

BUILDING TRUST IN THE POLICE: EVIDENCE FROM A MULTI-SITE EXPERIMENT IN COLOMBIA*

Verónica Abril Eryvn Norza Santiago M. Perez-Vincent
Santiago Tobón Michael Weintraub[†]

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Abstract

We study how improving police-citizen interactions increases public trust by experimentally evaluating a police training program in Colombia. The National Police retrained officers in procedural justice principles—such as fairness and respect—while instructing them to intensify citizen interactions. The intervention improved policing frequency, perceptions of fair treatment, and public trust. Our analysis points to strong complementarities between more and better policing: more interactions that lack good behavior or good behavior without increased interactions do not improve trust. We find no impacts on officers’ trust in citizens or beliefs about public trust, implying that institutional change may require more profound efforts.

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[†]Abril: Universidad EAFIT (Centro de Valor Público): sabrilg@eafit.edu.co; Norza: National Police of Colombia, eryvn.norza@correo.policia.gov.co; Perez-Vincent: Inter-American Development Bank, santiagoper@iadb.org; Tobón (corresponding author): Universidad EAFIT (School of Finance, Economics and Government), stobonz@eafit.edu.co; Weintraub: Universidad de los Andes (School of Government), mlw@uniandes.edu.co.

1 INTRODUCTION

Lack of trust in government is an obstacle to growth and development (Algan and Cahuc 2010; Guiso et al. 2006). One possible explanation is that untrusting citizens may be less likely to comply with government policies, reducing state capacity and limiting policy effectiveness (Besley and Dray 2022). This creates a vicious cycle, as public trust further declines when state actors struggle to deliver high-quality services.¹ These challenges are particularly relevant for police agencies, which serve as the face of the state in virtually all communities, wield the power to use violence, and often face difficulties in cultivating or maintaining public trust.² This paper examines whether promoting procedurally just police-citizen interactions can increase public trust in the police.

Procedural justice emphasizes the importance of fair and respectful interactions throughout a process (Nagin and Telep 2017; Bennett et al. 2018). It has two linked components: the quality of decision-making procedures and the quality of treatment.³ Proponents of procedural justice argue that interactions characterized by “failure to listen to an individual, repeated interruption, aggression, and disbelief” (Roberts and Herrington 2013)—procedurally *unjust* interactions—reduce the quality of information that state agents can obtain from citizens, hampering their performance and undermining trust in them (Roberts 2010).

We begin by proposing a model that integrates the concept of procedural justice in an economics framework and that formally articulates the relationship between trust and procedural justice. Then, we empirically assess the relationship between procedurally just interactions and public trust. We partnered with the Colombian National Police—a centralized police force with roughly 160,000 sworn officers—to evaluate a procedural justice intervention across five cities: Barranquilla, Bucaramanga, Cartagena, Cali, and Medellín, which together comprise a total population of more than 7 million people, roughly 15% of Colombia’s residents. The National Police implemented the intervention, the *COP Initiative*, from mid-March to late April 2022. The COP Initiative retrained patrolling officers in procedural justice principles, seeking to improve the quality of officer-citizen encounters by emphasizing the importance of respect, fairness, transparency, and the right to be heard.

We randomized the intervention at the level of police *quadrants*, which are equivalent to police *beats* and constitute the minimal patrolling unit.⁴ Stratifying by city and baseline poverty and

¹See Acemoglu et al. (2020) on the importance of information about improved public services for building trust in state actors. See also Almond and Verba (2015) and Coleman (1994) on norms, trust, and civic culture as determinants of state effectiveness. Finally, Acemoglu (2005); Evans (2012); Dell et al. (2018); Rothstein and Stolle (2008); Zmerli and Newton (2008) examine how citizen cooperation disciplines and constrains state institutions.

²Many countries, such as the United States, frequently face massive anti-police protests following trust crises (e.g., Ang 2021; DiPasquale and Glaeser 1998).

³The term was coined by Thibaut and Walker (1975) and popularized by Tyler (1990).

⁴Each police quadrant has six assigned officers who patrol in pairs during 8-hour shifts.

trust levels, we randomly assigned police quadrants to one of three arms.⁵ Quadrants assigned to the first treatment arm received the core components of the COP Initiative. A team affiliated with the Central Command of the National Police held an in-person session with police station commanders to retrain them on procedural justice principles in interactions with citizens. They also instructed commanders to regularly retrain and remind officers under their command about the importance of applying these principles.⁶ Additionally, commanders instructed officers to increase interactions with citizens on a randomly selected street block within their patrolling area. The second treatment arm received the core components of the program described above, supplemented by daily reminders sent to their telephones about procedural justice. The third arm consisted of a pure control group featuring everyday policing practices.⁷

We document four sets of results. First, we begin by evaluating the impacts of the intervention considering both intervention arms together. We observe that treatment assignment is associated with an increase in the frequency of policing, perceptions of fair treatment, and perceptions of public trust.⁸ Because the intervention combined both more interactions and better treatment, we leverage the multiple strata in our experimental setting to examine whether more police presence alone is sufficient to improve public trust. We compute treatment effects for each stratum for three outcomes: frequency of policing, perceptions of fair treatment, and public trust. We find that improvements in public trust are highest when both changes in patrolling frequency and changes in perceptions of procedurally just behavior are at their highest levels. The absence of either component results in no change in perceptions of public trust. These findings point to strong complementarities between increasing patrolling frequency and improving the quality of police interactions.⁹

Second, we examine differences across the two intervention arms to better understand the effect of different components of the intervention. We find no evidence that the information campaign produced benefits beyond what the intervention's core components achieved. Our leading interpretation, based on interviews with police officers once the intervention ended, is that the reminders

⁵Our experimental sample consists of 345 quadrants across all five cities, randomly selected from a universe of 883 eligible quadrants.

⁶See Battiston et al. (2020), who provide evidence about the importance of face-to-face encounters in general, with specific application to police forces.

⁷The head of the National Police's patrolling service issued an executive order providing binding instructions to both station commanders and patrolling officers about which quadrants would receive the treatment—framed as a pilot, providing no information about the experimental evaluation. This was done to ensure adherence to the treatment schedule and to avoid contamination, such as station commanders' broadcasting procedural justice recommendations to all personnel. Due to the police's hierarchical nature, we expected and achieved high levels of adherence to the treatment schedule.

⁸Interestingly, the impacts on public trust are highest in quadrants with higher baseline levels of violent crime.

⁹This finding may help explain failures to improve public trust via hot spots policing interventions that merely increase police presence in targeted locations without markedly improve police-citizen interactions (e.g., Blair et al. 2021; Blattman et al. 2021; Collazos et al. 2021).

essentially reiterated the directives provided by the commanders as part of the core components of the COP Initiative. Given the hierarchical structure of the police force, these initial directives were pivotal, and the subsequent reminders did not introduce new insights or instructions beyond them.

Third, we observe a substantively large but imprecisely-estimated reduction in reported crimes, misdemeanors, and perceptions of insecurity, in addition to an increase in arrests. Because they are imprecisely estimated, however, these results are simply suggestive. This lack of precision could stem from impacts of the program that were more likely to materialize over the long run.

Finally, we examine whether the intervention affected police officers' trust in citizens and their beliefs about citizens' trust in them. This analysis aims to assess the intervention's capacity to influence officer attitudes and indirectly capture the perceived effectiveness of the intervention. We find that the intervention did not significantly affect these perceptions. The absence of effects on these dimensions, despite positive changes in citizen perceptions, underscores the challenge of promoting institutional cultural change within state bureaucracies. It also suggests the difficulty of ensuring the sustainability of similar interventions over time.

Colombia provides an ideal laboratory to study our research questions. State capacity in Colombia—as measured by state presence, public goods provision, and prosperity—is relatively low and heterogeneous both within and across cities (Acemoglu et al. 2015). Relationships between the police and some segments of civil society have also been fraught. According to reports from the Supreme Court of Colombia (2020) and the UN High Commissioner for Human Rights (2021), during the prolonged and widespread protests of 2019 and 2021, Colombian police and military forces used excessive force against protesters, deepening a trust crisis in Colombian institutions and in the National Police. In particular, the latter experienced record-high levels of unfavorable perceptions by the end of 2021.¹⁰ Finally, because some Colombian cities feature non-state armed actors who compete with state authorities in providing basic public services (including security and dispute resolution), police forces typically struggle to build citizen trust and legitimacy (Arjona 2016; Blattman et al. 2023; 2024; Blair et al. 2022; De Bruin et al. 2023).

Our work contributes to different literatures in economics and other social sciences. First, we add to a growing body of research on the determinants of public trust in state actors and the importance that such trusting relations have for effective service delivery. Acemoglu et al. (2020), for instance, document how the provision of truthful information about public service provision increases trust in state authorities while decreasing reliance on non-state actors. Other studies focus on trust and cooperation between citizens as a necessary condition for reliance on state institutions (e.g., Dell et al. 2015; Evans 2012; Mishler and Rose. 2001; Zmerli and Newton 2008). Our study emphasizes how to implement low-cost interventions with law enforcement agencies

¹⁰See Gallup (2021), which reports a record high share of the Colombian population holding unfavorable opinions of the Colombian National Police.

to rebuild public trust in high-stakes contexts—those characterized by high crime and low public trust. Closely related, other research focuses on links between the provision of public goods, state legitimacy, and citizens’ trust in the state (e.g., Flückiger et al. 2019; Risse and Lehmkuhl 2012; DeBruin et al. 2022). Our results align with earlier findings that better provision of public goods improves public trust, highlighting the importance of procedurally-just interactions. Recent crises of legitimacy in both new and established democracies stress the importance of finding novel ways to bolster citizens’ perceptions of the state and commitments to democratic politics (e.g., Neblo and Wallace 2021). Our results provide new evidence on how to do so.

Second, we contribute to a growing literature on police reform, including strategies to increase citizen trust in the police (e.g., Blair et al. 2019; 2021; Karim 2020); training in procedural justice (e.g., Owens et al. 2018; Weisburd et al. 2022); the role of officer race, gender and other forms of peer effects that affect police-civilian interactions (e.g., Ba et al. 2021; Holz et al. 2023); and strategies to improve police effectiveness in reducing crime (e.g., Banerjee et al. 2021; Blattman et al. 2021; Blair and Weintraub 2022; 2023; Collazos et al. 2021; Magaloni and Rodriguez 2020; Harris et al. 2022; Braga et al. 2019).¹¹ Studies of community policing and recurring patrols in rural communities, for example, seldom find positive impacts on public trust (Blair et al. 2021). Our formal model and empirical tests stress how improving the quality and frequency of interactions between citizens and the police can increase public trust, including in particularly adverse contexts. Furthermore, studies in the developing world seldom find positive impacts on outcomes such as crime reduction or trust, while results from developed economies are more encouraging (e.g., Braga et al. 2019; Mazerolle et al. 2013). This paper shows that low-cost interventions in developing economies can produce tangible increases in citizens’ trust in the police.

Finally, and most broadly, we contribute to our understanding of trust in human interactions, which economists and political scientists for several decades have addressed. Seminal contributions focus on trust games that study two-person interactions in different settings (e.g., Dasgupta 1988; Kreps 1990; Berg et al. 1995). The literature then evolved to include multiple agents in controlled behavioral experiments (e.g., Fehr and Gächter 2000), while others moved beyond the laboratory, studying how people form and reveal beliefs about trust “in the wild” (e.g., Glaeser et al. 2000; Ermisch et al. 2009). We contribute to this literature by exploring the determinants of trust in contexts characterized by asymmetric power relations, between the state as the governing authority and its citizens. Our study shows how improving certain behaviors of critical state actors, such as police forces, can lead to increased trust from citizens with whom they frequently interact.

¹¹González (2023) argues that while societal pressures for reform typically target structural factors such as police violence and corruption, the reforms that are actually implemented tend to prioritize operational measures aiming to enhance police performance and social trust.

2 CONCEPTUAL FRAMEWORK

We propose a formal framework to define the concepts of trust and procedural justice, connect them to state capacity, and present a mechanism through which improvements in citizens’ perceptions of procedural justice can enhance trust in institutions. Drawing on the work of Besley and Dray (2022) and Acemoglu et al. (2020), the model suggests that enhancing interaction quality can foster cooperation and, via “motivated beliefs,” bolster trust in state actors. By integrating the concept of procedural justice into an economics framework—a domain where it has traditionally received less attention compared to its prevalence in management and other social sciences—the model aims to formally articulate the relationship between procedural justice and trust. The model’s focus is not to delineate an exclusive mechanism linking the two, nor to yield precise testable hypotheses. Rather, the model aims to formalize a plausible mechanism that underscores the importance of targeted procedural justice interventions as immediate actions to enhance trust in state institutions, particularly in contexts such as policing.

2.1 SETUP

In the model, a person determines the extent of her cooperation (c) with a state actor, which encompasses behaviors such as accepting its decisions, contributing to its functioning, and complying with its policies while supporting their implementation. The extent of cooperation influences the state actor’s ability to implement welfare-improving policies by reducing enforcement costs and broadening the range of viable policies, thereby boosting state capacity (Besley and Dray 2022). To capture this idea, we assume that the citizen’s degree of cooperation affects the state actor’s effectiveness. In the specific context of policing, cooperation encompasses activities like willingly contributing to criminal investigations, reporting crimes, engaging in community-police dialogues, or contributing by paying taxes. This engagement can affect the resources and information available to the police, subsequently enhancing the effectiveness of their crime prevention and patrolling strategies.

Following Besley and Dray (2022), we assume that the individual learns the quality of the state actor’s policies after deciding her degree of cooperation. The policies’ quality depends on the trustworthiness of the state actor implementing it: trustworthy state actors are more likely to implement welfare-improving and context-appropriate policies, while untrustworthy state actors are prone to acting opportunistically and negligently and therefore implement bad policies. The individual has a certain level of trust in the state actor (π_T), which we define as the expected probability that the state actor is not acting opportunistically and that its policies (p) are of high

quality:

$$\pi_T \equiv \mathbb{E}[P(p \in p^*)]$$

where p^* is the set of high-quality policies.

Cooperation increases the individual’s utility if policies are of a high quality, but brings no benefits if of a low quality. The trade-off arises from the fact that engaging in cooperative behaviors entails costs—including financial, time, and emotional investments and administrative burdens, including the effort to understand policies and conform to them, along with potential stress, loss of autonomy, or stigma (Moynihan et al. 2015). Individuals have an expectation about the costs of cooperating and complying with the state actor’s policies (π_P). For simplicity, we assume that these costs are linear in the degree of cooperation. In our context, we focus on the economic and psychological costs individuals might incur when interacting with police agents. The magnitude of these costs arguably hinges on the quality of these interactions, particularly as it pertains to procedural justice. Fair and respectful interactions, at the core of procedural justice, can mitigate these costs.

When deciding her degree of cooperation, we assume that the individual maximizes her expected utility and solves the following optimization problem:

$$\max_{c \geq 0} \pi_T \cdot U(c) - \pi_P \cdot c$$

where we assume that $U(\cdot)$ is a positive, twice differentiable, increasing, and strictly concave function.

2.2 BAYESIAN UPDATING

We assume the individual is Bayesian and updates her beliefs about trust and cooperation costs in the face of new information.

Trust. The individual builds her perception of trust by learning about the quality of the state actor’s policies. If she learns that a policy is of high quality ($p \in p^*$), then her trust in the state actor increases. If the policy is of low quality, trust decreases. Formally, we assume that the individual has an initial expectation about the probability that a policy is of high quality (π_T^O), based on prior information. When the individual receives additional information about the quality of the state actor’s policies, she updates her beliefs (π_T^B). Positive news about the quality of the policies increases trust, while negative news decreases it.¹²

¹²To characterize “positive” and “negative” news more precisely, we can impose distributional assumptions on the individual’s prior. For example, if we further assume that the prior distribution of the probability that a policy is of high quality follows a Beta distribution with parameters $\alpha_T (> 0)$ and $\beta_T (> 0)$, we have: $\pi_T^O = \alpha_T / (\alpha_T + \beta_T)$ and

Cooperation costs. Likewise, the individual updates her expected costs of cooperating with the state actor as interactions with state officials occur and new information about the burden of cooperating is received. Formally, we assume that the individual has an initial expectation about the cost of cooperation (π_P^O) based on prior information. When the individual interacts with the state actor, she receives additional information about the costs of cooperation and updates her beliefs accordingly (π_P^B). Positive news about the cost of cooperating reduces its expected value, while negative news increases it.¹³

2.3 BASIC IMPLICATIONS

The theoretical framework provides a set of implications about how individuals respond to information regarding the quality of a state actor’s policies and their interactions with state officials.

Proposition 1. *Suppose that the individual is Bayesian. Both positive news about the quality of a state actor’s policies (which increases π_T^B) and about the cost of cooperating with it (which reduces π_P^B) weakly increases the individual’s level of cooperation (c).*

Proof. See Appendix A.1.

2.4 MOTIVATED REASONING

We assume the individual engages in motivated reasoning and manipulates her own beliefs. Following Acemoglu et al. (2020), we model this behavior by modifying the maximization problem in two ways. First, we assume that the individual chooses her own level of trust in the state actor. For simplicity, we focus solely on this belief and assume that the expected cost of cooperating is not manipulated. Second, we incorporate a loss term, which penalizes deviation from the belief about what is implied by Bayesian updating.

With motivated reasoning, the individual solves the following maximization problem:

$$\max_{c, \pi_T} \pi_T \cdot U(c) - \pi_P \cdot c - d(\pi_T - \pi_T^B)$$

$\pi_T^B = (\alpha_T + h)/(\alpha_T + \beta_T + h + l)$, where h and l are the numbers of policies implemented by the state actor that are of high and low quality, respectively. This formulation implies that learning about one high (low) quality policy is received as positive (negative) news and increases (decreases) trust in the state actor.

¹³As for trust, to characterize “positive” and “negative” news about the cost of cooperation more precisely, we can impose distributional assumptions. If we assume that the cost of cooperation follows a Poisson distribution (with unknown mean) and the prior distribution of the expected cost follows a Gamma distribution with shape parameter $\alpha_P (> 0)$ and rate parameter $\beta_P (> 0)$, we have: $\pi_P^O = \alpha_P/\beta_P$ and $\pi_P^B = (x + \alpha_P)/(1 + \beta_P)$, where x is the new information about the costs of cooperation based on novel interactions. This formulation implies that interactions that result in costs lower (higher) than expected represent positive (negative) news about the costs of cooperation.

where $d(\cdot)$ is a strictly convex function that is increasing when the argument is positive and decreasing when negative. We also assume that $d(\cdot)$ is differentiable, with $d'(0) = 0$.

Proposition 2. *Suppose that the individual engages in motivated reasoning. Positive news about the cost of cooperating with the state actor (which reduces π_P^B) weakly increases the individual's trust in that actor (π_T).*

Proof. See Appendix A.2.

2.5 DISCUSSION

Why should an intervention promoting procedural justice principles among police officers increase public trust in the police? Trust, defined as the expectation that a state official will act in the public's interest rather than opportunistically, might seem unrelated to the quality of interactions and processes. Courteous and respectful interactions and agile processes do not inherently ensure an institution's effectiveness or reliability. However, our model proposes a mechanism that links individuals' perceptions of interaction quality with their trust in state actors. It posits that, when individuals hold "motivated beliefs," their positive experiences regarding treatment quality can directly influence their trust. Specifically, reducing the perceived costs of engaging with state actors encourages cooperation, leading individuals to adjust their beliefs about the trustworthiness of these actors as a way to justify their cooperation as meaningful.

This link between perceived interaction quality and trust is not exclusive; it may also be formed through other psychological mechanisms. For instance, prior experiences may lead individuals to associate courteous treatment with reliability, a cognitive shortcut known as the representativeness heuristic (Grether 1980; Kahneman and Tversky 1972; Tversky and Kahneman 1974). Similarly, the halo effect, where positive impressions in one area influence perceptions in another, may lead respectful treatment to enhance perceived trustworthiness (Thorndike et al. 1920; Efran 1974; Nisbett and Wilson 1977).

Our model, reinforced by these psychological insights, highlights that although the reliability and effectiveness of state actors (i.e., the quality of the policies) are fundamental in building long-term trust, procedural justice interventions that improve the quality of interactions can also play a crucial role in the short term. These interventions can serve as immediate, impactful measures that complement the broader, more structural reforms necessary to foster sustained trust in state authorities, a cornerstone of state capacity and a crucial driver of economic and social advancement.

3 BACKGROUND AND INTERVENTION

3.1 BACKGROUND AND CONTEXT

THE NATIONAL POLICE OF COLOMBIA. The National Police of Colombia is a centralized force that depends upon the national government and holds a constitutionally granted monopoly on the use of force.¹⁴ The police force consists of more than 160,000 individuals.

The patrolling service is organized into three levels, all part of the centralized hierarchy: metropolitan police departments, police stations, and police quadrants. The patrolling service represents about 35% of the total police force. Police quadrants are equivalent to police beats in the United States or the United Kingdom and represent the minimal patrolling unit. Each quadrant has six patrolling officers who patrol in pairs, covering three 8-hour shifts. Each pair has one motorcycle that officers use to move within the quadrant. Their activities are standard and include: stopping, questioning, and frisking suspicious individuals; running criminal background checks; carrying out door-to-door visits; seizing weapons and drugs; and conducting arrests.

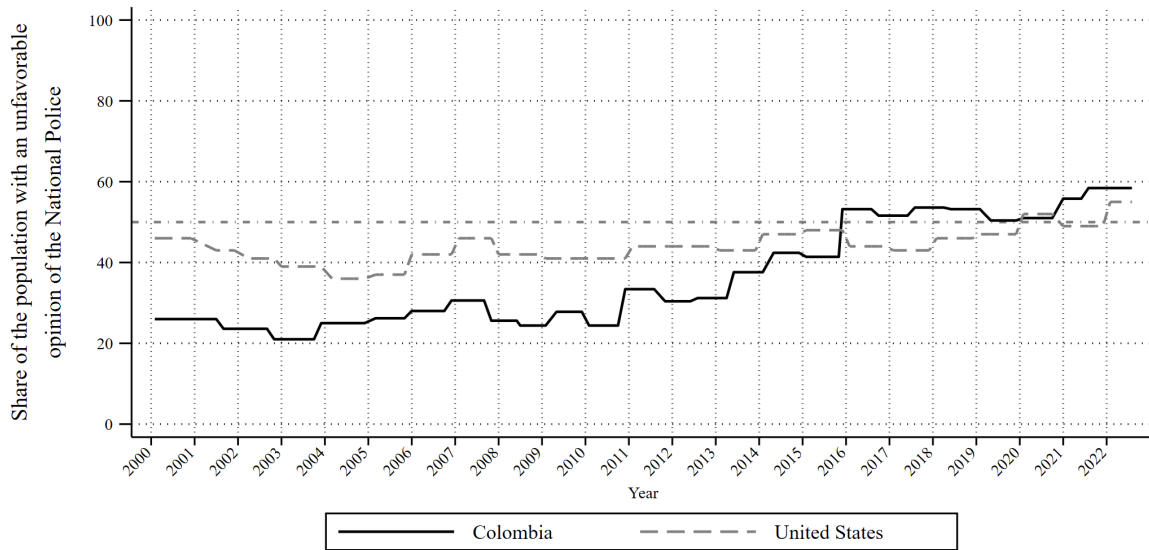
Patrolling officers respond directly to police station commanders, who meet them in person to provide instructions at least three times per day—at each shift change. Shift changes are a key operational moment: police station commanders provide instructions to each pair of patrols regarding their duties and discuss their expected challenges.

CURRENT CHALLENGES AND POLICE REFORM. Although violence has reached historic lows across the country, significant challenges for the police have emerged. Rising inequality and social discontent produced prolonged and widespread protests across the country, some of which turned violent (UN High Commissioner for Human Rights 2019). The Colombian Police is constitutionally mandated to protect protesters while they exercise their right to peaceful protest, yet when demonstrations turn violent the police oftentimes use force to contain such violence. The Supreme Court of Colombia (2020) indicated that, at times, this use of force has turned excessive. In 2021, for example, international agencies held the National Police responsible for the deaths of at least 28 civilians during protests across the country (UN High Commissioner for Human Rights 2021).

In part due to these highly-publicized encounters, public trust in the police has suffered. While most Colombians expressed significant trust in the police during the years when Colombia faced its most serious threats to public order, this pattern changed in the post-conflict period. Figure 1 depicts the share of the Colombian population holding an unfavorable opinion of the National

¹⁴Because of the long internal conflict suffered by Colombia over the last five decades in large swaths of the country's territory, the military performs tasks usually entrusted to the police—such as patrolling in the streets (Blair and Weintraub 2022; 2023). The opposite is also true, as the police have actively participated in combat with insurgent and counterinsurgent forces and play a leading role in efforts to reduce the supply of cocaine.

Figure 1: Evolution of unfavorable opinions of the National Police of Colombia



Notes: Data is from Gallup (2021). For Colombia we depict a five-month moving average of answers to the question “Do you have an unfavorable opinion of the National Police of Colombia?.” We compare to the U.S. (red line) where we depict yearly answers to the question: Please tell me how much confidence you, yourself, have in The Police.

Police. Until roughly 2012, most citizens held positive opinions of the National Police. The pattern has shifted, however, producing record high levels of unfavorable views in recent years.

In response to this and other challenges, the National Police of Colombia initiated an institutional reform process based loosely on the Task Force on 21st Century Policing that President Barack Obama established in the United States (President’s Task Force on 21st Century Policing 2015). Since the National Police of Colombia is centralized, the expectation was that implementation of the recommendations would be comparatively smoother than in more decentralized systems.¹⁵ The process formally began in July 2021 and had as one of its aims to improve public trust in the police. The intervention described here was developed as part of the reform process, intended to explore whether and how procedural justice interventions could bolster the legitimacy of the police and improve police–community relations.

COLOMBIA IN A BROADER PERSPECTIVE. An upper middle-income country with relatively high levels of economic inequality (see *The World Bank 2022*), Colombia has faced several challenges to reducing crime and improving law enforcement performance. Compared to other countries, Colombia features medium-high to high levels of crime and violence, ranking in the first or

¹⁵As the leadership in Colombia’s presidency changed in August 2022, the reform process was adjusted but still continues. A subset of the authors of this study have participated in an advisory board team supporting the reform process, both prior to and since the change in presidential administrations.

second quartile across all countries, depending upon crime type (UNODC 2018). Although cross-country comparisons are problematic due to differences in measurement and measurement error, a World Economic Forum executive opinion survey shows that Colombia is well above the median for perceived crime incidence, comparable to countries like Sierra Leone, Bosnia and Herzegovina, and Kenya (World Economic Forum 2024).¹⁶

Colombian state's capacity to address these threats, however, is higher than for countries with similar challenges. Colombia has approximately 367 police per 100,000 inhabitants, which places it at roughly the global median (UNODC 2018), and similar to Mexico or Perú.¹⁷ Citizens in Colombia also generally mistrust the police more than citizens from other countries: the country ranks 54 among 58 states in public trust in the police, according to the World Values Survey (Haerpfer et al. 2020).¹⁸ Interestingly, the United States exhibits a similar pattern over the last two decades, albeit much less pronounced (see Figure 1).

Despite the particularities of the Colombian case described above, challenges related to building public trust in the police and reducing crime are common in other developing economies and even in some cities within developed countries. Hence, although assessing external validity is inherently extremely challenging, the similarities between Colombia and a wide range of countries and cities worldwide in terms of security challenges, state capacity, and public mistrust of the police suggest that our results may have relevance beyond our specific context.

3.2 INTERVENTION

The *COP Initiative* aimed to retrain patrolling officers in procedural justice principles to improve the quality of officer-citizen encounters by emphasizing the importance of respect, fairness, transparency, and the opportunity to be heard. It sought to complement the core training that patrolling officers receive during their first year in the police. This basic training, taught in about a dozen schools throughout Colombia, consists of 3,500 hours of instruction, after which the officers graduate as “professional technicians” in police service. The training includes, for instance: the development of tactical skills for police service, including firearms training; knowledge of law and regulations; and service-related competencies. This last component includes lessons and exercises on procedural justice principles. However, beyond the initial training, police officers do not receive any formal, systematic instruction or reinforcement of these principles. The average police officer dedicated to patrolling received this training nine years prior to the implementation of the COP Initiative. The program, therefore, sought to update knowledge and reinforce the adoption of procedural justice principles among patrolling officers.

¹⁶Appendix Figure B.1 presents cross-country comparisons of crime incidence.

¹⁷Appendix Figure B.2 reports cross-country comparisons on police personnel per 100,000 people.

¹⁸Appendix Figure B.3 reports cross-country comparisons on public trust in the police.

The COP Initiative was implemented by the National Police for six weeks, from mid-March to late April 2022. It has two core components: *commander instructions* and *practice*, plus an *information campaign* (the latter only for those assigned to the second treatment arm).

COMMANDER INSTRUCTIONS. All police station commanders with officers assigned to the program received reinstruction on procedural justice principles, which took place in person at the headquarters of the corresponding police station. The sessions lasted between 3 and 4 hours and were led by other police officers specifically trained for this reinstruction. These commanders were then instructed to retrain and reinforce procedural justice principles with patrols assigned to the program. This happened regularly over the six weeks of the intervention, typically at every shift change, when commanders have the opportunity to provide additional, in-person instructions separately to each patrol.

PRACTICE. Officers assigned to the intervention arms were asked to put into practice the procedural justice principles on one randomly-selected target street block within their quadrant. To improve—and more easily monitor—adherence to the treatment, all officers assigned to the program received a reminder of the practice twice per week, with a map highlighting the designated street block. Appendix Figure B.4 depicts an example of the map that patrolling officers received.

INFORMATION CAMPAIGN. A subset of officers assigned to the treatment group also took part in an information campaign. The objective was to examine whether daily reminders of procedural justice principles increased the probability of their adoption during patrols' shifts. This subset of officers received these messages daily over the course of the day. Messages included tips on attitudes when talking to a citizen—e.g., cordially greeting people before starting any dialogue, or being empathetic with whomever they interact with. Appendix Table B.1 lists the messages that patrolling officers received.

Overall, the COP Initiative aimed to improve the quality of officer-citizen interactions in order to increase public trust in the National Police. Understanding that quality improvements become evident through interactions, the initiative also sought to increase the frequency of police-citizen encounters to send a stronger signal and have more opportunities to influence public trust. In the language of our conceptual framework in section 2, the initiative sought to provide positive news about the ease of interacting with police officers, reducing the perceived cost of cooperating with the police. We therefore expected that the initiative would improve cooperation and public trust.

Recognizing the time constraints of police officers, who often have demanding schedules, the COP initiative was deliberately designed to be low-cost in terms of both financial resources and

staff time, while maximizing its potential for scalability. This was achieved by leveraging the existing command structure of the National Police, avoiding the use of external trainers, and avoiding the need for dedicated time or space solely for officer training. This approach aimed not only to streamline the intervention, but also to facilitate its seamless integration into the daily operations of the police force, minimizing disruptions to their ongoing responsibilities.

4 RESEARCH DESIGN

4.1 SELECTING THE EXPERIMENTAL SAMPLE

The experiment includes 345 police quadrants across five cities in Colombia: Barranquilla, Bucaramanga, Cali, Cartagena, and Medellín. The universe of eligible units consists of 883 quadrants. Within each quadrant, we focused the intervention and data collection on one randomly-selected street block.

SAMPLE OF QUADRANTS. We followed two steps to select the experimental sample of quadrants. First, we excluded small police stations—those possessing fewer than three quadrants—and stations that were unique—such as one police station in Cartagena that covered a small island dedicated to tourism. Second, stratifying by city, we randomly selected quadrants from all eligible police stations in triplets until we reached approximately 70 quadrants in each city. More specifically, we randomly selected three quadrants from all eligible police stations within each city and then randomly selected an additional group of three quadrants from police stations with at least six total quadrants. We repeated the process with larger stations and stopped when we reached the desired sample size for each city, totaling 345 quadrants across all cities. The final sample size was agreed upon in consultations with the National Police, taking into consideration statistical power.¹⁹

TARGET STREET BLOCKS. We selected a target street block within each quadrant in the experimental sample. With this final step, our goals were three-fold: (i) increasing police activity was, in general, a necessary condition to improve the quality of interactions; (ii) target street blocks facilitated the implementation and instructions for patrolling officers; and (iii) target street blocks also facilitated the data collection process, which we purposefully concentrated on these target street blocks. To select the target street blocks, we first excluded those that had fewer than 75% residential units, given that the police sought to focus on residential areas rather than highly commercial or industrial ones. We then excluded street blocks within 40 meters of quadrant borders to avoid

¹⁹Running 10,000 simulations of our experiment using survey-based measures of public trust—which we collected pre-treatment, we estimate our experiment was powered to detect treatment effects of roughly 0.1 standard deviations (or 4.9 percentage points).

problematic spillovers. Finally, we randomly selected a street block given the aforementioned restrictions.²⁰ We performed the same exercise in control quadrants for data collection purposes. Appendix Figure B.5 depicts the experimental sample of quadrants across all five cities. The shading denotes quadrants in the experimental sample. Non-shaded quadrants were not included.

4.2 DATA

Our evaluation combines data from multiple sources, which together allow us to test the treatment effects of the intervention.²¹

RESIDENT SURVEYS. In December 2020, we conducted a baseline survey of 726 residents. We surveyed approximately two residents from the target street block in each police quadrant.²² In late April and May 2021, we conducted an endline survey of 2,097 residents, approximately six per quadrant, all in the same target street block where we collected the baseline survey. We use these data to build our outcome measures, which we discuss below. In all cases, we measured responses on a Likert scale from 1 to 4, which we transformed to a 0-1 scale, where 1 is the most positive answer possible.

- *Frequency of policing.* To capture police presence and attention, we asked respondents the following: “During the last two months, how often did you see the police patrolling the area where you live and responding to citizen requests?”
- *Perceptions of trust.* We measure willingness to cooperate with the police and public trust. To measure willingness to pay for policing services, our proxy for cooperation, we asked respondents: “In general, keeping in mind the way that police officers who have patrolled in this area over the last two months have behaved, I would be in favor of creating a new tax to bolster policing services.” To capture trust in the police, we asked residents to what extent they agreed with the following statement: “The National Police of Colombia is an institution in which I can trust.”
- *Other citizen perceptions.* We first asked respondents about four sets of perceptions about police behavior and faculties: perceptions of procedurally just treatment; perceptions about the effectiveness of policing services; perceptions of the integrity of patrolling officers; and

²⁰For reference, the average quadrant size is 6.5 square kilometers, or 2.5 square miles.

²¹We pre-registered our Pre-Analysis Plan with the American Economic Association RCT Registry prior to endline data collection. It is available at <https://www.socialsciencesregistry.org/trials/8947>.

²²While collecting baseline survey data, the survey firm was unable to reach the minimum of two residents in 212 cases. The leading reason for replacing blocks concerned incorrect census data—e.g., blocks had no residents to survey because they were located in commercial areas. In all cases, we provided the survey firm with a randomly selected replacement that was provided afterwards to the National Police for the purposes of the experiment.

the convergence of personal values with the faculties granted by states to police forces to enforce the law. In all cases, we built an index summarizing the answers to each specific component, as pre-specified. Second, we measure empathy by asking residents about their beliefs towards police officers and the public in general.²³

POLICE DATA AND SURVEYS. We collected data during implementation and administered a survey to 2,123 police officers.²⁴ We use these data to build the following outcomes on police adherence to the intervention and beliefs:

- *Adherence to the intervention.* During the intervention, we coordinated with the National Police to record information about officers' interactions with the instructions. Since officers were contacted regularly through their police-assigned devices, our research team recorded the number of interactions and responses each officer had after having received instructions. These data are restricted to the intervention arms because control patrols received no instructions.
- *Officers' perceptions of trust.* We asked officers how much they trusted citizens and their second-order beliefs about public trust. To capture the officers' trust in the public, we asked officers the extent to which they agreed with the following statement: "I trust most of the people in the area where I provide security services." To capture second-order beliefs, we asked two questions summarized in a single index: "The majority of citizens believe that the police is an institution that can be trusted," and "Most citizens would alert the police to be on the lookout for their home's security if they go on a trip." As before, we measured responses on a Likert scale from 1 to 4 and then transformed them into a 0-1 scale, with 1 being the most positive answer possible.

ADMINISTRATIVE DATA. Our baseline and endline data also uses administrative records provided by different agencies of the Colombian government:

- *Crime data.* We collected geo-referenced and time-stamped administrative crime data. These include reports on homicides, personal thefts, car and motorcycle thefts, shoplifting, and burglary. We use these data to build additive counts of violent crime, property crime, and total crime. These data are from the National Police of Colombia.

²³For compactness, we include the precise wording of these 16 questions in Appendix Table B.2.

²⁴This number is larger than 2,070, which was the expected number of police officers in experimental quadrants (six per quadrant), as reported in Table 1. This discrepancy was mainly due to officer reallocations and transfers. In section 4.5, we discuss why this should not threaten the identification of causal effects.

Table 1: Distribution of quadrants and police officers across treatment arms

	COP Initiative	COP Initiative + information campaign	Pure control	Total
	(1)	(2)	(3)	(4)
Commander instructions	Yes	Yes	No	-
Practice	Yes	Yes	No	-
Information campaign	No	Yes	No	-
Quadrants	115	116	114	345
Approx. number of police officers	690	696	684	2,070

Notes: The table displays the final distribution of quadrants and patrolling officers across treatment arms, as well as the components of the COP Initiative to which they were exposed during the experiment.

- *Census data.* We use data from the 2018 census to build the sampling frame of street blocks within quadrants and stratify by baseline poverty levels. These data are from the Colombian Bureau of National Statistics—DANE.

POLICE INTERVIEWS. Finally, to better understand police beliefs about the intervention and the procedural justice principles, we interviewed 15 officers distributed across the two intervention arms. The sample consists of three randomly-selected officers from each of the five cities where the National Police implemented the COP Initiative. We conducted semi-structured interviews with each, eliciting officer perceptions about the intervention, changes in citizen attitudes they may have observed, and recommendations about how to improve the intervention’s reach.

4.3 RANDOMIZATION

We use complete stratified randomization to assign treatment. First, we stratify by city. Second, we divide all street blocks into three poverty terciles within each city, using baseline poverty information from Colombia’s 2018 census, and then stratify on this variable. Lastly, within each city and poverty stratum, we rank all police quadrants based on levels of public trust in the police, as measured in the baseline survey. We then group these quadrants into triplets based on this ranking. We obtain a total of 113 strata. Within each triplet, we randomly assign one quadrant to each of the groups (control and both intervention arms). Table 1 reports the final distribution of quadrants and corresponding police officers across treatment arms, and Appendix Figure B.5 maps the police quadrants in our sample given their realized treatment status. Furthermore, Table 2 reports baseline descriptive statistics and balance tests for each intervention arm, considered independently and pooled. Balance tests are consistent with random treatment assignment.

Table 2: Baseline summary statistics and balance tests

Baseline covariate	Test of randomization balance						
	Sample	COP initiative		COP initiative + Information campaign		Combined treatments	
		mean	Coeff.	S.E.	Coeff.	S.E.	Coeff.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Panel A. Crimes (N=345)</i>							
Reported property Crime (2012-2019)	5,119	-2,585*	1,444	-0,707	1,691	-1,640	1,408
Reported violent crime (2012-2019)	0,331	-0,190	0,199	-0,095	0,207	-0,142	0,187
<i>Panel B. Street block characteristics (N=345)</i>							
Count of units with residential use	50,297	5,305	6,302	1,532	6,287	3,406	5,504
Mixed-use unit count	0,669	-0,080	0,120	-0,214*	0,127	-0,148	0,106
Count of units with non-residential use	2,663	-0,048	0,577	0,040	0,519	-0,004	0,478
Housing counts	50,965	5,225	6,312	1,318	6,302	3,258	5,516
Household count	44,834	4,196	5,512	1,948	5,433	3,064	4,762
<i>Panel C. Income (N=345)</i>							
Count of households with electric power	43,206	4,014	5,397	1,680	5,259	2,839	4,639
Count of households at lowest income	7,209	1,133	1,643	0,130	1,605	0,628	1,420
Count of households at low income	11,773	1,082	2,650	-1,364	2,723	-0,149	2,305
Count of households at mid-low income	11,424	0,673	3,810	1,130	3,868	0,903	3,380
Count of households at mid-high income	7,456	-1,405	2,852	1,814	2,983	0,216	2,487
Count of households at high income	1,936	-1,794	1,142	-0,838	1,298	-1,313	1,112
Count of households at highest income	3,203	4,409	3,525	0,857	2,852	2,621	2,625
<i>Panel D. Sociodemographic census data (N=345)</i>							
Count of residents	138,849	15,506	15,774	8,129	16,067	11,793	13,829
Count of men	65,157	6,689	7,327	3,282	7,485	4,974	6,441
Count of women	73,692	8,817	8,496	4,847	8,639	6,819	7,433
Count of 0 - 9 years old	16,910	1,471	1,994	0,151	2,102	0,806	1,799
Count of 10 - 19 years old	19,631	2,275	2,073	0,962	2,235	1,614	1,866
Count of 20 - 29 years old	23,977	1,767	2,727	1,980	2,891	1,874	2,470
Count of 30 - 39 years old	21,305	2,076	2,896	0,285	2,906	1,174	2,566
Count of 40 - 49 years old	17,535	2,031	2,260	1,876	2,329	1,953	1,988
Count of 50 - 59 years old	17,105	1,803	2,328	0,847	2,223	1,322	1,946
Count of 60 - 69 years old	12,032	2,083	1,610	1,454	1,498	1,766	1,327
Count of 70 - 79 years old	6,616	1,717	0,968*	0,549	0,920	1,129	0,804
Count of 80 and over	3,738	0,285	0,561	0,025	0,543	0,154	0,466
Count of with up to primary school	25,738	2,647	3,441	-1,154	3,574	0,734	3,032
Count of with up to secondary school	17,340	3,689	5,356	7,908	5,356	5,813	4,652
Count of with up to undergraduate degree	34,907	5,128	5,794	5,797	6,152	5,465	5,225
Count of with up to postgraduate degrees	4,890	0,894	2,764	0,537	2,548	0,714	2,233
Count of with no education	2,733	-0,274	0,367	-0,474	0,403	-0,374	0,341
<i>Panel E. Individual respondent characteristics (N=2,097)</i>							
18-24 years old	0,121	-0,001	0,015	-0,005	0,016	-0,002	0,013
25-34 years old	0,170	-0,042**	0,017	-0,005	0,019	-0,024	0,015
35-44 years old	0,177	-0,026	0,018	-0,009	0,018	-0,018	0,016
45-54 years old	0,181	-0,007	0,019	-0,020	0,018	-0,006	0,016
55-64 years old	0,184	0,022	0,017	0,003	0,017	0,013	0,015
65-74 years old	0,121	0,023	0,014	0,037**	0,016	0,030**	0,013
75 and over	0,047	0,015*	0,009	-0,002	0,009	0,007	0,008
<i>Panel F. Police characteristics (N=2,123)</i>							
18-25 years old	0,078	-0,024*	0,014	-0,017	0,014	-0,021	0,013
26-40 years old	0,884	0,011	0,017	0,012	0,017	0,011	0,015
41 and over	0,038	0,014	0,010	0,006	0,009	0,010	0,008
0-10 years of experience	0,473	-0,018	0,025	-0,020	0,024	-0,019	0,021
11-20 years of experience	0,515	0,007	0,025	0,013	0,025	0,010	0,022
21 or more years of experience	0,012	0,011*	0,006	0,007	0,006	0,009	0,005

Notes: *** p<0.01, ** p<0.05, * p<0.1. Column (1) reports the sample mean. Columns (2)-(7) report the coefficients and standard errors from ordinary least squares regressions of each baseline covariate on three indicators: assignment to each intervention arm separately and assignment to either intervention arm, controlling for fixed effects reflecting our different randomization strata. We estimate standard errors allowing for clustering by quadrant.

4.4 ESTIMATION

Most of our outcomes are measured at the individual level using survey data, while our crime outcomes are measured at the block level using administrative data. We obtain the intention-to-treat (ITT) effects of the intervention on individual-level outcomes using a linear regression model, which we estimate with ordinary least squares:

$$y_{i,j,c,p,k} = \beta T_{j,c,p,k} + \delta \mathbf{X}_{j,c,p,k} + \gamma \mathbf{Z}_{i,j,c,p,k} + \alpha_c \times \phi_p \times \theta_k + \varepsilon_{i,j,c,p,k} \quad (1)$$

where y denotes the outcome. Sub-indices are for respondent i in police quadrant j in the city c at poverty level p and baseline public trust in the police k . T denotes assignment to treatment. \mathbf{X} denotes quadrant-level covariates and \mathbf{Z} denotes individual-level covariates. We either only include strata fixed effects or strata fixed effects and baseline controls for a subset of covariates selected using the double-lasso method proposed by [Urminsky et al. \(2019\)](#).²⁵ α_c , ϕ_p , and θ_k , which we interact, denote city, poverty tercile, and baseline trust triplet fixed effects. Finally, ε is an individual-level error term. We estimate standard errors allowing for clustering by quadrant, reported in the main tables. As robustness checks, we report randomization inference p-values, which are agnostic as to the structure of clusters ([Fisher 1935](#)). Furthermore, we report standard errors adjusted for multiple hypothesis testing ([Anderson 2008](#)). We analyze two versions of equation (1): pooling both intervention arms and separately estimating treatment effects for each. For block-level outcomes, such as crime reports, we estimate the equation at the block level.

4.5 SPATIAL SPILLOVERS

Because of the dense network of street blocks and quadrants in large urban areas, our experiment is subject to the risk of spatial spillovers. This would directly violate the independence assumption and threaten the identification of causal effects ([Blattman et al. 2021](#)). We identify three main threats. First, police station commanders might retrain officers assigned to control quadrants. Second, personnel might rotate or be reassigned. Finally, residents within control quadrants might observe officers assigned to treatment quadrants. We believe the risk of spillovers is minimal. We discuss why and provide supporting analysis in detail in Appendix C.

4.6 ETHICS

The program and our evaluation of it entailed a few potential risks, which we aimed to anticipate and mitigate. First, we assessed risks associated with citizen collaboration with the police. Second,

²⁵We use the double lasso method taking as inputs the full set of baseline covariates reported in Appendix Table 2, in order to eliminate researcher discretion over which covariates to include.

we anticipated potential interference by the National Police of Colombia with the analysis and results of the intervention. Finally, we were concerned that the experiment might distract police officers from their normal activities. We discuss how we addressed and mitigated these risks in Appendix D.

5 RESULTS

5.1 IMPACTS ON CITIZEN OUTCOMES

We begin by studying the impacts of the intervention considering both treatment arms together.²⁶ In all specifications, we include fixed effects for our randomization strata and cluster standard errors at the police quadrant level. First, we examine police activity in Panel A of Table 3. Residents from treatment quadrants rate the frequency of policing 0.035 higher than residents from control quadrants, a statistically significant difference at conventional levels. Relative to the control mean, this represents an increase of about 6% in the frequency of policing.²⁷

Second, we assess impacts on public perceptions in Panel B of Table 3. We hypothesized that the intervention would improve perceptions of fair treatment but not others such as police effectiveness, police integrity, or convergence of values. Residents in treatment quadrants rate their perceptions of fair police treatment as 0.016 points higher compared to residents in control quadrants. The coefficient is statistically significant at conventional levels. This represents an improvement of 3% compared to the control mean. If we examine the subcomponents of fair treatment, these impacts are mostly explained by significant improvements in perceptions of legitimacy, the opportunity to be heard, and neutrality. We report these subcomponents in Table 4. We also observe that residents in treatment quadrants rate their empathy for police officers 0.026 higher than residents in control quadrants. This coefficient is also statistically significant at conventional levels and represents an improvement of 4% relative to the control mean. We see no significant impacts on public perceptions of police effectiveness, police integrity, convergence of values, or empathy for others.

Third, we look at impacts on collaboration and public trust in Panel C of Table 3. We proxy citizens' cooperation with the police using a measure of their willingness-to-pay for policing services. We hypothesized that individuals who experienced improved interactions with the police (or, in terms of the theoretical model, those receiving a positive signal about the costs of cooper-

²⁶We discuss all deviations from our Pre-Analysis Plan in Appendix E.

²⁷We also assess treatment adherence by monitoring officers' interactions with their police-assigned devices. Records indicate that, upon receiving instructions or reminders from the coordination unit, officers in the treatment group actively received the information approximately 60% of the time. These interaction rates did not depend on baseline levels of public trust or crime, as we show in Appendix Figure B.6.

Table 3: Intention to treat effects, with both intervention arms together

	Control mean (1)	ITT (2)	S.E. (3)	N (4)
<i>Panel A. Police activity</i>				
Frequency of policing	0.561	0.035**	0.015	2,097
<i>Panel B. Public perceptions</i>				
Perceptions of fair treatment	0.581	0.016**	0.008	2,097
Perceptions of police effectiveness	0.511	-0.002	0.011	2,097
Perceptions of police integrity	0.535	-0.002	0.008	2,097
Convergence of values	0.730	0.009	0.008	2,097
Empathy for police officers	0.642	0.026**	0.011	2,097
Empathy for others	0.715	0.001	0.011	2,097
<i>Panel C. Collaboration and public trust</i>				
Willingness-to-pay for policing services	0.469	0.036**	0.015	2,097
Public trust	0.562	0.039***	0.010	2,097
<i>Panel D. Police outcomes</i>				
Trust in citizens	0.690	0.013	0.010	2,123
Second-order beliefs about citizens' public trust	0.623	0.001	0.001	2,123

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The table displays the effects of the intervention, considering both intervention arms together. Column (1) presents the control mean, column (2) the intention to treat effect, column (3) the corresponding standard errors, and column (4) the number of observations. We estimate standard errors allowing for clustering by quadrant.

Table 4: Intention to treat effects on citizen perceptions

	Control mean	ITT	S.E.	N
	(1)	(2)	(3)	(4)
Perceptions of fair treatment	0.581	0.016**	0.008	2,097
Legitimacy	0.645	0.025**	0.010	2,097
Transparency	0.599	-0.003	0.010	2,097
Opportunity to be heard	0.644	0.022*	0.012	2,097
Neutrality	0.435	0.020*	0.012	2,097
Perceptions of police effectiveness	0.511	-0.002	0.011	2,097
Police response times	0.418	0.018	0.011	2,097
Interest in reporting (self)	0.597	-0.010	0.017	2,097
Interest in reporting (others)	0.520	-0.014	0.015	2,097
Perceptions of police integrity	0.535	-0.002	0.008	2,097
Corruption	0.437	-0.004	0.015	2,097
Collusion with criminals	0.531	0.007	0.016	2,097
Accountability	0.485	0.002	0.013	2,097
Abuse of power	0.719	-0.019	0.013	2,097
Use of force	0.503	0.005	0.016	2,097
Convergence of values	0.730	0.009	0.008	2,097
Relevance of the police (self)	0.852	0.015	0.010	2,097
Relevance of the police (others)	0.801	0.011	0.011	2,097
Ethical coincidence (self)	0.655	0.004	0.013	2,097
Ethical coincidence (others)	0.611	0.005	0.013	2,097

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The table displays the effects of the intervention on outcomes related to potential mechanisms. Column (1) presents the control mean, column (2) the intention to treat effect, column (3) the corresponding standard errors, and column (4) the number of observations. We estimate standard errors allowing for clustering by quadrant.

ating with it) would be more likely to approve of this new tax, denoting greater cooperation with the police. We find that the intervention increased willingness-to-pay for police services by 0.036, equivalent to 8% relative to the control mean. This effect is statistically significant at conventional levels. Turning to public trust, we hypothesized that the intervention would increase citizens' trust in the police. We also find that the program increased trust in the police by 0.039, equivalent to a 7% increase relative to the control mean. This effect is also significant at conventional levels.

Fourth, in Appendix Table F.1, we examine robustness on our main outcomes: collaboration with the police—proxied by willingness-to-pay for police services—and public trust. The results are of approximately the same magnitude and significance when we include control variables selected via the double lasso. Statistical significance also remains relatively similar when we estimate p-values using randomization inference or adjust for multiple hypothesis testing—where we consider all outcomes included in Table 3.

Finally, in Table 5, we explore heterogeneous treatment effects on our collaboration and trust outcomes. We focus on heterogeneity by baseline poverty levels, baseline trust levels, and baseline crime. In all cases, we use continuous measures of each baseline characteristic—which we normalize with zero mean and unit standard deviation—and interact these variables with our treatment indicator.²⁸ The coefficient on treatment assignment represents impacts at the mean levels of baseline poverty, baseline trust, and baseline crime. As expected, these coefficients are all similar to the main treatment effects reported in Table 3. Furthermore, we observe no treatment effect heterogeneity by baseline poverty or baseline public trust (Panels A and B). When looking at treatment effect heterogeneity by baseline crime levels, we find that impacts on public trust are highest at higher levels of baseline violent crimes (Panels C and D). More specifically, improvements in public trust are equivalent to 10% relative to the control mean in quadrants where baseline violence was one standard deviation above mean violence levels.

5.2 COMPLEMENTARITIES BETWEEN MORE AND BETTER INTERACTIONS

The intervention combined an increase in police presence with commanders' retraining and instructions for improved police-citizen interactions. This bundled intervention prompts the question of whether both components were essential. Given our emphasis on procedural justice, it is worth asking whether simply increasing the frequency of policing—without improving the quality of interactions—could have achieved the same positive effects on trust.

Several factors suggest that merely increasing police presence would *not* have produced the

²⁸For instance, when estimating heterogeneous impacts based on baseline poverty levels, we estimate three coefficients: the treatment indicator, a continuous poverty measure from the 2018 census—higher values indicate more poverty—and the interaction between both variables. We nonetheless report only the coefficient on the treatment indicator and the interaction for ease of exposition.

Table 5: Heterogeneous treatment effects for citizen outcomes

	Public Trust		Willingness to pay for policing services	
	ITT (1)	S.E. (2)	ITT (3)	S.E. (4)
<i>Panel A. Baseline Poverty</i>				
Assigned to treatment	0.035***	0.013	0.038**	0.017
Assigned to treatment X Baseline poverty (std.)	0.009	0.013	-0.009	0.015
<i>Panel B. Baseline Trust</i>				
Assigned to treatment	0.035***	0.013	0.043**	0.018
Assigned to treatment X Baseline trust (std.)	-0.008	0.012	0.021	0.017
<i>Panel C. Baseline Crime</i>				
Total Crimes				
Assigned to treatment	0.036***	0.013	0.041**	0.018
Assigned to treatment X Baseline total crime (std.)	0.003	0.009	-0.02	0.017
Violent Crimes				
Assigned to treatment	0.036***	0.013	0.043**	0.018
Assigned to treatment X Baseline violent crime (std.)	0.023**	0.01	0.021	(0.014)
N	2,097		2,097	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The table displays the heterogeneous treatment effects of the intervention on our pre-specified primary outcomes: public trust in the police, willingness to pay for policing services. Column (1) presents the intention to treat effect on public trust, column (2) the corresponding standard errors, column (3) the intention to treat effect on willingness to pay for policing services, column (4) the corresponding standard errors, which we estimate allowing for clustering by quadrant.

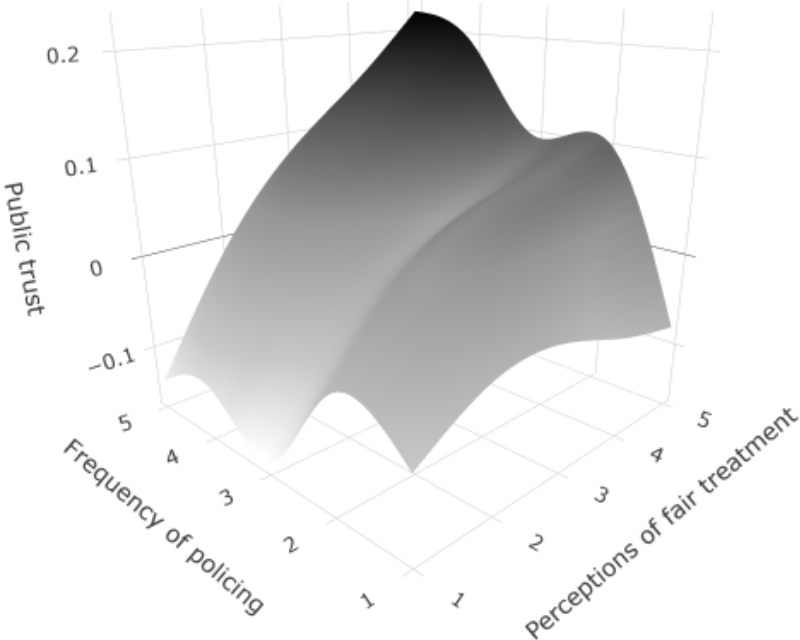
same outcomes. As we report in section 5.1, the intervention improved citizens' perceptions of treatment in domains explicitly highlighted by commanders' procedural justice instructions, including legitimacy, the opportunity to be heard, and neutrality. The rise in citizens' empathy towards the police also points to improved quality of interactions. Within our framework, interactions with officers in treated quadrants likely conveyed positive signals about the ease of cooperating with the police.

Our experimental setting allows us to examine the relationship between increased police presence, improved treatment, and increases in public trust. We compute treatment effects (i.e., the difference in outcomes between treatment and control quadrants) for each of our 113 strata—given by the interaction between city, baseline poverty level, and baseline public trust—for the three variables: frequency of policing, perceptions of fair treatment, and public trust. We then examine whether impacts on trust vary depending upon effects on quality of treatment and reported frequency of policing. We report this analysis in Figure 2. The figure displays treatment effects on public trust (vertical axis), perceptions of fair treatment (right-horizontal axis), and frequency of policing (left-horizontal axis), with the last two sorted into quintiles. The plot suggests that improvements in public trust are highest when both changes in perceptions of fair treatment and changes in the frequency of policing are at their highest levels. In terms of our conceptual framework, it appears that citizens require consistent, positive signals about interactions with the police in order to upwardly revise their perceptions.

We further examine this relationship by looking at four two-dimensional cross-sections of the previous graph, which we report in Figure 3. Panels (a) and (b) help us evaluate if merely increasing police presence improves trust. Panel (a) shows the relationship between changes in perceptions of fair treatment and impacts on public trust for the highest quintile of frequency of policing. In strata where improvements in treatment quality are minimal, even a large increase in policing frequency does not produce positive changes in public trust. Only when perceptions of procedurally-just behavior improve do we observe positive and large changes in public trust. Panel (b) displays the relationship between changes in the frequency of policing and impacts on public trust for the lowest quintile of perceptions of fair treatment. The results also suggest that increasing police frequency does not enhance public trust without improvements in fair treatment.

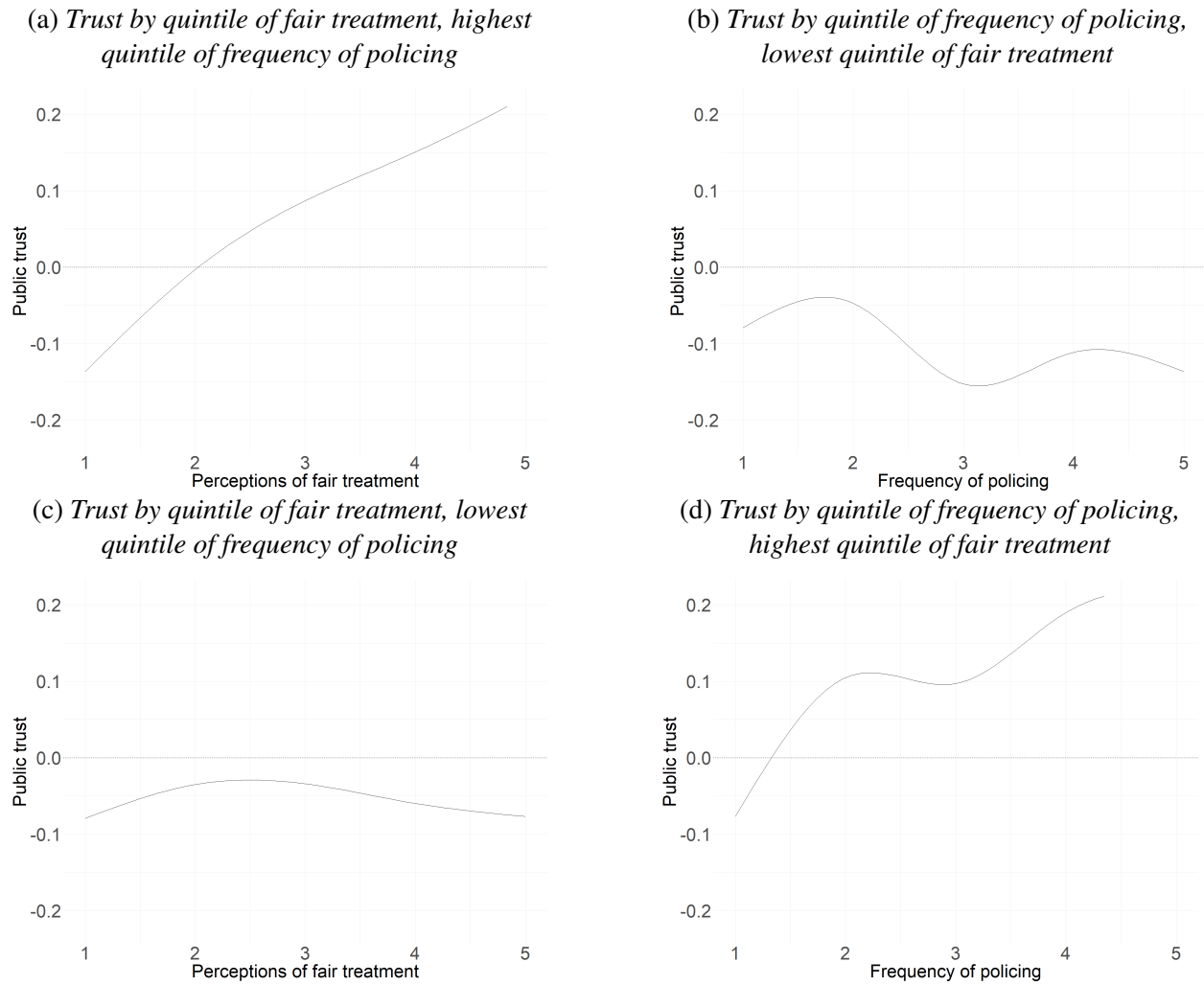
Panel (c) and (d) present the analog analysis. Panel (c) shows the relationship between changes in perceptions of fair treatment and impacts on public trust for the lowest quintile of frequency of policing. Without a concomitant increase in frequency of interactions, improvements in perceptions of fair treatment do not increase public trust. Finally, Panel (d) shows the relationship between changes in the frequency of policing and impacts on public trust for the highest quintile of perceptions of fair treatment. In strata where the improvement in police frequency is minimal, even large increases in fair treatment do not improve public trust.

Figure 2: Changes in public trust in the police, as a function of perceptions of procedurally just behavior and frequency of policing



Notes: The figure depicts an adjusted plot of the difference between treatment and control quadrants on public trust (vertical axis), quintiles of the difference between treatment and control quadrants in perceptions of procedurally just behavior (right-horizontal axis), and quintiles of the difference between treatment and control quadrants in perceptions of frequency of policing (left-horizontal axis). Adjustment is over 113 strata, that result from the interaction between city, baseline poverty level, and baseline public trust.

Figure 3: Changes in public trust in the police, along extreme combinations of changes in perceptions of fair treatment and frequency of policing



Notes: The figure depicts the four cross-sectional views of Figure 2. Sub-figure (a) presents the changes in public trust as changes in perceptions of procedurally just behavior improve, holding changes in the frequency of policing at the highest level. Sub-figure (b) presents the changes in public trust as changes in the frequency of policing improve, holding changes in perceptions of procedurally just behavior at the lowest level. Sub-figure (c) presents the changes in public trust as changes in perceptions of procedurally just behavior improve, holding changes in the frequency of policing at the lowest level. Sub-figure (d) presents the changes in public trust as changes in the frequency of policing improve, holding changes in perceptions of procedurally just behavior at the highest level.

Table 6: Intention to treat effects by treatment arm

	Control mean	COP Initiative		COP Initiative + Information campaign		P-value	N
		ITT	S.E.	ITT	S.E.		
		(1)	(2)	(3)	(4)		
<i>Panel A. Police activity</i>							
Frequency of policing	0.576	0.035**	0.017	0.034**	0.017	0.954	2,097
<i>Panel B. Public perceptions</i>							
Perceptions of fair treatment	0.594	0.010	0.007	0.005	0.007	0.479	2,097
Perceptions of police effectiveness	0.511	0.001	0.012	-0.005	0.013	0.601	2,097
Perceptions of police integrity	0.530	0.005	0.010	-0.009	0.009	0.125	2,097
Convergence of values	0.733	0.008	0.010	0.010	0.010	0.827	2,097
Empathy for police officers	0.662	0.013	0.013	0.038*	0.013	0.059	2,097
Empathy for others	0.712	0.002	0.013	-0.001	0.013	0.824	2,097
<i>Panel C. Collaboration and public trust</i>							
Willingness-to-pay for policing services	0.490	0.037**	0.016	0.034*	0.017	0.824	2,097
Public trust	0.575	0.047***	0.013	0.031*	0.012	0.219	2,097
<i>Panel B. Police survey</i>							
Trust in citizens	0.690	0.013	0.012	0.005	0.014	0.890	2,123
Second-order beliefs about citizens' public trust	0.623	0.013	0.012	-0.002	0.015	0.180	2,123

Notes: *** p<0.01, ** p<0.05, * p<0.1. The table displays the effects of the intervention on our main outcomes: public trust in the police, willingness to pay for policing services, officers' trust in citizens, and officers' second-order beliefs about citizens' public trust. Column (1) presents the control mean, column (2) the intention to treat effects of the first intervention arm, column (3) the corresponding standard errors, column (4) the intention to treat effects of the second intervention arm, column (5) the corresponding standard errors, column (6) reports the p-values of the differences between both ITTs, and column (7) the number of observations. We estimate standard errors allowing for clustering by quadrant.

A final argument in favor of this complementarity derives from prior studies. In previous randomized hot spots policing evaluations in Colombian cities—Bogotá and Medellín—where the main intervention was simply an increase in patrolling time without other significant changes, there were no consistent or statistically significant improvements in trust (Collazos et al. 2021; Blattman et al. 2024; Blair et al. 2021). Had increased contact been the sole driver of improved trust, these studies would likely have also detected an increase in trust. However, they did not. Overall, the evidence suggests that the procedural justice component of the COP Initiative likely plays an important role in the improved outcomes we identify.

5.3 EFFECTS OF THE INFORMATION CAMPAIGN

We examine results for our main citizen outcomes separating the analysis by intervention arm. Results are in Table 6. We find no evidence that providing information to police officers offered any additional increases in the main citizen outcomes. We observe improvements in the perceptions of the frequency of policing, willingness-to-pay for policing services, and public trust in both intervention arms. Other public perceptions, such as fair treatment or empathy for police officers—which were more precise in the analysis that combines both intervention arms—generally point in the same direction but are less precisely estimated.

Table 7: Intention to treat effects on reported crime

	Control mean (1)	ITT (2)	S.E (3)	N (4)
<i>Panel A. Official reported crimes</i>				
Total crime	0.831	-0.044	0.165	345
Violent crime	0.160	-0.022	0.050	345
Property crimes	0.671	-0.022	0.154	345
Arrests	0.922	0.208	0.243	345
Misdemeanors	3.496	-0.690	0.882	345
<i>Panel B. Survey based data</i>				
Victimization	0.093	0.009	0.012	2,097
Insecurity perception	0.296	-0.025	0.019	2,097

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The table displays the effects of the intervention on reported crime: total crime, violent crime and property crime. Column (1) presents the control mean, column (2) the intention to treat effect, column (3) the corresponding standard errors, and column (4) the number of observations. We estimate standard errors allowing for clustering by quadrant.

5.4 TREATMENT EFFECTS ON CRIME

Improvements in trust in the police may produce improvements in crime deterrence. We examine intention-to-treat effects on reported crimes. We focus on treatment effects on additive indices for total crime, violent crime, and property crime. Table 7 shows that the intervention decreased the total number of crime reports by about 5 percent. Furthermore, all coefficients move in the expected direction: the intervention decreased total crimes, misdemeanors, and insecurity perceptions and increased arrests. The only exception is the coefficient on direct victimization, which takes on an unexpected sign. These coefficients are, however, imprecisely estimated, so we cannot reject the null hypothesis of no effect.

5.5 RESULTS ON POLICE OFFICERS' PERCEPTIONS

Panel D in Table 3 presents the intention-to-treat effects of the intervention on police officers' outcomes. As before, our core independent variable is assignment to *either* of the two treatment arms, and we include fixed effects for our randomization strata. We estimate standard errors allowing for clustering by quadrant. First, we look at officers' trust in citizens. We find that the intervention increased officers' trust in citizens by 0.013, equivalent to a 2% increase relative to the control mean. This effect is imprecisely estimated, however, and we cannot reject the null hypothesis of no effect. Second, turning to officers' beliefs about citizens' public trust, we find that the intervention shifted these perceptions by 0.001, a change that is not only imprecise but also minor in magnitude

Table 8: Heterogeneous treatment effects for police outcomes

	Trust in citizens		Beliefs about citizens' public trust	
	ITT (1)	S.E. (2)	ITT (3)	S.E. (4)
<i>Panel A. Baseline Poverty</i>				
Assigned to treatment	0.011	0.012	-0.003	0.014
Assigned to treatment X Baseline poverty (std.)	-0.017	0.010	-0.014	0.014
<i>Panel B. Baseline Trust</i>				
Assigned to treatment	0.010	0.012	-0.004	0.014
Assigned to treatment X Baseline trust (std.)	-0.018	0.012	-0.019	0.015
<i>Panel C. Baseline Crime</i>				
Total Crimes				
Assigned to treatment	0.010	0.012	-0.002	0.014
Assigned to treatment X Baseline total crime (std.)	-0.009	0.006	-0.004	0.008
Violent Crimes				
Assigned to treatment	0.010	0.012	-0.003	0.014
Assigned to treatment X Baseline violent crime (std.)	-0.013*	0.006	-0.022*	0.010
N	2123		2123	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The table displays the heterogeneous treatment effects of the intervention on our primary outcomes for police officers: trust in citizens and beliefs about citizens' public trust. Column (1) presents the intention to treat effect on Trust in citizens, column (2) the corresponding standard errors, column (3) the intention to treat effect on Beliefs about citizens' public trust, column (4) the corresponding standard errors, which we estimate allowing for clustering by quadrant.

compared to the control group's average.

Third, we examine treatment effect heterogeneity on police outcomes in Table 8. As expected, the coefficients on treatment assignment are all small and not statistically significant—these represent the intervention's impact at the mean of each baseline characteristic. We do observe a marginal decline in officers' perceptions of trust in citizens and citizens' trust in places with higher total or violent crime levels. Interestingly, this implies that while residents from high-violent crime areas experience greater improvements in public trust than residents from "average" places, officers believe otherwise.

Finally, in Panel B of Table 6 we study the impacts of the information campaign on police officers' perceptions. We compare the two intervention arms separately and compare them to the control group. Similar to our findings with citizen outcomes, we find no evidence that the daily information campaign to police officers offered any significant, additional changes in officer beliefs.

5.6 SPILLOVER EFFECTS

Even though we designed the experiment to minimize the risk of spillovers, experiments in a dense network of streets can potentially lead to interference between experimental units. We examine the threat of spillovers in Appendix C. We split the sample of control units by half—at the median distance—to create a spillover and a pure control group. Because assuming the presence of spillovers leads to fuzzy clustering patterns, we estimate exact p-values using randomization inference. We see no evidence of either adverse or beneficial spillovers.

6 CONCLUSIONS

States in developing countries often struggle to provide even the most basic services to their citizens. Citizen security is a core concern, given that the social and economic costs of crime and violence are substantial, resulting in lives lost and hindering growth and development (e.g., [Rozo 2018](#); [Jaitman et al. 2017](#)). Strengthening citizen security institutions and reducing crime are therefore core public policy priorities. An enabler for improving policing in violent settings is public trust, given that trust in the police can foster public cooperation with police agencies, increasing their effectiveness (e.g., [Blanes i Vidal and Kirchmaier 2017](#)). Furthermore, given regular interactions between the police and citizens, enhancing the quality of these interactions may help consolidate the legitimacy of democratic states more broadly (e.g., [Blair et al. 2019](#)).

While the reliability and effectiveness of state actors are fundamental for building long-term trust, broad reforms aimed at overhauling policing institutions are seldom successful ([González 2020](#)). Our study instead explores the potential for low-cost, politically acceptable interventions to initiate virtuous cycles of increased trust and improved service delivery. We present the results of an experimental evaluation of such an intervention across five Colombian cities. We find that the intervention, which aimed to increase the frequency of police-citizen interactions and to improve the quality of those interactions, fostered collaboration and public trust in the police despite its short duration and minimal cost.

Our analyses also suggest strong complementarities between increasing the frequency of policing and improving the quality of police interactions. Both may be necessary to improve public trust: a many interactions absent good behavior, or good behavior absent frequent interactions may not produce improvements in public trust.

Furthermore, our study contributes to a broader discussion on declining trust in state institutions within democracies, a trend that has facilitated the emergence of outsider populists, with potential adverse effects for democracy and human rights. The unchecked erosion of citizen trust in state institutions threatens the foundations of democratic governance, highlighting the need for

effective, scalable interventions. The low-cost policing intervention examined in this study, aimed at improving procedural justice, represents a step forward in identifying practical solutions to these pressing challenges. By demonstrating the potential of such interventions to enhance police trust and legitimacy, and possibly contribute to crime reduction, our findings offer valuable insights for policymakers emphasizing the need for innovative approaches to help rebuild trust in state authorities and strengthen democratic institutions.

In addition to the theoretical payoffs for understanding how societies can build trust between state authorities and citizens, our results hold relevance for public policy. Regrettably, we have few proven solutions to reduce crime in the developing world: prominent alternatives that seem to work in rich, industrialized countries have shown mixed results in developing countries (Collazos et al. 2021; Blair et al. 2021). Our study represents a step forward in identifying feasible and scalable policies to enhance police trust and legitimacy, potentially helping to reduce crime over the long term.

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Appendix

A PROOFS

A.1 PROPOSITION 1

Proof. The first-order conditions (FOCs) for the individual's maximization problem are:

$$\pi_T^B \cdot U'(c) - \pi_P^B = \lambda \quad (\text{A.1})$$

$$\lambda \leq 0 \quad (\text{A.2})$$

$$\lambda \cdot c = 0 \quad (\text{A.3})$$

where λ is the Lagrange multiplier associated to the non-negativity constraint on c . Let c^* be a (interior) solution to the individual's problem for π_P^B and π_T^B . Then, from the FOCs, it follows that $\pi_T^B \cdot U'(c^*) - \pi_P^B = 0$. Suppose the individual receives positive news that increase trust to π_T^N ($> \pi_T^B$). Let c^{**} be the solution to the individual's problem for π_P^B and π_T^N . If $c^{**} < c^*$, then $\pi_T^N \cdot U'(c^{**}) - \pi_P^B \leq 0$, which, given the strict concavity of $U(\cdot)$, contradicts $\pi_T^B \cdot U'(c^*) - \pi_P^B = 0$. Therefore, it must be that $c^{**} \geq c^*$. An analogous reasoning applies to positive news on π_P^B . ■

A.2 PROPOSITION 2

Proof. The first order conditions of the individual maximization problem are:

$$\pi_T \cdot U'(c) - \pi_P - \lambda_c = 0 \quad (\text{A.4})$$

$$U(c) - d'(\pi_P - \pi_P^B) - \lambda_T^0 + \lambda_T^1 = 0 \quad (\text{A.5})$$

$$\lambda_c \cdot c = 0 \quad (\text{A.6})$$

$$\lambda_T^0 \cdot \pi_T = 0 \quad (\text{A.7})$$

$$\lambda_T^1 \cdot [1 - \pi_T] = 0 \quad (\text{A.8})$$

$$\lambda_c, \lambda_T^0, \lambda_T^1 \leq 0 \quad (\text{A.9})$$

where λ_c , λ_T^0 and λ_T^1 are the Lagrange multipliers associated to the non-negativity constraint on c , and the constraints on π_T , respectively.

The proof proceeds in two steps. First note that, from equation A.5 and the assumptions on $U(\cdot)$ and $d(\cdot)$, it follows that, in equilibrium, $\pi_T \geq \pi_T^B$ and higher levels of c imply higher levels of π_T . (The relationship is strict among interior optima.) Then, note that a fall in π_P weakly increases the equilibrium level of c . Let (c^1, π_T^1) be the solution to the individual's problem for π_P^1 , and

(c^2, π_T^2) the solution for π_P^2 , with $\pi_P^1 > \pi_P^2$. From the optimality of (c^2, π_T^2) , it follows that:

$$\begin{aligned}\pi_T^2 \cdot U(c^2) - \pi_P^2 \cdot c^2 - d(\pi_T^2 - \pi_T^B) &\geq \pi_T^1 \cdot U(c^1) - \pi_P^2 \cdot c^1 - d(\pi_T^1 - \pi_T^B) \\ \pi_T^2 \cdot U(c^2) - d(\pi_T^2 - \pi_T^B) - [\pi_T^1 \cdot U(c^1) - d(\pi_T^1 - \pi_T^B)] &\geq \pi_P^2(c^2 - c^1)\end{aligned}$$

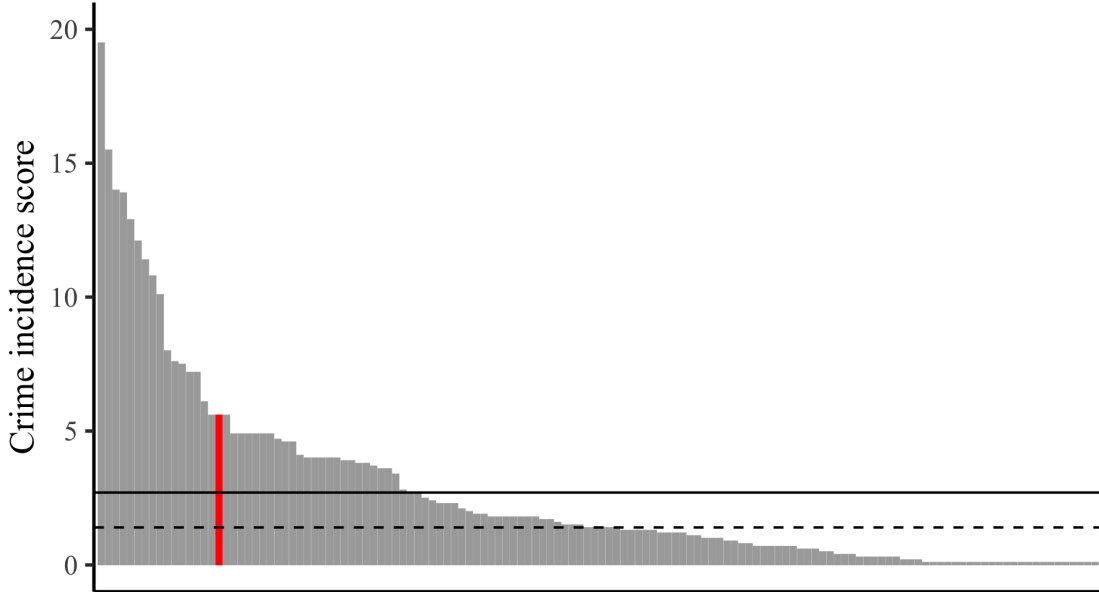
Suppose $c^1 > c^2$. Then:

$$\begin{aligned}\pi_T^2 \cdot U(c^2) - d(\pi_T^2 - \pi_T^B) - [\pi_T^1 \cdot U(c^1) - d(\pi_T^1 - \pi_T^B)] &> \pi_P^1(c^2 - c^1) \\ \pi_T^2 \cdot U(c^2) - \pi_P^1 \cdot c^2 - d(\pi_T^2 - \pi_T^B) &> \pi_T^1 \cdot U(c^1) - \pi_P^1 \cdot c^1 - d(\pi_T^1 - \pi_T^B)\end{aligned}$$

which contradicts the optimality of (c^1, π_T^1) for π_P^1 . Therefore, if $\pi_P^1 > \pi_P^2$, it must be that $c^1 \leq c^2$, and, from the first step of the proof, that $\pi_T^1 \leq \pi_T^2$. ■

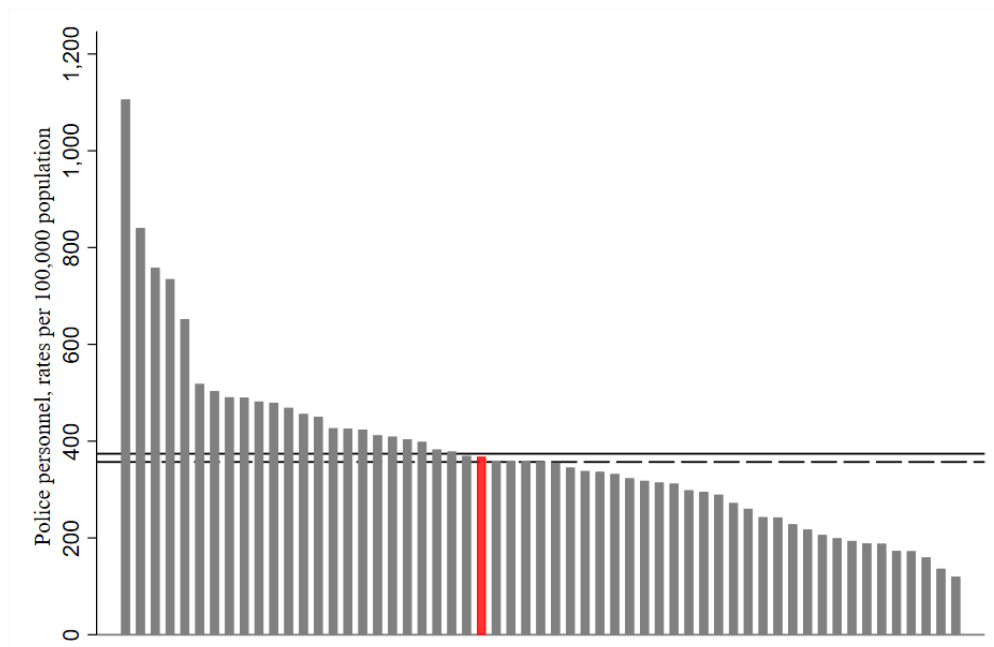
B SUPPORTING FIGURES AND TABLES

Figure B.1: International crime incidence for 136 countries



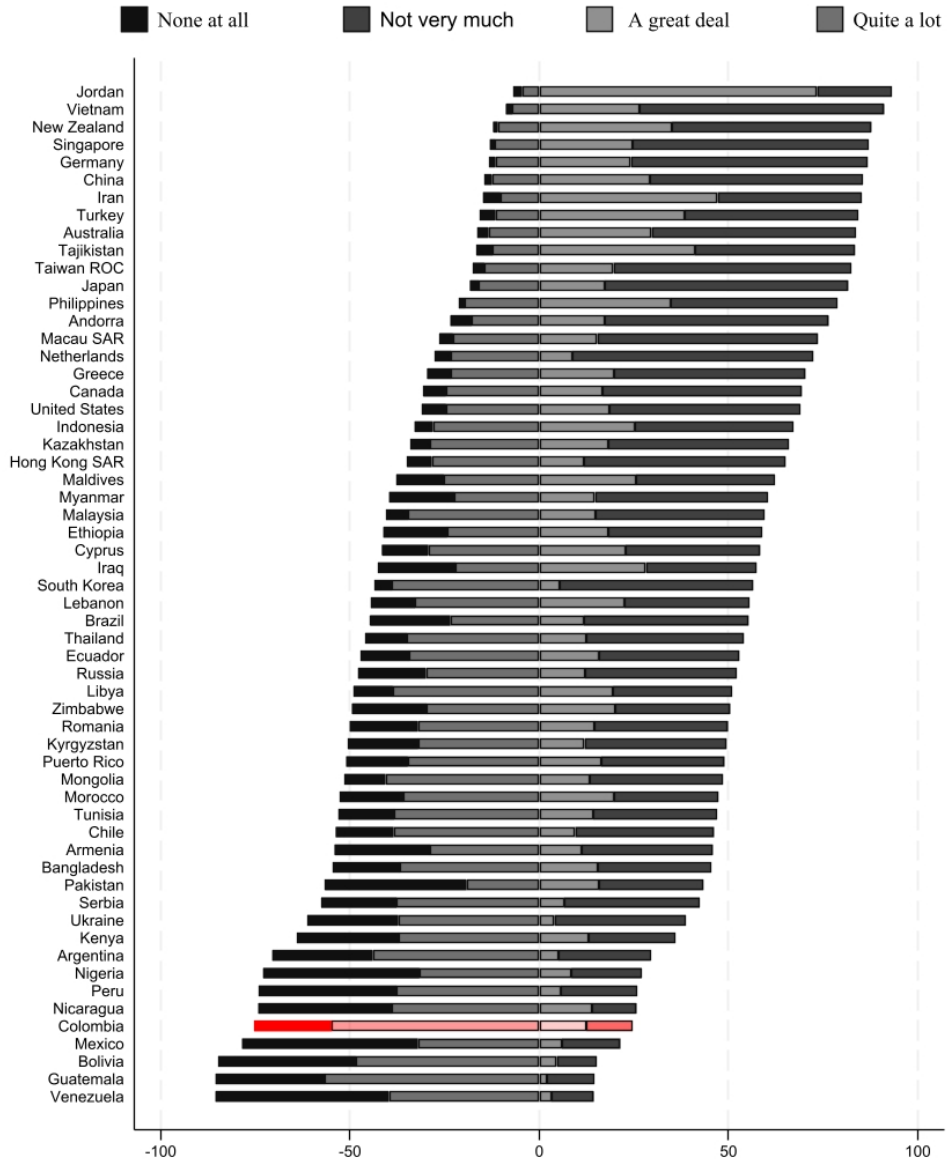
Notes: The solid line represents the mean and the dashed line the median for 136 countries. Colombia is represented by the red vertical bar. Crime incidence scores are from the World Economic Forum, depicting how relevant a problem is according to an executive opinion survey.

Figure B.2: Police personnel for 120 countries, rates per 100,000 population



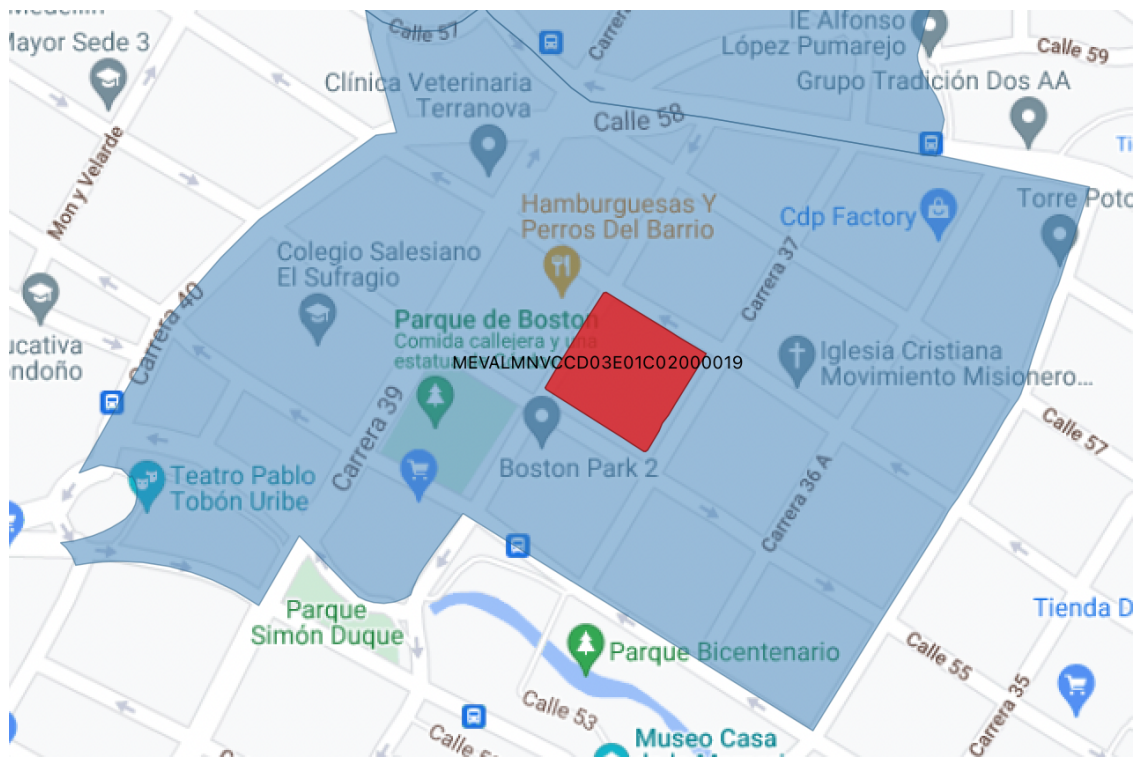
Notes: The solid line represents the mean and the dashed line the median for 120 countries. Data are collected from national authorities through the annual United Nations Crime Trends Survey (UN-CTS). Last year available.

Figure B.3: Citizen trust in the police per country



Notes: Data from the World Values Survey 2017-2022. We depict answers to the question “I am going to name a number of organizations. For each one, could you tell me how much trust you have in them: is it a great deal of trust, quite a lot of trust, not very much trust or none at all?”

Figure B.4: Illustration of the map patrolling officers received.



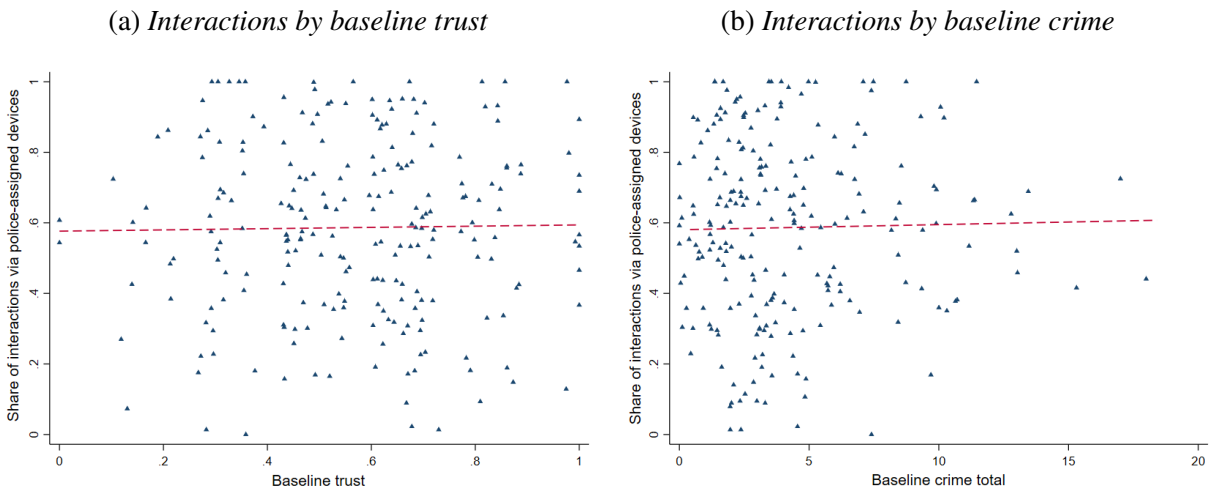
Notes: Police officers in the intervention arms received these maps twice a week to remind them of their targeted street block within the quadrant. The illustration is for a quadrant in downtown Medellín.

Figure B.5: Treatment assignment of police quadrants across cities



Notes: The figure depicts the final distribution of treatment assignments across cities. The dark blue shading denotes quadrants assigned to the core components of the COP Initiative, the light blue quadrants assigned to the core components of the COP Initiative and the information campaign, and the purple quadrants assigned to the control group. Non-shaded quadrants were not included in the experimental sample.

Figure B.6: Interaction of treatment officers vs. initial levels of trust and crime



Notes: The figure shows the average share of interactions via police-assigned devices by baseline levels of baseline trust (a) and crime (b). The red dotted line indicates the fitted values.

Table B.1: Messages of the information campaign - COP Initiative

Greeting and listening is a simple formula that opens the door to establishing relationships of trust and credibility with the community and other institutions. Remember to use them.
Listening is essential to have a close encounter with the other and greeting is an expression of respect and affection. Both are important to fulfil our duties and obligations.
Greeting during the shift with a friendly disposition toward others facilitates a willingness to respond to the needs of the community.
A greeting is a way to project respect and attention for the other, addressing each other in a friendly and cordial way makes a difference and demonstrates a willingness to work and closeness to the community
By showing respect and tolerance towards other institutions, entities and organizations with which we relate, we work in co-responsibility and put our work ethic into practice.
We value the work they do every day for the safety and tranquility of citizens. Their effort is valuable for the institution and citizenship.
Listening attentively to our interlocutors is a sign of respect and a useful tool to provide solutions for coexistence and security.
Listening is to attend to and understand the needs of the community, guaranteeing an action that contributes to coexistence and security.
Listening is putting ourselves in the position of other institutions, understanding their interests and needs to provide them with the support they need.
When we are timely in our response to the needs of citizens, we act in coherence with our commitments, duties and obligations.
When we act in co-responsibility with the community, we strengthen relationships of trust, respect and admiration for our work.
Acting in co-responsibility with other people is the step towards building a prosperous and peaceful country.
Greeting and listening are ways to be coherent with the actions we carry out with the community, working together for coexistence and security.
Acting in our service in co-responsibility with other institutions leads to coherent behaviour between what is thought, said and done.
Cordially greeting the community is the beginning of a dialogue where respect and working together are the starting point for peaceful coexistence and security.
Having an attitude of service and offering a friendly greeting to other institutions and entities builds relationships where credibility and trust are the basis for working in co-responsibility.
Represent your institution by listening attentively to their needs, and understanding their observations to build plans that contribute to the coexistence and security of citizens.
Listen respectfully to the reality of other institutions to provide an efficient response to the needs expressed and thus, together, find solutions that will lead us to build a peaceful country.
Represent your institution acting jointly with the community in the prevention and construction of plans that improve the coexistence and security of all.
Acting in co-responsibility with other institutions and entities, we encourage integration and teamwork contributing to improving the country.
Greeting and listening are behaviours that we must practice daily to work together with the community and other institutions for the benefit of coexistence and security in our country.
By greeting people and demonstrating an attitude of service we can establish a dialogue where the community is integrated with the National Police, working together for the benefit of coexistence and security of citizens.
With a positive attitude and a cordial greeting to other institutions, respect and trust are generated to work in co-responsibility in the construction of the country.
Listening to the needs and contributions of the community, we work as a team to improve the coexistence and security of citizens.
Establishing dialogues based on kindness, respect and willingness with other institutions and entities facilitate the union of efforts to work together for the coexistence and security of the country.
Co-responsibility with the community is the key to acting together in the prevention and construction of coexistence and security for our country.
The integration between the National Police and other institutions allows us to act in the construction of a prosperous and peaceful country.
Remember to greet, listen and act with the community and other institutions to strengthen trust and credibility in our country.
By acting jointly with the community, we build preventive actions and are forceful in providing a service characterized by timeliness.
The National Police prepares daily so that the police service provided meets the expectations and needs of the community through a respectful and cordial greeting, listening as a starting point for understanding and acting consistently with the duties and commitments of the institution.
That greetings, listening and acting coherently will be the starting point for relationships based on respect and co-responsible work between the National Police and other institutions.
We are open to listening attentively to the needs and contributions that the community has to work together for coexistence and security.
The interrelation with other institutions is our strategic ally to build a prosperous and peaceful country, the direct sources of knowledge of the context, needs and expectations. In the National Police, we act consistently with our commitments, duties and obligations in a respectful, effective and close manner.

Notes: The messages were sent daily to patrolling officers within quadrants assigned to the second intervention arm (the core components of the COP Initiative plus the information campaign).

Table B.2: Index components and empathy

Perceptions of procedural justice	<ol style="list-style-type: none"> 1. When the police carry out an intervention, they do so according to their responsibilities. 2. When the police carry out an intervention, the agents make clear their actions and explain the procedure. 3. Citizens can express themselves in the middle of a police procedure and ask for explanations. 4. Police treat all citizens equally, regardless of race, gender identity, or income level.
Perceptions of police effectiveness	<ol style="list-style-type: none"> 1. To what extent do you agree with the following statement? "When someone requests the help of the policemen of the quadrant, they arrive on time to attend to their request." 2. In a hypothetical scenario in which your cell phone is stolen on public transportation, without harming you, how willing would you be to make a formal complaint to the authorities? 3. In a hypothetical scenario in which someone in your community has their cell phone stolen on public transport, without harming them. How willing would that person be to make a formal complaint to the authorities?
Perceptions of police integrity	<ol style="list-style-type: none"> 1. How sure are you that a member of the police would be willing to receive a bribe, gift or favor in exchange for not applying a sanction or allowing an illegal act? 2. How sure are you that some members of the police would be "cooperating" with criminal actors to help them evade the law? 3. How sure are you that if a member of the police commits a disciplinary offense, s/he will be investigated and sentenced by the National Police? 4. How sure are you that a member of the police is in a store or restaurant in your neighborhood consuming some products and leaves without paying? 5. In any encounter between you and a member of the police, do you think you would be at risk of the police using excessive force?
Convergence of values	<ol style="list-style-type: none"> 1. In your opinion, how necessary is the police for the country to function properly? 2. According to what you have heard from your neighbors, how necessary do they consider the police to be for the country to function properly? 3. How much do your ideas of good and evil coincide with that of the members of the Colombian National Police? 4. How much do you think the ideas of good and evil of the people in your neighborhood coincide with that of the members of the Colombian National Police?
Empathy	<ol style="list-style-type: none"> 1. When I see a group of police officers in a life-threatening situation, I become distressed 2. When I see a group of people in a life-threatening situation, I become distressed

C SPILLOVER EFFECTS

C.1 THREATS AND SPECIFICATION

We identify three main threats related to potential spillovers. First, the intervention’s core depends upon police station commanders’ delivering specific instructions to patrolling officers and re-training them during shift changes and other moments. Even without considering patrol reallocations, there is a risk that station commanders may have delivered these instructions to officers belonging to the control group. We believe this risk is minimal because enforcement of executive orders within the Colombian police is high. Furthermore, if the intervention is effective, this would lead to an underestimation of its impact.

Second, routine changes in policing services meant that patrolling officers could be reassigned during the experiment. This became evident when we sent the endline survey instrument—focused on police measures—to all officers who patrolled a quadrant in the experimental sample at any point during the intervention. We received 2,123 survey responses, surpassing our target of 2,070. Such reallocations could pose challenges: untrained officers might be introduced into treatment quadrants mid-intervention, or trained officers could move to control group quadrants. However, given the short duration of the intervention—six weeks—and the fact that rotations are not very frequent, we believe the impact of these reallocations is limited. Additionally, as officers patrol in pairs, the likelihood of an entirely untrained pair operating in treatment quadrants remains low. Even in such instances, both officers would still receive regular instructions from the station commander. If any of these potential issues did influence the outcome, they would likely bias our results towards finding no effect.

Finally, there may be spatial spillovers resulting from police officers in the treatment group patrolling control quadrants or residents from treatment quadrants observing police activity nearby. For example, because they live on a block within a control group quadrant that is contiguous with a treatment quadrant. We deem this risk to be minimal, because we restricted our selection of target street blocks to those at least 40 meters from a police quadrant border. Police quadrants are also relatively large: they contain, on average, 69 street blocks. For this reason, targeted police activities are not easily observable for those living on distant street blocks.

Taken together, we believe the chances that our main estimates are exaggerated are minimal. Nonetheless, we follow Blattman et al. (2021) to examine whether the main effects spill over to surrounding areas. More specifically, we estimate the direct and spillover effects of the intervention on individual-level outcomes using an ordinary least squares regression given by:

$$y_{i,j,c,p,k} = \eta T_{j,c,p,k} + \pi S_{j,c,p,k} + \lambda \mathbf{X}_{j,c,p,k} + \kappa \mathbf{Z}_{i,j,c,p,k} + \alpha_c \times \phi_p \times \theta_k + \nu_{i,j,c,p,k} \quad (\text{C.1})$$

where y , T , \mathbf{X} , \mathbf{Z} , α_k , ϕ_p , and θ_k follow from equation (1). S is an indicator of proximity to the treatment group that splits the control quadrants into two groups: a spillover group and a pure control group. To maximize statistical power, we split these groups at the median distance to the treatment group—approximately 600 meters. Finally, because statistical inference is problematic in the presence of spatial spillovers (as the structure of the clusters for units assigned to spillover regions does not correspond to any geographical region, such as a quadrant or neighborhood), we use randomization inference to estimate exact p-values under the sharp null of no treatment or spillover effects for any unit.

C.2 RESULTS

Table C.1 reports spillover effects. We split the sample of control units by half—at the median distance, hence creating two groups: a spillover and a pure control group. Because assuming the presence of spillovers leads to fuzzy clustering patterns, we estimate exact p-values using randomization inference. We see no evidence of either adverse or beneficial spillovers.

Table C.1: Spillover effects with randomization inference p-values

	Mean (1)	COP Initiative		Spillovers		N (6)
		ITT (2)	p-value (3)	ITT (4)	p-value (5)	
<i>Panel A. Citizen survey</i>						
Willingness-to-pay for policing services	0.469	0.054	0.045	-0.036	0.318	2,097
Public trust	0.562	0.022	0.280	0.035	0.200	2,097
<i>Panel B. Police survey</i>						
Trust in citizens	0.699	0.028	0.116	0.017	0.282	2,123
Second-order beliefs about citizens' public trust	0.699	0.028	0.116	0.017	0.282	2,123

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The table displays the spillover effects of the intervention. Column (1) presents the control mean, columns (2) and (4) the intention to treat effect and the spillover effects, columns (3) and (5) the corresponding p-values using randomization inference, and column (6) the number of observations.

D ETHICS

We identified three main risks. The first risk was that citizens seen to be collaborating with the police during the intervention or during endline data collection would be targeted for violence by organized criminal groups. There was also a risk that due to this threat (or others), survey responses by residents would not be truthful. To mitigate these risks, we consulted extensively with the Universidad EAFIT human subjects committee, validating every aspect of the intervention and impact evaluation, including all survey instruments. We conducted all surveys in private, within citizens' homes, to prevent observability. We preserved both the anonymity and confidentiality of all survey responses, while at the same time advising subjects via informed consent regarding potential limitations in our ability to do so. Respondents were informed that they would receive no personal benefit for participating in this study, that they could skip any survey question that generated discomfort, and that they could terminate the survey at any time without penalty. To the best of our knowledge, survey respondents were not adversely affected in any of the ways described above as a result of the experiment and data collection effort.

The second risk was that the National Police would seek to interfere with the results of the impact evaluation if they did not provide favorable conclusions. We mitigated this risk by seeking and obtaining formal assurances from the National Police regarding the independence of the experiment and the dissemination of its results. Additionally, all survey data generated from the experiment was controlled exclusively by the principal investigators. Finally, we pre-registered all primary and secondary outcomes and analyses and report here any and all deviations from the pre-specified plan.

The third risk was that our experiment would distract police officers from normal policing activities, exposing residents living within treatment quadrants to an increased risk of crime. We mitigated this risk by ensuring that the intervention represented only a minor reallocation of existing resources rather than a disruptive change to policing practices. More specifically, we sought to minimize the amount of time that both commanders and officials spent engaging in activities related to the intervention (while being mindful of the need for a strong treatment).

E DEVIATIONS FROM THE PRE-ANALYSIS PLAN

We pre-registered our Pre-Analysis Plan with the American Economic Association RCT Registry prior to endline data collection and is available at <https://www.socialscienceregistry.org/trials/8947>. Here we report the deviations from the original plan and the corresponding explanations.

LATE UPDATES. We updated the abstract and intervention description after the intervention finished, but not as an ex-post change. The intervention evolved after we registered the PAP, and this is a more accurate description of what the intervention effectively was. Similarly, we updated the description of the police measures after the intervention finished, but not as an ex-post change. The instrument aimed to understand how effective procedural justice principles were by asking directly to officers how much they trust the public (a measure of reciprocity) and their second-order beliefs on public trust (the main aim of the intervention). We include a note in the updated PAP specifying this.

OUTCOMES WE DID NOT PRE-SPECIFY. To expand the analysis, we included the following. First, we leveraged our randomization strata to examine the complementarities between the frequency of policing and the quality of interactions with citizens. This analysis, as we explain in the main body of the paper, aimed at understanding whether one of the two components alone could explain the changes in public cooperation and trust. Second, we analyzed additional outcomes that allow for a more comprehensive understanding of our main findings. These include the measures of empathy and administrative data on crime reports. Finally, we leveraged our randomization strata to examine heterogeneous treatment effects. We restrict to these to reduce our discretion on the wide array of analysis that we could examine.

F ADDITIONAL ANALYSES

F.1 ROBUSTNESS

We study the robustness of our results on the main outcomes to different adjustments in the model specification and inference. We report the results in Table F.1. Panel A reports the results using covariates. To limit our discretion, we use the double lasso method proposed by [Urminsky et al. \(2019\)](#) to select covariates from the full choice set of baseline controls from Table 2. The effects on citizen and police outcomes remain broadly the same, both in terms of magnitude and precision. Panel B reports the results using randomization inference p-values ([Fisher 1935](#)). The main advantage of randomization inference is that this approach is agnostic regarding the structure of spatial clusters, common to urban experiments (see e.g., [Blattman et al. 2021](#); [Blair and Weintraub 2023](#)). The intent to treat effects on all our main outcomes remains statistically significant at conventional levels. Finally, panel C reports the results of conducting multiple hypothesis test corrections. We follow [Anderson \(2008\)](#), controlling for false discovery rates. The sharpened q-values suggest the precision of our estimates remains broadly unchanged.

Table F.1: Robustness analyses

	Control mean (1)	ITT (2)	S.E. / RI p-value (3)	N (4)
<i>Panel A. Including double lasso control variables</i>				
Willingness-to-pay for policing services	0.469	0.031**	0.015	2,097
Public trust	0.562	0.034***	0.011	2,097
<i>Panel B. Randomization inference p-values</i>				
Willingness-to-pay for policing services	0.469	0.036***	0.000	2,097
Public trust	0.562	0.039***	0.000	2,097
<i>Panel C. Adjusting for multiple hypothesis testing</i>				
Willingness-to-pay for policing services	0.469	0.036**	0.049	2,097
Public trust	0.562	0.039***	0.002	2,097

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The table displays three robustness analyses on specification and inference: inclusion of controls (panel A), estimating randomization inference p-values (panel B) and correcting p-values for multiple hypothesis testing (panel C). Column (1) presents the control mean, column (2) the intention to treat effect, column (3) reports standard errors (panel A), randomization inference p-values (panel B), and sharpened q-values (panel C). Column (4) reports the number of observations.