Do civilian complaints against police get punished?

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Abstract

Law enforcement institutions are tasked with a complicated undertaking that involves maintaining community safety and, at times, making arrests while exercising care in their interaction with private citizens. Errors may have dramatic consequences for civilians, police and the criminal justice system. Given limited observability of law enforcement agents' behavior, one way to mitigate the principal-agent problem is to rely on signals from civilians via complaints. At the same time, civilian complaints may result in reputational and financial losses for the criminal justice institutions. This paper empirically investigates one way in which criminal justice institutions respond to civilian complaints. Namely, criminal prosecutors can upcharge a defendant who files a civil complaint against law enforcement. By upcharging, the prosecutor can increase the likelihood that a defendant will accept a plea deal, thus preventing the defendant from seeking monetary damages in civil court (Heck vs. Humphrey, 1994). Using data on citizen complaints and criminal charge outcomes from Cook County (Illinois), we find a strong causal link between a citizen filing a complaint and the total number of charges filed.

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1 Introduction

The economic analysis of criminal law literature provides an exhaustive treatment of optimal deterrence (Becker, 1968; Polinsky & Shavell, 2000). However, as Dharmapala et al. (2016) point out, the literature has long neglected one of the key factors in achieving optimal punishment—the actions of the criminal justice agents.[1] Criminal law enforcement depends on the actions of police officers, prosecutors, and others who act as agents of governments and, ultimately, as agents of the public. In particular, police officers are tasked with a complicated undertaking: they need to maintain community safety and, at times, make arrests while exercising care in their interactions with citizens.

The great deal of discretion that law enforcement agents display during and in the aftermath of police-citizen interactions is of critical importance (Dharmapala et al., 2016; Mastrorocco & Ornaghi, 2020). If police have an accurate understanding of a citizen's rights and exercise care in their interaction with citizens, the law enforcement system can operate fluidly. Errors may, however, have dramatic consequences ranging from police shootings and deaths in custody to illegal searches or evidence falsification (Schwartz, 2012). Given limited observability on the part of the chief of a police precinct, aspects of the principal-agent problem[2] can be mitigated by increasing exposure to police behavior (DeAngelo & McCannon, 2016; Rozema & Schanzenbach, 2019; Schwartz, 2016). Whether it is the prevalence of recording equipment to document police-citizen interactions (e.g., cell phones, body cameras, etc.) or civilian allegations that are brought against specific law enforcement agents, these instances provide law enforcement management with an opportunity to evaluate the behavior and quality of the work being conducted by the officers that they supervise.

Despite the high expectation of the effectiveness of body-worn cameras to regulate policing behavior (Ariel et al., 2016; Braga et al., 2017), various studies (e.g., Ariel et al., 2016; Yokum et al., 2017) find that wearing body cameras increases assaults against officers and does not reduce police use of force (for a review of the literature, see Lum et al., 2020). Thus, this encapsulates that technological innovations are not a panacea for regulating policing behavior. An alternative method to increase law enforcement agents' accountability is to make use of signals from the targeted population—that is, to rely on civilian feedback (e.g., allegations, complaints, etc.). As shown in Rozema and Schanzenbach (2019), police officers have been involved in a number of high profile incidents that could have been prevented if previous complaints against them were taken more seriously (e.g., Laquan McDonald who was gunned down in 2014 by a police officer who had a history of complaints of using excessive force prior to McDonald's death). Thus, due to their informational advantage, individuals who happen to interact with law enforcement agents could potentially play a crucial role in uncovering illegal behaviors and in initiating internal investigations. Citizens' engagement with police may therefore serve as a valuable resource to society and to any entity (e.g., county board of supervisors) that is interested in providing a high-quality legal system, thus signaling that it puts the safety of its constituents at the core of its activities.

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[1] Some recent investigations of criminal justice agents' enforcement behavior should be noted, e.g., Adamson and Rentschler (2020); DeAngelo et al. (2022).

[2] As principal-agent theory predicts, law enforcement agents may have objectives that differ from those of their principals (i.e., citizens). On the principal-agent problem in the context of law enforcement, see Dharmapala et al. (2016).

While generating signals about the quality of specific law enforcement agents or police departments, civil complaints represent a serious cost to those targeted by them (e.g., the risk of losing one's job or facing criminal charges) as well as to the entities that supervise the activity of the involved agents, such as the police department and the county board of supervisors. The costs can be both reputational and financial. Reputational costs are incurred by the targeted individuals as well as by the organizations that are supposed to supervise their activity. In effect, civilian complaints may reduce public confidence in the quality of the law enforcement services, thereby affecting the reelection odds of those in charge of legal services in the community (e.g., board of supervisors, county sheriffs, district attorneys, etc.). Additionally, complaints may seriously affect the budgets allocated to the provision of order and legal services. Between 2013 and 2018, for instance, New York City alone spent $384 million to settle cases of police misconduct.[3] In a similar fashion, Chicago spent roughly $541 million on police misconduct settlements and outside lawyers between 2011 and 2018.[4] The financial impact resulting from civilian complaints is ultimately on the county board of supervisors, as that is the entity in charge of supervising the activities and managing the budgets of local police departments and district attorney.[5]

In an effort to minimize the financial and reputational costs associated with civil complaints, some law enforcement agencies involved in the criminal case of a potential civil complainant, and who may share in the pool of reputational and financial costs resulting from a complaint (e.g., police, prosecution), have incentives to seek actions that could discourage someone from filing a complaint. The Supreme Court decision in Heck vs. Humphrey (512 U.S. 477, 1994) illustrates how law enforcement agents can reduce the number of defendants seeking monetary damages. The decision indicates that:

A plaintiff seeking monetary damages or declaratory relief based on an allegedly unconstitutional conviction or imprisonment, or for other harm caused by action whose unlawfulness would render a conviction or sentence invalid, must initially establish that the conviction or sentence has been reversed on direct appeal, expunged by executive order, declared invalid by a state tribunal or called into question by a federal court's issuance of a writ of habeas corpus.

In other words, a defendant cannot seek monetary damages in a civil case unless his/her conviction or sentence was declared invalid. A possible mechanism for inducing a defendant into accepting a plea agreement and admitting guilt involves the use of upcharging (also known as overcharging) by a prosecutor.[6] For example, Bennett (1979)

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[3] New York City settlements:https://nypost.com/2018/09/04/nyc-has-shelled-out-384m-in-5-years-to-settle-nypd-suits/

[4] Chicago settlements: https://www.chicagoreporter.com/chicago-spent-more-than-113-million-on-police-misconduct-lawsuits-in-2018/

[5] As noted in Schwartz (2021), settlements and judgments in civil rights lawsuits against law enforcement are paid through a combination of indemnification rules, budgeting arrangements, and insurance policies, not by the law enforcement agent. In fact, in this research it was noted that law enforcement contributed less than 1% of the funds paid to the plaintiff.

[6] The extant legal literature on this topic distinguishes between three different practices as related to the decision of the number and severity of charges brought against a defendant. The first approach connects upcharging to the filing of charges without sufficient proof (i.e., horizontal charging, see Alschuler 1978). The second form resembles the first in that it associates upcharging with charging decisions that allege "too many" crimes, but it differs from the first in that it is associated with a lack of proportionality between the nature of charges and the seriousness of the defendant's alleged misconduct (i.e., vertical overcharging). The third concept of upcharging emphasizes a lack of proof or proportionality, but only when the prosecutor framed charges with an eye toward dismissing some or all of them as part of a plea bargaining strategy (Cald- well 2013). Early work by Alschuler (1968) noted that the most common example of vertical over-

argues that the most common abuse by prosecutors of their charging discretion is the practice of upcharging. If upcharging is a successful strategy in inducing a defendant to accept a plea bargain, then it would prevent him/her from seeking monetary damages on the basis of, for example, police use of force. Thus, increasing the likelihood that a defendant accepts a plea bargain makes him/her also less likely to be able to seek monetary damages in civil court.

This paper proposes the first empirical study of upcharging as a potential strategy adopted by prosecutors with the aim of preventing defendants from seeking monetary damages. Al-though it is recognized that prosecutors often file charges that are disproportionate or misrepresentative of the defendant's actions (Caldwell, 2011; Flynn, 2016; Graham, 2014), there is no empirical evidence supporting the upcharging conjecture—neither causal nor suggestive. What is more, most research has failed to explain the mechanisms that could potentially drive this phenomenon. Our aim is to, at least in part, fill this gap.

For our analysis, we collected disposition, arrest and citizen complaint data for arrests made in Chicago between January 2014 and July 2018. These data are merged together using a set of criteria that are explained in the Appendix A. Our final dataset consists of 61,230 disposed cases where 797 defendants (1.3% of arrests) filed a citizen complaint to the Chicago Police Department.

Our main results confirm a strong causal link between a citizen filing a complaint and the total number of charges filed, with citizen complaints leading to nearly three times as many total charges being filed. We also explore a battery of other legal outcomes associated with a criminal case, such as whether a plea agreement was reached, the size of the plea discount, the average and maximum charges filed and the total sentence length. While the total number of charges is larger when a complaint is filed, we find evidence that reaching a plea bargain is significantly less likely to occur. Furthermore, the plea discount that is offered when complaints are filed is nearly 1 charge larger than if a complaint is not filed. Thus, if upcharging is used as a strategy to induce a defendant to accept a plea bargain, with the objective to prevent him/her from seeking monetary damages, our results demonstrate that it does not fulfill the prosecutor's objectives. In fact, upcharging reduces the probability of reaching a plea bargain. We also examine the average and maximum charge class for filed charges and find that there is no effect on the maximum and average charge when a complaint is filed. It appears, therefore, that over-charges are generally chosen from the same charge class. Finally, we find no evidence that filing a civilian complaint results in a longer sentence. These results allow us to conclude that while civilian complaints against police get punished in terms of the number of charges filed against him/her, upcharging does not lead to the consequences emphasized in the legal literature, i.e., it does not induce defendants to accept a plea bargain, albeit it may still negatively impact the defendant's

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Footnote 6 (continued)

charging is the universal habit of charging first degree murder in all homicides except those involving negligent use of an automobile. Other examples follow similar patterns of charging the highest relevant offense when the evidence supports only a lesser degree (e.g., charging robbery instead of larceny from a person, or assault with intent to commit murder instead of felonious assault). Manak (1975) added more context regarding upcharging behavior, namely that the prosecutor or police may inflate the initial charge, which is a sort of vertical overcharging. Or, the prosecutor or police may multiply unreasonably the number of accusations against the defendant, resulting in horizontal overcharging. The charges are multiplied or inflated in an effort to induce the defendant to plead guilty to a few of the charges or a lesser charge. Where the practice exists it may be the case that the charge or charges finally plead to are the only charges that could be sustained by the prosecution and thus the only proper charges in the first instance.

welfare given our finding that a defendant who filed a complaint is less likely to reach a plea bargain than a defendant who did not file a complaint.

We should note that there is potential that individuals committing more severe offenses are simultaneously more likely to file complaints against law enforcement because law enforcement uses more aggressive techniques in making an arrest due to the nature of the criminal behavior. We attempt to disentangle these concerns by performing an instrumental variables analysis as in Bonneau and McCannon (2021). Specifically, we examine scenarios where members of law enforcement in the immediate region of a given arrest experienced an assault within the last 24 h. The logic is that law enforcement agents likely exhibit more aggressive enforcement behavior, conditional on the type of offense, when one of their fellow officers has experienced an assault in a particular neighborhood. Using this source of variation enables us to examine the impact of changes in officer conduct on the likelihood that a complaint is filed, controlling for the type of crime committed.

By providing novel insights into the consequences of citizen complaints, our paper contributes to the literature on the role of private citizens and public enforcement in promoting social order and the well functioning of legal institutions. On the one hand, there is a vast literature showing that private citizens are willing to report and punish deviant behaviors in their community. Examples range from non-violent crimes (e.g., tax evasion, see Acemoglu & Jackson, 2017) to violent behaviors (van Dijk, 2021). On the other hand, a different strand of research has argued that society cannot rely on private citizens to enforce what is "the right thing to do" because private enforcement is a public good that needs to be provided publicly (for a discussion of private and public enforcement mechanisms, see Romaniuc et al., 2016; DeAngelo et al., 2017; DeAngelo & Smith, 2020; DeAngelo & Gee, 2020). However, the interplay between private citizens' and public agents' efforts to ensure a well functioning legal institution is a topic that has received less attention in the empirical public choice literature.

The remainder of the paper is organized as follows: Sect. 2 provides a detailed description of our data. The empirical model and results are presented in Sects. 3 and 4. In Sect. 5 we present a series of robustness checks to test our main results. Finally, in Sect. 6 we conclude with a discussion of the implications of our results.

2 Data

We compile four datasets to conduct our analysis. First, arrest records were obtained from the Chicago Police Department website by searching adult arrest records.[7] Second, information on assaults against police officer was obtained from arrest records where the arrest charge is listed as assault or battery against a police officer. Third, the final disposition of cases where charges were filed were obtained from the Cook County Data Portal.[8] Finally, citizen complaint information was obtained from the Invisible Institute (Citizens Police Data Project) website,[9] which include the complaints data that were collected from the Civilian Office of Police Accountability (COPA) and Chicago Police Department. We explain each of these datasets in detail, provide an explanation of how we combined these

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[7] Arrest data source: https://home.chicagopolice.org/services/adult-arrest-search/.

[8] Disposition data source: https://datacatalog.cookcountyil.gov/

[9] Complaints data source: https://invisible.institute/police-data.

separate data sources to create our final dataset and Appendix A presents details on our data preparation.

2.1 Arrest data

Arrest records were obtained from Chicago Police Department website by searching adult arrest records. To collect all arrest records posted on the website, a web crawler program was built to navigate all the available pages and save the relevant information. These data contain detailed, individual-level arrest records from January 2014 to July 2018. Included in each arrest record is the date and time when the arrest was made, name of the arrestee, age of the arrestee, police beat and district where the arrest was made, and the arrest charge. Unfortunately, gender is not listed, so we use the arrestee's first name to determine his/her gender using *Python Gender Guesser* module and an online gender guesser service (Gender API). Gender is an important feature since it will be used in linking arrest information with other datasets. In total, there were 382,158 arrests made from January 2014 to July 2018.

2.2 Officer assault data

Assaults against police information was obtained from the arrest data explained in Sect 2.1. For our purpose, we keep the arrest records that are listed as assault or battery against a police officer. Since we are interested in obtaining the police beat, district, and date when an arrest was made for assaulting a police officer, we create a binary variable for whether an arrest is being made for assaulting a police officer. In total there were 2,263 arrests related to assault or battery against a police officer from January 2014 to July 2018.

2.3 Disposition data

Data on criminal charges were collected from the Cook County Government Open Data website. This website maintains various datasets of criminal cases in Cook County. For our purpose, we collected two datasets that record the sentencing information (sentencing data) and the disposition of cases (disposition data). The disposition data contains information about the culmination of the fact-finding process that led to the resolution of a case. This includes the demographic information of the defendant, the incident and arrest date, and information about whether the defendant was found guilty or not guilty for each charge. Note that these data include the offense title as well as the charge class, and whether the disposition was reached by trial or pleading guilty. The sentencing data contains information about the judgment imposed by the lower court on defendants that have been found guilty. This information includes the type and the length of the punishment received.

We are primarily interested in the disposition data. However, we need information on the length of the sentence for guilty charges. To obtain this information we merged disposition data with sentencing data by the unique case and participant identifier. Once merged, we drop all cases that did not involve the Chicago Police Department. In total, there were 78,142 cases with arrest dates between January 2014 and July 2018. Our final data set includes variables described in Table 1.

Table 1 Variables in combined disposition data

Variable	Description
Incident date	Date of incident
Arrest date	Date and time of arrest
Total charges	Total number of charges filed against the defendant
Total dismissed charges	Total charges that were dismissed
Total plead guilty charges	Total charges that were plead guilty
Total guilty charges	Total charges that were found guilty in trial
Total not guilty charges	Total charges that were found not guilty in trial
Offense title	Specific title of the charged offense at disposition
Offense category	Offense category based on the primary charge
Disposition class	Legal class for the charge at disposition
Charge disposition	Result of the charge (plead guilty, found guilty/not- guilty, etc.)
Sentence length	Length of sentence (in years)
Felony review	A binary variable indicating whether the case went through a felony review
Race	Race of defendant
Gender	Gender of defendant
Age	Age of defendant
Judge name	The name of the judge

2.4 Complaint data

Data on citizen complaints were collected from the Invisible Institute (Citizens Police Data Project) website. The Citizens Police Data Project (CPDP) is an initiative that compiles the released documents pertaining to citizen complaints regarding police misconduct in Illinois and creates various datasets.[10] For our study, we collected six datasets that were available from the Invisible Institute website (sourced from Civilian Office of Police Accountability (COPA) and Chicago Police Department (CPD)), which included complaint case outcomes, victim demographic information, complaint date, and incident date information. We merged these data using the unique complaint case number to create a single complaint dataset. As data from COPA and CPD have some different time periods and complaint case numbers, we append these two data and dropped duplicate observations by whether the observations have the same demographic information, incident date, and complaint date. In our complaint data, we have information regarding the outcome of each case (unfounded, sustained, etc.), complainant demographic information (race, gender and age), when the complaint was filed, and when the incident occurred. In total there were 18,614 citizen complaints against Chicago Police Department that have the incident date from January 2014 to July 2018.

3 Summary statistics

Table 2 shows the summary statistics for our final dataset. Of the 61,230 disposed cases, there are 797 (1.3%) cases in which citizen complaints were filed against the Chicago Police Department. The average total charges filed is 2.82 with an average total sentence

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[10] For more details, please see: https://invisible.institute/police-data.

Table 2 Summary statistics

Variable	Full sample Obs. = 61,230	No complaints Obs. = 60,433	Complaints Obs. = 797
Complaint filed	0.013	0.000	1.000
	(0.113)	(0.000)	(0.000)
Police assault (24 h)	0.081**	0.081	0.108
	(0.310)	(0.309)	(0.349)
Total charges filed	2.82***	2.797	4.573
	(3.575)	(3.538)	(5.427)
Plea	0.682	0.682	0.678
	(0.466)	(0.466)	(0.468)
Plea discount	0.963***	0.957	1.443
	(1.417)	(1.407)	(1.983)
Avg disposition class	4.862***	4.857	5.247
	(1.162)	(1.162)	(1.132)
Max disposition class	5.181***	5.173	5.826
	(1.475)	(1.473)	(1.490)
Total sentence length	2.492***	2.460	4.953
	(8.968)	(8.625)	(23.063)
Male	0.894***	0.893	0.941
	(0.308)	(0.309)	(0.236)
Black	0.755***	0.753	0.930
	(0.430)	(0.431)	(0.256)
Age	33.930***	33.959	31.710
	(12.380)	(12.404)	(10.116)
DUI	0.051***	0.051	0.013
	(0.220)	(0.221)	(0.111)
Battery	0.045***	0.043	0.231
	(0.207)	(0.202)	(0.422)
Firearm	0.014***	0.014	0.028
	(0.119)	(0.118)	(0.164)
Burglary	0.047**	0.047	0.031
	(0.212)	(0.213)	(0.174)
Sex	0.028***	0.029	0.004
	(0.166)	(0.167)	(0.061)
Fraud	0.002	0.002	0.000
	(0.046)	(0.046)	(0.000)
Robbery	0.041	0.041	0.045
	(0.199)	(0.199)	(0.208)
Homicide	0.004***	0.004	0.02
	(0.067)	(0.065)	(0.140)
UUW	0.136***	0.135	0.197
	(0.343)	(0.342)	(0.398)
Felony review	0.528***	0.526	0.679
	(0.499)	(0.499)	(0.467)
Narcotics	0.469***	0.471	0.329
	(0.499)	(0.499)	(0.470)

length of 2.49 years. The numeric value of the disposition class reflects the severity of the charges (from 0 to 9). For example, Petty Crime and Misdemeanor A are coded as 0 and 1, respectively, while Felony X and First-Degree Murder are coded as 8 and 9, respectively. On average defendants were charged with an average disposition class of 4.86, which is approximately a Felony 3 or 4. Roughly 53% of our total cases went through a felony review in which the cases are reviewed by an attorney from the state attorney's office before charges are approved and filed, and roughly 47% of our total cases are narcotics cases, which we utilize in our robustness section.

The summary statistics also show a correlation between when citizen complaints were filed and an increase in the total charges filed and the "plea discount" (difference between initial charges filed and charges that the defendant plead guilty to). In addition, cases that involved a citizen complaint being filed have significantly higher disposition classes (both average and maximum) and a longer total sentence length, indicative of not only more charges being filed against citizens filing complaints, but also more severe charges. Finally, we observe that citizen complaints occur at a significantly higher frequency when assaults against the police have occurred in the same districts within the previous day, an observation that we further discuss in the next section.

Table 12 in Appendix shows the time between the major events. On average, charges are generally filed in 22 days, arraignment is processed in 39 days, and cases are disposed of approximately 211 days after the arrest was made. Citizens who file a complaint early generally file their complaint 1 day after the arrest, while citizens who file a complaint after charges have been filed do so 297 days after the arrest.

To provide further evidence of the strength of our instrument, Fig. 1 displays a map of Chicago with the total number of disposed cases with citizen complaints and the total number of disposed cases with police assault arrests in the previous day. Panel (a) shows the total disposed cases where a citizen complaint was filed. Cases with citizen complaints are mainly concentrated in beat areas within district 11 and 15 (refer to panel (c) of Fig. 1). Panel (b) displays cases with police assault arrests in the previous day, which shows a similar concentration pattern with citizen complaints. However, as beat areas in districts 11 and 15 generally have a higher number of cases, panel (a) and (b) of Fig. 8 show the percentage of total cases instead. From panel (a), (b), and (c), we can see that the area with high percentage of cases (yellow area) with complaints and previous day police assault seem to overlap within proximity of District 18 and 19 (North-eastern part of Chicago) which is also the area with high average of total charges. Interestingly, the area with highest percentage of complaints seems to not be in the proximity area with high severity (panel (d)). Thus, these maps visually show significant overlap between police assaults in the previous day and the filing of citizen complaints (Fig. 2).

3.1 Outcome measures

Our analysis will incorporate six main outcomes of interest: total charges filed, total sentence length, whether a plea agreement is reached, the plea discount, as well as the average and maximum charge class. We use these outcomes because they reflect the charging decisions of prosecutors, information about the outcome of cases, as well as the means by which a case was disposed. Thus, our outcomes capture different aspects of the criminal proceedings that could be influenced by a complaint having been filed. Lastly, we note that the average, median
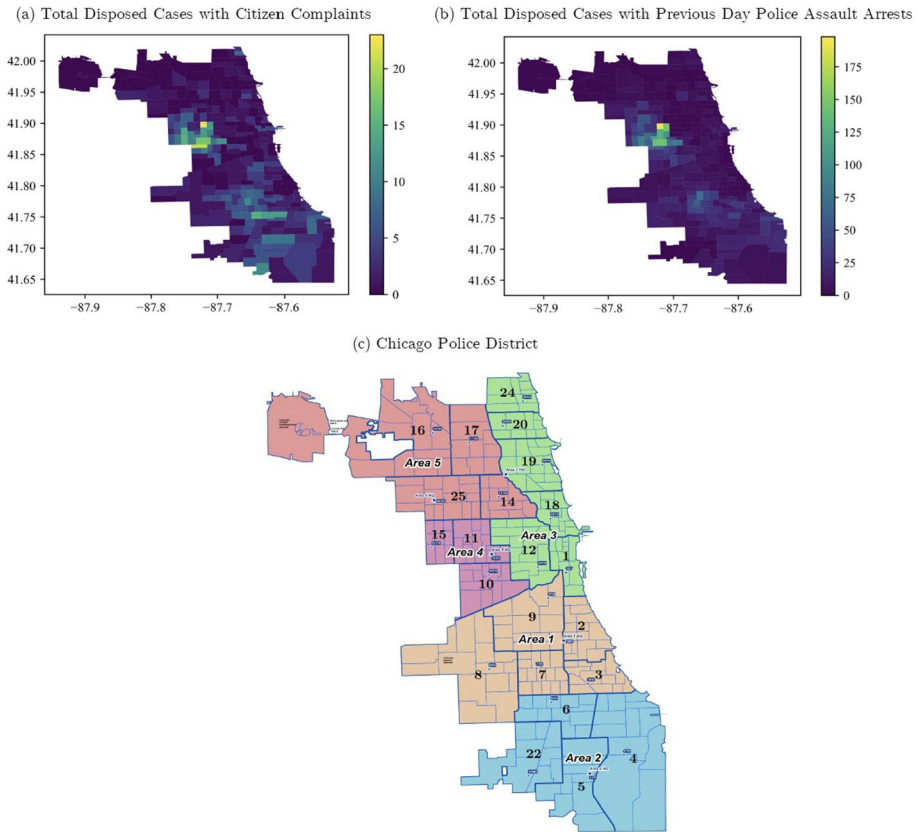
Fig. 1 Chicago map—Number of disposed cases

and total charges classes and sentence lengths are nearly identical across cases, so our choice of examining averages or totals are likely not having a significant influence on the results.

4 Empirical strategy

4.1 Main specification

In Eq. (1), we model the outcome measures discussed in subSect. 2.6 as a function of a complaint being filed:

$$Outcome_{idt} = \beta_0 + \beta_1 Complaint_{idt} + x_{idt}\beta_2 + \gamma_t + \eta_d + \lambda_j + \varepsilon_{idt}, \quad (1)$$

where $Outcome_{idt}$ is the set of outcomes discussed in subSect. 2.6 for individual i arrested in district d on date t. $Complaint_{idt}$ is an indicator for whether individual i filed a complaint related to being arrested in district d on day t. x_{idt} is a vector of characteristics of the incident that can impact the legal outcome such as whether or not the individual is Black, male, the age of the individual, and the type of crime. We also include time (γ_t) and district

Fig. 2 How cases move through the state attorney's office

(η_d) fixed effects to absorb unobserved variation within specific time periods or police districts. Lastly, we include judge (λ_j) fixed effects to account for any variation that could result from the preferences of specific judges. The coefficient of interest is β_1, which aims to capture the impact of a citizen complaint on the outcome of the criminal case. So long as the citizen complaint ($Complaint_{idt}$) is not correlated with the remaining unobserved factors included in the error term (ε_{idt}), β estimates the effect of a citizen complaint on a legal outcome.

Unfortunately, this is a difficult assumption to make since complaints are more likely to occur in scenarios that are more severe. Stated differently, if an individual engages in violent criminal behavior, this could require law enforcement to use more force in making an arrest, as the individual likely violated laws and could pose a threat to the community. Simultaneously, the citizen might believe that the officers could have used too much force in making the apprehension. As the amount of force used by officers as well as the citizen's behavior are unobservable, we cannot directly account for these impacts in our analysis. However, it is likely that these effects would bias our results upward. Our identification strategy focuses on the environmental factors that are outside of an offi-cer's control, but could impact their decision to use (excessive) force in making an arrest. Specifically, officers are aware of instances when force is used against one of their fellow officers.[11] As noted in O'Flaherty and Sethi (2019), Trinkner et al. (2019) and Arsiniega (2020), fear of violence against one or a group of law enforcement officers can put the remaining law enforcement officers on alert, and might

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[11] Prior to the start of each shift, officers participate in a briefing session that outlines recent events that are pertinent to their job and safety. Such a briefing would include a discussion about any violence against a fellow police officer. For a discussion of what occurs during a shift brief-ing in Chicago, see https://chica go.suntimes.com/city-hall/2019/10/7/20903404/chicago-police-department-officers-start-times-rescinded-fraternal-order-union. An example of shift briefing procedures for Northampton, MA can be seen in Fig. 3, which is similar to most law enforcement agency's policies. Unfortunately, a public version of the Chicago Police Department's shift briefing procedures is not available.

NORTHAMPTON POLICE DEPARTMENT **Administration & Operations Manual**		
Policy: Shift Briefing Procedure		**AOM: O-200**
Massachusetts Police Accreditation Standards Referenced: [41.1.1], [41.1.2], [33.5.2]		**Issuing Authority** Jody Kasper Chief of Police
Dissemination Date: 09/10/2002	**Amended:** 9/02, 12/04, 9/08, 6/12	
Effective Date: 09/11/2002	**Reviewed:** 1/7, 9/08, 3/11, 6/12, 3/13, 3/15, 3/17, 3/19	

Table of Contents

I.   <u>**Introductory Discussion:**</u>

    A. The Northampton Police Department recognizes the importance of a standardized procedure for the daily transference of information to all patrol personnel.

II.   <u>**Policy:**</u>

    A. It is the policy of this department to conduct shift briefing activities at the beginning of each patrol shift (0700/1500/2300). The shift briefing will provide officers with specific information regarding daily patrol activity. All patrol personnel coming on duty are required to be present, available for immediate assignment, and attentive during this briefing. [41.1.1]

    B. Officers going off duty are also required to be present, unless they have been excused for just cause by their supervisor. Moreover, in an effort to enhance the relationship between investigative personnel (detectives) and patrol, as well as to provide for the

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Northampton Police Department
Administration & Operations Manual, O-200
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Fig. 3 Northampton, MA shift briefing procedure

make them more inclined to use force out of an abundance of concern.[12] Additionally, we focus on a compressed time frame (1 day prior), as this is a time period where a resolution to a police assault cannot be reached, and prosecutors are unable to "send a message" to the community regarding the protection of law enforcement.[13]

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[12] Indeed, media accounts of more recent protests and riots against police violence are concerned that this could lead to more violence. See https://www.washingtonpost.com/national/ as-protests-grip-cities-violence-against-police-raises-fears-of-harsher-crackdown/2020/   06/02/bbf31158-a50a-11ea-b473-04905b1af82b story.html for one such example.

[13] The other motivation to use 1-day time lag is due to the average complaints (before charges are filed). are filed within 1 day of arrest (refer to Table 13).

Equation (2) describes the first stage relationship between assaults against law enforcement officers within district d within the previous 24 h on the likelihood that a complaint is filed against the arresting officer(s)[14]:

$$complaint_{idt} = \alpha_0 + \alpha_1 Assault_{dt-1} + x_{idt}\alpha_2 + \gamma_t + \eta_b + \lambda_j + \delta_{idt}, \qquad (2)$$

where $Assaults_{dt-1}$ is a count of the number of assaults against a police officer that occurred in district d in the previous 24 h. The remaining components of Eq. (2) are identical to those discussed in Eq. (1).

Panel A of Fig. 4 presents the distribution of police assaults in the previous day in our full sample. As expected, assaults against police are a rare event. In approximately 92% of our data there was no assault against an officer in the previous day within that police district. Approximately 7% of the time there was a single assault against law enforcement in the previous day within the district, and about 1% of the time two or more officers were assaulted in the previous day in the district. Panel B of Fig. 4 maps the distribution of residualized officer assaults after controlling for district, month, year, and time of day fixed effects. Police assaults range from -0.25 to 4.0 with a standard deviation of 0.3.

5 Results

We expect assaults against the police ($Assault_{idt}$) to have a positive relationship with the likelihood that a complaint is filed by a citizen, as police are more likely to use force when they believe that their safety is potentially at risk ($\alpha_1 > 0$).

Figure 5 demonstrates this relationship in the raw data where the number of assaults against police ($Assault_{idt}$) leads to a *higher* likelihood of a complaint being filed.[15] Given that the unconditional likelihood of a complaint being filed is approximately 1.3%, it is clear that previous assaults on police are altering citizen-police interactions, leading to a near 23% increase in the likelihood that a complaint is filed if an assault against the police occurred in the same district in the previous day.

The bottom panel of Fig. 5 demonstrates the relationship between the number of previous police assaults and total charges filed in the current arrest. Albeit small, there is a positive relationship, with one assault on police in the previous day yielding approximately 0.4% increase in charges.

Table 3 presents the OLS results of citizen complaints on the outcome variables discussed in subSect. 2.6. We include fixed effects for the district, year, month, type of crime, time of day of the incident and judge in this specification. District fixed effects capture unobserved factors that could be influencing the number of or willingness to complain as well as general criminal behavior and law enforcement response to crime. Year and month fixed effects absorb any variation generated during specific time periods. We include crime fixed effects since certain criminal behavior could result in a more aggressive arrest, thereby impacting the likelihood that a complaint is filed as well as our outcome measures. Time of day controls are also included to account for differences in criminal behavior and law enforcement behavior that might result from police-citizen interactions occurring at different times of the day.

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[14] Since our first stage involves a binary variable (complaint or no-complaint), we follow the procedure by Wooldridge (2002), using the first-stage Probit and the Probit prediction of complaint as an instrument for our IV estimates. This procedure will yield more efficient results than the regular IV model.

[15] Figure 5 excludes the top 1% of total charges (more than 15 charges filed). These observations are included in our regression analysis.

Table 3 OLS estimates of the effect of citizen complaints on legal outcomes

Dep var:	Total charges	Plea	Plea discount	Avg. charge	Max. charge	Total sentence
	(1)	(2)	(3)	(4)	(5)	(6)
Complaint	0.838***	− 0.059***	0.132***	0.150***	0.318***	1.334
	(0.231)	(0.018)	(0.028)	(0.032)	(0.036)	(1.007)
Black	− 0.073	0.076***	0.037***	0.143**	0.136	1.227***
	(0.300)	(0.024)	(0.011)	(0.062)	(0.081)	(0.206)
White	− 0.129	0.071**	0.027**	− 0.016	− 0.050	0.916***
	(0.290)	(0.025)	(0.012)	(0.047)	(0.063)	(0.220)
Male	0.314***	0.013*	0.008	− 0.029	0.000	0.572***
	(0.067)	(0.007)	(0.009)	(0.018)	(0.022)	(0.062)
Age	− 0.007***	− 0.001***	− 0.001**	− 0.002	− 0.000	0.002
	(0.002)	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)
N	61,192	61,192	41,728	61,192	61,192	61,192
Mean of dependent variable	2.82	0.68	1.06	4.86	5.18	2.49
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Crime FE	Yes	Yes	Yes	Yes	Yes	Yes
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$

Finally, judge fixed effects are included to account for differences in outcomes that might be influenced by judge preferences. As previously noted, these results are biased due to endogeneity between the decision to file a complaint and the various outcomes measures. Nevertheless, we find statistically significant differences for total charges, the likelihood of a plea agreement being struck, the size of the plea discount and the maximum charge class.

The OLS results find that the filing of a complaint increases the total number of charges filed by 0.84, or 30% of the average number of charges filed. Filing a complaint also reduces the likelihood that a plea agreement is reached by approximately 6 percentage points, which is around an 8.6% effect relative to the mean. Plea discounts are also larger (approximately 12% of the mean) and statistically significant. Average and maximum charge classes are also statistically significantly higher when a complaint is filed, but sentence lengths are not.

To overcome the potential endogeneity, we employ the instrumental variables strategy laid out in Eq. (2). Appendix Table 10 displays the first stage and reduced form results. Importantly, we observe a strong first stage estimate, indicating that assaults on police within a specific district in the previous day significantly increases the number of complaints filed by.

0.24 percentage points, which is a nearly twenty percent the size of the mean. The reduced form effect of assaults on police within a specific district in the previous 24 h does not seem to be significantly impacting any of our main outcomes of interest.[16] Table 11

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[16] Appendix Table 12 provides the average number of (severe) assaults against police for first time and repeat offenders broken apart by district. Our instrument is relatively weak since few assaults on police occur. Although the link of first and repeat-offender might be interesting to be investigated (repeat-offenders are more prevalent in 14 out of 22 districts on police assault) but this would be out of the scope of this paper.

Table 4 IV estimates of the effect of citizen complaints on legal outcomes

Dep var:	Total charges	Plea	Plea discount	Avg. charge	Max. charge	Total sentence
	(1)	(2)	(3)	(4)	(5)	(6)
Complaint	5.504**	− 0.607***	0.716**	0.813	0.699	9.406
	(2.605)	(0.189)	(0.301)	(0.660)	(0.768)	(8.512)
Black	− 0.411	− 0.019	0.031***	0.114*	0.064	0.955***
	(0.334)	(0.015)	(0.009)	(0.065)	(0.082)	(0.201)
White	− 0.429	− 0.029*	0.029***	− 0.037	− 0.120**	0.748***
	(0.323)	(0.015)	(0.010)	(0.047)	(0.058)	(0.206)
Male	0.255***	− 0.003	0.002	− 0.029	− 0.003	0.472***
	(0.064)	(0.007)	(0.008)	(0.020)	(0.025)	(0.078)
Age	− 0.006***	− 0.001***	− 0.000**	− 0.002	− 0.000	0.003
	(0.002)	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)
N	59,579	59,579	41,155	59,579	59,579	59,579
Mean of dependent variable	2.83	0.69	1.06	4.86	5.19	2.51
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Crime FE	Yes	Yes	Yes	Yes	Yes	Yes
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$

in Appendix shows the effects of past day police assault on the probability of complaint broken down by the severity of the assault. Interestingly, although both of the assaults are significant, the past day non-severe assault contributes to the higher chance of complaint, while the severe case contributes to the lower chance of complaint. All in all, it does not appear that a severe versus non-severe assault is differentially impacting the final results as the coefficients of the IV estimates are nearly identical.

Table 4 reports the results of the instrumental variables estimation with identical fixed effects to those reported in Table 3. The difference in the results between the IV and OLS results are quite drastic. Notably, when a complaint is lodged, there are approximately 5 more charges filed against the defendant, which is twice as many as the average number of charges filed in a case. The likelihood that a plea agreement is reached declines by approximately 69%, while the plea discount increases by approximately 0.7 charges. Lastly, we find no statistically significant effect of a citizen complaint on the average or maximum charge class, nor the sentence length received. So, while the total number of charges filed appears to be higher, as well as the plea discount, the disposition of the case does not appear to yield significantly different outcomes in terms of the charge class or sentence received.

Table 5 IV estimates of the effect of citizen complaints on total charges by felony review & narcotics

Dep var:	Total charges			
	Felony review	No felony review	Narcotics	Non-narcotics
Complaint	9.680**	4.223	0.750	8.173*
	(4.308)	(4.845)	(1.804)	(4.190)
Black	−0.613	−0.004	0.059	−0.613
	(0.561)	(0.132)	(0.095)	(0.555)
White	−0.594	−0.053	−0.046	−0.633
	(0.511)	(0.119)	(0.103)	(0.514)
Male	0.930***	0.005	0.016	0.957***
	(0.111)	(0.013)	(0.013)	(0.112)
Age	−0.049***	0.002**	0.001*	−0.049***
	(0.004)	(0.001)	(0.001)	(0.004)
N	30,908	26,877	26,897	31,017
Mean of dependent variable	4.10	1.45	1.45	4.09
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Crime FE	No	No	No	No
Time of Day FE	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. $*p<0.10$, $**p<0.05$, $***p<0.01$

6 Robustness

To assess the robustness of our main results, we focus on two unique features of the criminal justice system in the Office of the Cook County State's Attorney in Illinois. The first pertains to a process known as felony review, whereby investigations are examined by an attorney from the prosecutor's office before charges are filed. The second involves an environment where law enforcement can file charges directly to the court without consulting the prosecutor's office.[17]

There are two important features of the process of filing charges. First, if a case goes through the process of felony review, then the district attorney's office has a chance to influence the charges that are (not) filed by the law enforcement agency. Second, narcotics charges do not require any district attorney involvement and can be filed directly to the grand jury.[18] As such, both of these situations enable our analysis to discern whether it is the influence of the district attorney's office, in the aftermath of a complaint being filed, that is resulting in an increase in total charges filed. Table 5 presents the data separated by whether the case went through felony review and also whether the case was a narcotics case. To be clear, the *No Felony Review* and *Narcotics* columns identify situations where law enforcement files charges without influence from prosecutors in the district attorney's

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[17] Figure 2 displays a flow chart of the manner in which charges are filed.

[18] It is important to note that the SAO's office ultimately handles the charges that are filed, but the initial decision to file charges is at the discretion of the law enforcement agency.

Table 6 IV estimates of the effect of citizen complaints on legal outcomes—narcotics

| Dep var: | Total charges | Plea | Plea discount | Avg. charge | Max. charge | Total sentence |
	(1)	(2)	(3)	(4)	(5)	(6)
Complaint	0.750	0.318	−0.020	1.189	0.194	−2.809
	(1.804)	(0.437)	(0.313)	(1.592)	(2.158)	(3.218)
Black	0.059	−0.028	0.001	0.172*	0.183*	0.045
	(0.095)	(0.018)	(0.019)	(0.088)	(0.103)	(0.168)
White	−0.046	−0.049**	−0.008	−0.072	−0.147	−0.150
	(0.103)	(0.019)	(0.018)	(0.092)	(0.128)	(0.141)
Male	0.016	−0.002	0.003	−0.112***	−0.103***	0.141***
	(0.013)	(0.008)	(0.003)	(0.031)	(0.034)	(0.050)
Age	0.001*	−0.001***	−0.000***	−0.001	−0.000	0.005***
	(0.001)	(0.000)	(0.000)	(0.002)	(0.002)	(0.001)
N	26,897	26,897	15,126	26,897	26,897	26,897
Mean of dependent variable	1.45	0.56	1.02	4.74	4.97	1.42
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Crime FE	No	No	No	No	No	No
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$

office, and likely without knowledge of whether a complaint has been filed against the police. The *Felony Review* and *Non-Narcotics* columns identify situations where prosecutors from the district attorney's office would have had an influence over the charging decisions.

In the situations where law enforcement charging decisions would not have been influenced by a prosecutor from the district attorney's office, a complaint being filed did not yield more total charges being filed against the defendant. Alternatively, in situations where the district attorney's office influenced the number of charges filed, we observe nearly twice as many charges being filed.

In Tables 6, 7, 8, 9 we divide cases by those undergoing felony review as well as narcotics cases and examine other legal outcomes. Tables 6 and 9 represent situations where the prosecutor's office would not influence the initial charging decisions. We do not find any statistically significant impact of a complaint being filed on any of the other legal outcomes explored in this analysis.

Tables 7 and 8 examine situations where the prosecutor's office would be influencing initial charging decisions. The results are quite different from the situations where the prosecutor's office is not involved in the initial charging decisions. To start, the average and maximum charge classes are significantly higher. Additionally, the total number of charges

Table 7 IV estimates of the effect of citizen complaints on legal outcomes—non narcotics

Dep var:	Total charges (1)	Plea (2)	Plea discount (3)	Avg. charge (4)	Max. charge (5)	Total sentence (6)
Complaint	8.173*	-0.285	0.286	4.463***	4.867***	13.892
	(4.190)	(0.277)	(0.399)	(1.461)	(1.599)	(9.845)
Black	−0.613	−0.032	0.056***	0.079	0.033	1.390***
	(0.555)	(0.023)	(0.012)	(0.083)	(0.097)	(0.224)
White	−0.633	−0.003	0.045***	−0.073	−0.154*	0.891***
	(0.514)	(0.022)	(0.010)	(0.080)	(0.090)	(0.244)
Male	0.957***	−0.049***	0.009	0.208***	0.299***	1.153***
	(0.112)	(0.010)	(0.015)	(0.025)	(0.032)	(0.144)
Age	−0.049***	−0.000	−0.002***	−0.010***	−0.015***	−0.031***
	(0.004)	(0.000)	(0.001)	(0.001)	(0.001)	(0.004)
N	31,017	31,017	25,065	31,017	31,017	31,017
Mean of dependent variable	4.09	0.81	1.09	4.97	5.38	3.51
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Crime FE	No	No	No	No	No	No
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

filed are significantly higher in cases where the prosecutor's office is not involved in initial charging decisions. Notably, the average charge class is approximately 100% higher when a case under- goes felony review, which was not observed in Table 4. Thus, it appears that the mechanism through which we observe a larger number of charges brought and higher maximum charge classes for the top charges is through the prosecutor's office handling the initial charging decisions, and not through law enforcement making the initial filing charges. These findings support the notion that upcharging to induce plea agreements by the prosecutor's office is significantly more likely when the prosecutor's office is able to make the initial charging decisions in situations where a complaint has been filed against law enforcement.

7 Discussion and conclusion

Criminal justice agencies are charged with generating community safety and enforcing codified laws. Recent events, however, have given rise to concerns regarding the manner with which law enforcement agents engage with citizens in the process of enforcing laws

Table 8 IV estimates of the effect of citizen complaints on legal outcomes—felony review

Dep var:	Total charges (1)	Plea (2)	Plea discount (3)	Avg. charge (4)	Max. charge (5)	Total sentence (6)
Complaint	9.680**	− 0.217	0.387	4.527***	4.943***	16.311*
	(4.308)	(0.266)	(0.393)	(1.443)	(1.627)	(9.729)
Black	− 0.613	− 0.033	0.058***	0.065	0.023	1.310***
	(0.561)	(0.022)	(0.013)	(0.081)	(0.095)	(0.223)
White	− 0.594	− 0.004	0.046***	− 0.078	− 0.160*	0.855***
	(0.511)	(0.022)	(0.010)	(0.080)	(0.091)	(0.247)
Male	0.930***	− 0.049***	0.008	0.203***	0.293***	1.114***
	(0.111)	(0.009)	(0.015)	(0.025)	(0.032)	(0.140)
Age	− 0.049***	− 0.000	− 0.002***	− 0.010***	− 0.015***	− 0.030***
	(0.004)	(0.000)	(0.001)	(0.001)	(0.001)	(0.004)
N	30,908	30,908	24,957	30,908	30,908	30,908
Mean of dependent variable	4.10	0.81	1.10	4.97	5.39	3.50
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Crime FE	No	No	No	No	No	No
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

and making arrests (DeAngelo & McCannon, 2016; Dharmapala et al., 2016). Indeed, there have been numerous accusations of law enforcement officers abusing their authority and using excessive force in apprehending a citizen accused of breaking the law.

Given the principal-agent issues that arise from law enforcement management being in- capable of perfectly observing the actions and behavior of field officers (Mastrorocco & Ornaghi, 2020; Schwartz, 2016), complaints to law enforcement agencies act as one of a limited number of checks on police conduct (Rozema & Schanzenbach, 2019). While law enforcement management is undoubtedly interested in identifying officers that are engaged in misconduct, they balance this interest against the potential mark against the law enforcement agency's public image. To the extent that other criminal justice agencies (e.g. district attorney's office) or the county, as a whole, are associated with officer misconduct, they also have a vested interest in reducing the negative image associated with officer misconduct.

To reduce the potential negative effects of a citizen complaint against law enforcement agents, other criminal justice actors could take specific action to re-frame the encounter such that the optics look unfavorably on the complaining citizen. Since a defendant cannot seek monetary damages in civil court unless his/her conviction or sentence was declared invalid (Heck vs. Humphrey, 512 U.S. 477), prosecutors may increase the number or the

Table 9 IV estimates of the effect of citizen complaints on legal outcomes—non felony review

Dep var:	Total charges (1)	Plea (2)	Plea discount (3)	Avg. charge (4)	Max. charge (5)	Total sentence (6)
Complaint	4.223	0.305	0.080	1.538	1.189	6.401
	(4.845)	(0.416)	(0.235)	(1.695)	(2.120)	(7.952)
Black	− 0.004	− 0.028*	-0.006	0.181**	0.180*	− 0.015
	(0.132)	(0.017)	(0.018)	(0.091)	(0.109)	(0.170)
White	− 0.053	− 0.046***	-0.009	− 0.065	− 0.137	− 0.114
	(0.119)	(0.017)	(0.019)	(0.099)	(0.135)	(0.146)
Male	0.005	− 0.003	0.003	− 0.105***	− 0.099***	0.139***
	(0.013)	(0.008)	(0.002)	(0.032)	(0.034)	(0.038)
Age	0.002**	− 0.001***	-0.000	− 0.001	− 0.000	0.006***
	(0.001)	(0.000)	(0.000)	(0.002)	(0.002)	(0.001)
N	26,877	26,877	15,142	26,877	26,877	26,877
Mean of dependent variable	1.45	0.56	1.01	4.74	4.96	1.42
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Crime FE	No	No	No	No	No	No
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. * p < 0.10, ** p < 0.05, *** p < 0.01

severity of charges that the defendant faces to make the defendant accept a plea deal, which would prevent the defendant from seeking further financial reparations.

To determine whether such an approach appears to have any empirical footing, we examine arrest, complaint and charging data from Cook County (Illinois). Our empirical results indicate that a positive, causal link between citizen complaints and an increased number of total charges filed against a defendant exists. We also establish that a civilian complaint yields a larger plea discount, likely to induce a plea agreement. To explore the potential mechanism through which more and higher charges are being filed, we exploit a unique feature of Cook County whereby police can directly file initial charges versus scenarios where the prosecutor's office files the initial charges. Our main results are entirely driven by charges filed directly by the prosecutor's office rather than directly by the police. Given that prosecutors are likely filing charges after civilian complaints have been filed against law enforcement, it appears that prosecutor behavior is leading to upcharging in response to civilian complaints and not police decisions.

Our paper contributes to the legal literature on upcharging and prosecutorial discretionary power (Alschuler, 1978; Caldwell, 2011; Davis, 2005) as well as to the burgeoning literature within the public choice research program that investigates the role of society in guaranteeing the well-functioning of legal institutions (Acemoglu & Jackson, 2017; Acemoglu & Robinson, 2019; DeAngelo & McCannon, 2016). Contrary to the existing

research showing how signals from civilians are used by law enforcement agencies to increase compliance with law (Acemoglu & Jackson, 2017; Romaniuc et al., 2022), our paper studies the mechanisms via which criminal justice actors inhibit one important check on the behavior of field officers.

While our research identifies an important issue regarding the response of criminal justice agencies to a complaint against a law enforcement agency, the research has limitations. To start, it is difficult to identify as-if random events in the criminal justice system, as nearly every aspect of the system involves endogenous choices and decisions. While this research leverages an event that is outside of any individual law enforcement agent's control (previous assaults on law enforcement) to examine the impact of complaints on case disposition, our instrument is relatively weak since few assaults on police occur. Second, our complaint data contains a general description of the complaint that is filed against the law enforcement agency. Whether the complaint pertains to abusive language versus physical contact cannot be discerned in our data. Third, we cannot directly connect complaints to arrests, but instead must achieve this linkage through a set of fuzzy matching. While we have taken considerable steps to ensure that this linking is carefully accomplished, having administratively linked records could improve the analysis. Finally, we do not observe the outcome of complaints, which could include the filing of a civil court case.

Future work can build on our analysis by incorporating how prosecutors upcharge when the police use force on either guilty criminals or innocent bystanders (both of which can file complaints). Another aspect that was left outside of the scope of this paper has to do with the implications of our findings in terms of when a rational defendant should file a complaint. The defendants could strategically choose the timing of complaint filing, given the finding of this paper. Further research into the timing of events may also help to explore different mechanisms in the upcharging behavior due to retaliation or bargaining intent. The current paper focuses on the law enforcement agents' behavior. It might be interesting to incorporate the defendants' behavior into the analytical framework and further explore it empirically.

Appendix A: Data preparation

See Figs. 4, 5, 6, 7, 8.

See Tables 10, 11, 12, 13.

To create the final dataset used in our analysis, we link records from the four datasets described in Sects. 2.1, 2.2, 2.3, 2.4. First, to obtain the district and police beat location on each disposed case, we merge the disposition and arrest data by matching arrest date and time, gender, age, broad offense category, and district. Approximately 55% of our disposition data have district information, so we merge the remaining data, with missing district information, using the same criteria excluding district information. We then repeat the same process again but removing the broad offense category from the matching criteria, as there might be a change in the offense category once the case is brought to court. Any remaining cases that were not able to match with the arrest data are then dropped from our
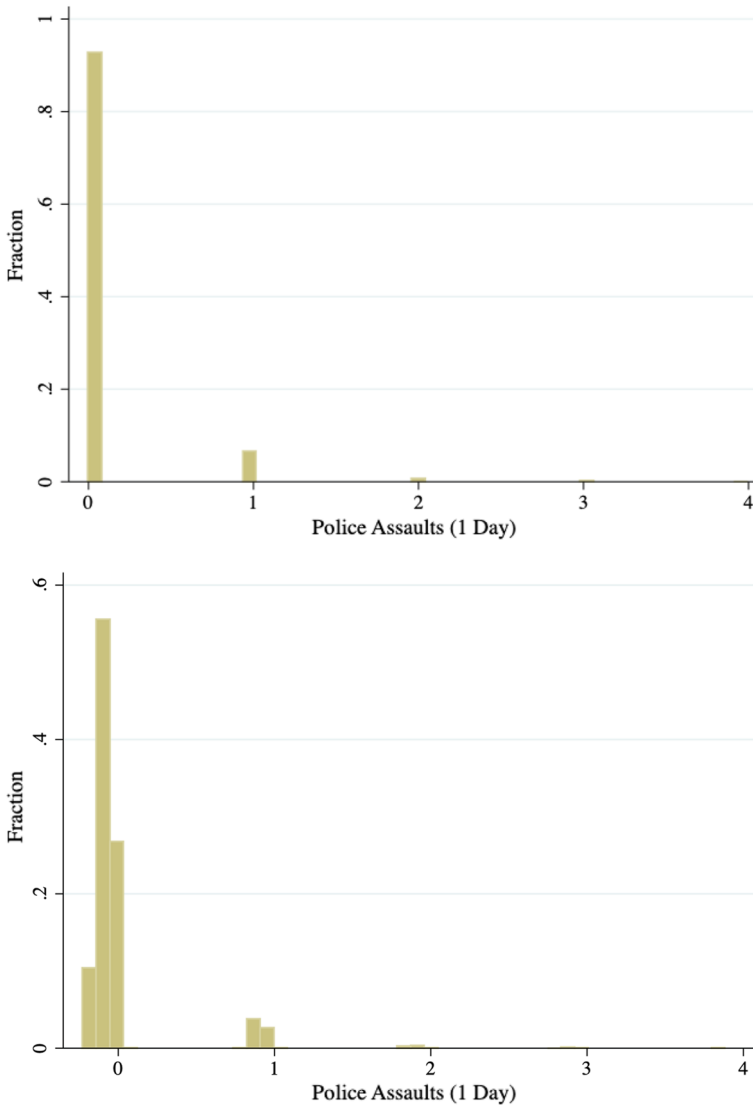
Fig. 4 The full distribution of police assaults in the previous day (top) and the residualized distribution including district, month, year, and time of day fixed effects (bottom)

dataset.[19] This results in a total of 61,230 disposed cases that have complete district and police beat information. Second, to get the complaint information for each disposed case, we merge the disposition and complaints data by matching on arrest date, gender, age, race,

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[19] 16,912 cases that cannot be merged are dropped. As there is only limited information within our disposition data, we are not able to precisely match the subjects in our disposition data with the subjects in our arrest data. This matching problem may be due to several factors that we cannot investigate in detail, such as the incorrect input of arrest time, arrest date, age or gender.
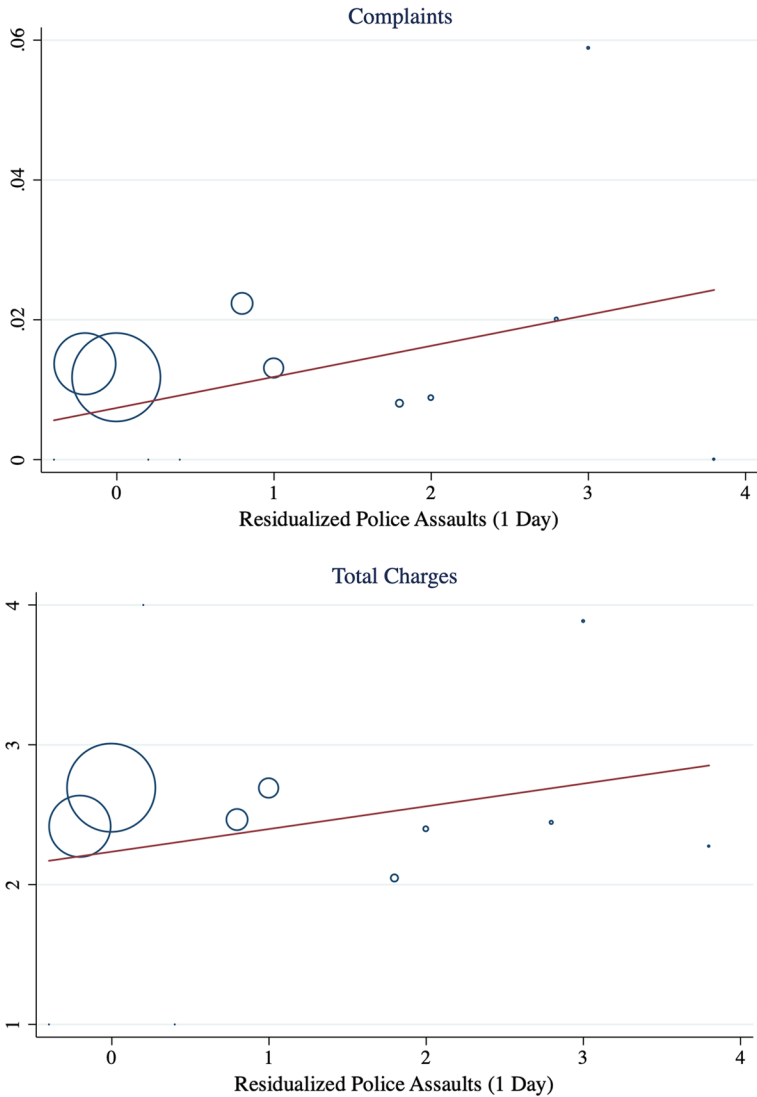
Fig. 5 First-stage (top) and reduced form (bottom) plots with residualized police assaults including district, month, year, time of day, judge, and crime fixed effects

district, and police beat location. With these linking variables, we identify 797 complaint cases that can be merged with the disposition data, or 1.3% of the total cases. However, due to the nature of fuzzy matching, 65 out of 797 (8%) matched complaints occur more than once and, thus, we create an indicator variable to flag the duplication, which we account for in our analysis (Sarracino & Mikucka, 2017). Last, we create a variable that indicates the
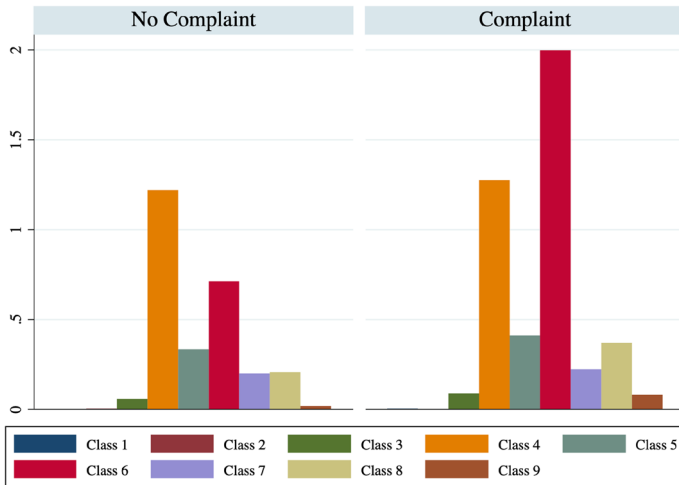
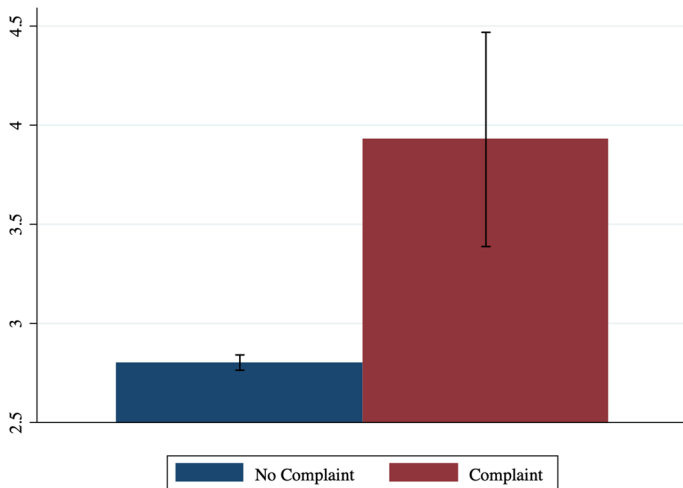**Fig. 6** Distribution of charges by complaint status and class type

Fig. 7 Average sentence length by complaint status

number of arrests due to assault or battery against a police officer within the same district in the previous day.[20] We obtain this information by linking the disposition data with the officer assault data.

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[20] The sample of included charges are aggravated assault against police (720 ILCS 5.0/12-2-A-6 and 16), aggravated battery against police (720 ILCS 5.0/12-3.05-A-3), and disarming peace officer (720 ILCS 5.0/31-1A-A), among others.
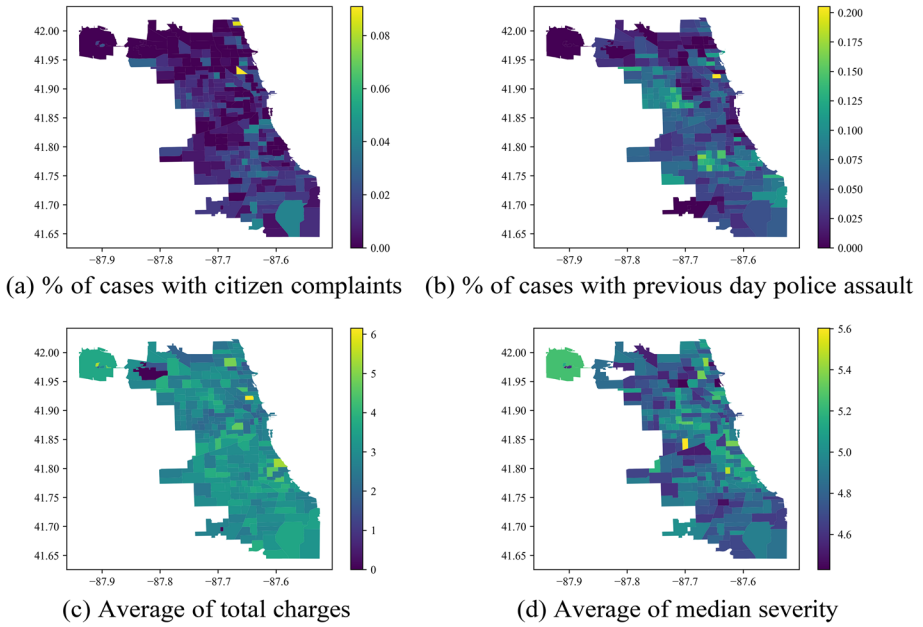
(a) % of cases with citizen complaints   (b) % of cases with previous day police assault

(c) Average of total charges   (d) Average of median severity

Fig. 8 Chicago map cont'd—percentage of cases with complaints and previous day police assault, average of total charges and average of median severity

Table 10 First-stage probit (avg. marginal effects) and reduced form estimates of the effect of assaults on police on total charges and other outcomes

Dep var:	First-stage	Reduced form					
	Complaint	Total charges	Plea	Plea discount	Avg charge	Max charge	Total sentence
Assault on Police (24 h)	0.0024***	0.015	−0.000	0.015	0.013	0.013	0.002
	(0.0008)	(0.035)	(0.006)	(0.016)	(0.016)	(0.106)	(0.005)
Black	0.012	−0.040	0.042***	0.195**	0.204**	1.267***	0.119***
	(0.008)	(0.298)	(0.011)	(0.072)	(0.095)	(0.216)	(0.030)
White	−0.004	−0.153	0.028***	−0.016	−0.057	0.831***	0.068**
	(0.008)	(0.286)	(0.012)	(0.044)	(0.062)	(0.203)	(0.028)
Male	0.0084***	0.322***	0.011	−0.023	0.007	0.601***	0.022**
	(0.0014)	(0.069)	(0.010)	(0.018)	(0.022)	(0.067)	(0.008)
Age	−0.00007	−0.007***	−0.001**	−0.002	−0.001	0.000	−0.002***
	(0.00005)	(0.002)	(0.000)	(0.001)	(0.002)	(0.002)	(0.000)
N	59,578	61,216	41,752	61,216	61,216	61,216	61,216
Mean of dependent variable	0.01	2.82	1.06	4.86	5.18	2.49	0.68
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Crime FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time of Day FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$

Table 11 Severe and non-severe assault—first stage probit (avg. marginal effects) and Wooldridge IV

Dep var:	First-Probit Complaint	IV Results Total charges	First-Probit Complaint	IV Results Total charges
Non-severe assault on police (Past Day)			0.0032***	
			(0.0009)	
Severe assault on police (Past Day)			−0.0123***	
			(0.0043)	
Assault on police (Past Day)	0.0024***			
	(0.0008)			
Complaint		5.504**		5.779**
		(2.605)		(2.673)
Black	0.012	−0.411	0.012	−0.414
	(0.008)	(0.334)	(0.008)	(0.334)
White	−0.004	−0.429	−0.004	−0.429
	(0.008)	(0.323)	(0.008)	(0.323)
Male	0.0084***	0.255***	0.0084***	0.253***
	(0.0014)	(0.064)	(0.0014)	(0.064)
Age	−0.00007	−0.006***	−0.00007	−0.006***
	(0.00005)	(0.002)	(0.00004)	(0.002)
N	59,578	59,579	59,578	59,579
Mean of dependent variable	0.01	2.83	0.01	2.83
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Crime FE	Yes	Yes	Yes	Yes
Time of day FE	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes

Cluster robust standard errors by district are shown in parenthesis. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$

Table 12 Count of assault against police—first vs. repeat arrest

District	First arrest Severe assault/all assault	Repeat arrest Severe assault/all assault
1	4/32 (0.27%/2.16%)	5/20 (0.34%/1.35%)
2	1/27 (0.06%/1.58%)	1/33 (0.06%/1.93%)
3	13/93 (0.58%/4.18%)	2/109 (0.09%/4.9%)
4	9/106 (0.31%/3.69%)	14/131 (0.49%/4.56%)
5	4/55 (0.14%/1.87%)	12/82 (0.41%/2.79%)
6	4/103 (0.1%/2.64%)	20/143 (0.51%/3.67%)
7	18/277 (0.37%/5.73%)	24/376 (0.5%/7.78%)
8	8/88 (0.26%/2.91%)	3/76 (0.1%/2.52%)
9	5/64 (0.16%/2.1%)	10/101 (0.33%/3.31%)
10	0/110 (0%/2.02%)	29/265 (0.53%/4.87%)
11	75/535 (0.59%/4.23%)	66/1163 (0.52%/9.2%)
12	2/43 (0.1%/2.22%)	9/47 (0.46%/2.42%)
14	0/14 (0%/1.38%)	1/11 (0.1%/1.09%)
15	8/145 (0.19%/3.52%)	21/270 (0.51%/6.55%)
16	1/33 (0.1%/3.19%)	0/10 (0%/0.97%)
17	1/7 (0.1%/0.68%)	1/9 (0.1%/0.88%)
18	8/50 (0.48%/3.02%)	5/39 (0.3%/2.35%)
19	5/57 (0.35%/4.01%)	7/35 (0.49%/2.46%)
20	0/2 (0%/0.33%)	1/1 (0.16%/0.16%)
22	0/21 (0%/1.42%)	0/24 (0%/1.62%)
24	1/33 (0.09%/3.05%)	0/18 (0%/1.66%)
25	6/125 (0.16%/3.42%)	5/165 (0.14%/4.52%)

Table 13 Average days passed after arrest

Event	Mean	SD
Hearing date	21.8	17.3
Arraignment date	39.3	20
Disposition date	211.4	183.5
Complaint date (Before)	1.3	2.9
Complaint date (After)	297.1	249.6

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References

Acemoglu, D., & Robinson, J. (2019). *The narrow corridor: States, societies, and the fate of liberty*. Penguin Random House.

Acemoglu, D., & Jackson, M. (2017). Social norms and the enforcement of laws. *Journal of the European Economic Association, 15*(2), 245–295.

Adamson, J., & Rentschler, J. (2020). How policing incentives affect crime, measurement, and justice. *Working Paper*.

Alschuler, A. W. (1968). The prosecutor's role in plea bargaining. *University of Chicago Law Review, 36*, 50.

Alschuler, A. (1978). Sentencing reform and prosecutorial power: A critique of recent proposals for "fixed" and "presumptive" sentencing. *University of Pennsylvania Law Review, 126*, 550–577.

Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., Megicks, S., & Henderson, R. (2016). Wearing body cameras increases assaults against officers and does not reduce police use of force: Results from a global multi-Site experiment. *European Journal of Criminology, 13*(6), 744–755.

Arsiniega, B. (2020). Danger and data collection in American policing. *Working Paper*.

Becker, G. (1968). Crime and punishment: An economic approach. *Journal of Political Economy, 76*(2), 169–217.

Bennett, P. (1979). Prosecutorial overcharging. *Criminal Defense Newsletter*, August issue.

Bonneau, D., & McCannon, B. C. (2021). Bargaining in the shadow of the trial? Deaths of law enforcement officials and the plea bargaining process. *Working Paper*.

Braga, A., Coldren, J. J., Sousa, W., Rodriguez, D., & Alper, O. (2017). The Las Vegas body-worn camera experiment: Research summary. *Center for Crime and Justice Policy*, 2.

Caldwell, M. (2011). Coercive plea bargaining: The unrecognized scourge of the justice system. *Catholic University Law Review, 61*, 63–96.

Davis, A. (2005). The power and discretion of the American prosecutor. *Droit Et Culture: Revue Internationale Interdisciplinaire, 49*, 1–11.

DeAngelo, G., Narender, R., & Romaniuc, R. (2022). Nudging law enforcement: Evidence from law priority initiatives. *Working Paper*.

DeAngelo, G., & Gee, L. (2020). Peers or police? The effect of choice and type of monitoring in the provision of public goods. *Games and Economic Behavior, 123*, 210–227.

DeAngelo, G., Humphreys, B., & Reimers, I. (2017). Are public and private enforcement complements or substitutes? Evidence from high frequency data. *Journal of Economic Behavior and Organization, 141*, 151–163.

DeAngelo, G., & McCannon, B. C. (2016). Public outcry and police behavior. *The BE Journal of Economic Analysis Policy, 16*(2), 619–645.

DeAngelo, G., & Smith, T. L. (2020). Private security, maritime piracy and the provision of international public safety. *Journal of Risk & Uncertainty, 60*, 77–97.

Dharmapala, D., Garoupa, N., & McAdams, R. H. (2016). Punitive police? Agency costs, law enforcement, and criminal procedure. *Journal of Legal Studies, 45*(1), 105–141.

van Dijk, J. (2021). The international crime victims survey: Latest results and prospects. *Criminology in Europe, 3*(11).

Flynn, A. (2016). Plea negotiations, prosecutors and discretion: An argument for legal reform. *Australian and New Zealand Journal of Criminology, 49*(4), 564–582.

Graham, K. (2014). Overcharging. *Ohio State Journal of Criminal Law, 11*, 701–724.

Lum, C., Koper, C. S., Wilson, D. B., Stoltz, M., Goodier, M., Eggins, E., Higginson, A., & Mazerolle, L. (2020). Body-worn cameras' effects on police officers and citizen behavior: A systematic review. *Campbell Systematic Reviews*. https://doi.org/10.1002/cl2.1112

Manak, J. (1975). Plea bargaining—the prosecutor's perspective: An overview of selected issues, the current state of the law, for prosecutors. *National District Attorneys Association*, January issue.

Mastrorocco, N., & Ornaghi, A. (2020). Who watches the watchmen? Local news and police behavior in the United States. *Working Paper*.

O'Flaherty, B., & Sethi, R. (2019). *Shadows of doubt: Stereotypes, crime, and the pursuit of justice*. Harvard University Press.

Polinsky, M. S., & Shavell, S. (2000). The economic theory of public enforcement of law. *Journal of Economic Literature, 38*(1), 45–76.

Romaniuc, R., Dubois, D., Dimant, E., Lupusor, A., & Prohnitchi, V. (2022). Understanding cross-cultural differences in peer reporting practices: Evidence from tax evasion games in Moldova and France. *Public Choice, 190*, 127–147.

Romaniuc, R., Farrow, K., Ibanez, L., & Marciano, A. (2016). The perils of government enforcement. *Public Choice, 166*, 161–182.

Rozema, K., & Schanzenbach, M. (2019). Good cop, bad cop: Using civilian allegations to predict police misconduct. *American Economic Journal: Economic Policy, 11*(2), 225–268.

Sarracino, F., & Mikucka, M. (2017). Bias and efficiency loss in regression estimates due to duplicated observations: A Monte Carlo simulation. *Survey Research Methods, 11*(1), 17–44.

Schwartz, J. C. (2012). What police learns from lawsuits. *Cardozo Law Review*, *33* (841).

Schwartz, J. C. (2021). Allocating the costs of police misconduct litigation: Available evidence and a research agenda. *Working Paper*.

Schwartz, J. C. (2016). *Who can police the police* (p. 11). University of Chicago Legal Forum.

Trinkner, R., Kerrison, E. M., & Goff, P. A. (2019). The force of fear: Police stereotype threat, self-legitimacy, and support for excessive force. *Law and Human Behavior, 43*(5), 421–435. https://doi.org/10.1037/lhb0000339

Wooldridge, J. (2002). *Econometric analysis of cross section and panel data*. The MIT Press.

Yokum, D., Ravishankar, A., & Coppock, A. (2017). Evaluating the effects of police body-worn cameras: A randomized controlled trial. *Working Paper*.