilian injuries. Overall, the results are not statistically significant when looking at the results for the whole city (Panel A) and when controlling for district characteristics.

Panel A from this Table 9 suggests that distance does not have a statistically significant impact on use of force outcomes. However, civilians in Hispanic residential areas are more likely to be subject to use of force if they are farther away from the oversight agency. For civilians in Hispanic residential areas, a single standard deviation increase in traveling distance to the reporting center relates to a 13.7 percent increase in the number of use of force, a 13.2 percent increase in the likelihood of high use of force, a 8.0 percent increase in the likelihood of being subject to use of force during an arrest, and a 12.0 percent increase in the injury rates due to use of force from an officer. Civilians in Black residential areas are more likely to be subject to force and injury during an arrest if they are farther away from the oversight agency. Distance does not have a statistically significant impact on use of force outcomes in white residential areas.

The short run results from Table A.20 suggest that beats that are more difficult to monitor (in terms of distance from the oversight agency) had a significantly higher number of use of force reports and a higher level of force per arrest. Moreover, non-Black residential areas that are farther away from the reporting center had a higher likelihood of having an incident involving a higher level of force (firearm or Taser discharges). The results also show the number of injured civilians tends to increase in the specification that considered the nine-month period around the location change, but the effect seems to vanish when considering the twelve-month period around the policy change.

Overall the results suggest that non-white areas that are more distant from the reporting center exhibit a pattern of more aggressive policing. For Black residential areas, this type of policing increases the likelihood of injury and force per arrest. Hispanic residential areas exhibit a sim-

ilar pattern and are also more likely to be subject to a higher level of force (Taser and firearm discharges) if they are farther away from the oversight agency.

5.2.4 Crime and arrest

Table 10 presents the monthly effect of distance from the incident location to the oversight agency on index and non-index crime outcomes at the beat level: number of offenses per 1,000 capita, arrest per 1,000 capita, and clearance per 1,000 capita. Results for the whole city suggest that beats that are farther away from the oversight agency have lower crime rates for both types of offenses, significantly higher clearance rates for index crimes, but lower arrest rates for non-index crimes. For readability, I only report the results that accounts for district's controls. The results are similar when not controlling for district's covariates.

Panel A of this table suggest that beats that more distant from the oversight agency have lower reported offenses, higher arrests (not statistically significant), and higher clearance rates for index crimes. For non-index crimes, beats that are closer to the oversight agency exhibit significantly have a higher number of arrests per 1,000 capita. Black residential areas, in Panel B, exhibit a similar pattern as the full sample. Beats with a majority of Hispanic residents tend to demonstrate worse index crime outcomes as they are farther away from the oversight agency. The results are not statistically significant. For non-Black residential areas, distance does not seem to have a statistically significant impact on the number of offenses and the number of arrests.

Results from non-Black residential areas suggest that it is difficult to conclude that more oversight yields to lower crime rates, higher number of arrests, and better clearance rates. Although this relationship is present in the whole sample and Black in Black residential areas, non-Black residential areas do not clearly exhibit that the higher cost of complaining yield to worst crime outcomes. The short run results from Table A.21 suggest that beats that are farther away from the oversight agency had significantly lower crime rates and higher clearance rates for index crimes in non-White residential areas. Beats that more difficult to monitor have higher clearance rates for non-index crimes in Hispanic residential areas.

5.2.5 Threats to Validity and Robustness

As before, I use a placebo test to supplement the regression evidence on robustness to prior location change and differential trends. The placebo test replaces the actual location change that occurred in December 2011 with a location change in May 2011 and then reruns the main specification from January to November 2011, equation 3, to show that nothing mechanical drives the results.

Tables A.16 and A.17 report the placebo results for complaints and use of force outcomes respectively. This suggest that the results tend to be smaller, but are all statistically nonsignificant. The results from these falsification tests are encouraging and suggest that the estimates for the

complaint and use of force outcomes are not related to event that would have potentially occurred prior to the true location change.

Table A.18 reports the placebo results for crime outcomes. The results are mixed. None of the results are statistically significant for non-Black residential areas. For Black residential areas, results are non significant for index crimes; however, they are statistically significant for arrests and clearance rates for non-index crimes which makes it difficult to believe that the effect of distance on crime outcomes should be interpreted as causal. In Panel A, the placebo policy fails to reject the null for three out of six of the outcomes.

6 Model: Effect of the cost of signing the affidavit

The reduced-form analysis emphasizes how the cost of completing a complaint by signing the affidavit affects the number of investigated allegations of misconduct. I build on the key lessons from this experiment to shed light on what the impact would be on the number of investigated complaints and sustained rates if policies that influence the cost of investigating officers were to be implemented. To do so, I develop a model of civilian willingness to complete a complaint, accounting for the investigator decision to sustain the complaint if the affidavit is signed. I do not intend to model every feature of policing and I will later discuss how some of the simplifications I make might affect results. Rather, I show how a simple estimated model can provide insight into the effect of reducing the cost of completing a complaint and make out-of-sample predictions.

I do not model police officers' behavior because I do not have data on police-civilian encounters that did not result in a complaint. In other words, I do not have a risk set, or "benchmark" against which to compare officers that receive complaints. For instance, I do not observe officers' workloads and geographically assignments over time, and thus, it is difficult to clearly identify the impact of the oversight agency's location change on the behavior of individual officers.

6.1 Setup

The model has the following timing structure. First, after filing a complaint, the civilian decides whether or not to travel to oversight agency in order to sign the affidavit. If the affidavit is not signed, the complaint is dropped. Second, if the affidavit is signed, the investigator decides whether or not to sustain the complaint. Because the model requires information from the investigator, I drop complaints that have missing information about the investigator. Moreover, I keep complaints that have only one investigator assigned to the case. Table A.2 provides details about the sample construction for this analysis.

I assume that the investigator is assigned when the complaint is filed. The model begins with the civilian complaining about the interaction with the police.

Complainant's preferences Given investigator j in beat b, and the severity of the allegation k, I assume that complainant i's utility to sign the affidavit is:

$$U^1_{k,idt}(jb) = \underbrace{-Cost_{bt}\beta_{k,c}+X^{'}_{it}\beta_{k,x}+Z'_{ibt}\beta_{k,z}+\alpha_{k,d}+\gamma_{k,t}}_{\eta^1_{k,idt}} +\mu^D_{k,jb} + \varepsilon^1_{k,it} \tag{4}$$

where the disutility of signing the affidavit is function of traveling cost $Cost_{bt}$. The vector X_{it} contains a set of controls for complainant age, race, and gender. Vector Z_{ibt} is a set of controls related to the incident characteristics such as the number of officers, median age of the involved officers, and race of the officers. I assume that complainants have different utility depending on the severity of the allegation, k, so that k can be a serious complaint ($k = 1$) or a complaint related to failure to provide service ($k = 2$). The time and district fixed effects are given by $\gamma_{k,t}$ and $\alpha_{k,d}$. I assume that $\varepsilon^1_{k,it}$ is an i.i.d. error term that is distributed type 1 extreme value. For incidents that occurred in beat b, if the affidavit is signed, the unobserved characteristics of the investigator is given by $\mu^D_{k,jb}$. This parametrization of the unobserved heterogeneity allows the investigator unobserved characteristics to be correlated with the location of the incidents. The outside choice, denoted as choice 0, is not signing the affidavit. The utility from this option is given by $U^0_{k,idt}(jb) = \varepsilon^0_{k,it}$, where $\varepsilon^0_{k,it}$ is an i.i.d. error term that is distributed type 1 extreme value. I define $\eta^1_{k,idt} = Cost_{bt}\beta_{k,c} + X^{'}_{it}\beta_{k,x} + Z'_{ibt}\beta_{k,z} + \alpha_{k,d} + \gamma_{k,t}$ and $\eta^0_{idt} = 0$. These assumptions lend themselves to a logit regression:

$$\begin{aligned} \Pr(D_{k,idt} = 1|\mu^D_{k,jb}) &= \Pr(U^1_{k,idt}(jb) - U^0_{k,idt}(jb) > 0) \\ &= \Pr(\eta^1_{k,idt} + \mu^D_{k,jb} - \eta^0_{k,idt} > \varepsilon^0_{k,it} - \varepsilon^1_{k,it}) \\ &= q_{k,i}(\mu^D_{k,jb}) \end{aligned} \tag{5}$$

Where the variable $D_{k,idt}$ is equal to 1 if the complaint is signed and to 0 otherwise. To streamline notation in the last line of equation 5, I drop the d and t subscripts.

Investigator's preferences If the affidavit is signed, investigator j has the following utility to sustained the complaint of complainant i:

$$V^1_{k,it}(jb) = W'_{it}\beta_{k,W} + \tilde{\alpha}_{k,d} + \tilde{\gamma}_{k,t} + \mu^s_{k,jb} + \xi^1_{k,jbt} \tag{6}$$

Vector W_{it} is a set of controls related to the length of the investigation, the incident characteristics such as the number of officers, median age of the involved officers, and race of the officers. The time and district fixed effects are given by $\widetilde{\gamma}_{k,t}$ and $\tilde{\alpha}_{k,d}$. I assume that $\xi^1_{k,jbt}$ is an error term that is distributed type 1 extreme value. If the affidavit is signed, the unobserved characteristics of the investigator is given by $\mu^s_{k,jb}$. The outside choice, denoted as choice 0, is not sustaining the complaint. The utility from this option is given by $V^0_{k,it}(jb) = \xi^0_{k,jbt}$, where $\xi^0_{k,jbt}$ is an error term that is distributed type 1 extreme value. Conditional on signing the affidavit, these assumptions

lend themselves to a logit regression, where the probability to sustained the complaint is:

$$\begin{aligned}\Pr(S_{jb,kit}=1|D_{k,idt}=1;\mu^s_{k,jb}) &= \Pr(V^1_{k,it}(jb)-V^0_{k,it}(jb)>0|D_{k,idt}=1)\\ &= \Pr(W'_{it}\beta_{k,W}+\tilde{\alpha}_{k,d}+\tilde{\gamma}_{k,t}+\mu^s_{k,jb}>\xi^0_{k,jbt}-\xi^1_{k,jbt}|D_{k,idt}=1)\\ &= p_{k,jb|D}(\mu^s_{k,jb})\end{aligned} \tag{7}$$

Where the variable $S_{jb,kdt}$ is equal to 1 if the complaint is sustained and to 0 otherwise. In other words, the investigator thinks that the benefit of having the complaint sustained is larger than the cost. To streamline notation in the last line of equation 7, I drop the i and t subscript. Recall that for a complaint to be sustained, the affidavit has to be signed i.e. $D_{k,idt}$ equals 1.

6.2 Estimation strategy

The model is estimated by maximum likelihood. The likelihood function of the full model will be derived. The parameter set of the full model consists of coefficients of covariates and parameters of unobserved heterogeneity. Unobserved heterogeneity of the investigator by beat enters into the model via the permanent components $\mu=(\mu^D_{1,jb},\mu^s_{1,jb},\mu^D_{2,jb},\mu^s_{2,jb})$ which affect willingness to sign the affidavit and sustained rates in a similar manner to the covariates. This specification of the unobserved factor allows for the fact that investigator might affect the complainant decision to sign the affidavit which eventually has an impact on the sustained rates. For the unobserved heterogeneity, I use the McCall [1996] multivariate generalization of the Heckman and Singer [1984] approach, where $\mu\sim G(\mu^D_{1,jb},\mu^s_{1,jb},\mu^D_{2,jb},\mu^s_{2,jb})$ follows a discrete distribution with G points of support. In the model, unobserved heterogeneity of investigator by beat takes the form of discrete types and the error terms are i.i.d. when conditioned on type. The Panel structure of the data is sufficient to identify the parameters of unobserved heterogeneity and exclusion restrictions are included to facilitate estimation.

The following expression is the likelihood of signing the affidavit for individual i assigned to investigator j in beat b for allegation of type k:

$$\mathcal{L}^D_{k,i}(\mu) = q_{k,i}(\mu^D_{k,jb})^{D_{k,idt}}(1-q_{k,i}(\mu^D_{k,jb}))^{1-D_{k,idt}}$$

Conditional on signing the affidavit for individual i, the likelihood contribution for sustaining the complaint for investigator j in beat b is:

$$\mathcal{L}^{S|D}_{k,jb}(\mu) = p_{k,jb|D}(\mu^s_{k,jb})^{S_{j,kdt}}(1-p_{k,jb|D}(\mu^s_{k,jb}))^{1-S_{j,kdt}}$$

The likelihood function is

$$L = \prod_{jb} \sum_g \pi_g \prod_i \sum_k I_k \cdot \mathcal{L}^D_{k,i}(\mu_g) \left[\mathcal{L}^{S|D}_{k,jb}(\mu_g)\right]^{D_{k,idt}} \tag{8}$$

The log likelihood function is

$$logL = \sum_{jb} \log \sum_g \pi_g \prod_i \sum_k I_k \cdot \mathcal{L}^D_{k,i}(\mu_g) \left[\mathcal{L}^{S|D}_{k,jb}(\mu_g)\right]^{D_{k,idt}} \tag{9}$$

where I_k is equal one for complaints of type k, and zero otherwise. The probabilities for the points of support are given by $\pi_g = \exp(\kappa_g)/(1+\exp(\kappa_1)+...+\exp(\kappa_{G-1}))$. I use a likelihood ratio test to determine the number of support points (Heckman and Singer [1984], Ham and LaLonde [1996], Eberwein et al. [1997]). As in Ba et al. [2017], I start by assuming no unobserved heterogeneity and then continue adding support points and keep the model with the fewest points of support that is not rejected by a standard likelihood ratio test.

6.3 Parameter estimates

I first focus on parameter estimates, from estimating equation 9, which are displayed in tables 11 and 12. I separate the results into two tables for readability. For the interpretation, I report the average marginal affect for the coefficients of the observable variables. Moreover, I also report the mean of the dependent variables for the whole sample and based on the race of the complainant table 13. The main takeaway from table 13 is that Black complainants have very low probability that their complaints will be sustained compared to non-Blacks. Provided that the affidavit is signed, the share of complaints that are sustained for serious allegations are 2.7 percent,11.1 percent, and 30.4 percent for Blacks, Hispanics, and whites respectively. For failure to provide service complaints and provided that the affidavit is signed, the share of complaints that are sustained are 16.0 percent,36.9 percent, and 46.5 percent for Blacks, Hispanics, and whites, respectively.

Table 11 presents the estimates on the probability that the civilian will sign the affidavit by complaint types. Incidents that occurred farther away from the oversight agency are less likely to have a signed affidavit. The magnitude of the coefficients are similar to the DID estimation from section 5. A standard deviation (3.6 miles) increase in distance reduces the probability of signed affidavit by 2.9 percentage points and 7.9 percentage points for serious complaints, and failure to provide service complaints respectively. The coefficients are not statistically significant for serious allegations. Table 11 suggests that males are significantly less likely to complete their complaint if the allegation is serious, the results are not significant for FPS allegations. For serious and FPS complaints, Blacks and Hispanics are less likely to sign the affidavit relative to white civilians. Older civilians are also more likely to complete their complaint. The race of the accused officers' race does not seem to significantly impact civilians' likelihood to complete the complaint.

Table 12 presents the estimates on the probability that the investigators will sustain the complaint by allegation type. Conditional on signing the affidavit, complainant and incident char-

acteristics do not have a statistically significant impact on the likelihood that the investigator sustains the complaint. On the other hand, the race of the complainant has a significant impact for serious allegation of misconduct: non-white complainants are significantly less likely to have their complaint sustain. Incidents involving older officers or black officers are more likely to be sustained for serious allegations.

I find three points of support when estimating specification 9. The probability distributions of the three type of investigator-beat are 42 percent, 39 percent, and 19 percent. The points of support are statistically significant for serious allegations. The standard errors are relatively big for the point of supports of the non-serious allegations.

6.4 Model fit

Figures 6a, 6b, 6c, and 6d present some results on the in-sample fit of the model. The predictions are based on the estimation of equation 9 and the results are reported in Tables 11 and 12.

To assess the fit, I generated 10,000 simulations for signed affidavits and sustained outcomes for each allegation based on the parameter estimates. I then compute the aggregate outcomes for the 22 police districts and report the predicted and actual frequency distributions of the outcomes variables for the police district cells. The police districts are ordered from most to least violent according to reported violent crime per 1,000 capita. Overall, these figures show that the model fits very closely the patterns observed in the data. Table A.22 and figure A.2 provide additional information about the districts and beats' characteristics from January 2011 to July 2014.

I also apply Chi-Squared goodness-of-fit tests (Heckman and Walker [1990]) to the estimated and actual frequency distributions. Recall that the predicted conditional distributions depends on estimated parameters from the model. I do not adjust the goodness-of-fit statistic to account for parameters estimation error because the adjustments are usually slight (Heckman and Walker [1990]). The Chi-Squared tests fail to reject the null hypothesis that the predicted values from the model are statistically different from the data, i.e. the model seems to fit the data relatively well.

7 Using valuation of the complaint to understand the parameter estimates

7.1 Willingness to pay

The parameters from the model can now be used to compute civilians' willingness to pay to complete their complaint. Here, the willingness to pay is the maximum amount of money a civilian is willing to sacrifice to complete her complaint by signing the affidavit. This quantity has a useful interpretation from an economic standpoint that provides, for example, some insights on the distribution of civilians' valuation of their allegation by race-age groups.

I now use the parameter estimates from Section 6 to show how to compute the willingness to pay to complete a complaint. Under the logit assumptions from equation 5, the "surplus" associated with a set of alternatives (signed or not) takes a closed form that is easy to calculate. I drop the time and location (beat and district) subscripts for expositional ease. To exposit expected utility, following Capps et al. [2003] the ex-ante expected utility of individual i related to the affidavit and complaint of type k is

$$E(CS_{k,i}|\mu_g) = \frac{1}{-\beta_{k,c}\theta_b} E\left[\max(\eta^1_{k,i} + \mu^D_{k,jb,g} + \varepsilon^1_{k,i}, \eta^0_{k,i} + \varepsilon^0_{k,i})\right] \tag{10}$$

The ex-ante expected utility has to account for the beat-investigator unobserved heterogeneity ($\mu^D_{k,jb,g}$) of type g. The division by $\beta_c\theta_b$[15] translates utility into dollars . The opportunity cost of time in each beat is captured by θ_b . As shown in Small and Rosen [1981], because the error terms are type 1 extreme value, and the utility is linear in traveling cost, the "complainant surplus" from equation 10 can be re-written as

$$E(CS_{k,i}|\mu_g) = \frac{1}{-\beta_c\theta_b} \log(\exp(\eta^1_{k,i} + \mu^D_{k,jb,g}) + \exp(\eta^0_{k,i})) \tag{11}$$

As in Capps et al. [2003], the expected utility gain of signing the affidavit or willingness to pay for signing the affidavit for individual i for complaint of type k is:

$$WTP_{k,i}(\mu_g) = \frac{1}{-\beta_{k,c}\theta_b}\left[\log(\exp(\eta^1_{k,i} + \mu^D_{k,jb,g}) + \exp(\eta^0_{k,i})) - \log(\exp(\eta^0_{k,i}))\right] \tag{12}$$

$$WTP_{k,i} \quad (\mu_g) = \quad \frac{1}{-\beta_{k,c}\theta_b}\left[\frac{1}{1-\Pr(D_{k,i}=1|\mu^D_{k,jb,g})}\right] \tag{13}$$

I assume that θ_b is equal to the average hourly wage in each beat[16]. The main concern of this assumption is that the opportunity cost of time (by car) may be different across civilians, i.e. the opportunity cost of time of a civilian (potential suspect of crime or victims of a crime) interacting with the police may be higher or lower than working individuals that do not have any interaction with law enforcement. . Because I do not know the true wages of civilians, I have to assume there is no selection with respect to wage. However, the transformation is fairly straightforward that one could use the results to get estimates that rely on alternative values of θ_b .

In order to calculate the overall willingness to pay, one needs to integrate over the unobserved heterogeneity, μ_g, that follows a discrete distribution with G points of support such that

$$WTP_{k,i} \quad = \quad \sum_{g=1}^{G} \pi_g \cdot WTP_{k,i}(\mu_g) \tag{14}$$

[15] θ_b converts each unit of cost in dollar term.

[16] I assume that the hourly average cost of time is captured by the average hourly wage =average annual income/(40 hours $\times$52 weeks)

Where the probabilities for the points of support are given by $\pi_g = \exp(\kappa_g)/(1 + \exp(\kappa_1) + ... + \exp(\kappa_{G-1}))$.

Conditional on the parameter estimates from the model, the estimated empirical willingness to pay is given by

$$\hat{WTP}_{k,i} = \sum_{g=1}^{G} \hat{\pi}_g \cdot \frac{1}{-\hat{\beta}_{k,c}\theta_b} \left[\frac{1}{1-\hat{\Pr}(D_{k,i}=1|\hat{\mu}^D_{k,jb,g})} \right] \tag{15}$$

Equation 15 can be calculated for each complainant, given her explanatory variables. Moreover, this quantity can be used to trace back the estimated empirical distribution of civilians' valuation of the complaint. Another quantity of interest is the average willingness to pay by race-age groups. Let Z denotes the group of interest. For each group Z, the sample average willingness to pay to complete a complaint of type k is

$$\hat{WTP}_{k,Z} = \frac{\sum_{i \in Z} \hat{WTP}_{k,i}}{n_Z} \tag{16}$$

where n_Z is the sample size of group Z. One can assume that Z is composed of each of the 22 police districts or different race-age groups of the complainants. To conduct inference on the quantity from equation 16, it is important to adjust for the sampling error and uncertainty from the parameter estimates. Additional information about the standard errors of the sample average of the willingness to pay is provided in Appendix C.

7.2 Results

Figure 7 reports civilians' willingness to pay in dollars to complete their complaint by racial-ethnic group. Conditional on the age and the race of the complainant, I report both the kernel density, using 15, and the average willingness to pay to sign the affidavit. To ease the interpretation of the results, I also interpret the results in terms of hours of work sacrificed to complete a complaint using the ratio between the willingness to pay and the hourly wages by complainant race reported in table 14. This alternative measure helps accounting for the fact that complainants who are willing to pay the same price for a similar complaint, might have to sacrifice a different number of hours of worked.

The distributions of the willingness to pay for both types of complaints are not symmetric (Figures 7a and 7c). The results suggest that civilians' willingness to pay to complete their complaint for serious allegation ($68.1 or 3.5 hours of work on average) is higher than for FPS allegation ($19.9 or an hour of work on average). The median willingness to pay is lower than the average willingness to pay. The median amounts of money that complainants are willing to pay are $61.6 (3.1 hours of work) and $16.8 (55 minutes of work) for serious and FPS, respectively. For both types of complaint, Hispanics have a lower valuation of their complaint relative to their non- Hispanic counterparts. Blacks have the highest average valuation of their complaint for serious allegations,

whereas whites have the highest average valuation of their complaint for FPS allegations. Finally, the kernel density plots suggest that the median valuations of complaints for Black civilians is far higher than for non-Black civilians. For instance, the median valuation for FPS is $18.4 (an hour of work), $15.5 (36 minutes of work), and $11.5 (half an hour of work) for Black, white, and Hispanic complainants. The median valuation for serious allegations is $68.6 (3.9 hours of work), $49.5 (two hours of work), and $45.31 (almost two hours of work) for Black, white, and Hispanic complainants.

According to Figures 7b and 7d, relative to non-Black civilians, Black civilians between the age of 18 and 49 years old have a significantly higher valuation of their complaint for serious allegation. For FPS, Black civilians between the age of 18 and 39 years old express a significantly higher valuation of their complaint relative to non-Blacks. There is a low share of white civilians below 30 years old who complain about failures to provide service. White civilians between the age of 40 and 74 years old have an economically large valuation of their complaint compare to other racial-ethnic groups.

Overall, the results suggest that people with the lowest valuation of complaining benefit the most of civilian oversight. Table 15 summarizes the cost and benefits of signing the affidavit by complainants' race for each type of complaint. Hispanics seem to exhibit a willingness to pay to complete a complaint that is similar to that of white civilians. Given that Blacks have high valuation and low returns on complaining, pooling minorities (Blacks and Hispanics) together or keeping those groups separate when studying discrimination might yield very different results.

8 Counterfactuals

This section of the paper uses the parameter estimates from section 6 to simulate the various impacts of a policy that lower the cost of completing a complaint. I consider a policy that requires a signed statement, but not to sign a sworn affidavit at the oversight agency. There is also the option of filling out a sworn affidavit, getting it notarized and then mailing it the oversight agency. For example, community organizations or local government agencies can be trained to assist with the filing of a complaint and notarizing the document[17]. Those two alternatives are not legally equivalent, but both policies set the traveling cost to the oversight agency to zero (or close to).

I evaluate the effects of removing the traveling requirement to the oversight agency to complete the complaint, holding everything else constant. I assume that the number of complaints would have stayed constant under this alternative policy. This alternative policy would impact: (i) the share of complaints with signed affidavit, i.e. the share of investigations after a complaint is signed (share of officers held accountable of their action after a complaint), and (ii) the share of allegations of misconduct that yields to a sustained outcome.

[17]For example, the Houston Police Department has adopted a similar system to file a complaint against Houston police officers.

As presented in the previous section, let Z denotes the group of interest. Here, I consider that Z is composed of each of the 22 Chicago police districts. In a given group Z, the expected share of complaints of type k with signed affidavit is given by

$$E(D_{k,Z}) = \sum_{g=1}^{G} \pi_g \cdot \Pr(D_{k,idt} = 1 | \mu_g, Z) \tag{17}$$

Such that μ_g, that follows a discrete distribution with G points of support and the probabilities for the points of support are given by $\pi_g = \exp(\kappa_g)/(1 + \exp(\kappa_1) + ... + \exp(\kappa_{G-1}))$.

Conditional on the complaint being signed under the current policy, the expected share of complaints of type k that are sustained in group Z is given by

$$E(S_{k,Z} | D_{k,Z} = 1) = \sum_{g=1}^{G} \pi_g \cdot \Pr(S_{jb,kit} = 1 | D_{k,idt} = 1; \mu_g, Z) \tag{18}$$

There are two possible counterfactuals for the sustained rates. Let $D^A_{k,idt}$ equals one if the complainant signed the affidavit under the alternative policy, and zero otherwise. The first possible counterfactual is the sustained rates of complaint that are signed under the current policy and signed according to the counterfactual policy is given by

$$E(S_{k,Z} | D_{k,Z} = 1, D^A_{k,Z} = 1) = \sum_{g=1}^{G} \pi_g \cdot \Pr(S_{jb,kit} = 1 | D_{k,idt} = 1, D^A_{k,idt} = 1; \mu_g, Z) \tag{19}$$

The second possible counterfactual is sustained rates for complaint that are not signed under the current policy, but signed according to the counterfactual policy, which is given by

$$E(S_{k,Z} | D_{k,Z} = 0, D^A_{k,Z} = 1) = \sum_{g=1}^{G} \pi_g \cdot \Pr(S_{jb,kit} = 1 | D_{k,idt} = 0, D^A_{k,idt} = 1; \mu_g, Z) \tag{20}$$

Signed Affidavits Figure 8 presents the effect of the alternative policy on the share of investigated complaints (i.e. with sign affidavit). Relative to the number of complaints that are predicted by the model, the share of complaint that should be investigated increases for both type of complaints under the alternative policy. In other words, I compute

$$\triangle_{k,Sign} = \frac{E(D^A_{k,Z}) - E(D_{k,Z})}{E(D_{k,Z})} \tag{21}$$

such that $D^A_{k,Z}$ is the decision to sign the affidavit under the alternative policy and is $D_{k,Z}$ the decision to sign the affidavit under the current policy. Under the alternative scenario, the share of investigated complaints would increase by 5.11 percent and 37.58 percent respectively for serious and FPS allegations. This alternative policy would significantly increase the number of investi-

gated com- plaints that affect potential victim of a crime (FPS). Complainants (with allegations of serious misconduct) who are potential criminal suspects would marginally respond to that policy. For FPS, the response to the policy is larger for districts with the highest rate of violent crime per 1,000 capita and which also have a majority of Black residents.

Sustained Complaints for Observed Signed Affidavits Figure 9 presents the effect of the alternative policy on the share of sustain complaints for complaints that were both: (i) signed under the current policy, and (ii) signed according to the counterfactual policy. In other words, I compute

$$\triangle_{Sust,D_{k,Z}=1} = \frac{E(S_{k,Z}|D_{k,Z}=1, D^A_{k,Z}=1) - E(S_{k,Z}|D_{k,Z}=1)}{E(S_{k,Z}|D_{k,Z}=1)} \tag{22}$$

such that $D^A_{k,Z}$ is the decision to sign the affidavit under the alternative policy and is $D_{k,Z}$ the decision to sign the affidavit under the current policy. Overall, this alternative policy would on average raise the share of sustained to complain for FPS by 8.1 percent, but lower the share of sustained complain about serious allegations 9.77 percent. For serious allegations, only the Austin and Morgan Park police districts, would see an increase in their sustained rates (of 6.31 percent and 1.47 percent respectively) under the alternative policy. For FPS allegations, five police districts (Albany Park, Morgan Park, Near West, South Chicago, and Town Hall) would have a decrease in their sustained rates under the alternative policy. Out of five police districts for which the alternative policy would have the largest increases in the sustained rates for FPS, three of them are the most violent police districts in the city: Englewood, Harrison, and Grand Crossing.

Sustained Complaints for Observed Not Signed Affidavits This section attempts to assess the sustained rates for complaints that would have been signed under the alternative policy, but are not complete (no affidavit) under the current policy. Recall that the sustain rates under the current environment is zero, since those complaint are classified as non-sustained because of the lack of an affidavit. Conditional on a signed affidavit, Figure 10 presents the effect of the alternative policy on the number of sustained complaints. This figure restricts the sample to complaints that were both: (i) not signed under the current policy, and (ii) signed according to the counterfactual policy. In other words, I compute

$$\triangle_{Sust,D_{k,Z}=0} = E(S_{k,Z}|D_{k,Z}=0, D^A_{k,Z}=1) \tag{23}$$

such that $D^A_{k,Z}$ is the decision to sign the affidavit under the alternative policy and is $D_{k,Z}$ is the decision to sign the affidavit under the current policy. Out of the five police districts for which the alternative policy would have the largest the sustained rates for FPS, three of them are the least violent police districts in the city (Jefferson Park, Albany Park, and Lincoln) under the alternative policy. Harrison and Austin districts, which are two of the five most violent districts, are among

the districts that would have experienced the highest sustained rates for FPS under the alternative policy. The sustained rates for serious allegations would be at most 5.0 percent for districts with a majority of Black residents (except for the Wentworth district, which would have a 13 percent sustained rate) and two out of three Hispanic districts. The remaining districts with sustained rates that would be higher than 10.0 percent for serious allegations either have no dominant racial-ethnic group or have predominantly white residents.

9 Conclusion

Placing unnecessary barriers on the civilian complaint process is expensive for society. It leads to public scandals, taxpayer payouts for civil rights lawsuits, and decreased police legitimacy and effectiveness. This paper uses detailed administrative data to study the cost and benefits of filing a complaint against the police in Chicago. As described earlier, I exploit the fact that complaints without affidavits are considered null and an administrative change of location of the reporting center to study the effect of civilian oversight on policing.

I present evidence that complaints filed as a result of interactions between civilians and officers that occurred farther away from the oversight agency are more likely to be lacking an affidavit for both serious allegations and allegations of a failure to provide service. I find that non-white residential areas that are harder to monitor due to their distance from the reporting location are subject to more aggressive policing. Black residential areas, meanwhile, report lower rates of index crimes. These results provide evidence that officers appear to respond to decreasing levels of oversight —defined by the lower likelihood that a complaint will be sustained and the officer investigated, and correlated with increased distance from the reporting center by engaging in more aggressive forms of policing. However, this aggressive policing only seems to exist in non-white residential areas and the effect of oversight on crime reduction only impacts index-crimes in Black residential areas.

To perform a counterfactual scenario, I estimate a model of civilian willingness to complete their complaint, accounting for the investigator decision to sustain the complaint. To ease the interpretation of the parameter estimates, I compute civilian willingness to pay to complete the complaint. I find that individuals who benefit the most from oversight are those with lowest valuation of complaining: non-Blacks have lower valuations of their complaints relative to Blacks, but that there is a higher likelihood complaints from non-Blacks will be sustained. Whites and Hispanics have similar valuation of their complaint, while a Black complainant is willing to sacrifice twice as much time to complete their complaint relative to his or her non-Black counterpart.

Finally, I use my model to simulate counterfactual scenarios under a policy that would remove the cost of signing the complaint. This policy would largely increase the number of investigations and sustained rates for failure to provide service in the city's most violent police districts. On the

other hand, for allegations of constitutional violations, this policy would reduce sustained rates overall and only marginally increase the number of investigations.

This research demonstrates a paradox inherent in efforts to use the complaint process as a primary mechanism in identifying police misconduct and ensuring accountability. To limit the number of complaints alleging excessive use of force or a violation of rights, an officer or a department may be tempted to engage in less-active policing. To address complaints alleging a failure to provide service, however, requires more proactive policing. A single policy change cannot resolve both issues. Rather, fair and effective police reform requires a nuanced understanding of the trade-offs involved in using the complaint process as a primary mechanism of civilian police oversight.

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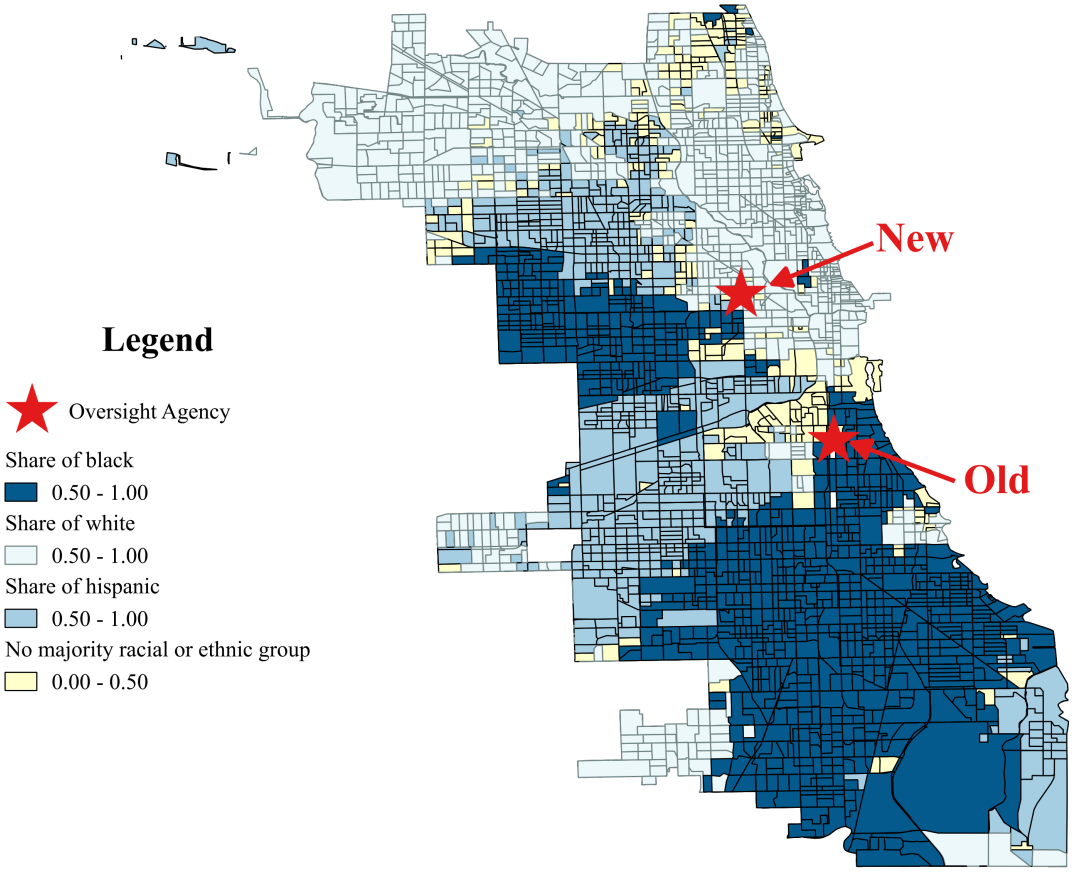
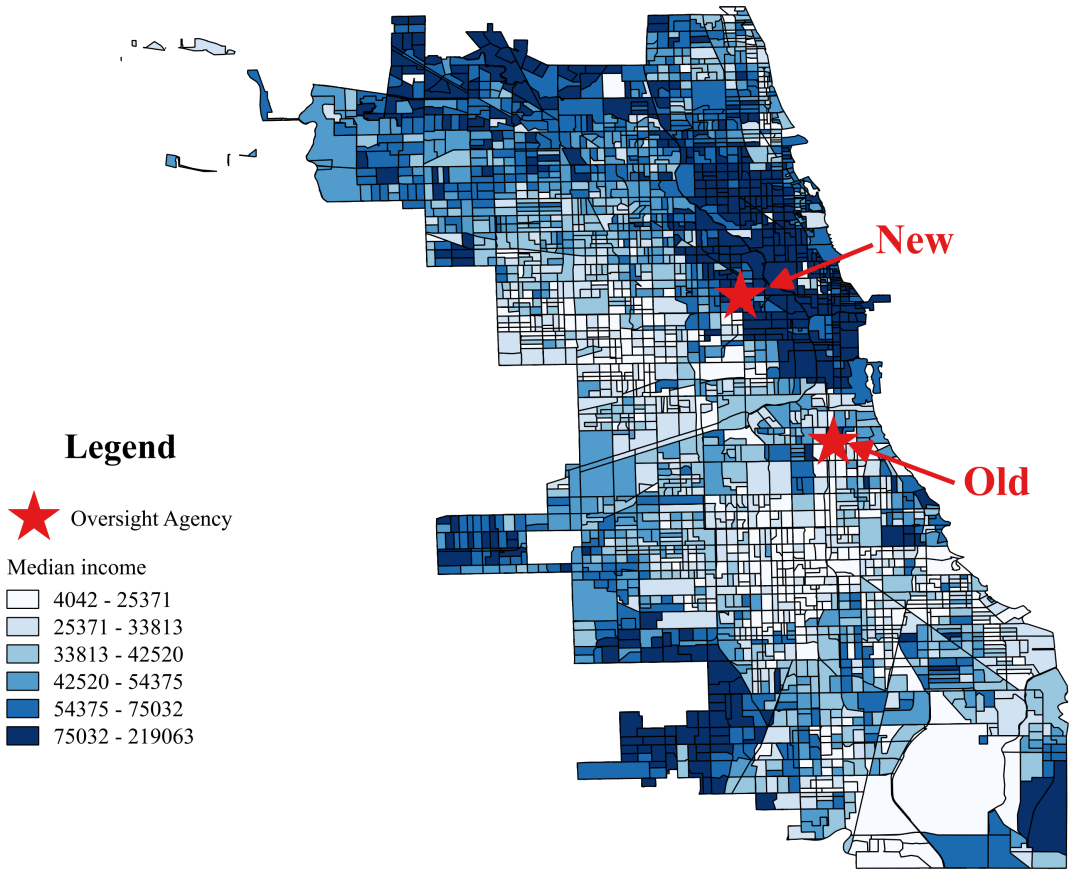
Figure 1: Racial distributions in Chicago



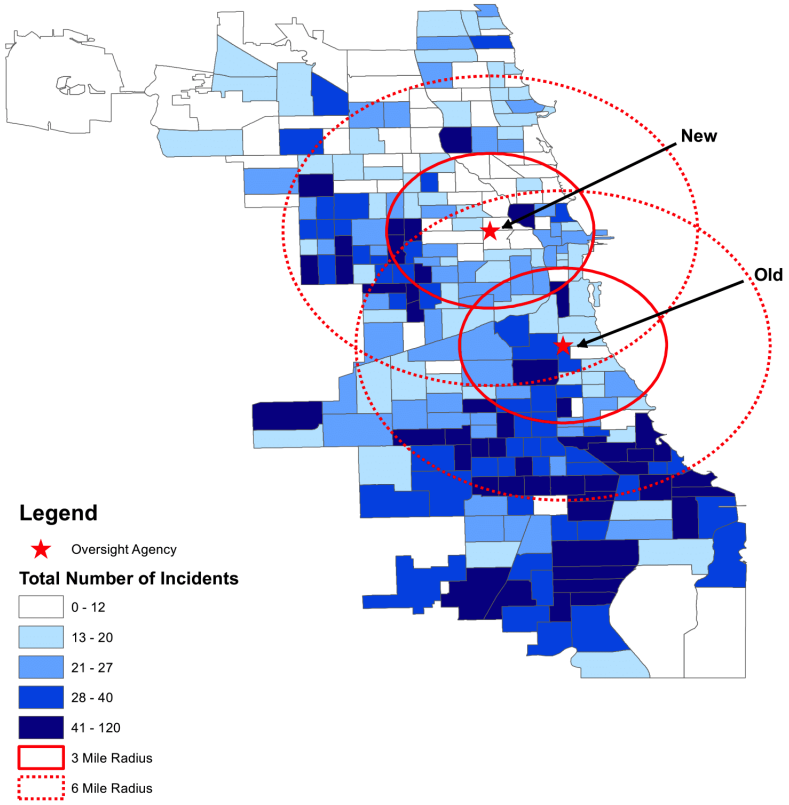
Notes: Figure 1 depicts the residential Chicago population in terms of four demographic categories that cover all the city population at the block level using the 2010-2014 ACS data. The fourth demographic category displays blocks where no racial or ethnic groups represents more than fifty percent of the block. The oversight agency locations (red star) moved from the South Side of Chicago to the Near West Side of the city on December 19, 2011.

Figure 2: Median income level by census blocks



Notes: Figure 2 presents the median income categories at the block level using the 2010-2014 American Community Survey (ACS) data. The oversight agency locations (red star) moved from the South Side of Chicago to the Near West Side of the city on December 19, 2011.

Figure 3: Allegations of misconduct from 2011 to 2014

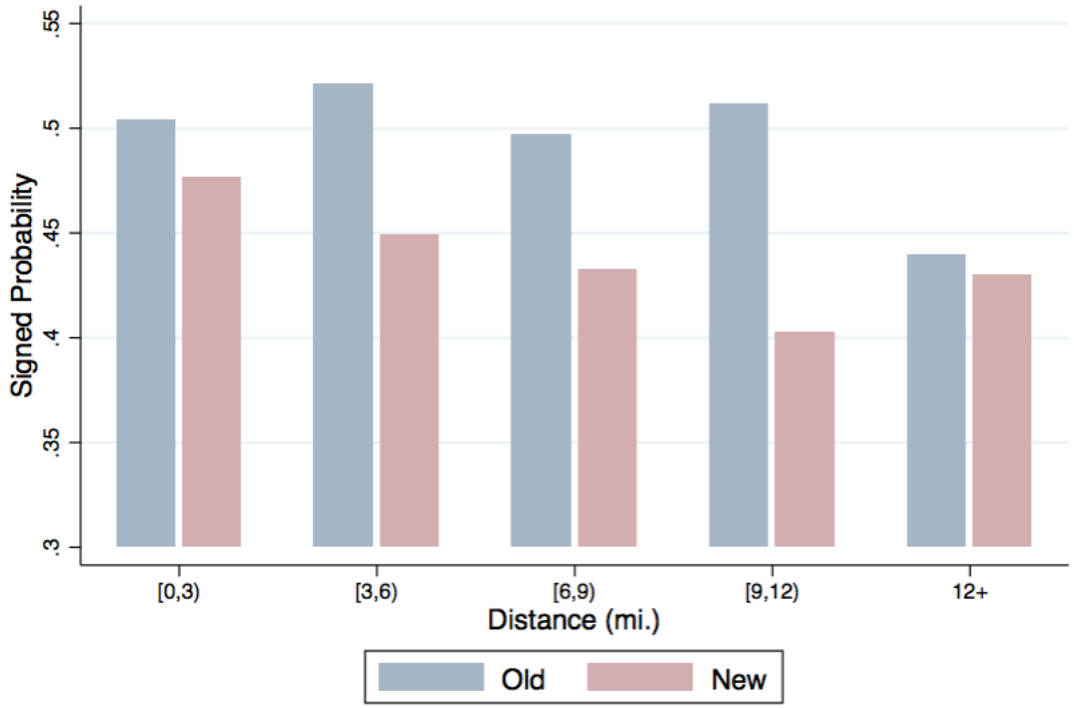


Notes: Figure 3 depicts the quintile distribution of civilian complaints filed against identified CPD officers from January 2011 to December 2014 at the police beat level. I consider that civilian complaints are allegations of misconduct which are classified as failure to provide service, use of force, verbal abuse, arrest or locked up procedures, and search. The oversight agency locations (red star) moved from the South Side of Chicago to the Near West Side of the city on December 19, 2011.

Table 1: Civilian complaint categories by complainant's race

	Complainant's Race									
	Black		Hispanic		White		Unknown		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Use of Force/Verbal Abuse	1633	35.4	345	42.3	336	33.3	120	37.0	2434	36.0
Arrest/Locked up Procedure	334	7.2	59	7.2	82	8.1	14	4.3	489	7.2
Search	1415	30.7	166	20.4	146	14.5	120	37.0	1847	27.3
Failure to Provide Service	1234	26.7	245	30.1	444	44.0	70	21.6	1993	29.5
Total	4616		815		1008		324		6763	

Figure 4: Probability to sign the affidavit by oversight agency's location

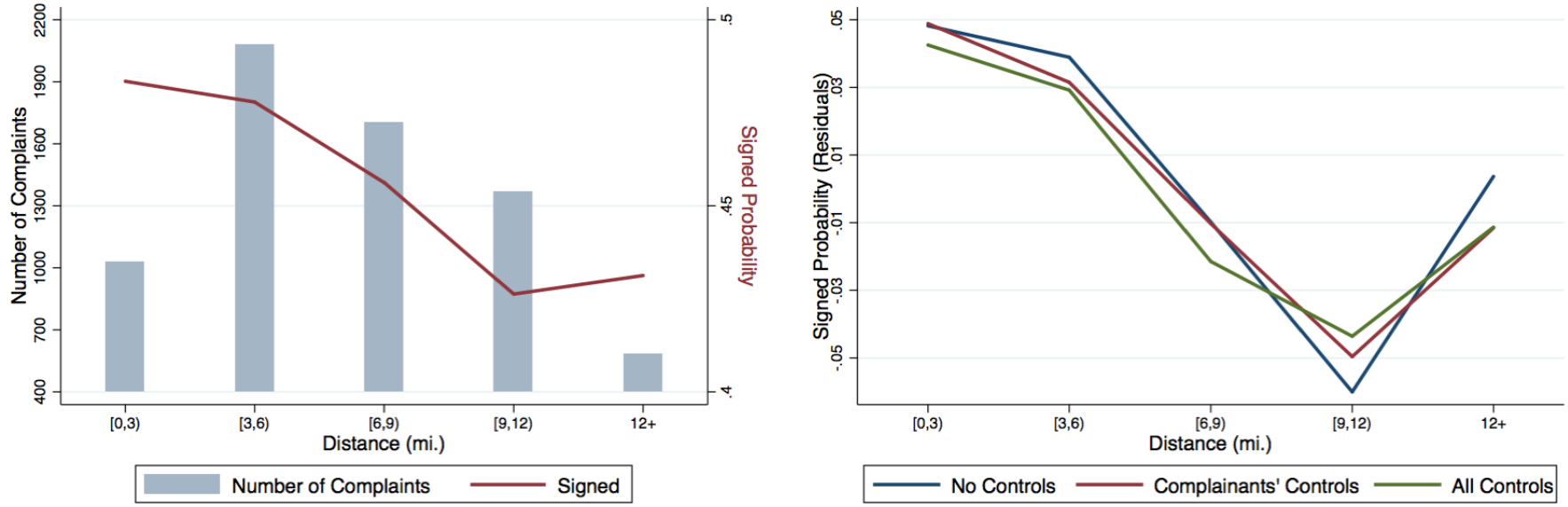


Notes: This Figure plots the probability of signed affidavits for civilian complaints by traveling distance to the oversight agency in miles from January 2011 to July 2014, at the old and new oversight agency's location.

Figure 5: Complaints and signed affidavits by travel distance to the oversight agency

(a) Number of complaints and signed probability by distance

(b) Residualized signed probability by distance



Notes: This Figure plots the probability of signed affidavits for civilian complaints by traveling distance to the oversight agency in miles from January 2011 to July 2014. Figure 5a plots the probability to sign the affidavit, and a histogram of the number of complaints by traveling distance. Figure 5b plots the demeaned signed affidavits rate as well as two residualized versions. The first residualized signed affidavits rate using complainants characteristics. The second accounts for accused officers and incidents characteristics. All covariates (except distance) are as described in Table A.9.

Table 2: Summary statistics by distance bins for civilian complaints

	(1)	(2)	(3)	(4)	(5)	(6)
	All	[0,3)	[3,6)	[6,9)	[9,12)	12+
Serious	0.71	0.67	0.73	0.70	0.71	0.69
	(0.46)	(0.47)	(0.45)	(0.46)	(0.45)	(0.46)
Distance (mi.)	6.86	2.03	4.48	7.52	10.24	13.97
	(3.57)	(0.65)	(0.83)	(0.84)	(0.84)	(1.06)
Time by car (min.)	20.56	10.66	17.28	23.10	26.31	28.82
	(7.12)	(3.16)	(3.80)	(5.37)	(4.58)	(3.02)
Time by transit (min.)	49.28	23.91	40.17	51.98	64.44	83.05
	(18.91)	(7.91)	(8.19)	(9.63)	(10.63)	(11.55)
Hourly wage	19.74	26.26	18.24	18.78	18.18	20.04
	(9.28)	(13.15)	(8.56)	(8.18)	(6.35)	(7.12)
Male complainant	0.54	0.55	0.56	0.52	0.54	0.53
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
18-29yo	0.14	0.13	0.13	0.13	0.15	0.12
	(0.34)	(0.34)	(0.34)	(0.34)	(0.36)	(0.33)
30-39yo	0.26	0.25	0.27	0.27	0.27	0.24
	(0.44)	(0.43)	(0.44)	(0.44)	(0.45)	(0.43)
40-49yo	0.23	0.21	0.23	0.24	0.22	0.27
	(0.42)	(0.41)	(0.42)	(0.43)	(0.41)	(0.45)
Black	0.68	0.59	0.66	0.68	0.77	0.72
	(0.47)	(0.49)	(0.47)	(0.47)	(0.42)	(0.45)
Hispanic/Other	0.12	0.16	0.14	0.12	0.07	0.08
	(0.33)	(0.37)	(0.35)	(0.32)	(0.26)	(0.27)
White	0.15	0.19	0.15	0.15	0.11	0.16
	(0.36)	(0.39)	(0.36)	(0.36)	(0.31)	(0.37)
Unknown race	0.05	0.05	0.05	0.05	0.05	0.05
	(0.21)	(0.23)	(0.21)	(0.21)	(0.21)	(0.21)
Median age of the PO	40.60	42.20	40.10	40.55	40.04	41.01
	(7.42)	(7.40)	(7.37)	(7.37)	(7.28)	(7.66)
Any non PO	0.32	0.32	0.33	0.32	0.32	0.31
	(0.47)	(0.46)	(0.47)	(0.47)	(0.47)	(0.46)
Any black PO	0.33	0.31	0.24	0.32	0.42	0.49
	(0.47)	(0.46)	(0.43)	(0.47)	(0.49)	(0.50)
Any hispanic PO	0.35	0.38	0.42	0.31	0.31	0.24
	(0.48)	(0.48)	(0.49)	(0.46)	(0.46)	(0.43)
Any white PO	0.62	0.60	0.65	0.64	0.59	0.55
	(0.49)	(0.49)	(0.48)	(0.48)	(0.49)	(0.50)
N	6763	1028	2080	1703	1370	582

Table 3: Summary statistics by beats

	(1) All	(2) Black Beats	(3) Hispanic Beats	(4) White Beats
Distance (mi.)	6.34	7.46	5.49	5.20
	(3.48)	(3.58)	(2.42)	(3.37)
Time by car (min.)	20.23	20.75	21.66	18.51
	(7.30)	(6.55)	(6.60)	(7.67)
Time by transit (min.)	46.91	52.08	47.82	38.82
	(18.49)	(19.31)	(13.24)	(17.27)
Average income	46896.84	31684.26	40166.76	76133.45
	(21742.70)	(9204.22)	(7169.53)	(17931.79)
Number of PO in the District	351.06	387.84	344.98	310.41
	(75.06)	(60.71)	(54.46)	(78.11)
Average Monthly PO Salary in the District	6738.27	6669.45	6723.18	6849.69
	(189.08)	(158.87)	(171.55)	(192.98)
N	11395	5074	1978	2795

Table 4: Effect of distance on the probability of signed affidavit (Pooled)

	All			Serious			Failure to Provide Service		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A) All Comp.									
Distance (mi.)	-0.004*	-0.003	-0.003*	-0.003	-0.002	-0.003	-0.005	-0.003	-0.003
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Mean Dependent Variable	0.46	0.46	0.46	0.52	0.52	0.52	0.31	0.31	0.31
Observations	6,763	6,763	6,763	4,770	4,770	4,770	1,993	1,993	1,993
R-squared	0.07	0.10	0.10	0.03	0.06	0.06	0.10	0.15	0.15
B) Black Comp.									
Distance (mi.)	-0.003	-0.003	-0.003	-0.002	-0.001	-0.002	-0.007	-0.007	-0.007*
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
Mean Dependent Variable	0.44	0.44	0.44	0.52	0.52	0.52	0.25	0.25	0.25
Observations	4,616	4,616	4,616	3,382	3,382	3,382	1,234	1,234	1,234
R-squared	0.08	0.09	0.09	0.03	0.04	0.05	0.07	0.08	0.09
C) Hispanic Comp.									
Distance (mi.)	-0.003	-0.004	-0.003	-0.006	-0.006	-0.006	0.007	0.010	0.013
	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)	(0.007)	(0.009)	(0.009)	(0.009)
Mean Dependent Variable	0.51	0.51	0.51	0.57	0.57	0.57	0.35	0.35	0.35
Observations	815	815	815	570	570	570	245	245	245
R-squared	0.12	0.14	0.15	0.08	0.11	0.13	0.29	0.33	0.35
D) White Comp.									
Distance (mi.)	0.003	0.001	0.001	-0.001	-0.005	-0.007	0.002	0.002	0.001
	(0.004)	(0.004)	(0.004)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Mean Dependent Variable	0.55	0.55	0.55	0.60	0.60	0.60	0.48	0.48	0.48
Observations	1,008	1,008	1,008	564	564	564	444	444	444
R-squared	0.14	0.18	0.19	0.09	0.15	0.16	0.28	0.32	0.33
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	No	No	No	No	No	No	No	No	No

Notes: This Table presents the effect of distance on the probability of signed affidavit from January 2011 and July 2014. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for complainants and incident characteristics, incident location, fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all the complainants, Black complainants, Hispanic, and White complainants. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table 5: Effect of distance on the probability of signed affidavit

	All			Serious			Failure to Provide Service	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A) All Comp.									
Distance (mi.)	-0.011***	-0.011***	-0.011***	-0.009*	-0.009**	-0.009**	-0.013**	-0.015**	-0.014**
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
Mean Dependent Variable	0.46	0.46	0.46	0.52	0.52	0.52	0.31	0.31	0.31
Observations	6,763	6,763	6,763	4,770	4,770	4,770	1,993	1,993	1,993
R-squared	0.12	0.14	0.14	0.10	0.12	0.13	0.24	0.28	0.28
B) Black Comp.									
Distance (mi.)	-0.014***	-0.013**	-0.013**	-0.010	-0.009	-0.009	-0.028***	-0.029***	-0.028***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.009)	(0.010)	(0.010)
Mean Dependent Variable	0.44	0.44	0.44	0.52	0.52	0.52	0.25	0.25	0.25
Observations	4,616	4,616	4,616	3,382	3,382	3,382	1,234	1,234	1,234
R-squared	0.15	0.16	0.16	0.12	0.13	0.13	0.27	0.28	0.29
C) Hispanic Comp.									
Distance (mi.)	-0.011	-0.010	-0.008	-0.003	-0.002	-0.003	-0.031	-0.031	-0.033
	(0.015)	(0.015)	(0.015)	(0.018)	(0.018)	(0.018)	(0.051)	(0.057)	(0.056)
Mean Dependent Variable	0.51	0.51	0.51	0.57	0.57	0.57	0.35	0.35	0.35
Observations	815	815	815	570	570	570	245	245	245
R-squared	0.35	0.36	0.36	0.41	0.44	0.45	0.73	0.76	0.78
D) White Comp.									
Distance (mi.)	0.004	0.006	0.005	-0.002	-0.003	-0.002	-0.016	-0.015	-0.016
	(0.012)	(0.011)	(0.011)	(0.017)	(0.017)	(0.018)	(0.023)	(0.022)	(0.022)
Mean Dependent Variable	0.55	0.55	0.55	0.60	0.60	0.60	0.48	0.48	0.48
Observations	1,008	1,008	1,008	564	564	564	444	444	444
R-squared	0.35	0.37	0.37	0.43	0.45	0.45	0.62	0.63	0.65
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on the probability of signed affidavit from January 2011 and July 2014. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for complainants and incident characteristics, incident location, fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all the complainants, Black complainants, Hispanic, and White complainants. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table 6: Effect of distance on the probability of signed affidavit (Short Run)

	All			Serious			Failure to Provide Service		
	(1) [-6,6] Months	(2) [-9,9] Months	(3) [-12,12] Months	(4) [-6,6] Months	(5) [-9,9] Months	(6) [-12,12] Months	(7) [-6,6] Months	(8) [-9,9] Months	(9) [-12,12] Months
A) All Comp.									
Distance (mi.)	-0.007	-0.007*	-0.010***	0.003	-0.002	-0.007	-0.035***	-0.021***	-0.018***
	(0.004)	(0.004)	(0.003)	(0.006)	(0.005)	(0.005)	(0.009)	(0.006)	(0.006)
Mean Dependent Variable	0.49	0.48	0.48	0.55	0.55	0.55	0.33	0.31	0.31
Observations	2,293	3,396	4,098	1,666	2,432	2,920	627	964	1,178
R-squared	0.13	0.12	0.11	0.11	0.08	0.07	0.18	0.17	0.15
B) Black Comp.									
Distance (mi.)	-0.005	-0.007	-0.011**	0.006	-0.001	-0.006	-0.044***	-0.031***	-0.031***
	(0.006)	(0.005)	(0.005)	(0.008)	(0.007)	(0.006)	(0.013)	(0.009)	(0.009)
Mean Dependent Variable	0.48	0.48	0.47	0.56	0.56	0.55	0.28	0.25	0.25
Observations	1,578	2,327	2,789	1,171	1,711	2,044	407	616	745
R-squared	0.12	0.12	0.11	0.09	0.06	0.05	0.15	0.15	0.14
C) Hispanic Comp.									
Distance (mi.)	-0.002	-0.007	-0.016	0.012	-0.012	-0.020	-0.026	0.014	0.010
	(0.019)	(0.015)	(0.012)	(0.021)	(0.019)	(0.015)	(0.043)	(0.033)	(0.029)
Mean Dependent Variable	0.53	0.54	0.52	0.61	0.63	0.61	0.32	0.32	0.30
Observations	256	383	476	184	269	341	72	114	135
R-squared	0.28	0.20	0.22	0.29	0.21	0.25	0.61	0.36	0.41
D) White Comp.									
Distance (mi.)	-0.007	0.001	-0.004	-0.009	0.001	-0.003	-0.016	-0.011	-0.010
	(0.013)	(0.011)	(0.009)	(0.019)	(0.016)	(0.015)	(0.025)	(0.017)	(0.015)
Mean Dependent Variable	0.56	0.56	0.56	0.62	0.60	0.62	0.48	0.49	0.48
Observations	331	506	625	201	308	369	130	198	256
R-squared	0.30	0.23	0.22	0.38	0.26	0.22	0.56	0.44	0.40
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on the probability of signed affidavit from $-/+t$ months from the location change of the oversight agency in December 2011, such that $t = \{6, 9, 12\}$ months. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for complainants and incident characteristics, incident location, beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all the complainants, Black complainants, Hispanic, and White complainants. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table 7: Effect of distance on the probability of signed affidavit (Placebo)

	All			Serious			Failure to Provide Service	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A) All Comp.									
Placebo Distance (mi.)	-0.002	-0.003	-0.002	-0.008	-0.010	-0.009	0.010	0.012	0.013
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.010)	(0.010)	(0.011)
Mean Dependent Variable	0.51	0.51	0.51	0.59	0.59	0.59	0.32	0.32	0.32
Observations	1,998	1,998	1,998	1,410	1,410	1,410	588	588	588
R-squared	0.08	0.10	0.11	0.03	0.05	0.06	0.06	0.11	0.13
B) Black Comp.									
Placebo Distance (mi.)	-0.007	-0.008	-0.006	-0.010	-0.010	-0.009	0.002	0.001	0.002
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.012)	(0.013)	(0.014)
Mean Dependent Variable	0.49	0.49	0.49	0.57	0.57	0.57	0.27	0.27	0.27
Observations	1,411	1,411	1,411	1,021	1,021	1,021	390	390	390
R-squared	0.10	0.11	0.12	0.04	0.05	0.06	0.09	0.12	0.14
C) Hispanic Comp.									
Placebo Distance (mi.)	-0.004	-0.013	-0.017	-0.005	-0.012	-0.013	0.016	0.013	0.108
	(0.017)	(0.018)	(0.018)	(0.021)	(0.023)	(0.021)	(0.043)	(0.055)	(0.074)
Mean Dependent Variable	0.56	0.56	0.56	0.62	0.62	0.62	0.34	0.34	0.34
Observations	226	226	226	176	176	176	50	50	50
R-squared	0.15	0.20	0.23	0.12	0.20	0.26	0.51	0.70	0.82
D) White Comp.									
Placebo Distance (mi.)	0.008	0.007	0.009	0.003	0.001	0.002	-0.003	0.003	0.002
	(0.015)	(0.016)	(0.015)	(0.022)	(0.022)	(0.021)	(0.024)	(0.028)	(0.026)
Mean Dependent Variable	0.56	0.56	0.56	0.62	0.62	0.62	0.46	0.46	0.46
Observations	313	313	313	183	183	183	130	130	130
R-squared	0.21	0.25	0.26	0.18	0.24	0.28	0.38	0.41	0.45
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of placebo-distance on the probability of signed affidavit from January 2011 and November 2011. The placebo policy occurred in June 2011. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for complainants and incident characteristics, incident location, district fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all the complainants, Black complainants, Hispanic, and White complainants.Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table 8: Effect of distance on complaint outcomes

	Number of Complaints		Number of Signed Affidavit		Share of Signed Affidavit		Share of Sustained	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A) All Beats								
Distance (mi.)	-0.003***	-0.003***	-0.003***	-0.003***	-0.014***	-0.014***	0.004	0.004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)	(0.004)	(0.003)	(0.003)
Mean Dependent Variable	0.09	0.09	0.04	0.04	0.45	0.45	0.11	0.11
Observations	11,395	11,395	11,395	11,395	4,653	4,653	2,513	2,513
R-squared	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
B) Black Beats								
Distance (mi.)	-0.003**	-0.003*	-0.003**	-0.003***	-0.022***	-0.023***	0.010*	0.010*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.007)	(0.007)	(0.006)	(0.005)
Mean Dependent Variable	0.15	0.15	0.06	0.06	0.44	0.44	0.09	0.09
Observations	5,074	5,074	5,074	5,074	2,644	2,644	1,427	1,427
R-squared	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.03
C) Hispanic Beats								
Distance (mi.)	-0.001	-0.001	-0.001	-0.001	-0.003	-0.005	0.015	0.014
	(0.001)	(0.001)	(0.000)	(0.001)	(0.015)	(0.015)	(0.010)	(0.010)
Mean Dependent Variable	0.04	0.04	0.02	0.02	0.46	0.46	0.12	0.12
Observations	1,978	1,978	1,978	1,978	669	669	354	354
R-squared	0.01	0.01	0.01	0.02	0.04	0.04	0.03	0.03
D) White Beats								
Distance (mi.)	0.003	0.003	-0.001*	-0.001	-0.029*	-0.032**	0.003	0.004
	(0.002)	(0.002)	(0.001)	(0.001)	(0.014)	(0.015)	(0.011)	(0.013)
Mean Dependent Variable	0.05	0.05	0.03	0.03	0.49	0.49	0.13	0.13
Observations	2,795	2,795	2,795	2,795	800	800	444	444
R-squared	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.03
District's Controls	No	Yes	No	Yes	No	Yes	No	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on complaint outcomes from January 2011 and July 2014. The complaint outcomes are the number of complaints per 1,000 capita (columns 1-2), the number of complaints with signed affidavit per 1,000 capita (columns 3-4), the share of complaints with signed affidavit (columns 4-6), and the share of complaints that are sustained (columns 7-8). The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table 9: Effect of distance on use of force outcomes

	Number of TRR		Any Use of High Force		Force per Arrest		Number of Injuries	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A) All Beats								
Distance (mi.)	0.002	0.002	0.002	0.002	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.003)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
Mean Dependent Variable	0.17	0.17	0.34	0.34	0.04	0.04	0.04	0.04
Observations	11,395	11,395	11,395	11,395	11,390	11,390	11,395	11,395
R-squared	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01
B) Black Beats								
Distance (mi.)	0.004	0.005	0.004	0.006	0.001	0.001**	0.002**	0.002**
	(0.003)	(0.003)	(0.005)	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)
Mean Dependent Variable	0.26	0.26	0.43	0.43	0.04	0.04	0.06	0.06
Observations	5,074	5,074	5,074	5,074	5,074	5,074	5,074	5,074
R-squared	0.03	0.03	0.01	0.01	0.01	0.02	0.01	0.01
C) Hispanic Beats								
Distance (mi.)	0.004***	0.004***	0.018***	0.016**	0.001**	0.001**	0.001*	0.001
	(0.001)	(0.001)	(0.006)	(0.006)	(0.001)	(0.000)	(0.000)	(0.001)
Mean Dependent Variable	0.07	0.07	0.29	0.29	0.03	0.03	0.02	0.02
Observations	1,978	1,978	1,978	1,978	1,978	1,978	1,978	1,978
R-squared	0.02	0.03	0.02	0.03	0.01	0.01	0.01	0.01
D) White Beats								
Distance (mi.)	0.007	0.008	0.009	0.010	0.002	0.002	0.002	0.002
	(0.005)	(0.005)	(0.006)	(0.006)	(0.001)	(0.001)	(0.002)	(0.002)
Mean Dependent Variable	0.11	0.11	0.26	0.26	0.05	0.05	0.03	0.03
Observations	2,795	2,795	2,795	2,795	2,790	2,790	2,795	2,795
R-squared	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
District's Controls	No	Yes	No	Yes	No	Yes	No	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on use of force outcomes from January 2011 and July 2014. The use of force outcomes are the the number of TRRs per 1,000 capita (columns 1-2), whether or not there was incident with high level of force (columns 3-4), i.e. involving use of Taser or firearm, the number of incidents involving reported force per arrest (columns 5-6), and the number of civilian injuries per 1,000 capita (columns 7-8) . The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table 10: Effect of distance on crime outcomes

	Index Crimes			Non Index Crimes		
	(1)	(2)	(3)	(4)	(5)	(6)
	Offenses	Arrests	Clearance Rates	Offenses	Arrests	Clearance Rates
A) All Beats						
Distance (mi.)	-0.071***	0.005	0.001***	-0.098***	-0.047**	0.001
	(0.013)	(0.005)	(0.000)	(0.027)	(0.023)	(0.001)
Mean Dependent Variable	5.90	0.73	0.11	8.32	3.59	0.37
Observations	11,395	11,395	11,395	11,395	11,395	11,395
R-squared	0.19	0.02	0.01	0.11	0.03	0.03
B) Black Beats						
Distance (mi.)	-0.046*	0.007	0.001**	-0.194**	-0.120	-0.000
	(0.027)	(0.007)	(0.001)	(0.094)	(0.094)	(0.003)
Mean Dependent Variable	7.17	0.75	0.10	12.84	5.86	0.43
Observations	5,074	5,074	5,074	5,074	5,074	5,074
R-squared	0.37	0.04	0.02	0.18	0.05	0.05
C) Hispanic Beats						
Distance (mi.)	0.001	0.005	0.001	-0.027	-0.024	-0.001
	(0.013)	(0.005)	(0.002)	(0.027)	(0.024)	(0.002)
Mean Dependent Variable	3.13	0.40	0.12	4.41	1.74	0.37
Observations	1,978	1,978	1,978	1,978	1,978	1,978
R-squared	0.34	0.03	0.03	0.31	0.18	0.05
D) White Beats						
Distance (mi.)	-0.060	-0.075	-0.001	0.104	-0.010	-0.007**
	(0.049)	(0.062)	(0.002)	(0.102)	(0.017)	(0.003)
Mean Dependent Variable	6.76	1.09	0.11	5.01	1.86	0.30
Observations	2,795	2,795	2,795	2,795	2,795	2,795
R-squared	0.10	0.03	0.01	0.01	0.01	0.02
District's Controls	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on outcomes from January 2011 and July 2014. Offenses and arrests are expressed per 1,000 capita, and clearance rates are define as the number of reported crimes with an arrest over the number of reported crimes. The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table 11: Probability to sign the affidavit parameter estimates

	Serious Allegations		Failure to Provide Service	
Variables	Coeff (Std. Err)	AME	Coeff (Std. Err)	AME
Observables				
Distance (mi.)	-0.035 (0.036)	-0.008	-0.092 (0.030)***	-0.022
Male	-0.231 (0.140)*	-0.054	0.005 (0.130)	0.001
Black	-0.648 (0.231)***	-0.151	-1.015 (0.179)***	-0.237
Hispanic/Other	-0.219 (0.291)	-0.051	-0.510 (0.223)**	-0.119
Unknown race	-2.716 (0.391)***	-0.635	-1.061 (0.386)***	-0.248
30-39yo	0.252 (0.217)	0.059	0.585 (0.292)**	0.137
40-49yo	0.640 (0.232)***	0.149	0.973 (0.285)***	0.227
50-59yo	1.266 (0.252)***	0.296	1.191 (0.291)***	0.278
60-74yo	1.006 (0.329)***	0.235	1.376 (0.311)***	0.321
>74yo/missing	-0.101 (0.276)	-0.024	0.615 (0.309)**	0.144
Median age of the PO	0.026 (0.011)**	0.006	0.006 (0.009)	0.001
Any non PO	0.124 (0.159)	0.029	0.252 (0.137)*	0.059
Any black PO	0.207 (0.227)	0.048	0.249 (0.201)	0.058
Any hispanic PO	-0.112 (0.182)	-0.026	0.275 (0.179)	0.064
Any white PO	0.003 (0.214)	0.001	-0.011 (0.195)	-0.003
Number of PO	0.109 (0.049)**	0.025	-0.134 (0.091)	-0.031
Public Location	-0.531 (0.269)**	-0.124	-1.241 (0.195)***	-0.29
Unobserved Heterogeneity				
κ_1	0.782 (0.341)**	---	0.782 (0.341)**	---
κ_2	0.694 (0.525)	---	0.694 (0.525)	---
Type 1: $\mu^D_{k,jb}$	2.620 (0.799)***	---	0.826 (0.706)	---
Type 2: $\mu^D_{k,jb}$	-2.421 (0.871)***	---	0.360 (0.720)	---
Type 3: $\mu^D_{k,jb}$	-1.021 (1.013)	---	-1.253 (0.796)	---
N	4,303		1,986	
llk		-11845.118		

Notes: This Table presents the set of estimates on the probability of signed affidavit. The sample considers complaint that were filed between January 2011 and July 2014, with non missing investigator, and only one investigator assigned. The parameter estimates are based on the specification depicted in equations 5 and 9 in the text**.** Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for district and quarter fixed effects, but not reported. The probabilities for the points of support are given by $\pi_g = \exp(\kappa_g)/(1 + \exp(\kappa_1) + \exp(\kappa_2))$ for $g = \{1, 2\}$. For interpretation of the coefficients, I report the average marginal effect (AME). Standard errors are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

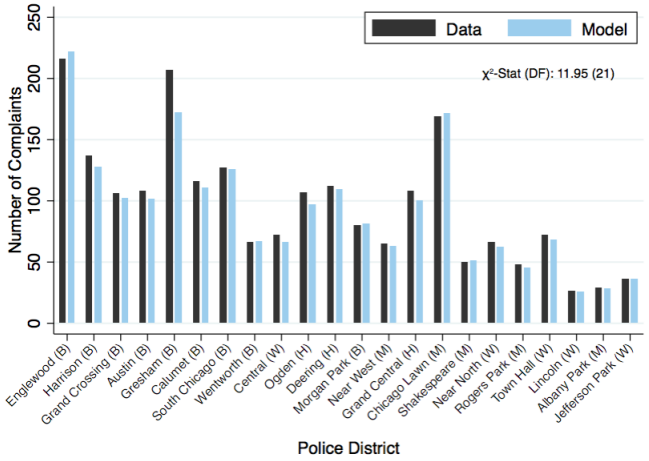
Table 12: Probability to sustain a complaint conditional on signing the affidavit parameter estimates

	Serious Allegations		Failure to Provide Service	
Variables	Coeff (Std. Err)	AME	Coeff (Std. Err)	AME
Observables				
Investigator Experience	-0.027 (0.019)	-0.006	0.066 (0.061)	0.015
log(duration of inv.)	2.846 (0.447)***	0.665	7.080 (2.154)***	1.655
log(duration of inv.)^2/10	-3.976 (2.239)*	-0.929	-35.285 (22.887)	-8.247
log(duration of inv.)^3/100	-42.804 (15.642)***	-10.004	123.184 (240.800)	28.79
CPD Investigator	2.263 (0.547)***	0.529	2.720 (2.646)	0.636
Other Type of Investigator	1.779 (0.391)***	0.416	2.991 (2.633)	0.699
Male	0.381 (0.264)	0.089	0.649 (0.859)	0.152
Black	-3.201 (0.382)***	-0.748	-2.148 (1.326)	-0.502
Hispanic/Other	-1.239 (0.315)***	-0.29	0.652 (1.277)	0.152
Unknown race	-1.769 (1.328)	-0.413	-4.430 (3.554)	-1.035
Median age of the PO	0.040 (0.019)**	0.009	-0.058 (0.060)	-0.014
Any non PO	-0.277 (0.319)	-0.065	-0.721 (0.934)	-0.168
Any black PO	0.947 (0.469)**	0.221	1.296 (1.680)	0.303
Any hispanic PO	0.622 (0.432)	0.145	0.332 (1.679)	0.078
Any white PO	0.248 (0.420)	0.058	0.015 (1.747)	0.004
Number of PO	-0.512 (0.180)***	-0.12	-0.465 (0.791)	-0.109
Unobserved Heterogeneity				
κ_1	0.782 (0.341)**	---	0.782 (0.341)**	---
κ_2	0.694 (0.525)	---	0.694 (0.525)	---
Type 1: $\mu^s_{k,jb}$	-3.122 (1.142)***	---	-4.659 (4.600)	---
Type 2: $\mu^s_{k,jb}$	-1.988 (1.932)	---	-3.011 (5.099)	---
Type 3: $\mu^s_{k,jb}$	-2.639 (2.118)	---	7.480 (6.907)	---
N	2,123		618	
llk		-11845.118		

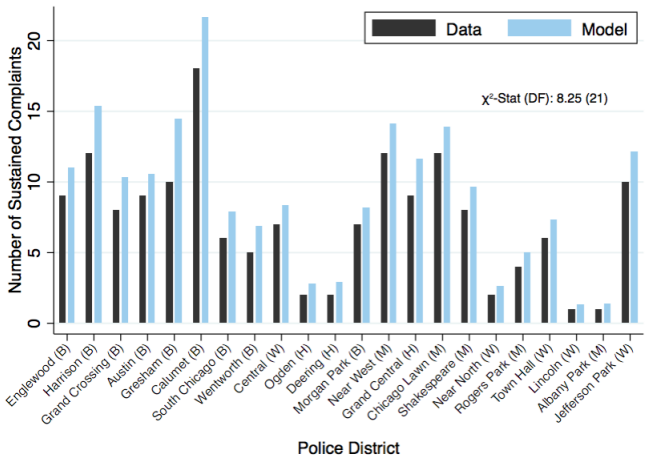
Notes: This Table presents the set of estimates on the probability that the investigator sustain the complaint Conditional on the complainant signed the affidavit. The sample considers complaint that were filed between January 2011 and July 2014, with non missing investigator, and only one investigator assigned. The parameter estimates are based on the specification depicted in equations 7 and 9 in the text**.** Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for district and quarter fixed effects, but not reported. There are three types of investigator: police officer, investigator from the oversight agency (reference category), and other type of investigator (City of Chicago employees, FBI, ...).The probabilities for the points of support are given by $\pi_g = \exp(\kappa_g)/(1 + \exp(\kappa_1) + \exp(\kappa_2))$ for $g = \{1, 2\}$. For interpretation of the coefficients, I report the average marginal effect (AME). Standard errors are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Figure 6: Model versus Data

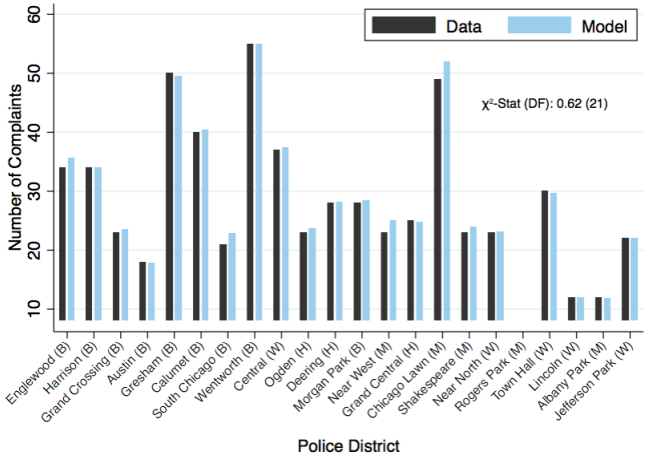
(a) Signed affidavit for serious allegations



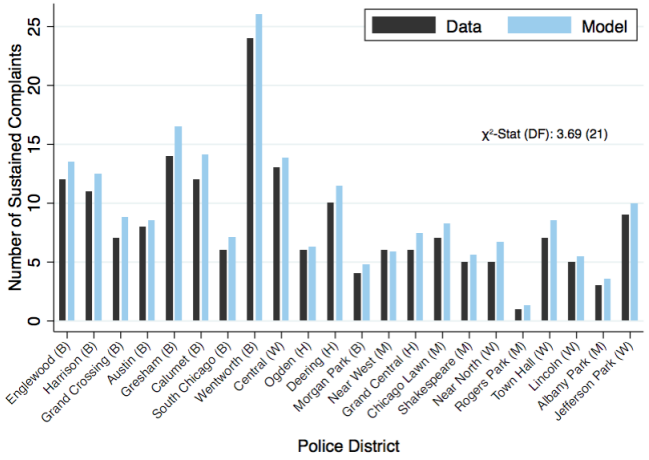
(b) Sustained complaint for serious allegations|Signed



(c) Signed affidavit for FPS allegations



(d) Sustained complaint for FPS allegations|Signed



Notes: These figures present the frequencies distribution of the signed complaints and the sustained complaints (conditional on being signed) by police districts from both the model and the data. Predictions from the model are based on the results from tables11 and 12. The critical value from a Chi-Squared distribution with 21 degrees of freedom at the 10 percent level of confidence is 29.6. The police Districts (x-axis) are ordered from the most to the least violent regarding reported crime per 1,000 capita. The majority racial-ethnic group for each district is reported in parenthesis (Black (B),Hispanic (H),White (W), No majority (M)).

Table 13: Complaint outcomes by complainant's race

	Serious		Failure to Provide Service	
	$Pr(Signed)$	$Pr(Sustained\|Signed)$	$Pr(Signed)$	$Pr(Sustained\|Signed)$
All	49.3%	7.5%	31.1%	29.3%
N	4303	2123	1986	618
Black	48.8%	2.7%	24.9%	16.0%
N	3081	1505	1231	307
Hispanic	55.1%	11.1%	34.4%	36.9%
N	508	280	244	84
White	57.4%	30.4%	48.3%	46.5%
N	493	283	441	213
Unknown race	24.9%	5.5%	20.0%	14.3%
N	221	55	70	14

Notes: This table reports the probability to sign the affidavit and the probability that the complaint is sustained given that the affidavit is signed. The sample considers complaint that were filed between January 2011 and July 2014, with non missing investigator, and only one investigator assigned. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search).

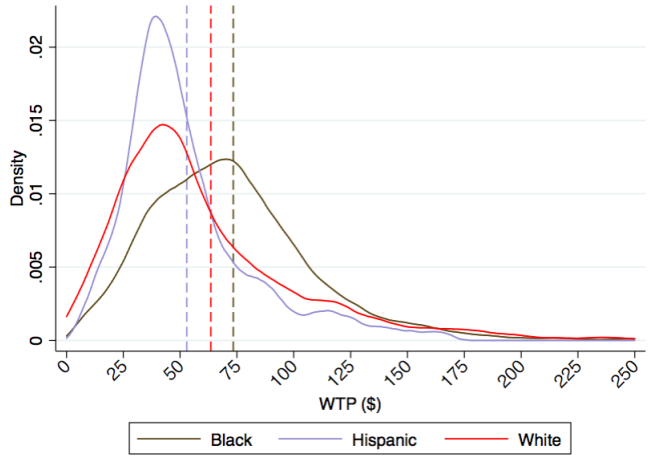
Table 14: Wage per hour

	N	Mean ($)	Std. Dev
All	6,289	19.6	9.2
Black	4,312	17.7	8.1
Hispanic	752	22.4	8.4
White	934	25.6	10.6
Unknown race	291	21.4	10.2

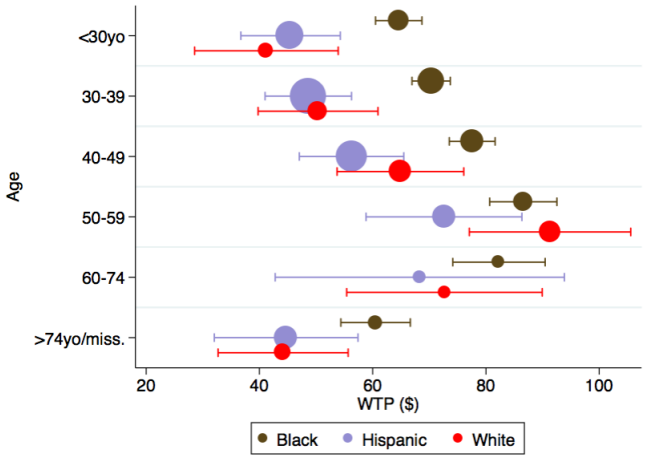
Notes: This table reports the average wage per hour (average annual income/[40 hours ×52 weeks]) in the beat where the incident occurred. The income is computed by using the 2010-2014 American Community Survey (ACS) data.

Figure 7: Willingness to pay (WTP) by allegation type, race and age groups

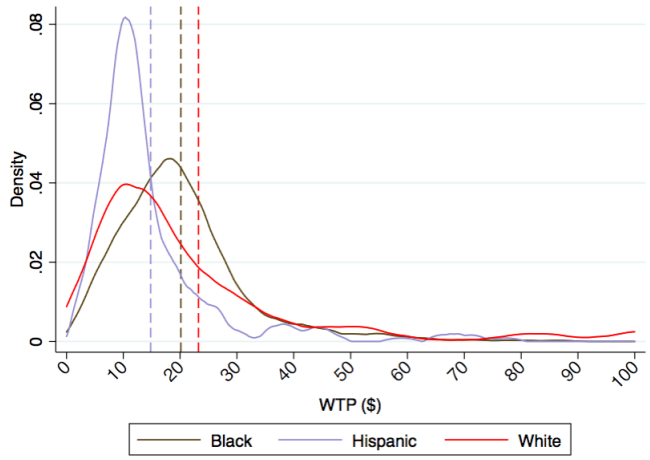
(a) Kernel density for serious allegations



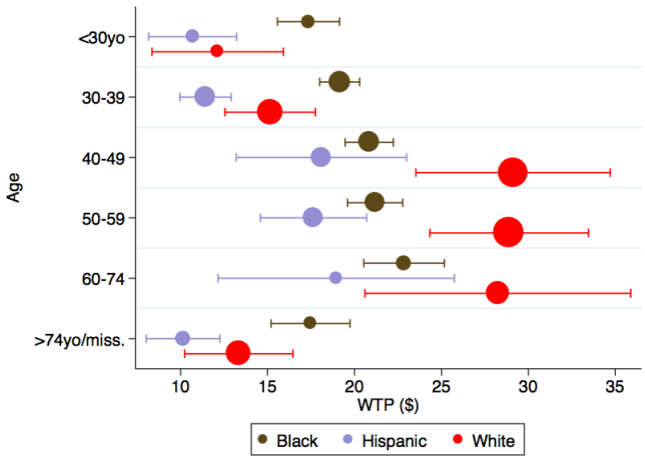
(b) Average for serious allegations



(c) Kernel density for FPS allegations



(d) Average for FPS allegations



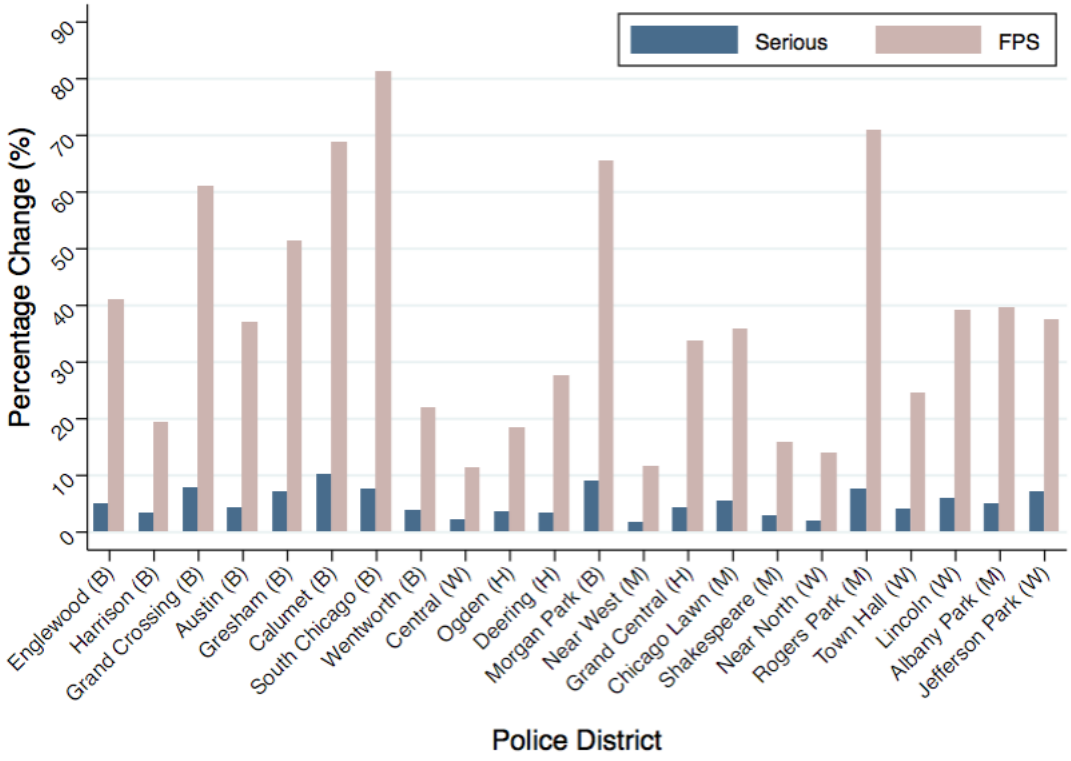
Notes: These figures present the estimated distribution of the willingness to pay and the average willingness to pay by allegation type, race and age groups of the complainants. Willingness to pay are computed using equation 13. Predictions from the model are based on the results from tables 11 and 12.The dashed lines in figures 7a and 7c represent the average willingness to pay by racial-ethnic group. Conditional on race of the complainant, the area of each circle is proportional to the age group weights. The Confidence Intervals are computed at the 95 percent level and accounts for estimation uncertainties.

Table 15: Costs and benefits of signing the affidavit for the complainant

	Serious			Failure to Provide Service		
	WTP	Time	Sustained	WTP	Time	Sustained
	$	Hours	Rates	$	Min.	Rates
Black	68.6	3.9	2.7 %	18.4	60	16.0%
Hispanic	45.3	2.0	11.1%	11.5	30	36.9%
White	49.5	2.0	30.4%	15.5	36	46.5%

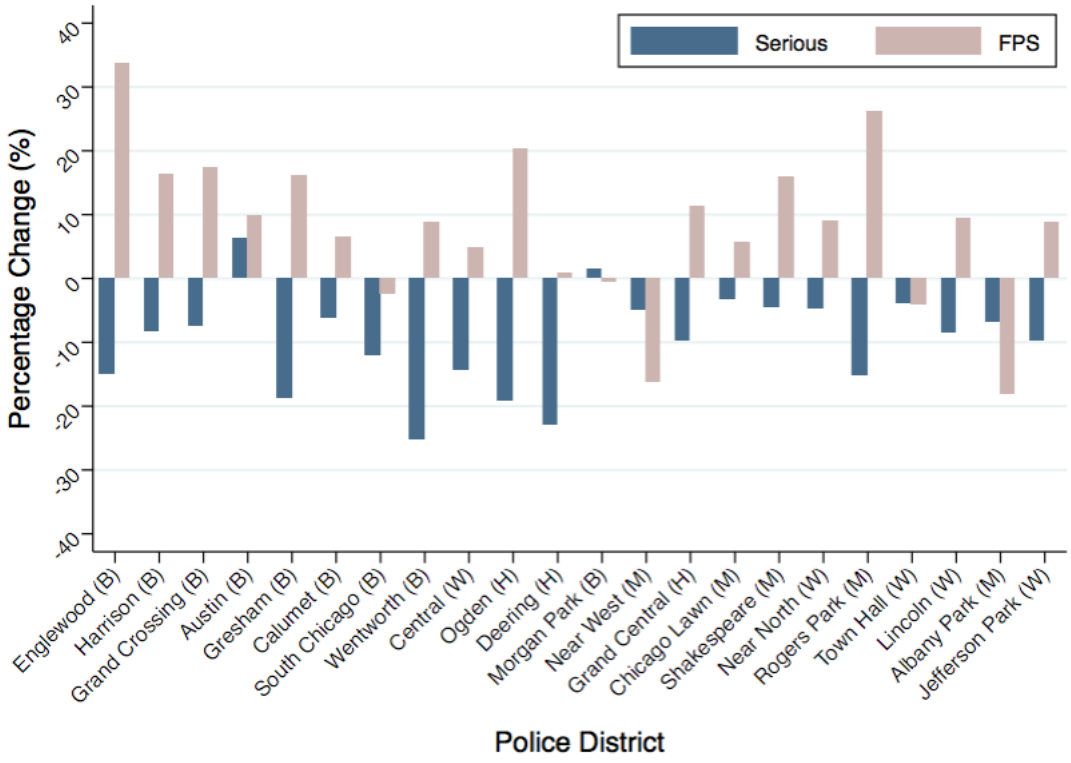
Notes: This table reports costs and benefits of signing the affidavit for the complainant: sustained rates, median willingness to pay (WTP) and time sacrificed to sign the affidavit by race of the complainant and type of complaints.

Figure 8: Counterfactuals for signed affidavits



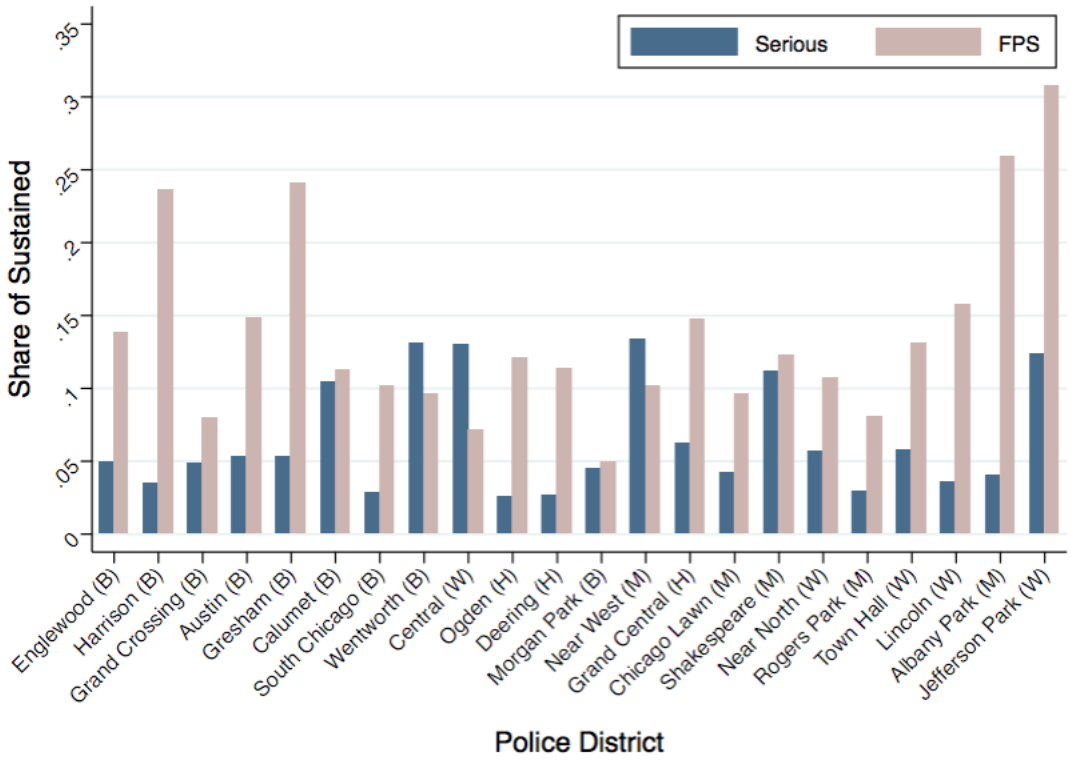
Notes: This figure presents the effect of a policy that does not require to travel to sign the affidavit at the oversight agency for both serious and failure to provide service (FPS) allegations. The y-axis presents the percentage change in sign affidavit when the alternative policy is implemented relative to the predictions from the model. Predictions from the model are based on the results from tables 11 and 12. The police Districts (x-axis) are ordered from the most to the least violent regarding reported crime per 1,000 capita. The majority racial-ethnic group for each district is reported in parenthesis (Black (B),Hispanic (H),White (W), No majority (M)).

Figure 9: Counterfactuals for sustained complaint|Signed in the data



Notes: This figure presents the effect of a policy that does not require to travel to sign the affidavit at the oversight agency for both serious and failure to provide service (FPS) allegations. The y-axis presents the percentage change in sustained rates, conditional on signing the affidavit (observed and predicted), when the alternative policy is implemented relative to the predictions from the model. This figure restricts the sample to complaints that were both: (i) signed in the data, and (ii) signed according to the counterfactual policy. Predictions from the model are based on the results from tables 11 and 12. The police Districts (x-axis) are ordered from the most to the least violent regarding reported crime per 1,000 capita. The majority racial-ethnic group for each district is reported in parenthesis (Black (B),Hispanic (H),White (W), No majority (M)).

Figure 10: Counterfactuals for sustained complaint|Not signed in the data



Notes: This figure presents the effect of a policy that does not require to travel to sign the affidavit at the oversight agency for both serious and failure to provide service (FPS) allegations. The y-axis presents the probability of sustaining a complaint, conditional on signing the affidavit (counterfactual), when the alternative policy is implemented relative to the predictions from the model. This figure considers complaints that were not signed in the data, but with signed counterfactual. Predictions from the model are based on the results from tables 11 and 12. The police Districts (x-axis) are ordered from the most to the least violent regarding reported crime per 1,000 capita. The majority racial-ethnic group for each district is reported in parenthesis (Black (B),Hispanic (H),White (W), No majority (M)).

Appendix

A Data Appendix

A.1 Sample Selection

Table A.1: Sample construction for section 5

Step	Description	Number of observations	Number of complainants	Number of complaints
1	Raw	48214	48214	47042
2	Keep if only one complainant	45956	45956	45956
3	Drop if missing location	43360	43360	43360
4	Keep if complaint/incident occurred after December 2010	18489	18489	18489
5	Keep if complaint/incident occurred before January 2015	16187	16187	16187
6	Keep if Investigated	9083	9083	9083
7	Keep if serious/FPS incident	7211	7211	7211
8	Sample if complaint/incident occurred before August 2014	6763	6763	6763

Table A.2: Sample construction for sections 6-8

Step	Description	Number of observations	Number of complainants	Number of complaints
1	Data from the empirical analysis	6763	6763	6763
2	Keep if only one investigator	6760	6760	6760
3	Drop if missing investigator	6639	6639	6639
4	Drop if missing tenure of investigator	6296	6296	6296
5	Drop if missing investigation duration	6289	6289	6289

A.2 Complaints classification

Table A.3: Allegation categories

Classification	Allegation name
1.Use of Force/Verbal Abuse *(Civilian Complaints)*	01A-USE OF PROFANITY
	01B-RACIAL/ETHNIC, ETC.
	01C-MISCELLANEOUS
	03E-INJURY/DEATH (UNDER COLOR OF LAW)
	04H-PROPER CARE, INJURY/DEATH
	05A-ARRESTEE - DURING ARREST
	05B-ARRESTEE - AFTER ARREST, PRIOR TO LOCKUP
	05C-ARRESTEE - LOCKUP/DETENTION
	05D-NO ARREST
	05E-TRAFFIC
	05F-DOMESTIC
	05G-WEAPON, USE/DISPLAY OF
	05H-MISCELLANEOUS
	05J-”””””U””””” CONVERTED TO C.R. (RECORDS KEEPING ONLY, INITIAL)
	05K-DOMESTIC ALTERCATION/INCIDENT - OFF DUTY
	05L-UNNECESSARY PHYSICAL CONTACT - ON DUTY
	05M-UNNECESSARY PHYSICAL CONTACT - OFF DUTY
	05N-WEAPON - UNNECESSARY DISPLAY OF
	05P-EXCESSIVE FORCE - OFF DUTY (INCLUDES NEIGHBOR, TRAFFIC, TAV)
	05Q-CIVIL SUIT - THIRD PARTY
	05T-EXCESSIVE FORCE - Taser - USE OF
2.Arrest/Locked up *(Civilian Complaints)*	04E-PRISONER’S PROPERTY - INVENTORY/RECEIPT
	04B-ARREST/IMPROPER
	04A-BONDING/BOOKING/PROCESSING
	04D-SEARCH, PERSON/PROPERTY
	04F-ESCAPE
	04J-MISCELLANEOUS
	04G-TELEPHONE - ATTORNEY/RELATIVE PRIVILEGES
	04C-EXCESSIVE DETENTION
3.Search *(Civilian Complaints)*	03A-FIRST AMENDMENT
	03B-SEARCH OF PERSON WITHOUT WARRANT
	03C-SEARCH OF PREMISE/VEHICLE WITHOUT WARRANT
	03D-ILLEGAL ARREST
	03F-FAILURE TO INSURE
	03G-MISCELLANEOUS
	03P-RACIAL PROFILING (ADVOCATE USE ON CLOSING ONLY)
4.Failure to Provide Service *(Civilian Complaints)*	10J-NEGLECT OF DUTY/CONDUCT UNBECOMING - ON DUTY
	10U-INADEQUATE/FAILURE TO PROVIDE SERVICE

Table A.4: Allegation categories (Continued)

Classification	Allegation name
5.Operation and Personnel Violations	07A-MISCONDUCT DURING ISSUANCE OF CITATION
	07B-IMPROPER PROCESSING/REPORTING/PROCEDURES
	07C-VIOLATION (OTHER THAN D.U.I.) - ON DUTY
	07D-PARKING COMPLAINTS
	07E-FAIL TO ENFORCE TRAFFIC REGULATIONS
	07F-MISCELLANEOUS
	07T-PREVENTable TRAFFIC ACCIDENT
	10A-ABSENT WITHOUT PERMISSION
	10B-MEDICAL ROLL
	10C-COMPENSATORY TIME
	10D-COMMUNICATION OPERATIONS PROCEDURES
	10E-SECONDARY/SPECIAL EMPLOYMENT
	10F-COURT IRREGULARITIES
	10G-UNFIT FOR DUTY
	10H-LEAVING ASSIGNMENT (DISTRICT, BEAT, SECTOR, COURT)
	10K-LATE - ROLL CALL/ASSIGNMENT/COURT
	10L-WEAPON/AMMUNITION/UNIFORM DEVIATION
	10M-INSUBORDINATION
	10N-LUNCH/PERSONAL VIOLATIONS
	10P-MISUSE OF DEPARTMENT EQUIPMENT/SUPPLIES
	10Q-MISUSE DEPARTMENT RECORDS
	10R-RESIDENCY
	10S-SEXUAL HARASSMENT
	10T-REPORTS - FAILED TO SUBMIT/IMPROPER
	10V-INVENTORY PROCEDURES
	10W-VEHICLE LICENSING - CITY
	10X-VEHICLE LICENSING - STATE
	10Y-ACT TO CIRCUMVENT PROPER ADMINISTRATIVE ACTION
	10Z-MISCELLANEOUS
	12A-PROPER ACTION, INITIATE
	12B-PROPER DIRECTION - SUBORDINATE
	12C-PROPER ACTION REVIEW/INSPECT - SUBORDINATE
	12D-FAIL TO OBTAIN A COMPLAINT REGISTER NUMBER
	12E-IMPROPER/INADEQUATE INVESTIGATION
	12F-MISCELLANEOUS

Table A.5: Allegation categories (Continued)

Classification	Allegation name
6.Others	02A-INTOXICATED ON DUTY
	02B-INTOXICATED OFF DUTY
	02C-D.U.I. - ON DUTY
	02D-D.U.I. - OFF DUTY
	02E-POSSESSION/DRINKING ALCOHOL - ON DUTY
	02G-MISCELLANEOUS
	06A-SOLICIT/ACCEPT BRIBE (NON-TRAFFIC)
	06B-SOLICIT/ACCEPT BRIBE (TRAFFIC)
	06C-EXTORTION
	06D-BRIBE, FAILURE TO REPORT
	06E-GRATUITY
	06F-RECOMMEND PROFESSIONAL SERVICE
	06G-USE OFFICIAL POSITION
	06H-AN ACT TO CIRCUMVENT CRIMINAL PROSECUTION
	06J-MISCELLANEOUS
	08A-MURDER/MANSLAUGHTER, ETC.
	08B-ASSAULT/BATTERY, ETC.
	08C-RAPE/SEX OFFENSES
	08D-BURGLARY
	08E-AUTO THEFT
	08F-THEFT
	08G-SHOPLIFTING
	08H-ROBBERY
	08J-DRUGS/CONTR. SUB., POSSESSION OR SALE
	08K-DAMAGE/TRESPASSING PROPERTY
	08L-ARSON
	08M-OTHER FELONY
	08N-MISCELLANEOUS
	08P-POLICE IMPERSONATOR - ADV SECTION USE ON CLOSING ONLY

Table A.6: Allegation categories (Continued)

Classification	Allegation name
6.Others	09A-ALTERCATION/DISTURBANCE - DOMESTIC
	09B-ALTERCATION/DISTURBANCE - NEIGHBOR
	09C-ALTERCATION/DISTURBANCE - TRAFFIC
	09D-TRAFFIC VIOLATION (OTHER THAN D.U.I.)
	09E-MISDEMEANOR ARREST
	09F-SEXUAL MISCONDUCT
	09G-ABUSE OF AUTHORITY
	09H-JUDICIAL PROCESS/DIRECTIVE - CONTEMPT
	09J-MISCELLANEOUS
	09K-INDEBTEDNESS TO CITY
	09L-DRIVER'S LICENSE REVOKED/SUSPENDED
	11A-FORWARDED TO O.E.C.
	14A-STATE CIVIL SUIT
	14B-FEDERAL CIVIL SUIT
	15A-USE/ABUSE DRUGS/CONTR. SUBSTANCE - ON DUTY
	15B-USE/ABUSE DRUGS/CONTR. SUBSTANCE - OFF DUTY
	15C-D.U.I., DRUGS/ CONTR. SUB. - ON DUTY
	15D-D.U.I., DRUGS/ CONTR. SUB. - OFF DUTY
	15E-POSITIVE DRUG SCREEN - ORIGINATED FROM COMPLAINT
	15H-POSITIVE DRUG SCREEN - OTHER PHYSICAL EXAM
	15J-REFUSAL OF DIRECT ORDER TO PROVIDE DRUG SCREEN SPECIMEN
	15K-MISCELLANEOUS
	NA

B Analysis of the Raw data

As complementary evidence to the analysis, this section studies the Raw data to understand the overall patterns behind officers' internal (Police Department) and external (mostly civilians) allegations of misconduct.

Table **A.7** reports the annual frequency distribution of complaint outcomes for incidents that occurred between January 2011 and July 2014. Overall, about 5.8 percent of the complaints are sustained, and 5.7 percent of the complaints have an unknown outcome. About 67.4 percent of the complaints are not sustained because of administrative procedure (29.1 percent for missing affidavit and 38.3 percent for missing officer identifier). Hence, 21.6 percent of the complaints are not sustained after full investigation.

Table **A.8** reports the frequency distribution of complaint categories by complainant race for incidents that occurred between January 2011 and July 2014. About 34.1 percent of the complaint are related to use of force, verbal abuse, arrest, locked up procedures, and search. Failure to provide service (FPS) and operation-personnel violation (OPV) respectively represent 14.3 percent and 9.39 percent of the complaints. The remaining complaints (42.2 percent) have unknown or miscellaneous categories. When the complaint category is known, Table **A.8** suggests that Black and Hispanic civilians mainly complain about use of force and verbal abuse whereas whites mainly complain about failure to provide service.

I use a a multinomial model to describe the risk factors associated with each observed outcome presented in observed outcome presented in Table A.7. This approach enables us to analyze the full sample where I consider both known outcomes (sustained, non-sustained, and missing affidavit) and unknown outcomes (unknown officer and unknown outcome). To conduct the analysis, I estimate a multinomial logit where I use the "not sustained" outcome as a reference category. For individual i in police district d during year t, the probability that outcome $y_{idt,j}$ occurs among alternative $j \in \{$sustained, non-sustained, no affidavit, unknown officer, unknown outcome$\}$ is

$$P(y_{idt,j}|X) = \frac{\exp(X'_{idt,j}\beta_j)}{\sum_h \exp(X'_{idt,h}\beta_h)} \tag{24}$$

where the vector $X_{idt,h}$ is a set of characteristics for individual i in police district d during year t, who experienced outcome j. Table A.9 displays the relative risk ratios from equation 24. Overall, complaints attached to incidents that occur farther away from the oversight agency have a higher likelihood of missing affidavit or unknown officer. Male complainants are more likely to sign the affidavit (not statistically significant) and to have their complaint sustained. White and Hispanic complainants are about 7.3 and 4 times more likely, respectively, to have a sustained complaint

compared to Black complainants. Overall, older complainants are more likely to sign the affidavit, know the officer's identifier, and have a sustained complaint. Beat with higher hourly wage are more likely to have a signed affidavit. Incidents that occurred in a police beat with a higher share of Black population are significantly more likely to have an unidentified officer.

C Variance for the average willingness to pay

The parameter set of the full model consists of parameter ϕ. Without loss of generality and to streamline notation, I drop the k subscript.The average willingness to pay for group Z is given by

$$WTP_Z = E\left[g(z_i, \phi_0)\right] \tag{25}$$

where ϕ_0 is the true parameter vector, z_i contains the characteristics of complainant i in race-age group Z. The sample average willingness to pay to pay for group Z is given by

$$\hat{WTP}_Z = \frac{1}{n_Z} \sum_{i=1}^{n_Z} g(z_i, \hat{\phi}) \tag{26}$$

where $\hat{\phi}$ is the estimated parameter vector using equation 9. The variance of the willingness to pay is function of two components: sampling error and uncertainty from the parameter estimates. The asymptotic variance of the sample average of the willingness to pay is a function of

$$\sqrt{n_Z}\left(\hat{WTP}_Z - WTP_Z\right) = \frac{1}{\sqrt{n_Z}} \sum_{i=1}^{n_Z} \left[g(z_i, \hat{\phi}) - E\left[g(z_i, \phi_0)\right]\right] \tag{27}$$

By adding and subtracting $g(z_i, \phi_0)$, this expression can be written as

$$\begin{aligned} \sqrt{n_Z}\left(\hat{WTP}_Z - WTP_Z\right) &= \frac{1}{\sqrt{n_Z}} \sum_{i=1}^{n_Z} \left[A_i + B_i\right] \\ A_i &= g(z_i, \hat{\phi}) - g(z_i, \phi_0) \\ B_i &= g(z_i, \phi_0) - E\left[g(z_i, \phi_0)\right] \end{aligned} \tag{28}$$

Using the mean value theorem, A_i can be written as

$$\begin{aligned} g(z_i, \hat{\phi}) &= g(z_i, \phi_0) + \frac{\partial g(z_i, \bar{\phi})}{\partial \phi'}(\hat{\phi} - \phi_0) \\ A_i &= \frac{\partial g(z_i, \bar{\phi})}{\partial \phi'}(\hat{\phi} - \phi_0) \end{aligned} \tag{29}$$

Recall that $\hat{\phi}$ maximizes the likelihood function that is given by $L_n(\phi)$. Using the first order condition and the mean value theorem

$$\begin{aligned} \frac{\partial L_n(\hat{\phi})}{\partial \phi} &= \frac{\partial L_n(\phi_0)}{\partial \phi} + \frac{\partial^2 L_n(\bar{\phi})}{\partial \phi \partial \phi'}(\hat{\phi} - \phi_0) \\ 0 &= \frac{\partial L_n(\phi_0)}{\partial \phi} + \frac{\partial^2 L_n(\bar{\phi})}{\partial \phi \partial \phi'}(\hat{\phi} - \phi_0) \\ \hat{\phi} - \phi_0 &= -\left[\frac{\partial^2 L_n(\bar{\phi})}{\partial \phi \partial \phi'}\right]^{-1} \frac{\partial L_n(\phi_0)}{\partial \phi} \end{aligned} \tag{30}$$

Combining equations 29 and 30, A_i becomes

$$A_i = - \frac{\partial g(z_i, \overline{\phi})}{\partial \phi'} \left[\frac{\partial^2 L_n(\overline{\phi})}{\partial \phi \partial \phi'} \right]^{-1} \frac{\partial L_n(\phi_0)}{\partial \phi} \tag{31}$$

$$\sqrt{n_Z} \left(W\hat{T}P_Z - WTP_Z \right) = \underbrace{\frac{1}{\sqrt{n_Z}} \sum_{i=1}^{n_Z} A_i}_{A} + \underbrace{\frac{1}{\sqrt{n_Z}} \sum_{i=1}^{n_Z} B_i}_{B} \tag{32}$$

The asymptotic variance for the average willingness to pay that accounts for both sampling error and uncertainty from the parameter estimates is given by

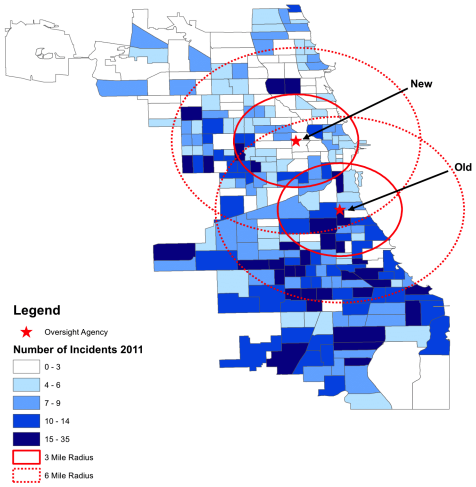
$$Var(A + B) = Var(A) + Var(B) + 2Cov(A, B) \tag{33}$$

In practice, I use the sample analog of equation 33.

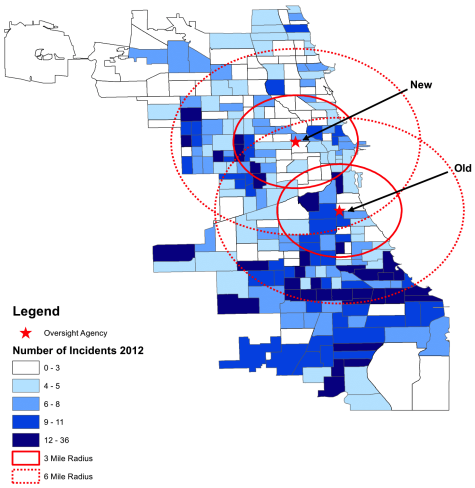
D Additional Tables and Figures

Figure A.1: Complaints from 2011 to 2014

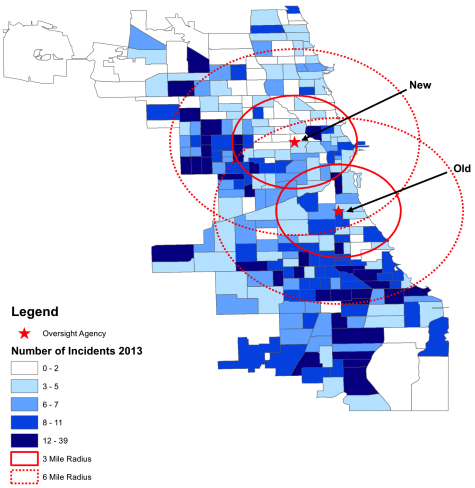
(a) 2011



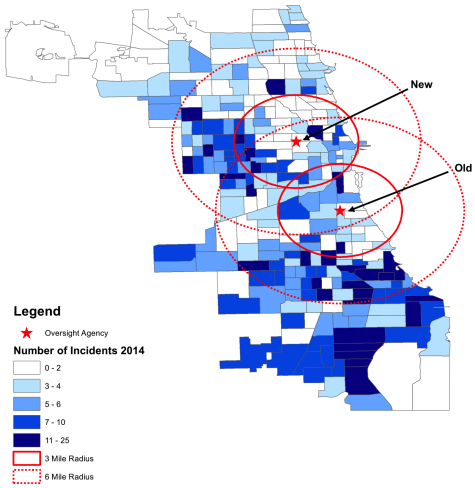
(b) 2012



(c) 2013



(d) 2014



Notes: Figure A.1 depicts the annual quintile distribution of civilian complaints filed against identified CPD officers from 2011 to 2014 at the police beat level. I consider that civilian complaints are allegations of misconduct which are classified as failure to provide service, use of force, verbal abuse, arrest or locked up procedures, and search. The oversight agency locations (red star) moved from the South Side of Chicago to the Near West Side of the city on December 19, 2011.

Table A.7: Complaint outcomes

	2011		2012		2013		2014		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Unknown Officer	1584	36.0	1774	41.0	1544	37.6	852	38.5	5754	38.3
Unknown Outcome	136	3.1	265	6.1	267	6.5	140	6.3	808	5.4
No Affidavit	1284	29.2	1186	27.4	1177	28.7	724	32.7	4371	29.1
Not Sustained	1164	26.5	896	20.7	810	19.7	379	17.1	3249	21.6
Sustained	228	5.2	205	4.7	308	7.5	116	5.2	857	5.7
Total	4396		4326		4106		2211		15039	29.5

Table A.8: Complaint categories by complainant's race

	Complainant's Race									
	Black		Hispanic		White		Unknown		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Unknown	3767	39.2	731	39.1	1056	36.1	200	31.6	5754	38.3
Use of Force/Verbal Abuse	1707	17.8	364	19.5	380	13.0	127	20.1	2578	17.1
Arrest/Locked up Procedure	359	3.7	66	3.5	94	3.2	16	2.5	535	3.6
Search	1530	15.9	178	9.5	165	5.6	141	22.3	2014	13.4
Failure to Provide Service	1320	13.7	277	14.8	476	16.3	77	12.2	2150	14.3
Operation/Personnel Violations	697	7.2	190	10.2	478	16.4	47	7.4	1412	9.4
Others	234	2.4	63	3.4	274	9.4	25	3.9	596	4.0
Total	9614		1869		2923		633		15039	

Table A.9: Risk factors associated with complaints' outcome from January 2011 and July 2014

	Unknown_Officer	Unknown_Outcome	No_Affidavit	Sustained
Distance (mi.)	1.025*	1.015	1.041***	1.044
	(0.011)	(0.023)	(0.013)	(0.025)
Hourly wage	0.994	1.011	0.986*	0.995
	(0.005)	(0.009)	(0.006)	(0.012)
Male complainant	0.985	0.962	0.943	1.252*
	(0.037)	(0.091)	(0.042)	(0.131)
30-39yo	0.791***	0.724*	0.868	1.965*
	(0.055)	(0.109)	(0.067)	(0.646)
40-49yo	0.688***	0.792	0.756***	5.583***
	(0.059)	(0.113)	(0.055)	(1.649)
50-59yo	0.703***	0.853	0.627***	8.406***
	(0.053)	(0.121)	(0.051)	(2.592)
60-74yo	0.689***	0.753	0.729**	5.892***
	(0.058)	(0.125)	(0.077)	(1.863)
+74yo or missing	0.907	1.080	1.015	3.186***
	(0.079)	(0.159)	(0.086)	(1.092)
White	1.317***	2.174***	0.983	7.336***
	(0.097)	(0.278)	(0.094)	(1.539)
Hispanic/Other	1.091	1.540**	0.903	3.971***
	(0.079)	(0.219)	(0.077)	(0.866)
Unknown race	1.140	2.092***	1.935***	1.732
	(0.185)	(0.402)	(0.258)	(0.560)
Share of Black	1.863**	1.818*	1.037	1.325
	(0.363)	(0.547)	(0.225)	(0.549)
Share of Hispanic	1.556	1.274	1.215	0.766
	(0.368)	(0.383)	(0.326)	(0.342)
N	15039			
ll	-19519.3			

Notes: This Table presents the risk factors associated with complaints' outcome from January 2011 and July 2014. The Table presents the relative risk ratios by running a multinomial logistic regression. Non-sustained outcome is the reference category. The specification controls for incident location, district fixed effects, and quarter fixed effects, but not reported. Standard errors are clustered at the police district and community area level are reported in parentheses. *p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.10: Effect of distance on the probability of signed affidavit

VARIABLES	(1) All	(2) All	(3) All	(4) Serious	(5) Serious	(6) Serious	(7) FPS	(8) FPS	(9) FPS
Distance:¡3	0.121***	0.123***	0.122***	0.114**	0.112**	0.113**	0.125**	0.129**	0.123**
	(0.031)	(0.032)	(0.032)	(0.044)	(0.046)	(0.047)	(0.056)	(0.058)	(0.058)
Distance:[3,6)	0.084***	0.081***	0.081***	0.073**	0.067**	0.071**	0.073*	0.080**	0.075*
	(0.025)	(0.024)	(0.025)	(0.031)	(0.030)	(0.031)	(0.038)	(0.039)	(0.040)
Distance:[6,9)	0.058**	0.057**	0.057**	0.051	0.045	0.045	0.035	0.039	0.041
	(0.024)	(0.023)	(0.023)	(0.030)	(0.028)	(0.028)	(0.040)	(0.041)	(0.041)
Serious	0.231***	0.264***	0.275***						
	(0.016)	(0.016)	(0.016)						
Observations	6,763	6,763	6,763	4,770	4,770	4,770	1,993	1,993	1,993
R-squared	0.116	0.142	0.145	0.096	0.124	0.128	0.243	0.279	0.283
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	0.459	0.459	0.459	0.520	0.520	0.520	0.313	0.313	0.313

Notes: This Table presents the effect of distance on the probability of signed affidavit from January 2011 and July 2014. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search).The specification controls for complainants and incident characteristics, incident location, fixed effects, and time fixed effects, but not reported. Standard errors are clustered at the police district and community area level are reported in parentheses. *p-value $<$ 0.10, **p-value $<$ 0.05, *** p-value $<$ 0.01.

Table A.11: Effect of distance on the probability of signed affidavit by race of the complainant

VARIABLES	(1) Black	(2) Hispanic	(3) White	(4) Black	(5) Hispanic	(6) White	(7) Black	(8) Hispanic	(9) White
Distance:¡3	0.107**	0.158	-0.058	0.080	0.156	0.024	0.181*	0.262	0.106
	(0.050)	(0.118)	(0.108)	(0.066)	(0.172)	(0.181)	(0.098)	(0.472)	(0.235)
Distance:[3,6)	0.102***	0.078	-0.110	0.085**	0.055	-0.129	0.162**	0.363	0.090
	(0.033)	(0.103)	(0.085)	(0.041)	(0.103)	(0.137)	(0.071)	(0.303)	(0.221)
Distance:[6,9)	0.052	0.116	-0.076	0.049	0.143	-0.113	0.057	0.249	0.061
	(0.032)	(0.071)	(0.075)	(0.040)	(0.110)	(0.101)	(0.064)	(0.279)	(0.206)
Serious	0.311***	0.249***	0.208***						
	(0.019)	(0.057)	(0.047)						
Observations	4,616	815	1,008	3,382	570	564	1,234	245	444
R-squared	0.162	0.365	0.377	0.134	0.451	0.459	0.285	0.779	0.646
Type of Complaint	All	All	All	Serious	Serious	Serious	FPS	FPS	FPS
Complainant's Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Officers' Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	0.445	0.506	0.550	0.515	0.574	0.601	0.251	0.347	0.484

Notes: This Table presents the effect of distance on the probability of signed affidavit from January 2011 and July 2014. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search).The specification controls for complainants and incident characteristics, incident location, fixed effects, and time fixed effects, but not reported. Standard errors are clustered at the police district and community area level are reported in parentheses. *p-value $<$ 0.10, **p-value $<$ 0.05, *** p-value $<$ 0.01.

Table A.12: Effect of distance on the probability of signed affidavit (District)

	All			Serious			Failure to Provide Service	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A) All Comp.									
Distance (mi.)	-0.009***	-0.011***	-0.011***	-0.008*	-0.008*	-0.009**	-0.015***	-0.017***	-0.017***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Mean Dependent Variable	0.46	0.46	0.46	0.52	0.52	0.52	0.31	0.31	0.31
Observations	6,763	6,763	6,763	4,770	4,770	4,770	1,993	1,993	1,993
R-squared	0.08	0.10	0.11	0.04	0.07	0.07	0.13	0.17	0.17
B) Black Comp.									
Distance (mi.)	-0.011**	-0.010**	-0.010**	-0.007	-0.007	-0.007	-0.025***	-0.025***	-0.025***
	(0.004)	(0.004)	(0.005)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
Mean Dependent Variable	0.44	0.44	0.44	0.52	0.52	0.52	0.25	0.25	0.25
Observations	4,616	4,616	4,616	3,382	3,382	3,382	1,234	1,234	1,234
R-squared	0.09	0.10	0.11	0.04	0.05	0.06	0.11	0.13	0.13
C) Hispanic Comp.									
Distance (mi.)	-0.012	-0.012	-0.011	-0.007	-0.005	-0.004	-0.022	-0.017	-0.013
	(0.009)	(0.009)	(0.009)	(0.012)	(0.011)	(0.011)	(0.019)	(0.019)	(0.019)
Mean Dependent Variable	0.51	0.51	0.51	0.57	0.57	0.57	0.35	0.35	0.35
Observations	815	815	815	570	570	570	245	245	245
R-squared	0.15	0.17	0.18	0.13	0.18	0.19	0.37	0.40	0.43
D) White Comp.									
Distance (mi.)	-0.002	-0.001	-0.001	-0.012	-0.011	-0.011	0.001	0.001	0.000
	(0.008)	(0.008)	(0.008)	(0.013)	(0.013)	(0.013)	(0.013)	(0.012)	(0.012)
Mean Dependent Variable	0.55	0.55	0.55	0.60	0.60	0.60	0.48	0.48	0.48
Observations	1,008	1,008	1,008	564	564	564	444	444	444
R-squared	0.16	0.20	0.21	0.12	0.17	0.18	0.31	0.34	0.35
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on the probability of signed affidavit from January 2011 and July 2014. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for complainants and incident characteristics, incident location, district fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all the complainants, Black complainants, Hispanic, and White complainants. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.13: Effect of distance on the probability of signed affidavit using a logit specification

	All			Serious			Failure to Provide Service		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A) All Comp.									
Distance (mi.)	-0.010***	-0.012***	-0.012***	-0.008*	-0.009**	-0.009**	-0.017***	-0.019***	-0.019***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Mean Dependent Variable	0.46	0.46	0.46	0.52	0.52	0.52	0.31	0.31	0.31
Observations	6,763	6,763	6,763	4,770	4,770	4,770	1,993	1,993	1,993
B) Black Comp.									
Distance (mi.)	-0.011**	-0.011**	-0.011**	-0.007	-0.006	-0.007	-0.024***	-0.025***	-0.024***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
Mean Dependent Variable	0.44	0.44	0.44	0.52	0.52	0.52	0.25	0.25	0.25
Observations	4,616	4,616	4,616	3,382	3,382	3,382	1,234	1,234	1,234
C) Hispanic Comp.									
Distance (mi.)	-0.013	-0.013	-0.012	-0.006	-0.003	-0.003	-0.026	-0.026	-0.019
	(0.009)	(0.009)	(0.009)	(0.012)	(0.012)	(0.012)	(0.017)	(0.019)	(0.018)
Mean Dependent Variable	0.50	0.50	0.50	0.57	0.57	0.57	0.34	0.34	0.34
Observations	807	807	807	557	557	557	242	242	242
D) White Comp.									
Distance (mi.)	-0.005	-0.004	-0.004	-0.011	-0.010	-0.010	0.004	0.003	0.001
	(0.009)	(0.009)	(0.009)	(0.013)	(0.013)	(0.013)	(0.016)	(0.015)	(0.015)
Mean Dependent Variable	0.55	0.55	0.55	0.60	0.60	0.60	0.48	0.48	0.48
Observations	1,008	1,008	1,008	564	564	564	444	444	444
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on the probability of signed affidavit from January 2011 and July 2014 using a logit specification for the error term. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for complainants and incident characteristics, incident location, district fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all the complainants, Black complainants, Hispanic, and White complainants. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.14: Effect of traveling time by car on the probability of signed affidavit

	All			Serious			Failure to Provide Service	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A) All Comp.									
Time by car (min.)	-0.006***	-0.006***	-0.006***	-0.005*	-0.005*	-0.005**	-0.008**	-0.009***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Mean Dependent Variable	0.46	0.46	0.46	0.52	0.52	0.52	0.31	0.31	0.31
Observations	6,763	6,763	6,763	4,770	4,770	4,770	1,993	1,993	1,993
R-squared	0.12	0.14	0.14	0.10	0.12	0.13	0.24	0.28	0.28
B) Black Comp.									
Time by car (min.)	-0.008***	-0.008**	-0.008**	-0.005	-0.004	-0.004	-0.018***	-0.019***	-0.018***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.006)
Mean Dependent Variable	0.44	0.44	0.44	0.52	0.52	0.52	0.25	0.25	0.25
Observations	4,616	4,616	4,616	3,382	3,382	3,382	1,234	1,234	1,234
R-squared	0.15	0.16	0.16	0.12	0.13	0.13	0.27	0.28	0.29
C) Hispanic Comp.									
Time by car (min.)	-0.005	-0.004	-0.003	0.001	0.002	0.001	-0.013	-0.016	-0.015
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.021)	(0.022)	(0.022)
Mean Dependent Variable	0.51	0.51	0.51	0.57	0.57	0.57	0.35	0.35	0.35
Observations	815	815	815	570	570	570	245	245	245
R-squared	0.35	0.36	0.36	0.41	0.44	0.45	0.73	0.76	0.78
D) White Comp.									
Time by car (min.)	0.002	0.003	0.003	-0.002	-0.002	-0.002	-0.008	-0.007	-0.007
	(0.005)	(0.005)	(0.005)	(0.008)	(0.008)	(0.008)	(0.010)	(0.010)	(0.009)
Mean Dependent Variable	0.55	0.55	0.55	0.60	0.60	0.60	0.48	0.48	0.48
Observations	1,008	1,008	1,008	564	564	564	444	444	444
R-squared	0.35	0.37	0.37	0.43	0.45	0.45	0.62	0.63	0.65
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of traveling time by car on the probability of signed affidavit from January 2011 and July 2014. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for complainants and incident characteristics, incident location, fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all the complainants, Black complainants, Hispanic, and White complainants. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.15: Effect of traveling time by public transit on the probability of signed affidavit

	All			Serious			Failure to Provide Service	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A) All Comp.									
Time by transit (min.)	-0.001**	-0.002**	-0.002**	-0.001*	-0.001*	-0.002*	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mean Dependent Variable	0.46	0.46	0.46	0.52	0.52	0.52	0.31	0.31	0.31
Observations	6,763	6,763	6,763	4,770	4,770	4,770	1,993	1,993	1,993
R-squared	0.11	0.14	0.14	0.09	0.12	0.13	0.24	0.28	0.28
B) Black Comp.									
Time by transit (min.)	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.003	-0.003	-0.003
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Mean Dependent Variable	0.44	0.44	0.44	0.52	0.52	0.52	0.25	0.25	0.25
Observations	4,616	4,616	4,616	3,382	3,382	3,382	1,234	1,234	1,234
R-squared	0.15	0.16	0.16	0.12	0.13	0.13	0.27	0.28	0.28
C) Hispanic Comp.									
Time by transit (min.)	-0.003	-0.003	-0.002	-0.003	-0.003	-0.003	-0.001	-0.002	-0.002
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.008)	(0.009)	(0.008)
Mean Dependent Variable	0.51	0.51	0.51	0.57	0.57	0.57	0.35	0.35	0.35
Observations	815	815	815	570	570	570	245	245	245
R-squared	0.35	0.36	0.36	0.41	0.44	0.45	0.73	0.76	0.77
D) White Comp.									
Time by transit (min.)	-0.001	-0.000	-0.000	-0.002	-0.003	-0.003	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Mean Dependent Variable	0.55	0.55	0.55	0.60	0.60	0.60	0.48	0.48	0.48
Observations	1,008	1,008	1,008	564	564	564	444	444	444
R-squared	0.35	0.37	0.37	0.43	0.45	0.45	0.62	0.63	0.65
Complainant's Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Officers' Controls	No	No	Yes	No	No	Yes	No	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of traveling time by public transportation on the probability of signed affidavit from January 2011 and July 2014. Civilian complaints are either failure to provide service or serious (use of force, verbal abuse, arrest, locked up procedures, and search). The specification controls for complainants and incident characteristics, incident location, fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all the complainants, Black complainants, Hispanic, and White complainants. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.16: Effect of distance on complaint outcomes (Placebo)

	Number of Complaints (1)	Number of Signed Affidavit (2)	Share of Signed Affidavit (3)	Share of Sustained (4)
A) All Beats				
Placebo Distance (mi.)	0.001	-0.000	-0.001	-0.002
	(0.001)	(0.001)	(0.007)	(0.006)
Mean Dependent Variable	0.10	0.05	0.50	0.10
Observations	2,915	2,915	1,297	786
R-squared	0.01	0.00	0.00	0.02
B) Black Beats				
Placebo Distance (mi.)	-0.000	-0.002	-0.014	0.000
	(0.002)	(0.002)	(0.010)	(0.007)
Mean Dependent Variable	0.17	0.08	0.50	0.08
Observations	1,298	1,298	734	457
R-squared	0.00	0.00	0.01	0.02
C) Hispanic Beats				
Placebo Distance (mi.)	0.002	0.001	-0.004	0.006
	(0.001)	(0.001)	(0.021)	(0.024)
Mean Dependent Variable	0.04	0.02	0.54	0.11
Observations	506	506	188	116
R-squared	0.01	0.00	0.01	0.04
D) White Beats				
Placebo Distance (mi.)	0.003	-0.001	-0.011	0.003
	(0.004)	(0.002)	(0.028)	(0.021)
Mean Dependent Variable	0.05	0.03	0.49	0.12
Observations	715	715	214	123
R-squared	0.01	0.00	0.02	0.02
District's Controls	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on complaint outcomes from January 2011 to November 2011. The placebo policy occurred in June 2011.The complaint outcomes are the number of complaints per 1,000 capita (column 1), the number of complaints with signed affidavit per 1,000 capita (column 2), the share of complaints with signed affidavit (column 3), and the share of complaints that are sustained (column 4).The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.17: Effect of distance on use of force outcomes (Placebo)

	Number of TRR (1)	Any Use of High Force (2)	Force per Arrest (3)	Number of Injuries (4)
A) All Beats				
Placebo Distance (mi.)	0.002	0.004	-0.000	0.001
	(0.002)	(0.004)	(0.001)	(0.001)
Mean Dependent Variable	0.18	0.35	0.04	0.04
Observations	2,915	2,915	2,915	2,915
R-squared	0.01	0.01	0.00	0.00
B) Black Beats				
Placebo Distance (mi.)	0.006	0.007	0.001	0.000
	(0.004)	(0.006)	(0.001)	(0.002)
Mean Dependent Variable	0.27	0.44	0.04	0.07
Observations	1,298	1,298	1,298	1,298
R-squared	0.03	0.01	0.01	0.01
C) Hispanic Beats				
Placebo Distance (mi.)	-0.002	-0.012	-0.001	0.000
	(0.002)	(0.012)	(0.001)	(0.001)
Mean Dependent Variable	0.07	0.30	0.03	0.02
Observations	506	506	506	506
R-squared	0.02	0.03	0.01	0.02
D) White Beats				
Placebo Distance (mi.)	0.004	-0.002	-0.002	0.000
	(0.009)	(0.012)	(0.002)	(0.003)
Mean Dependent Variable	0.12	0.26	0.05	0.03
Observations	715	715	715	715
R-squared	0.02	0.00	0.00	0.01
District's Controls	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on use of force outcomes from January 2011 to November 2011. The placebo policy occurred in June 2011. The use of force outcomes are the the number of TRRs per 1,000 capita (column 1), whether or not there was incident with high level of force (column 2), i.e. involving use of Taser or firearm, the number of incidents involving reported force per arrest (columns 3), and the number of civilian injuries per 1,000 capita (columns 4) .The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value $<$ 0.10, **p-value $<$ 0.05, *** p-value $<$ 0.01.

Table A.18: Effect of distance on crime outcomes (Placebo)

	Index Crimes			Non Index Crimes		
	(1)	(2)	(3)	(4)	(5)	(6)
	Offenses	Arrests	Clearance Rates	Offenses	Arrests	Clearance Rates
A) All Beats						
Placebo Distance (mi.)	0.046**	0.005	0.000	0.044**	0.031*	0.001
	(0.023)	(0.005)	(0.000)	(0.019)	(0.016)	(0.001)
Mean Dependent Variable	6.59	0.79	0.10	8.87	3.81	0.38
Observations	2,915	2,915	2,915	2,915	2,915	2,915
R-squared	0.13	0.02	0.00	0.07	0.02	0.03
B) Black Beats						
Placebo Distance (mi.)	0.054	0.006	-0.000	0.035	0.061*	0.003***
	(0.038)	(0.006)	(0.001)	(0.038)	(0.030)	(0.001)
Mean Dependent Variable	8.20	0.80	0.10	13.62	6.11	0.42
Observations	1,298	1,298	1,298	1,298	1,298	1,298
R-squared	0.27	0.07	0.00	0.11	0.03	0.06
C) Hispanic Beats						
Placebo Distance (mi.)	0.029	0.006	0.001	0.048	0.031	0.002
	(0.021)	(0.009)	(0.002)	(0.029)	(0.028)	(0.003)
Mean Dependent Variable	3.58	0.42	0.11	4.95	2.02	0.39
Observations	506	506	506	506	506	506
R-squared	0.12	0.05	0.01	0.13	0.06	0.03
D) White Beats						
Placebo Distance (mi.)	0.165	0.077	0.001	0.010	-0.000	0.003
	(0.161)	(0.071)	(0.001)	(0.039)	(0.022)	(0.003)
Mean Dependent Variable	7.18	1.22	0.11	5.22	2.00	0.31
Observations	715	715	715	715	715	715
R-squared	0.08	0.03	0.03	0.02	0.01	0.02
District's Controls	No	No	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on crime outcomes from January 2011 to November 2011. The placebo policy occurred in June 2011. This Table presents the effect of distance on outcomes from January 2011 and July 2014. Offenses and arrests are expressed per 1,000 capita, and clearance rates are define as the number of reported crimes with an arrest over the number of reported crimes. The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.19: Effect of distance on complaint outcomes (Short Run)

	Number of Complaints		Number of Signed Affidavit		Share of Signed Affidavit		Share of Sustained	
	(1) [-9,9] Months	(2) [-12,12] Months	(3) [-9,9] Months	(4) [-12,12] Months	(5) [-9,9] Months	(6) [-12,12] Months	(7) [-9,9] Months	(8) [-12,12] Months
A) All Beats								
Distance (mi.)	-0.002**	-0.002***	-0.002***	-0.002***	-0.013**	-0.017***	-0.003	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)	(0.004)	(0.005)	(0.004)
Mean Dependent Variable	0.10	0.09	0.05	0.05	0.49	0.48	0.09	0.10
Observations	5,035	6,360	5,035	6,360	2,198	2,704	1,277	1,558
R-squared	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
B) Black Beats								
Distance (mi.)	-0.002	-0.002	-0.003**	-0.003**	-0.021**	-0.026***	-0.006	0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.009)	(0.008)	(0.009)	(0.007)
Mean Dependent Variable	0.16	0.15	0.08	0.07	0.48	0.47	0.08	0.08
Observations	2,242	2,832	2,242	2,832	1,261	1,537	746	890
R-squared	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01
C) Hispanic Beats								
Distance (mi.)	-0.000	-0.000	-0.001	-0.001**	-0.012	-0.017	-0.003	0.006
	(0.002)	(0.002)	(0.001)	(0.000)	(0.020)	(0.016)	(0.011)	(0.011)
Mean Dependent Variable	0.04	0.04	0.02	0.02	0.50	0.51	0.09	0.11
Observations	874	1,104	874	1,104	300	370	170	213
R-squared	0.01	0.01	0.02	0.01	0.02	0.02	0.07	0.05
D) White Beats								
Distance (mi.)	0.006**	0.003**	-0.000	-0.001	-0.025	-0.024	0.008	-0.002
	(0.003)	(0.002)	(0.001)	(0.001)	(0.018)	(0.016)	(0.017)	(0.015)
Mean Dependent Variable	0.06	0.05	0.03	0.03	0.49	0.50	0.13	0.12
Observations	1,235	1,560	1,235	1,560	372	468	210	265
R-squared	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02
District's Controls	No	No	No	No	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on complaint outcomes from January 2011 to December 2012. The complaint outcomes are the number of complaints per 1,000 capita (columns 1-2), the number of complaints with signed affidavit per 1,000 capita (columns 3-4), the share of complaints with signed affidavit (columns 4-6), and the share of complaints that are sustained (columns 7-8). The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.20: Effect of distance on use of force outcomes (Short Run)

	Number of TRR		Any Use of High Force		Force per Arrest		Number of Injuries	
	(1) [-9,9] Months	(2) [-12,12] Months	(3) [-9,9] Months	(4) [-12,12] Months	(5) [-9,9] Months	(6) [-12,12] Months	(7) [-9,9] Months	(8) [-12,12] Months
A) All Beats								
Distance (mi.)	0.003	0.003*	0.004	0.003	0.000	0.000	0.001	0.001
	(0.002)	(0.002)	(0.004)	(0.004)	(0.000)	(0.000)	(0.001)	(0.001)
Mean Dependent Variable	0.18	0.17	0.36	0.34	0.04	0.04	0.04	0.04
Observations	5,035	6,360	5,035	6,360	5,034	6,359	5,035	6,360
R-squared	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00
B) Black Beats								
Distance (mi.)	0.006	0.008**	0.012*	0.010	0.001	0.001**	0.001	0.002*
	(0.004)	(0.003)	(0.006)	(0.006)	(0.001)	(0.000)	(0.001)	(0.001)
Mean Dependent Variable	0.28	0.27	0.44	0.43	0.04	0.04	0.07	0.07
Observations	2,242	2,832	2,242	2,832	2,242	2,832	2,242	2,832
R-squared	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
C) Hispanic Beats								
Distance (mi.)	0.006***	0.005**	0.026***	0.020***	0.002***	0.002***	0.002**	0.001
	(0.002)	(0.002)	(0.008)	(0.007)	(0.000)	(0.001)	(0.001)	(0.001)
Mean Dependent Variable	0.08	0.07	0.31	0.30	0.03	0.03	0.02	0.02
Observations	874	1,104	874	1,104	874	1,104	874	1,104
R-squared	0.02	0.02	0.03	0.02	0.02	0.01	0.01	0.01
D) White Beats								
Distance (mi.)	0.018	0.015	0.014**	0.011*	0.005***	0.003**	0.003	0.002
	(0.012)	(0.010)	(0.006)	(0.006)	(0.001)	(0.001)	(0.002)	(0.001)
Mean Dependent Variable	0.13	0.12	0.26	0.26	0.05	0.05	0.03	0.03
Observations	1,235	1,560	1,235	1,560	1,234	1,559	1,235	1,560
R-squared	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
District's Controls	No	No	No	No	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This Table presents the effect of distance on use of force outcomes from January 2011 to December 2012. The use of force outcomes are the the number of TRRs per 1,000 capita (columns 1-2), whether or not there was incident with high level of force (columns 3-4), i.e. involving use of Taser or firearm, the number of incidents involving reported force per arrest (columns 5-6), and the number of civilian injuries per 1,000 capita (columns 7-8) . The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value < 0.10, **p-value < 0.05, *** p-value < 0.01.

Table A.21: Effect of distance on crime outcomes (Short Run)

	Index Crimes			Non Index Crimes		
	(1)	(2)	(3)	(4)	(5)	(6)
	Offenses	Arrests	Clearance Rates	Offenses	Arrests	Clearance Rates
A) All Beats						
Distance (mi.)	-0.070***	0.004	0.001***	-0.040*	-0.018	0.000
	(0.012)	(0.004)	(0.000)	(0.022)	(0.019)	(0.001)
Mean Dependent Variable	6.44	0.78	0.10	8.67	3.70	0.37
Observations	6,360	6,360	6,360	6,360	6,360	6,360
R-squared	0.10	0.01	0.00	0.06	0.03	0.04
B) Black Beats						
Distance (mi.)	-0.081***	0.003	0.001**	-0.080	-0.028	0.001
	(0.021)	(0.006)	(0.001)	(0.073)	(0.065)	(0.002)
Mean Dependent Variable	7.89	0.80	0.10	13.35	5.97	0.42
Observations	2,832	2,832	2,832	2,832	2,832	2,832
R-squared	0.22	0.03	0.01	0.11	0.04	0.05
C) Hispanic Beats						
Distance (mi.)	-0.022	0.003	0.002	-0.028	-0.025**	-0.003**
	(0.015)	(0.004)	(0.001)	(0.017)	(0.010)	(0.001)
Mean Dependent Variable	3.45	0.41	0.11	4.74	1.90	0.38
Observations	1,104	1,104	1,104	1,104	1,104	1,104
R-squared	0.15	0.03	0.01	0.17	0.10	0.07
D) White Beats						
Distance (mi.)	0.118	-0.039	-0.001	0.079	-0.027**	-0.006***
	(0.108)	(0.037)	(0.002)	(0.064)	(0.012)	(0.002)
Mean Dependent Variable	7.25	1.18	0.11	5.14	1.93	0.30
Observations	1,560	1,560	1,560	1,560	1,560	1,560
R-squared	0.07	0.02	0.01	0.01	0.01	0.03
District's Controls	No	No	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Beat FE	Yes	Yes	Yes	Yes	Yes	Yes

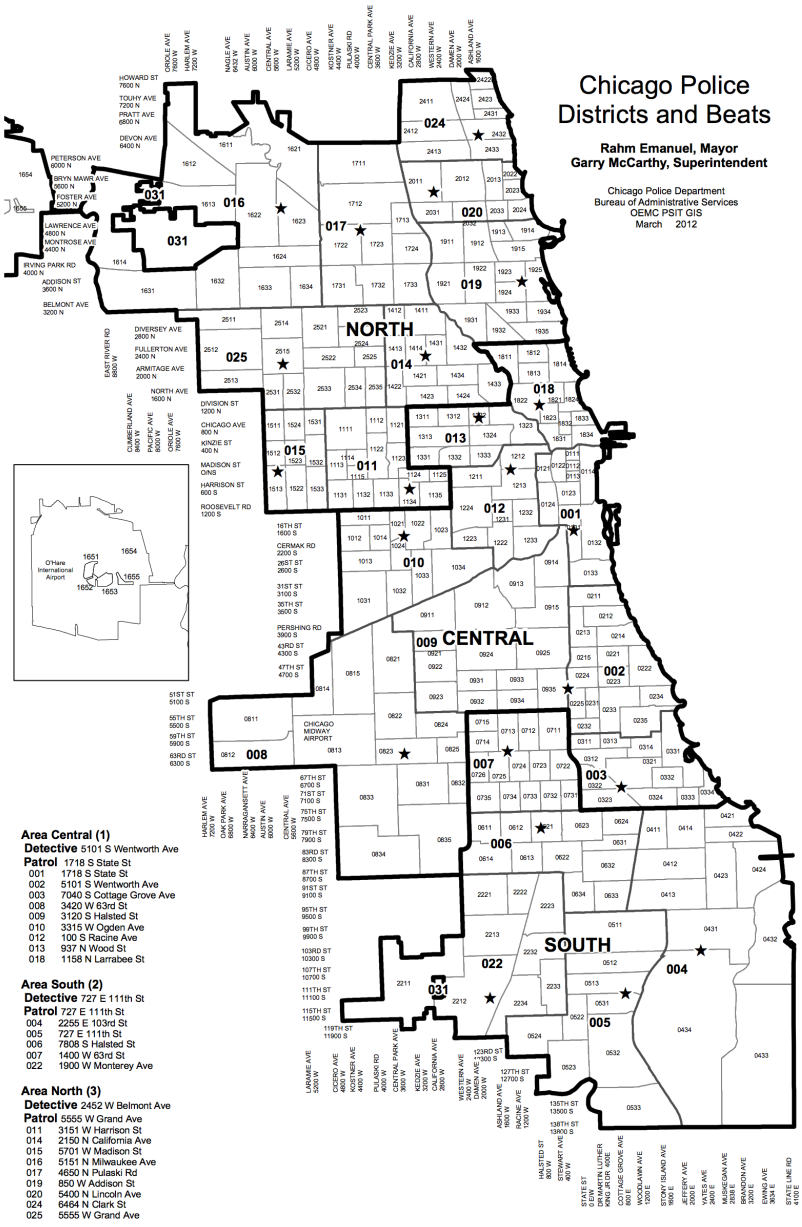
Notes: This Table presents the effect of distance on crime outcomes from January 2011 to December 2012. This Table presents the effect of distance on outcomes from January 2011 and July 2014. Offenses and arrests are expressed per 1,000 capita, and clearance rates are define as the number of reported crimes with an arrest over the number of reported crimes. The specification controls for beat fixed effects, and time fixed effects, but not reported. Panel A, B, C, and D respectively report the results for all beats, beats with a majority (>50 percent) of Black residents, beats with a majority Hispanic residents, and beats with a majority White residents. Standard errors are clustered at the police district and community area level are reported in parentheses.*p-value $<$ 0.10, **p-value $<$ 0.05, *** p-value $<$ 0.01.

Table A.22: Summary statistics for police district

District #	Name	Distance (mi)	Time by Car (min.)	Time by Transit (min.)	Violent Crime Offense	Property Crime Offense	Non Index Crime Offense
7	Englewood	7.3	21.5	50.9	2.6	6.3	15.2
11	Harrison	3.7	13.7	35.1	2.5	5.1	19.0
3	Grand Crossing	8.0	21.9	52.5	2.2	5.6	12.5
15	Austin	5.7	19.2	41.1	1.9	4.1	14.6
6	Gresham	9.4	22.5	60.7	1.8	5.4	10.5
5	Calumet	13.6	26.5	77.4	1.8	4.7	11.5
4	South Chicago	10.9	26.4	67.6	1.7	5.1	9.9
2	Wentworth	5.4	17.4	41.7	1.7	4.9	10.2
1	Central	2.7	12.4	27.7	1.5	20.3	15.7
10	Ogden	4.1	17.8	44.9	1.4	3.3	8.7
9	Deering	4.8	19.5	43.1	1.0	3.2	6.7
22	Morgan Park	11.8	26.3	71.5	0.9	3.3	5.8
12	Near West	2.2	9.5	24.5	0.8	4.7	5.7
25	Grand Central	6.0	24.2	52.6	0.7	2.7	5.0
8	Chicago Lawn	7.9	29.4	61.6	0.7	2.8	4.9
14	Shakespeare	3.5	13.2	30.6	0.6	3.9	3.8
18	Near North	2.8	13.7	26.7	0.5	6.3	5.2
24	Rogers Park	9.0	30.9	55.5	0.5	2.0	3.8
19	Town Hall	4.9	20.9	39.5	0.4	3.1	3.2
20	Lincoln	7.1	26.1	52.2	0.3	2.1	3.1
17	Albany Park	6.7	18.6	47.1	0.3	2.3	2.7
16	Jefferson Park	9.0	22.0	52.5	0.2	1.5	2.2

Notes: This table reports the monthly average per police districts from January 2011 to July 2014. Offenses are calculated per 1,000 capita. The districts are sorted from the most to the least violent in terms of reported violent crime per 1,000 capita. The first three columns report the average distance, time by car, and time by transit to the oversight agency.

Figure A.2: Districts and beats map



Notes: This figure depicts police beats and districts from Chicago Police Department. All the events in the analysis are geocoded according to that map in order to make events spatially comparable with each other across time. I do not include beats that are located outside of Chicago. Beats that do not have any residents, according to the 2010-2014 ACS data, are removed from the sample.