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Shaping Police Officer Mindsets and Behaviors: Experimental Evidence of Procedural Justice Training

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Abstract. Research on organizational justice shows that perceptions of justice by internal and external agents are reliable predictors of key organizational outcomes. But how can we promote the enactment of fair behavior by those with decision-making authority within organizations? This is particularly important for organizations that depend on frequent client interactions, in which individual discretion is required to make consequential decisions, and where necessary evils are unavoidable. Few organizations face this challenge as intensely as police forces, in which misconduct and bad decisions by their street-level bureaucrats can have large negative consequences. This paper analyzes whether police officers can be trained to effectively incorporate the principles of procedural justice in their interactions with citizens. In collaboration with the Mexico City police, we implemented a randomized controlled trial with 1,854 officers to measure whether procedural justice training changed their perceptions of policing and actual behavior on the field. We find significant and positive effects of the training across all measures of the procedural justice model. Our research yields insights into critical elements to consider in organizational training programs, including managerial alignment with the objectives of the training and a consideration of employees' perceptions of the extent to which their work is understood by others.

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1. Introduction

A fundamental question for any organization is how to ensure that its employees do the right thing pursuing the organization's interests and goals. Organizational routines and guidelines can help, but employees must use their discretion to apply them to complex situations (Heimer 1992, Feldman 2003). This is particularly true in occupations in which employees must have frequent interactions with clients, make decisions that carry substantial consequences, and in which necessary evils are unavoidable (Margolis and Molinsky 2008, Lipsky 2010, Kahn 2019). For example, a loan officer may have to collect on a delinquent loan from a destitute client; a nurse may have to mediate between a patient and the patient's family; or a police officer may have to intervene in a fight between neighbors. Each of them must balance the expectations and needs of different stakeholders; the organization's standards and priorities; and their own interpretations, values, and preferences.

In such situations, which typically carry uncertainty and power imbalances, what matters most to those affected by a decision is whether the process through which it was made is perceived to be fair and just, irrespective of its outcome (Brockner 2015, Lind 2019). Perceptions of being treated fairly by those with authority—also known as organizational justice—largely predict critical organizational outcomes such as customer satisfaction, loyalty, and trust as well as employee performance, effort, well-being, and commitment (see Colquitt 2012, Brockner et al. 2015, Lind 2019, for reviews). Can organizations teach their employees to routinely act in ways that will be perceived as fair? We use a rigorous field experiment to evaluate whether training employees in organizational justice can improve their decision making.

Street-level bureaucracies, most notably the police, are particularly susceptible to organizational justice (Lipsky 2010, Tyler and Nobo 2022). As recent crises have shown, police forces are dependent on citizen trust for their effectiveness, benefiting disproportionately when

it improves. This is a central goal of community policing, premised on increasing positive interactions between citizens and the police (Peyton et al. 2019, Meuris 2023). But police officers routinely face situations that are emotionally charged, require rapid decisions, and contain necessary evils. Whereas there are laws and protocols that delimit available behaviors, officers must use their discretion in unpredictable encounters (Wilson 1978, Lipsky 2010). Citizens, in turn, will inevitably interpret interactions with the police through a justice frame both because officers are formal representatives of the justice system and because of the uncertainty inherent in situations that require police intervention (Folger and Martin 1986, Van den Bos et al. 2008).

When officers act in ways that are perceived by citizens to follow a fair process, they ensure more productive interactions, decrease the likelihood of escalation, increase citizen trust, and enhance police legitimacy (Tyler and Nobo 2022). In contrast, negative encounters can engender legal cynicism (Weitzer 2002, Kirk and Papachristos 2011), decrease basic forms of legal engagement such as crime reporting (Ang et al. 2021), or prompt citizens to rely on nonstate actors to mediate community conflicts (García-Ponce et al. 2023). Police organizations, therefore, constitute a critical case to study organizational justice: client interactions are a central element of their work, employees must use discretion to make decisions with large and potentially negative consequences, and yet the perceived quality of interactions is instrumental to the organization's ongoing success.

Whereas a wealth of work has identified the components and mechanisms of organizational justice, we know little about how to improve employee behaviors (Brockner et al. 2015). A police chief (or company manager) will be less interested in the mechanisms or categories of justice and more in how to get their employees to integrate them effectively, and they need rigorous evidence to guide their choices. To this end, we conducted a randomized controlled trial (RCT) to rigorously test the causal effects of training police officers in procedural justice. We explore three elements of the impact of training: (a) on officer mindsets of procedural justice and its importance, (b) on their actual behavior on the field, and (c) on whether observed impacts change depending on officers' characteristics and dispositions before training. Through a partnership with the Mexico City Ministry of Citizen Security (*Secretaría de Seguridad Ciudadana*, SSC) we trained a randomly selected group of 966 police officers and managers, comparing them with a control group. We find that the training significantly improved officer mindsets of procedural justice, shifting their professional ethos. This also translated to behavioral changes, evaluated using a mystery-shopper approach.

Much recent work has convincingly questioned the effectiveness of corporate training programs (Paluck and Green 2009, Castilla and Benard 2010, Dobbin and Kalev 2019). In contrast, we provide causal evidence that organizations can shift employee mindsets and behaviors regarding organizational justice. We show that changes in mindsets can translate to significant changes in actual behavior in the field, contributing to the ongoing debate of how to improve police behavior (e.g., Skogan et al. 2015, Tyler and Nobo 2022, Dube et al. 2023). To theorize our observed effects, we show that the impact of training is unaffected by most individual officer characteristics. Perceptions of the "other," however, seem to moderate impact: officers with higher prosocial attitudes and better perceptions of citizens benefited more from the training. And officers who patrol more dangerous areas demonstrated smaller shifts in their actual behavior. This contributes to our understanding of the mechanisms of organizational justice (Fortin et al. 2015), of how organizations and its employees can better handle necessary evils (Margolis and Molinsky 2008) or distress organizing (Kahn 2019), and of the approaches to training that may be more effective (Cable et al. 2013, Reay et al. 2016). We also exploit variation in the sessions' timing to show that training managers on procedural justice enhances impact for their subordinates, underscoring the importance of managerial structures as critical levers—or barriers—for training programs.

The rest of the paper is structured as follows. Section 2 discusses the literature on organizational and procedural justice. Section 3 provides contextual information about Mexico City and our partner organization. Section 4 describes the design and content of the intervention. The results are presented in Section 5, followed by a discussion of our main contributions in Section 6.

2. Organizational Justice as a Dependent Variable: Improving How Employees Use Discretion

A long research tradition has established the importance of organizational justice for performance: when it matters most, what it looks like at different levels of analysis, and what to expect when it is (not) present (Brockner et al. 2015, Lind 2019). Different types of justice translate to important organizational outcomes, including organizational commitment (Masterson et al. 2000, Bianchi and Brockner 2012) and citizenship behaviors (Lind et al. 2000, Ambrose et al. 2013); employee performance (Brockner and Wiesenfeld 1996), well-being (Judge and Colquitt 2004), compliance (Tepper et al. 2008), and client satisfaction and trust (Masterson et al. 2000, Skarlicki et al. 2008).

A company manager (or police chief), however, will be less interested in the types and mechanisms of justice and more in whether and how we can improve employee behaviors. Indeed, the latest, fifth wave, of

organizational justice research seeks to study it as a dependent variable, analyzing how to improve the intentions and behaviors of organizational actors (Colquitt 2012, Brockner et al. 2015).

A challenge to improving employee behaviors is the context-dependent nature of organizational justice, which is intertwined with employee discretion in two fundamental ways. First, not all types of interactions or decisions are evaluated using a justice frame (Folger and Martin 1986, Brockner et al. 1994). Different types of justice are most relevant and salient at different levels of the organization (Lavelle et al. 2015). For instance, when individuals affected by a decision experience uncertainty or are primed to think about justice, they are more likely to interpret their experience through a justice frame (Lind et al. 2000, Van den Bos et al. 2008). And the more an organizational actor is perceived to have discretion over a decision, the more likely it is that the decision will be assessed from a justice perspective (Scott et al. 2009).

Second, and related, experiences of justice are necessarily subjective, as they emerge from the affected party's interpretation of the decisions made by an organizational actor (Folger and Martin 1986, Scott et al. 2009). Even though organizations may have clear aspirations and standards for organizational justice, they will always depend on employees, who must enact those standards in the situations they face (Heimer 1992, Feldman 2003). This is especially true in fields such as healthcare, finance, or law enforcement, in which there are frequent client interactions with unavoidable necessary evils (Margolis and Molinsky 2008, Lipsky 2010). Loan officers must collect on outstanding debts, doctors often must inflict pain in order to treat, and police officers must enforce evictions. Employees face complex client interactions with a broad range of possible decisions and a correspondingly wide set of interpretations available to the affected client. The corollary is that the more an organization depends on employee discretion to solve complex and consequential problems for its clients, the more those clients will interpret situations through a justice frame and the more critical it will be for the organization to help employees use discretion adequately.

This leads to the central question of this paper: can organizations train their employees to better integrate standards of organizational justice?

There are two related aspects to the question. First, training tends to target employees' knowledge and mindsets. For a training to be effective, however, it must not only shift mindsets, but also actual behaviors. Second, individuals' characteristics, dispositions, and frames influence how they integrate organizational justice into their decisions. For example, individuals with higher empathy or perceptions of justice as a social good display behaviors that are perceived as more fair (Lind and Tyler 1988, Liao and Rupp 2005). In contrast, individuals who feel threatened or are primed to think about power show lower procedural justice (Wiesenfeld et al. 2000, Van den Bos et al. 2008). Further, maintaining empathy in the face of distressing situations is challenging (Margolis and Molinsky 2008, Kahn 2019). As organizations seek to design programs that are well matched to employees and their work, which characteristics, dispositions, and frames might make workers more malleable to training?

2.1. Citizen Trust, Police Legitimacy, and Perceptions of Justice

Few organizations depend more on citizen experiences of justice than police forces. They are mandated with protecting life and property, preserving peace, preventing crime, and enforcing the law. Whereas generally accepted, this mandate is impossibly broad (Manning 1978). As a result, police officers are prototypical street-level bureaucrats, who must constantly use discretion to enact an extremely broad mandate under intense scrutiny and in consequential and unpredictable encounters (Lipsky 2010).

In an officer–citizen interaction, the police—as emphasized by their uniform, equipment, and badge—are official representatives of the justice system, its laws, and protocols. And citizens often feel uncertain as decisions can have large, mostly negative, consequences for them. Thus, citizens will almost inevitably use a justice frame to interpret an officer's actions as reflective of the organization (Van den Bos et al. 2008). These citizen perceptions of police fairness, in turn, determine compliance with the law and trust in the police to a greater extent than any other factor (Tyler 2006), including fear of sanctions or the favorability of outcomes (De Cremer and Tyler 2007, Tyler and Nobo 2022).

Research has identified four principles of procedural justice that, when present in interactions between authorities and citizens, dramatically increase the probability that an interaction will be interpreted as just (Tyler and Nobo 2022).[1] Citizens want to be given voice, they want to be heard prior to decisions made by the police, they want officers to be neutral in their approach to a given situation, they want to be treated with respect regardless of the situation that precipitated an encounter, and they want the police to transmit trustworthiness by showing genuine concern for citizen well-being and explaining the rationale behind each decision.

2.2. Determining Whether Procedural Justice Can Be Taught

Given the vast evidence showing its importance, police departments are often encouraged to train their officers in procedural justice (President's Task Force 2015). But, as mentioned before, we need to learn whether such programs can be effective and, if so, how (Brockner

et al. 2015). Part of the challenge is the inherent difficulty in determining the causal impact of training programs. Undertaking, for instance, experimental evaluations within police departments necessarily impacts critical operations (e.g., certain officers must be temporarily rotated out of their beats). The minimum scale necessary to run an appropriately powered and controlled experiment also excludes all but a few exceptionally large departments.

A few recent studies find mixed evidence of the effects of training police officers to improve citizen interactions (see, e.g., Rosenbaum and Lawrence 2017, Banerjee et al. 2021). Mostly, they evaluate police training programs designed to develop communication skills, soft skills, and stress management. The study that most closely assesses the effect of a training on procedural justice is Skogan et al. (2015). They find suggestive evidence that officer mindsets improve in the short and longer term through training, but the absence of random allocation into treatment and respondent groups may have introduced bias in the results. In turn, Owens et al. (2018) conduct an RCT of procedural justice training, and they show evidence of improvement in certain policing outcomes, but the study cannot unpack how the training is directly affecting officers and the pathways through which the observed impacts are achieved. We advance this body of evidence by conducting the first RCT of police training on procedural justice in Latin America. Further, we introduce a novel instrument to observe and measure actual behavior of police officers in the field through a mystery-shopper methodology.

Our experimental design has four goals. First is to rigorously examine whether the principles, tools, and behaviors associated with procedural justice can be effectively taught. Second, if training works, how does it affect a police officer's attitude, disposition, or approach? This is important for organizational justice theory, but it is especially critical for law enforcement agencies given their nature and challenges. Third, we seek to establish a clearer connection between mindsets of procedural justice and actual behaviors. And, finally, to better understand the precursors and mechanisms of any observed impacts, we want to assess whether organizational actors with different baseline characteristics or dispositions may be more susceptible to training.

3. Institutional Background and Context

Mexico City is one of the largest cities in the world with a population of 9 million citizens (and a conurbation of an additional 10 million). It is also relatively safe with an average of 12.2 homicides per 100,000 inhabitants (versus 19.8 nationally) and a general decline in other crimes (Torreblanca and Lara 2018). The SSC is responsible for public safety. It has more than 80,000 officers, split into different forces, including the 25,000-strong Mexico Preventive Police (MCP). To do its work, the MCP has divided Mexico City into 847 quadrants, nested into 72 sectors, 15 regions, and 5 zones. Sector chiefs (a lieutenant or captain in the U.S. context) determine the deployment of patrol officers within each sector and appoint quadrant chiefs (similar to a sergeant) to supervise patrolling. The assignment of officers to sectors is determined by zone directors based on quantitative operational demand. Neither sector chiefs nor officers themselves participate in officer assignments to sectors, and rotation across sectors is infrequent.

The MCP is one of the country's leaders in independent measures of police quality (e.g., Causa en Común 2018), but 66.1% of its citizens report not trusting the police (Instituto Nacional de Estadística y Geografía 2018). This negative perception reduces the willingness of citizens to use their public space, hinders the quality of operational intelligence, erodes police officer motivation, and contaminates all interactions between citizens and the police. One of the most urgent needs, as recognized in surveys by officers themselves, is to have better tools to interact, mediate conflict, and communicate with citizens (Instituto Nacional de Estadística y Geografía 2017).

4. Intervention

4.1. Experimental Setting

Our intervention was conducted during a 20-week period, starting in November 2017. Police officers from the Preventive Police Unit were assigned to treatment and control groups following a pairwise-matching randomization (Bruhn and McKenzie 2009) at the sector level, stratified on 911 calls, number of crimes reported, and population density. From each of the 30 sector pairs, one sector was randomly assigned to treatment and the other to control (see Online Figure A.1). We then randomly selected 966 treatment and 888 control officers, all of whom completed a baseline survey and underwent a vetting process.[2] Only police officers in treatment sectors were invited and allowed to attend the training sessions. Treatment officers were split into 64 training groups of 20 or fewer for pedagogical efficacy (more on this below).

4.2. Procedural Justice Training

The design of the intervention followed several steps. First, in alliance with the Yale Justice Collaboratory, we interviewed 15 experts and reviewed materials used in several training programs in the United States and the United Kingdom. We also assessed a vast number of instruments used (and validated) to measure the different elements of procedural justice in a variety of settings. We distilled and translated common and best practices into a first draft of a training program in

Spanish. We then ran a set of sessions with carefully selected groups of police officers from the SSC to co-design a set of training materials that contained all the fundamental theoretical and practical components of the best procedural justice training materials, but that were also adapted in language, examples, and training exercises to the specific context faced by Mexican police officers. During this process, we also created a first version of our baseline, end-line, and evaluation instruments.

In the next stage, we selected six well-matched, representative quadrants to conduct a pilot. Three quadrants were randomly assigned to treatment for a total of 40 trained and 40 control police officers. We then piloted the training materials and evaluation instruments with all police officers assigned to those quadrants. This included conducting baseline and end-line surveys (after a 12-week period). We also conducted extensive interviews to ensure that participants understood the training concepts and survey language as intended. This pilot led to additional adjustments in our training materials, evaluation instruments, and randomization strategy.

The resulting training was divided into six modules taught over a three-day period. Each module was facilitated by a training expert, backed by slides, video clips, and group exercises. As described in Online Figure A.2, at the heart of the training were the four principles of procedural justice: give voice by listening to what citizens have to say and actively motivating them to speak; show neutrality by being self-aware of potential prejudices or stereotypes and by projecting that no decision is driven by a person's appearance, gender, or preferences; give respect by treating all citizens with the same amount of dignity, using equally deferential language and maintaining a professional demeanor regardless of a person's actions; and cultivate trustworthiness by communicating the process and rationale behind the decisions or actions taken and demonstrating genuine concern for citizen well-being. Two additional concepts played an equally central role in the training. The first was the Golden Rule: you should treat others the same way you would like to be treated if you were in that situation. The second is the community bank of trust, in which the account's balance is determined by generalized perceptions of the police. Every interaction between an officer and a citizen will result in a deposit or a withdrawal, but deposits tend to be small and difficult to make, whereas withdrawals—resulting from a negative interaction—tend to be quite large.

During the pilot, we learned to devote the first third of the training to establishing trust between police officers and facilitators. SSC officers, as do their peers elsewhere, believe that the public does not understand what they do (Patil 2018). Accordingly, for officers to open up to the concepts of the training, we first needed to give them ample space to express their frustrations and experiences with citizens. This led to a productive discussion about the importance of institutional legitimacy and citizen trust in the police. The rest of the training built from the baseline that every aspect of an officer's work would become easier, safer, and less stressful if trust in the SSC increased. The training then presented the four principles of procedural justice as the most reliable way for police officers to make deposits; we gave police officers heuristics, tools, and examples to illustrate how to use each principle in a variety of situations and also provided scenarios for participants to practice and give each other feedback through role playing.

The training also reflected on the structurally complex relationship between the police and citizens. Policing is difficult. Officers tend to interact with citizens under circumstances that make the interaction complex and emotionally charged. There are conditioning factors (e.g., stereotypes, context, prejudices) in the baseline expectations that citizens and officers have of each other. All of this is amplified by a fraught history between the SSC and the population. It is worth noting, however, that every component of the training was entirely framed around legitimacy and procedural justice as the core guiding principle of professional police behavior.

At the end of the training, each officer received a brochure and a pocket card containing the four principles of procedural justice, the Golden Rule, and the community bank of trust (see Online Figures A.3 and A.4). Starting one week after training, as a small booster strategy, officers received one text message per week over five weeks with reminders of key concepts.

As mentioned, control officers were not invited to attend training sessions. The most likely counterfactual to attending the training was being at work. It is worth noting, however, that officers routinely undergo training. In a survey conducted as preparatory work ($n = 1{,}016$), for instance, 98% of police officers reported receiving at least one training, and 73% reported attending three or more programs in a 12-month period. Common programs include firearms shooting, nonlethal methods of control, and human rights. We cannot rule out that our training may have induced a generalized positive effect on treatment officers simply for being selected, but the number and variety of training they regularly attend lowers this concern.

4.3. Data

4.3.1. Officers' Mindsets. To measure changes in mindsets, we collected anonymous, self-administered officer surveys to identify individual characteristics and baseline/end-line levels of procedural justice mindsets. In total, 1,854 officers completed the baseline survey and 1,683 filled the end-line survey (90.8% follow-up

rate with no differential attrition between treatment and control). The end-line survey was applied, on average, 80 days after completion of training. The surveys lasted approximately 30 minutes and presented scenarios or statements designed to elicit mindsets linked to the four principles of procedural justice, using a five-point Likert scale. Online Appendix B presents the survey questions.

We also collected perceptions not necessarily related to procedural justice—including prosocial attitudes; job satisfaction; and perceptions of occupational risk, colleagues, managers, and citizens—with three purposes in mind. First, to further explore the mechanisms that could help explain any observed impacts. Second, to understand whether the exposure to the training changed perceptions that are not directly linked to procedural justice concepts and, thus, could constitute an indirect measure of the experimenter demand effect. Third, to explore whether any observed impacts would be moderated by the participants' baseline characteristics. We complemented our baseline and endline surveys with administrative data and sociodemographic information at the sector level from the SSC.

4.3.2. Officers' Behavior. To measure changes in actual behavior, we implemented a mystery-shopper study that used external observer evaluations. Three to twelve months after training, a group of professional actors posing as citizens (the "shoppers"), interacted with 211 control and 277 treated officers following a standardized script. Officers did not know that they were participating in a simulated encounter until the evaluation was completed.[3] Likewise, shoppers were unaware of the real purpose of the study, the specifics of the experiment, or procedural justice theory. They were also blind to whether they were interacting with treatment or control police officers. To further diminish potential individual bias, we randomly varied the assignment of shoppers to sectors every two days.

We designed two interaction scenarios. Each involved two citizens: one shopper acting as accuser and a second posing as the accused. In the suspicious person scenario, the accuser requires the help of an officer because the accused is walking around suspiciously, supposedly taking pictures of vehicles and houses. In the administrative misconduct scenario, the accuser asks a police officer to intervene because a transgender woman—the accused—is allegedly engaging in indecent exposure. We chose these scenarios because they are representative of what a given Mexico City police officer faces routinely in the streets and because, among alternative scenarios, they minimized the risk for the field staff, officers, and bystanders. Each scenario was codesigned with the SSC and with an experienced theater director. Interactions were recorded by hidden audio and video devices.

We recruited 12 external observers who received a weeklong training to identify behaviors consistent with the principles of procedural justice. Each interaction was analyzed and discussed by a team of two observers to avoid evaluation discrepancies. Teams rotated every third day to decrease potential biases. To form the teams, we combined observers who had the best performance with those who still needed extra supervision. This affected the randomness of the allocation of interactions across observer teams. Nonetheless, the allocation of treatment and control interactions was evenly and randomly distributed across observers. The measures used to analyze officers' behavior were based on Likert scales and yes/no–type questions presented in Online Appendix C.

4.4. Sample and Experimental Groups

Our experimental population consists of SSC patrol officers who belonged to one of the 60 sectors included in the pairwise-matching randomization process and passed the vetting process. With this roster, we sent a total of 2,629 invites to sector chiefs inviting a randomly selected subset of their officers to participate in the baseline survey. We contrasted the self-reported information of participants with administrative data provided by the SSC. To avoid contamination of the experimental sample and to meet the demands of the project funder, we dropped approximately 5% of the cases because of a mismatch in at least one of the selection criteria (including them does not affect the balance of the experimental groups). This left us with 1,854 officers who completed the baseline survey and met the selection criteria (around 8% of the Preventive Police force), or 70% of the officers originally invited.

Online Table A.1 shows that control and treatment groups are statistically similar across our sectors. We report differences between preintervention characteristics in mean tests. As in subsequent specifications, we estimate robust standard errors clustering at the sector level, adjusting for the small number of clusters and the unbalanced number of observations within clusters through the wild cluster bootstrap procedure (Roodman et al. 2019). In addition, we use the normalized differences approach to compare groups (Imbens and Rubin 2015). Online Table A.1 also presents summary characteristics. Officers, on average, are 37 years old and have been on the force for 12 years. Seven percent have a college degree, and 27% joined the police mainly to help others. Control and treatment officers are similar in characteristics such as civil status, type of patrol (foot or car), Big Five personality traits, perception of occupational risk, job satisfaction, and perception of colleagues and managers. Gender and adherence to rules are the only characteristics that display small but statistically significant differences. Regarding their justice mindsets at baseline, only the procedural justice principle voice presents a small but statistically significant difference.

In Online Table A.2 we pooled treatment and control officers to report pairwise correlations at baseline between procedural justice mindsets; the Big Five personality traits; and a set of perceptions related to citizens, to the job, to the institution, and to the internal dynamics of the workplace. With the exception of some pairs that include perceptions of occupational risk, most pairwise correlations are positive and significant. The procedural justice principles are all strongly correlated with each other and also, for instance, with prosocial attitudes toward the community.

4.4.1. Attrition. Between the baseline and end-line surveys, we retained 90.4% of treatment officers and 91.2% of the control group. Attrition is uncorrelated with treatment status, and preintervention observable characteristics are similar across both groups at end-line (see Online Table A.1). All things considered, our pairwise-matching randomization was successful at generating statistically similar treatment and control groups unaffected by attrition.

The mystery-shopper evaluation was carried out in 37 sectors—17 treatment and 20 control—out of the 60 sectors that were part of the intervention. The sectors were chosen considering locations where the interactions could be performed without putting any team member, police officer, or bystander at risk and based on operational complexities (e.g., we avoided areas of the city where there are frequent protests). In total, we performed simulated interactions with 26.3% of the sample. As Online Table A.1 also shows, the observable preintervention characteristics of mystery-shopper participants are similar between treatment and control groups, and attrition is uncorrelated with treatment status.

4.4.2. Training Participation. Approximately one month after baseline, we sent the invites to the training sessions through the Department of Police Operations. The department directly requested the appropriate sector chief to give notice and authorize the participation of treatment officers. On average, officers were notified five days before the training, and 89.3% of the police officers from the treatment group were trained. In contrast, only 3 out of the 888 officers from the control group attended—at most—one day of training.

5. Results

We first estimate the training's effects on (a) procedural justice mindsets and (b) actual behavior on the field. Then, through mediation analyses, we report whether a shift in mindsets translates to behavioral changes. Next, we provide exploratory evidence on the moderators of treatment effects. Finally, we examine the effects of the training on secondary outcomes linked to, among other concepts, professional identity and perceptions about citizens.[4]

5.1. Model Specification

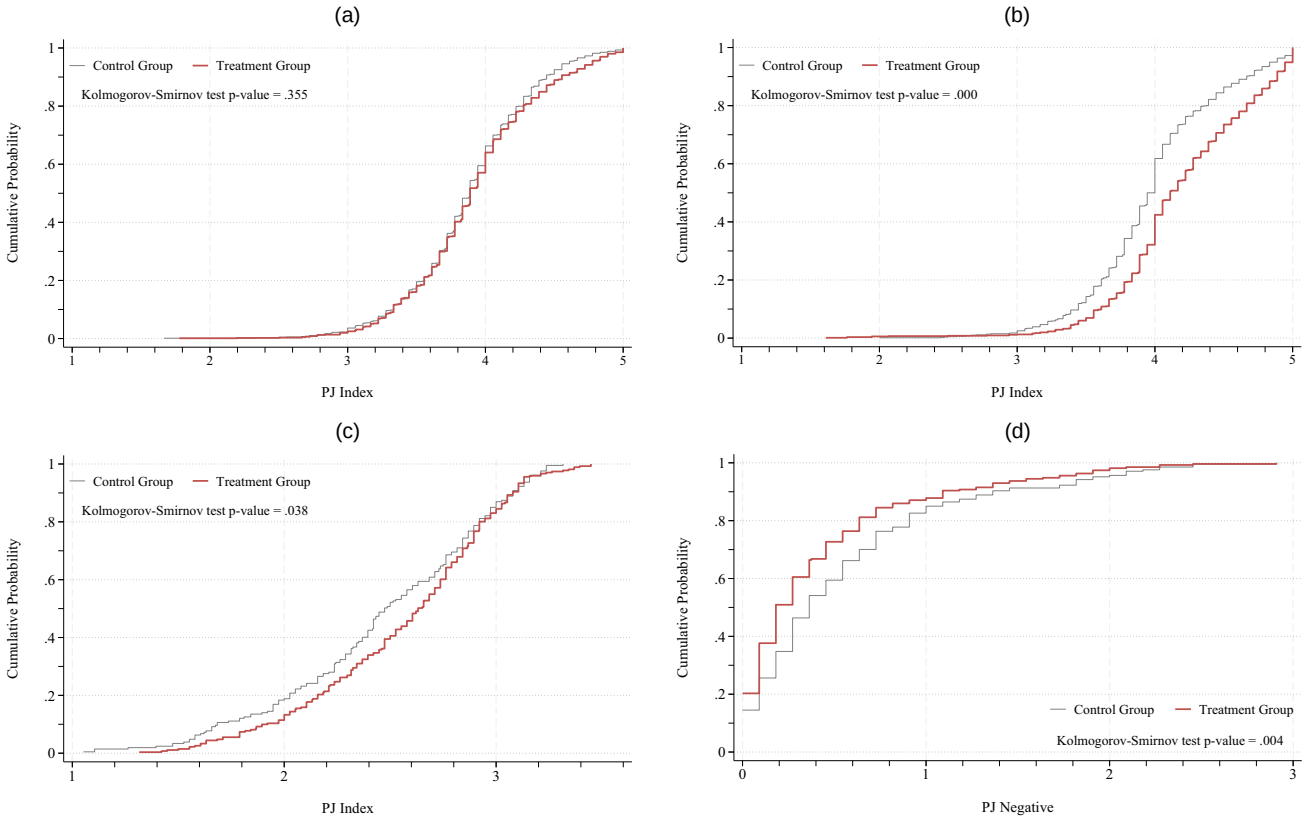
As discussed, compliance with the training was not perfect. Our main interest is determining the impact of the training on those who were invited and actually were trained or the average treatment effect on the treated (ToT). Given imperfect compliance, we also estimate intent-to-treat (ITT) effects. We use random assignment to treatment as an instrument in a two-stage least-squares setting to recover ToT estimates of the procedural justice training as follows: $Y_i = \alpha + \beta_1 \widehat{Training}_i + \varepsilon_i$, where Y_i is an outcome of interest for officer i, β_1 indicates the training impact, $\widehat{Training}_i$ stands for the estimated values of $Training_i$ in the first stage, and ε_i is a disturbance term.[5] We cluster standard errors at the sector level to allow for arbitrary intracluster (i.e., sector) correlation of the error term. We also present p-values generated using the more conservative wild cluster bootstrap procedure. When analyzing officer behavior in the field, we cluster the standard errors at the sector level by observer. Results are robust to different ways of estimating the standard errors.

5.2. Procedural Justice Mindsets

We estimate the treatment effect on mindsets using a general procedural justice index. The outcome variable is the mean score of scaled variables of the four principles: voice, neutrality, respect, and trustworthiness. Likewise, the indexes for the four procedural justice principles and for most of the variables presented in this study are mean scores of all the statements that seek to measure (different aspects of) the same underlying concept (see the Cronbach alpha of all indexes in Online Table A.4).[6]

Figure 1, (a) and (b), shows the cumulative distribution function (CDF) of the general procedural justice index for treatment and control officers using raw baseline and end-line data. The Kolmogorov–Smirnov test of equality of distributions confirms that mindsets are similar between the groups at baseline, but treatment officers show a significant shift after the training. The ToT estimates presented in Table 1 support this finding (see ITT estimates in Online Table A.5). As shown in column (1), treated officers scored, on average, 0.19 units higher than control officers in the general procedural justice index. This result implies an increase of 4.8% relative to the control group mean, equivalent to a Cohen's d of 0.38 or a medium effect size (Cohen 1988). To ease interpretation, a control group officer at the 50th percentile of the general procedural justice index at baseline would have moved up to the 70th percentile if treated. Is this a big shift in mindsets? If we consider that the upper bound of the procedural justice index is five, the effect of the training comprises around 20% of the maximum improvement that the average officer could have attained from baseline.

Figure 1. (Color online) Cumulative Distribution Function: General Procedural Justice Index Mindset and Behavior



Notes. (a) Baseline: PJ index officers' mindset. (b) End-line: PJ index officers' mindset. (c) End-line: PJ index officers' behavior. (d) End-line: PJ negative officers' behavior. Cumulative distribution function (CDF) for the general procedural justice index of officers' mindset at baseline in panel (a) and at end-line in panel (b). CDF at end-line for the general procedural justice index of officers' behavior in panel (c) and for the negative procedural justice index of officers' behavior in panel (d). Higher values of the negative procedural justice index represent worse behavior. The CDF for treatment officers is illustrated by the thicker line (red online), whereas the CDF for control officers is shown by the thinner line (gray online). Kolmogorov–Smirnov test *p*-value under the null hypothesis of equality of distribution is reported.

Columns (2)–(5) show that the parameter of interest remains similar in terms of point estimates and significance when we add controls for several factors, including those that are statistically different at baseline: gender, adherence to rules, and voice as well as individual and sector characteristics.[7] In Online Table A.7, we restrict the sample to observations with no missing values in the control variables to show that the stability of the results is not an artifact of the sample.

As described, our main index averages the 18 items that measure the four procedural justice principles. As a robustness check, we consider alternative weighting schemes in Online Table A.8, including determining different weights through correlation and factor analyses.[8] We find consistent results across different approaches with Cohen's *d* ranging from 0.34 to 0.38.

Are treatment effects sustained over time? Even though we measure effects only at one point in time (80 days after training, on average), in Online Figure A.5, we compare different subsets of the treatment group, according to the number of days elapsed between training and the end-line survey. The point estimates are almost identical at various time intervals, ranging from 60 to more than 180 days, suggesting that the shifts in mindsets persist.

We next investigate whether any of the principles of procedural justice drive the results. Online Table A.9 presents the results of our preferred, conservative specification, which controls for the outcome variable at baseline and factors that were statistically different, disaggregating the general procedural justice index into its principles (ITT estimates in Online Table A.10). The effects on the four principles are fairly similar: 5.0% on neutrality (0.32 Cohen's *d*), 4.8% on respect (0.31 Cohen's *d*), 4.7% on trustworthiness (0.33 Cohen's *d*), and 3.9% on voice (0.30 Cohen's *d*)—this last one having the smallest effect because officers had the highest score at baseline, creating ceiling effects.

A remaining concern may be that the results could be driven by an experimenter demand effect. Although we cannot fully discard it, our data collection design and evidence minimize this concern. First, neither the baseline nor the end-line surveys requested respondents' names,

Table 1. ToT Training Effects: General Procedural Justice Index Mindset

	Officers' mindset				
LHS variable	(1) PJ index	(2) PJ index	(3) PJ index	(4) PJ index	(5) PJ index
Training	0.1899***	0.1822***	0.1814***	0.1799***	0.1913***
	(0.0252)	(0.0258)	(0.0237)	(0.0232)	(0.0232)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	1,661	1,650	1,650	1,246	1,168
Baseline dependent variable	Yes	Yes	Yes	Yes	Yes
Variables ≠ at baseline	No	Yes	Yes	Yes	Yes
Sector characteristics	No	No	Yes	Yes	Yes
Officer characteristics	No	No	No	Yes	Yes
Mindsets and perceptions	No	No	No	No	Yes
Clusters (sectors)	60	60	60	60	60
Mean control	3.976	3.977	3.977	3.995	3.990

Notes. Two-stage least-squares estimation results. The dependent variable is the general procedural justice index of officers' mindset and can take the values one to five. Training is a dummy that takes the value of one if the police officer attended the procedural justice training and zero otherwise. This last variable is instrumented with treatment assignment. Baseline dependent variable indicates whether the outcome variable at baseline is included in the regression. Variables ≠ at baseline indicates whether the variables—at baseline—female, adherence to rules, and PJ voice are included in the regression. Sector characteristics indicate whether the variables—at baseline—population, marginalization, high school, 911 calls, and crimes are included in the regression. Officer characteristics indicate whether the variables—at baseline—age, experience, college, married, motivation, car patrol, public sector occupation, extroversion, agreeableness, conscientiousness, emotional stability, and openness are included in the regression. Mindsets and perceptions indicate whether the variables—at baseline—prosocial attitudes, occupational risk, satisfaction with job, satisfaction with managers, satisfaction with peers, internal PJ index, view of citizens' trust, institutional identification, PJ neutrality, PJ respect, and PJ trustworthiness are included in the regression. Robust standard errors clustered at the sector level are in parenthesis. Wild bootstrap p-values with 2,000 replications of training = 0 clustered at the sector level are in squared brackets.

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

and respondents self-administered the questionnaires privately using tablets. This reduces the likelihood of reporting bias. Second, desirability bias tends to weaken over time, yet our observed effects remained similar two to six months after treatment. Third, we present evidence that officers changed their actual behavior following the training. Lastly, we investigate changes in perceptions that have no theoretical linkage to procedural justice or police legitimacy and find null effects.

5.3. Procedural Justice Behavior

To explore behavioral shifts, we study the perceptions of external observers specifically trained to identify procedurally just behaviors. The observers filled an assessment survey after watching videos of 478 experimental interactions and reading transcripts of the verbal exchanges between officers and shoppers. With this information, we construct a general procedural justice index (Cronbach's alpha coefficient of 0.87), which includes the four principles.

Figure 1(c) shows the CDF of the general procedural justice index of police behavior at end-line for treatment and control officers. The Kolmogorov–Smirnov test (p-value = 0.038) confirms that the CDF of behavior for treatment officers is to the right of control officers. Table 2 presents ToT estimates of the procedural justice training (see ITT estimates in Online Table A.11). As column (1) reports, treated officers display behaviors in their interactions with citizens that score 4.1% higher than control officers in the procedural justice index (0.21 Cohen's d). The estimated coefficients are statistically significant and stable across different specifications tested from column (2) to column (5).[9]

5.4. Negative Interactions

We also constructed a subindex of police behavior that exclusively captures items associated with distinctively negative reactions as defined by the four principles (Cronbach's alpha of 0.74, pairwise correlation with the PJ index of −0.78). These include, for instance, if an officer raised their voice to intimidate or deter, used a sarcastic or mocking tone, interrupted citizens, or showed bias against the minority groups represented by the shoppers. Higher values represent worse reactions (i.e., the hypothesis is $\beta_1 < 0$). As shown in Table 2, column (6), trained officers engaged in fewer negative behaviors (see the raw data CDF in Figure 1(d)), scoring 24.7% (0.25 Cohen's d) lower than control officers. By design, these interactions were limited in the extent to which they could escalate (for obvious reasons), so this effect size is considerable.

5.5. Mediation Analysis

We now decompose the treatment effect of training on behavior, the final outcome, into (a) a direct effect of training on behavior and (b) an indirect effect that

Table 2. ToT Training Effects: General Procedural Justice Index Behavior

	Officers' behavior					
LHS variable	(1) PJ index	(2) PJ index	(3) PJ index	(4) PJ index	(5) PJ index	(6) PJ negative
Training	0.1010**	0.1006**	0.1005**	0.0842*	0.1013*	−0.1409**
	(0.0461)	(0.0466)	(0.0490)	(0.0497)	(0.0546)	(0.0576)
	[0.037]	[0.039]	[0.048]	[0.109]	[0.100]	[0.017]
Observations	478	474	465	465	465	465
Baseline PJ index mindset	No	Yes	Yes	Yes	Yes	Yes
Variables ≠ at baseline	No	No	Yes	Yes	Yes	Yes
Sector characteristics	No	No	No	Yes	Yes	No
Interaction characteristics	No	No	No	No	Yes	No
Clusters (sectors × observers)	206	206	202	202	202	202
Mean control	2.461	2.460	2.452	2.452	2.452	0.570

Notes. Two-stage least-squares estimation results. In columns (1)–(5), the dependent variable is the general procedural justice index of officers' behavior and can take the values 0 to 4.25. In column (6), the dependent variable is the negative procedural justice index of officers' behavior, which measures attitudes and behavior associated with negative reactions, and can take the values 0 to 5.15. Higher values represent worse reactions. These variables are based on observers' assessments. Training is a dummy that takes the value of one if the police officer attended the procedural justice training and zero otherwise. This last variable is instrumented with treatment assignment. Baseline PJ index mindset indicates whether the general procedural justice index of officers' mindset at baseline is included in the regression. Variables ≠ at baseline indicates whether the variables—at baseline—female, experience, and college are included in the regression. Sector characteristics indicate whether the variables—at baseline—population, marginalization, high school, 911 calls, and crimes are included in the regression. Interaction characteristics indicate whether the regression includes indicators for the scenario simulated: suspicious person or administrative misconduct, the field staff involved in each interaction, month and day of the week of the interaction, whether the interaction was completed during the morning or the afternoon, and whether the observers consider that the interaction was implemented as planned (i.e., the script was followed appropriately). Robust standard errors clustered at the sector by observer level are in parenthesis. Wild bootstrap p-values with 2,000 replications of training = 0 clustered at the sector by observer level are in squared brackets.

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

operates through changes in mindsets, the intermediate outcome or mediator. In the presence of imperfect compliance with treatment (our case), the treatment and mediator are potentially endogenous regressors, so we perform mediation analysis through instrumental variables using random assignment to treatment (Dippel et al. 2019). See Online Appendix E for a discussion on the estimation strategy.

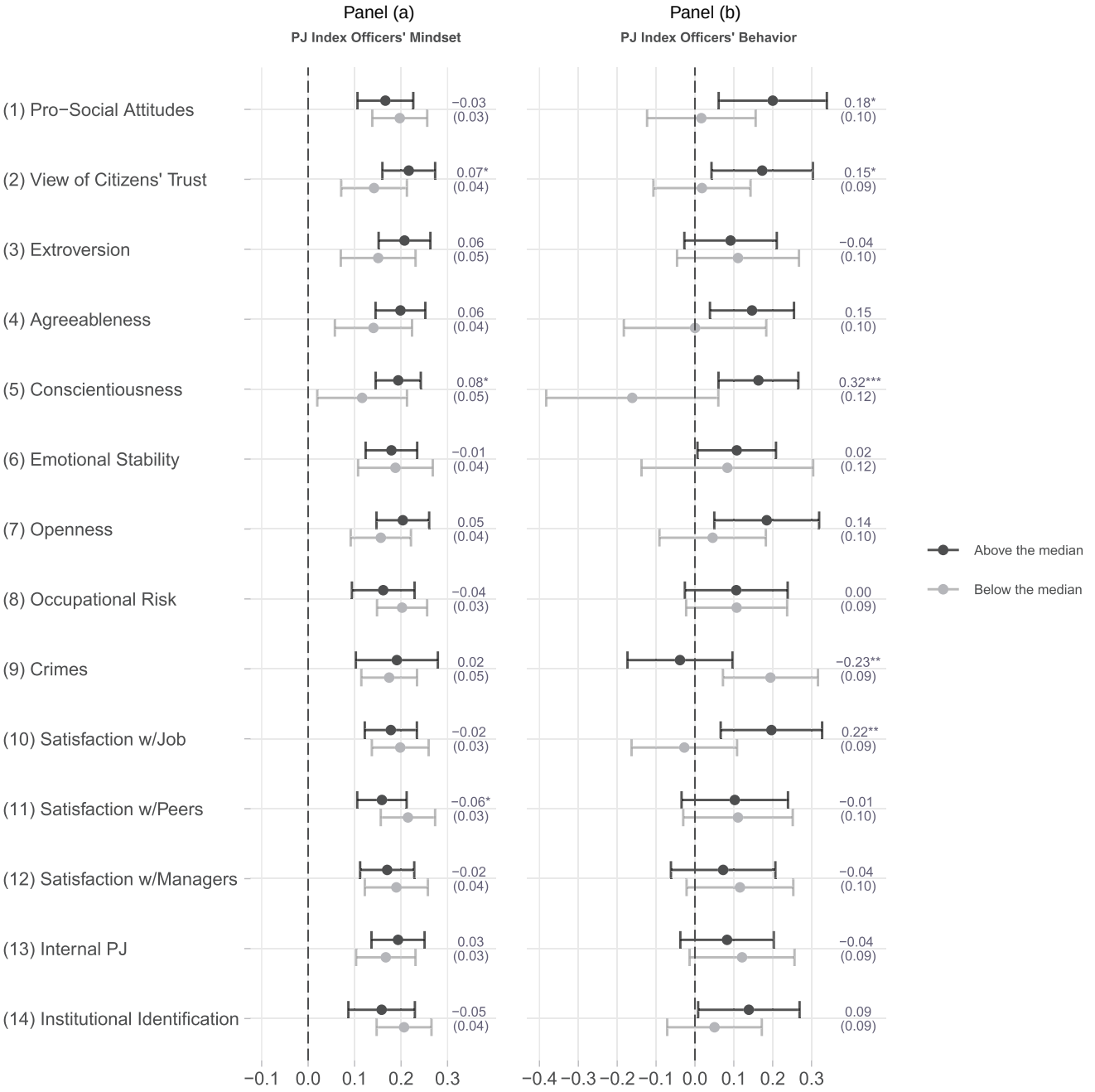
Online Table E.1, panel A, reports estimates for Online Equations (E.2) and (E.4), which are used for the mediation analysis reported in panel B. The estimate for the total effect is consistent with the ToT estimates reported in Table 2.[10] The direct effect estimate is negative and nonsignificant. The estimate for the indirect effect, on the other hand, is positive and significant. Our main specification, which controls for both the general procedural justice index of officers' mindsets and variables that are statistically different between treatment and control at baseline, suggests that mindset shifts explain about 156% of the total effects on behavior. Even though the indirect effect is larger than the total effect, the training could have affected behavior through other paths, such as contextual factors. Measurement imprecision and limited variance in the mystery-shopper evaluation could affect the size of the direct and indirect effects (Rucker et al. 2011). Altogether, we interpret the mediation with caution, but its scale signals that changes in mindsets are likely a primary driver of changes in behavior.

5.6. Heterogeneous Effects

We next perform exploratory analyses to identify whether training effects are moderated by officers' characteristics at baseline. We run interaction models of the form $Y_i = \rho + \alpha_1 \widehat{Training}_i + \alpha_2 Moderator_i + \alpha_3 \widehat{Training}_i \times Moderator_i + \nu_i$, but instead of treating the moderators as continuous variables, we split them above and below the median. This allows us to distinguish effects that may not be constant across the whole distribution of the moderator. A multiplicative interaction model with a binary moderator is equivalent to fitting split sample models of the form $Y_i = \alpha + \beta_1 \widehat{Training}_i + \varepsilon_i$, one for observations above and another for observations below the median, allowing β_1 to be different. The rows of Figure 2—panel (a) for mindsets and panel (b) for behaviors—present heterogeneity in treatment effects considering each characteristic as a moderator. For each moderator, we report the estimated difference in treatment effects next to the corresponding indicators.[11] All regressions control for the general procedural justice index of officers' mindsets at baseline and for variables that are statistically different between experimental groups.

5.6.1. Attitudes Toward Citizens. Relational models of justice suggest a linkage between agents' relationship to their social context and their tendency to behave fairly (Blader et al. 2013, Patil 2018). When actors are socially aligned (by admiration, empathy, or communal views) with a counterpart, their motivation to be

Figure 2. (Color online) ToT Training Effects: Heterogeneities: General Procedural Justice Index Mindset and Behavior



Notes. Two-stage least-squares estimation results, in which training participation is instrumented with treatment assignment. In panel (a), the dependent variable is the general procedural justice index of officers' mindset and can take the values one to five. In panel (b), the dependent variable is the general procedural justice index of officers' behavior and can take the values 0 to 4.25. This last variable is based on observers' assessments. In each row, we run separate regressions by indicators of officers' characteristics at baseline. In color black are illustrated the estimates when the indicators are above (or equal to) the median, and in color gray are illustrated the estimates when the indicators are below the median. Next to each indicator-pair (in blue online), we report the estimated differences in treatment effects between officers that are above (or equal to) the median at baseline and officers that are below the median at baseline. All regressions include the general procedural justice index of officers' mindset at baseline and variables that are statistically different between treatment and control officers at baseline; 95% confidence intervals indicated around the point estimates based on robust standard errors clustered at the sector level (panel (a)) and at the sector by observers level (panel (b)). $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

fair increases. At baseline, we collected officers' prosocial attitudes and officers' perceptions about what citizens believe of police work (view of citizens' trust). Whereas we do not see heterogeneous effects on mindsets for officers with greater prosocial attitudes (i.e., the training has similar positive impacts for all), we do observe that only these officers seem to have shifted their behavior; see row 1 of panel (b). Likewise, officers

with higher views of citizens' trust changed both mindsets and behavior; see row 2 of panels (a) and (b). On average, these officers experienced close to a 50% larger impact on mindsets and also significantly changed their behavior, whereas officers with views below the median did not. These heterogeneities in treatment effects suggest that views of the "other" not only affect whether individuals incorporate principles of justice into their actions but also their general receptivity toward training.

5.6.2. Personality Traits. Different contextual factors, personality traits, and beliefs can affect perceptions of, reactions to, and the provision of justice (Colquitt et al. 2006, Bianchi and Brockner 2012). For instance, research suggests that individuals higher in negative affectivity (i.e., neuroticism) show less interpersonal justice and are more likely to retaliate after receiving unfair treatment, whereas agreeable managers tend to adhere more to organizational justice (Skarlicki et al. 1999). At baseline, we measured personality traits using the ten-item personality inventory of the Big Five personality dimensions (Gosling et al. 2003). Figure 2, rows 3–7, shows treatment effects by moderator. We observe heterogeneous treatment effects on procedural justice mindsets and behaviors for one of the Big Five traits: conscientiousness. Because of limited power, we cannot rule out heterogeneities in behavior according to baseline levels of agreeableness and openness to experience.

5.6.3. Perceptions of Risk. A common expectation is that officers with high-risk assignments may be less able to behave in procedurally just ways (Skogan et al. 2015). Behaving justly requires time and mental effort that, depending on the situation, may be difficult to exert (Baumeister et al. 2007, Kahn 2019). For instance, agents may believe that acting justly reduces their control of the situation (Brockner et al. 2009). At baseline, we collected officers' perceptions about the frequency of life-threatening and stressful situations on the job (occupational risk). In addition, we have statistics of violent crimes in each of the experimental sectors. Our analyses of mindsets suggest that officers who perceive their assignments as higher risk were less influenced by the training although the estimated difference is not statistically significant (panel (a), row 8, of Figure 2). We do not observe a similar pattern when considering the number of reported crimes in an officer's sector as a proxy for actual risk in the job (panel (a), row 9). Interestingly, when we consider treatment effects on behavior, we observe a null effect for officers patrolling riskier sectors—measured by the number of crimes—and a positive and significant effect for those who patrol less intense areas (row 9 of panel (b)). There is no evidence that perceptions of occupational risk moderate the impact of the training on behavior. The results indicate that, even though the training positively changed the mindsets of officers patrolling both high- and low-crime sectors, the former were less likely to clearly use principles of procedural justice in their interactions with shoppers (more on this below).

5.6.4. Relationship with the Job. The internal dynamics of the workplace can affect how individuals perceive justice and their ability and willingness to enact it. Procedural justice is positively related to several workplace characteristics such as task performance, satisfaction with managers and with the job, and organizational commitment (Colquitt 2012). Likewise, research in policing shows that officers who feel fairly treated in their workplace express a higher commitment to the organization and are more supportive of community policing models (Trinkner et al. 2016).

At baseline, we asked officers about satisfaction with their career, with their managers, and with the SSC (satisfaction with job); confidence in peers' behavior and honesty (satisfaction with peers); trust in managers and perceptions about their adoption of procedural justice principles with their staff (satisfaction with managers); perceptions of institutional transparency and fairness (internal procedural justice); and identification with the police force (institutional identification). Panel (a), rows 10–14, of Figure 2 shows no clear evidence of heterogeneities except for officers who, at baseline, were in the top of the distribution of both positive perceptions of their peers and perceptions of internal procedural justice, creating a ceiling effect (row 11). Panel (b) shows that the training seems to have had a larger effect in the behavior of officers who were more satisfied with their job (row 10) and also potentially on institutionally identified officers (row 14) although this estimate is not precise enough. There is no evidence that any other workplace characteristic moderates the impact of the training.

5.6.5. Managers. We trained all quadrant and sector chiefs in treated sectors. Manager training was similar to officer training but added an extra hour of training per day to include a module on leadership and management. The extreme demands on managers' time required training them in small batches throughout our entire training period as their availability (uncorrelated with our study) allowed. As a result, some officers filled in the end-line survey before and others some time after their managers had received training. In total 467 treatment officers (48.3%) had at least one of their managers trained by end-line. This quasi-random variation in the timing of manager training allows us to present suggestive evidence about heterogeneous treatment effects of training managers on police officers' mindsets of procedural justice. We are not able to study heterogeneous effects on officers' behavior because, by the time the mystery-shopper study was run, all managers had been trained.

Table 3 shows the estimates for officers without (line 1) and with (line 2) trained managers. We find that training effects are higher when managers were also trained although the differences cannot be estimated precisely. Whereas these results should be interpreted with caution as the order of manager training was not controlled with the same rigor as the rest of our intervention, they are both of a magnitude and consistency that give us confidence in their validity.

5.7. Secondary Effects of Training

At end-line, we also measured perceptions of internal procedural justice and occupational risk; attitudes toward rules; job satisfaction; perceptions of colleagues, managers, and citizens; and institutional identification. Online Figure A.8 summarizes point estimates of treatment effects, treating each indicated perception as the dependent variable. As can be seen, we do not find effects on perceptions that were not the focus of the training, such as occupational risk, internal procedural justice, or satisfaction with managers. These null effects further increase our confidence that the effects we estimate on procedural justice mindsets are not driven by reporting biases.

In contrast, we observe positive and significant effects on several items of interest. Behavioral intentions regarding rule compliance (adherence to rules), prosocial attitudes toward the community, perceptions about citizens, and institutional identification are all perceptions that conceivably might have been affected by the training as the topics and their connections to procedural justice were explicitly discussed. For example, the training emphasized the importance of always acting professionally as police officers for the benefit of all. More broadly, justice and adherence to rules are inherently linked (Colquitt et al. 2015). The training also invited officers to seek positive interactions with citizens when nothing bad is happening. We also observe suggestive effects on satisfaction with job and satisfaction with peers. None of the significant effects

Table 3. ToT Training Effects: Heterogeneities with Managers: General Procedural Justice Index Mindset and Its Principles

	Officers' mindset				
LHS variable	(1) PJ index	(2) PJ neutrality	(3) PJ respect	(4) PJ trustw	(5) PJ voice
(1) Training without managers	0.1588***	0.1658***	0.1731***	0.1518***	0.1599***
	(0.0321)	(0.0327)	(0.0348)	(0.0379)	(0.0408)
	[0.000]	[0.000]	[0.000]	[0.005]	[0.004]
(2) Training with managers	0.2031***	0.2256***	0.1961***	0.2207***	0.1593***
	(0.0269)	(0.0335)	(0.0343)	(0.0334)	(0.0290)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
p-value (1) = (2)	0.162	0.074	0.511	0.066	0.987
Wild bootstrap p-value (1) = (2)	0.220	0.094	0.571	0.079	0.985
Observations	1,650	1,652	1,650	1,648	1,652
Baseline dependent variable	Yes	Yes	Yes	Yes	Yes
Variables ≠ at baseline	Yes	Yes	Yes	Yes	Yes
Sector characteristics	No	No	No	No	No
Officer characteristics	No	No	No	No	No
Mindsets and perceptions	No	No	No	No	No
Clusters (sectors)	60	60	60	60	60
Mean control	3.977	3.987	3.837	3.971	4.111

Notes. Two-stage least-squares estimation results. The dependent variables are the general procedural justice index of officers' mindset (can take the values one to five), and the four principles of procedural justice mindset (can take the values one to five). Training is a variable that takes the value of one if the police officer attended the procedural justice training and filled the endline survey without having the manager trained (training without managers), takes the value of two if the police officer attended the procedural justice training and filled in the end-line survey having the manager trained (training with managers), and zero otherwise. This last variable is instrumented with treatment assignment. p-value (1) = (2) presents the Wald test of equality of the coefficients training without managers and training with managers. Wild bootstrap p-value (1) = (2) presents the wild bootstrap p-value with 2,000 replications of the test of equality of the coefficients training without managers and training with managers. Baseline dependent variable indicates whether the outcome variable at baseline is included in the regression. Variables ≠ at baseline indicates whether the variables—at baseline—female, adherence to rules, and PJ voice are included in the regression. Sector characteristics indicate whether the variables—at baseline—population, marginalization, high school, 911 calls, and crimes are included in the regression. Officer characteristics indicate whether the variables—at baseline—age, experience, college, married, motivation, car patrol, public sector occupation, extroversion, agreeableness, conscientiousness, emotional stability, and openness are included in the regression. Mindsets and perceptions indicate whether the variables—at baseline—prosocial attitudes, occupational risk, satisfaction with job, satisfaction with managers, satisfaction with peers, internal PJ index, view of citizens' trust, institutional identification, PJ neutrality, PJ respect, and PJ trustworthiness are included in the regression. Robust standard errors clustered at the sector level are in parenthesis. Wild bootstrap p-values with 2,000 replications of training = 0 clustered at the sector level are in squared brackets.

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

on the secondary outcomes seems to mediate the effect of the training on behaviors (see Online Table E.2). We discuss these and the previous results in Section 6.

6. Discussion and Conclusion

This paper shows that the principles, mindsets, and behaviors of organizational justice can be effectively taught. A wealth of evidence demonstrates the importance of organizational justice for all types of organizations (Colquitt 2012, Brockner et al. 2015, Lind 2019). But it is particularly critical for organizations—for example, in healthcare, finance, customer service, and other street-level bureaucracies—that depend on frequent client interactions, in which employees must use discretion to make decisions that are consequential for clients, and in which necessary evils are unavoidable (Margolis and Molinsky 2008, Kahn 2019). In such settings, it is particularly important and challenging to provide guidance so that employees can use their discretion effectively, as they must balance organizational objectives with their interpretation of a situation vis-à-vis what rules and procedures would dictate (Lipsky 2010) and with their personal values and preferences. The principles of procedural justice can, on the one hand, help develop a clearer interpretation of a situation and make choices that are better aligned with organizational goals. On the other, they can improve the client's experience of a decision, irrespective of its outcome, improving client engagement, legitimacy, and trust.

We study the context of policing, which we argue is a critical case given the nature of police work and how consequential organizational justice can be for its effectiveness (Tyler and Nobo 2022). We show, through a randomized controlled trial, that procedural justice training significantly shifted police officer mindsets, which translated to changes in actual behavior.

Across all measures of procedural justice mindsets and its elements, we found treatment effects—mostly homogeneous across officer characteristics—in the medium-sized (Cohen 1988) range of 0.4 standard deviation. To put this in context, a police officer in the lowest quartile of the distribution would become a median officer through training. We also show that the training increased officers' use of procedurally just behaviors and decreased their negative behaviors, which is particularly important given evidence of the disproportionate, widespread effects of the negative behavior of the few worst performers (e.g., Wood et al. 2019). Through mediation analyses, we also show that the training functioned as intended, shifting officer mindsets to then influence behavior. And, in a context in which officers received other trainings and remained fully engaged in their challenging work, the effects were sustained in time.

The first and central contribution of this paper, therefore, is to demonstrate that, despite widespread evidence questioning the effectiveness of corporate training programs, it is possible to shift employee mindsets and behaviors regarding organizational justice through training.

This is theoretically important because research to date has prioritized understanding the effects of organizational justice and the mechanisms through which it travels. Studies focus on observing empirical settings in which actors naturally (fail to) integrate organizational justice in their actions or on artificially manipulating them in the laboratory. Whereas fundamental to our current understanding of the importance and functioning of organizational justice, it leaves a critical open question for organizations: is organizational justice an individual trait or disposition that we can only hope to recruit for, or is it a framework whose tools and mindsets can be taught? This explains recent calls to treat justice as a dependent variable (Brockner et al. 2015).

Practically, a manager will be less interested in the specific theoretical mechanisms that make organizational justice work than in whether and how employees can learn to integrate it effectively. Our paper, thus, makes a valuable contribution to theory and practice by showing that it can be effectively taught. Further, our setting and research design allow us to make additional theoretical contributions regarding factors such as occupational risk, participants' prosocial dispositions, and the role of managers that can enhance or limit the effectiveness of training as follows.

6.1. Occupational Risk

Officers' baseline perceptions of on-the-job risk (interestingly, uncorrelated with the actual risk of their patrol areas) did not affect the training's impact. Officers who patrolled areas with lower levels of crime, however, demonstrated larger shifts in behavior (with similar shifts in mindsets). Our results, thus, show that predispositions toward occupational risk do not affect the impact of training. Actual exposure of risk, however, interjected between changes in mindsets and their translation to behavioral shifts. Our data do not allow us to test specific mechanisms, but we see three potential explanations.

First, even though the training shifted officers' mindsets toward procedural justice, more frequent exposure to danger might activate a different decision frame. Ironically, whereas procedural justice can make policing safer as it de-escalates fraught situations (Goff and Rau 2020, Wood et al. 2020), environmental cues could make the frame less salient (Van den Bos et al. 1998, Blader and Chen 2012). To counter this effect, training could simulate situations so that participants can practice accessing the procedural justice framework, even when experiencing uncertainty and stress (Goff and Rau 2020, Goff 2021).

Second, officers who patrol more crime-prone areas likely handle more calls. The increased frequency and intensity of situations in which officers must self-monitor, exercise restraint, and witness suffering could cause depletion, reducing the ability to sustain a disposition toward justice (Baumeister et al. 2007). Third, these officers are also more frequent targets of citizen transgressions, which can activate feelings of injustice and personal threat (Wiesenfeld et al. 2000, Scott et al. 2009, Wo et al. 2015). Whereas there are behavioral tools that can help individuals manage depletion and threat perceptions, there are structural dimensions—such as the intensity of a shift—that remain above an employee's purview. Organizations could be more intentional in balancing the intensity of shifts, adding restorative breaks, and proactively integrating moments of leader support and collective reaffirmation (Wiesenfeld et al. 1999, Skarlicki et al. 2008).

6.2. Empathy and Prosocial Dispositions

Research has shown that empathy and a prosocial disposition lead individuals to behave more justly (Blader et al. 2013, Blader and Rothman 2014, Fortin et al. 2015). In street-level bureaucracies, including occupations such as nursing, policing, crisis management, or microfinance, empathy and a focus on client impact can help employees better serve clients (Silbey et al. 2009, Grant and Berg 2012). But remaining empathetic with clients who sometimes experience negative consequences and who do not understand or appreciate the complexities of the work exposes employees to image discrepancies, exploitation, and burnout (Margolis and Molinsky 2008, Kahn 2019, DiBenigno 2022).

As theory predicts, officers with higher baseline prosocial motivations and positive views of citizens experienced larger impacts from the training. Yet these positive results were not accompanied by evidence of increased burnout or dissatisfaction for officers. Rather, the training increased officers' prosocial attitudes, perceptions of citizens, and satisfaction with their jobs. Together with mindsets and behaviors, training also led individuals to shift their views of the profession, increasing their institutional identification and appreciation for its rules. Our results, thus, suggest that the procedural justice framework offers tools and behaviors that help employees have more productive interactions with clients and make decisions that, irrespective of outcomes, are perceived to be trustworthy and fair without requiring the type of emotional involvement that makes employees vulnerable to burnout. In the process, the framework can help employees strengthen their professional and institutional identification. Our results suggest a self-reinforcing cycle in which officers proactively seek positive interactions with citizens, broadening their sample of experiences and updating their perceptions. Officers also reduce the frequency and intensity of negative interactions, equipped with tools to understand, contain, and resolve them, reducing their emotional toll.

Yet officers who started with less positive views of citizens did not seem to improve their positive behaviors on the field. They did, however, improve their mindsets regarding procedural justice and citizens, as well as limit their negative behaviors. One possible explanation is that the training initiated a process that would eventually lead to improved positive behaviors, but this takes time, and we evaluated officers before it crystallized. Behavioral shifts might lag further behind improved mindsets for officers with lower starting points. A complementary alternative is that, once an initial round of training has shifted mindsets for employees who are more reticent, a subsequent round of booster training could yield larger behavioral effects. Through the first round of training, employees would be shifted to a better starting point for the next round.

For organizations seeking to improve client experiences and outcomes through increased client engagement—for example, police forces working to improve citizen trust through community policing—the implication is that employees should be routinely trained in procedural justice with periodic booster trainings so that increased client interactions can be productive and sustainable.

6.3. Internal Organizational Justice

Through the quasi-random variation in the timing of manager training, our results show that training managers on procedural justice enhanced the impact of training for their subordinates. Further, we found almost perfect correlations at baseline between officers' job satisfaction, perceptions of managers, and perceptions of internal organizational justice (in elements such as transparency in promotions and sanctions). And officers with lower perceptions of internal organizational justice also scored lower on baseline procedural justice mindsets.

This is consistent with a trickle-down view of organizational justice (Masterson 2001, Ambrose et al. 2013, Wo et al. 2015); individuals who experience it on their jobs are more likely to also integrate organizational justice in their interactions with clients. And this also extends to managers. Commanders in our training often debated how institutional demands and performance evaluation metrics were not always aligned with procedural justice. For instance, sector chiefs are often evaluated on the number of arrests made in their area relative to the number of crimes reported, doctors and nurses have strong incentives to push patients out the door, and loan officers often are rewarded disproportionately for loan collections irrespective of other client outcomes.

Organizational structures and incentives matter. If not in coherence with procedural justice, they may cap

or even reverse the benefits of training over time. The effects of our training proved to be resilient over time, but it is difficult to envision that officers who internalize procedural justice but are managed unfairly or are rewarded for factors that conflict with positive citizen engagement could sustain such contradictions in time. Future research could further isolate the mechanisms, extent, and limits of such managerial and trickle-down effects.

6.4. Limitations

We are fairly confident in the replicability of our findings. Police organizations, particularly in a setting such as Mexico, can constitute a critical case for the effectiveness of organizational justice training. Our experiment was rigorously designed with multiple rounds of pilots and codesign with local officers. And we believe our estimates are a conservative measure of the potential impacts of training; we considered a number of robustness checks and alternative specifications, and given the nature of our measures, there may be ceiling effects that limit the extent to which we can measure certain impacts.

At the same time, our experiment focused on only one context and has unavoidable limitations. Our results contrast with the bulk of evidence showing a lack of effectiveness of corporate training programs spanning gender diversity and equity (Dobbin and Kalev 2019), prejudice reduction (Paluck and Green 2009), implicit bias (Lai et al. 2014, Forscher et al. 2019), and teacher improvement (Stecher et al. 2018). Organizational justice might be categorically different from, say, workplace diversity. But the underlying principles—such as implicit bias and the importance of neutrality—share many similarities. Lessons learned throughout the training's design, pilot, and implementation persuaded us that the training's format—and the process of adapting it to the context by involving local police officers—were critical to its success. Indeed, whereas the four facilitators that led different training groups were excellent, one of them had been a Mexico City officer early in his career. With identical content and pedagogy, the groups led by this facilitator experienced significantly higher impact than the groups led by his peers (available upon request). Further, our ethnographic observations of regular training programs and our pilots varying group size underscored the importance of delivering training in small groups (of 20 or so) to compel participants to engage each other despite their preference to disengage. In contrast, because of resource and efficiency constraints, most corporate programs train employees in large groups or through asynchronous individual training with limited engagement and little room for practice, role playing, or introspection. Our experience, thus, aligns well with Skarlicki and Latham's (2005) advice.

Yet the design of our study did not allow us to evaluate the format of the training. Subsequent research could systematically vary training elements and formats to identify which are most determinant of effectiveness. Likewise, future research could evaluate the precise effects of management training or the potential for positive spillovers or contagion. Future studies could include experimental conditions varying each of these factors systematically. For example, it is conceivable that training a certain percentage of a team of officers could induce positive spillover effects and even create natural tipping points at which the culture of the team changes and nontrained officers learn through imitation. It is also interesting to consider whether training only managers might induce changes in their subordinates. We, thus, see our paper as one step of many.

6.5. Conclusion

Building trust in an organization requires employees who know how to integrate procedural justice into their client interactions. But no amount of training can outmatch an organization whose culture, routines, or incentives conflict with the principles of justice. Our paper shows that organizational justice travels well across contexts and can be effectively taught. But it requires internalization through a shift in how employees define their profession. Organizations should ensure that training programs integrate technical elements (e.g., the frameworks and toolkits of procedural justice) with formats that enable open engagement, experiential learning, and genuine internalization. And these should rest on managerial practices that can reward and sustain new behaviors. We are, thus, convinced that training programs can be effective, but there is no cheap way to impart them, and there are likely no shortcuts.

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Endnotes

[1] The research streams on perceptions of justice in organizations and in the police have evolved in parallel from a shared origin (Thibaut and Walker 1975, Lind and Tyler 1988). They are mostly consistent in their approach, general theory, and outcomes but show some differences in terminology. For the remainder of the paper, we use the term "procedural justice" as used in policing as an aggregate measure of justice that, in organizational justice terms, may also include certain elements of interpersonal and informational justice.

[2] Our funder, the Bureau of International Narcotics and Law Enforcement Affairs, requested background checks for all police officers before participating in the intervention. More than 98 percent of the officers were approved.

[3] Given the risk of police officers informing peers of the deception, informed consent was provided to all officers after the entire intervention was completed. Participants received letters explaining the intervention and explaining the option to opt out of the sample if desired. Only one police officer requested removal. All protocols were approved by the appropriate institutional review board.

[4] The field experiment and the specific outcome variables were not preregistered. However, all our data-collection instruments, data sets, and codebooks are publicly available alongside this publication together with the original research proposal.

[5] Insofar as assignment to treatment predicts whether an officer was trained, the random assignment to treatment can be used as a valid instrument to recover ToT estimates. Online Table A.3 shows that random assignment to treatment increases the likelihood of being trained by 89.3%.

[6] We employed an equal weighting scheme considering that (a) these instruments have been designed and validated to assume equal weighting of the factors, and (b) there is a lack of theoretical or empirical basis in the procedural justice literature to suggest differently. Below, we discuss the robustness of the results to different weighting schemes.

[7] See Online Table A.6 for coefficient estimates of all the controls.

[8] Online Appendix D presents a detailed discussion of the methods used to construct the various indexes.

[9] Online Table A.12 reports coefficient estimates for all the controls.

[10] In fact, the estimate would have been exactly the same if restricted to the same sample. The inclusion of the intermediate outcome in the mediation analysis explains the small difference in the number of observations between the models of Table 2 and Online Table E.1

[11] As a robustness check, in Online Figures A.6 and A.7, we present the average interaction effects using continuous moderators and the marginal effect of the training at specific values of the moderators. Note that these conditional marginal effects are highly dependent on the functional form of the model and could be based on interpolation or extrapolation to an area of the moderator's distribution with few or no observations (Hainmueller et al. 2019). Results are qualitatively similar to the median split.

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