

Fire Alarms for Police Patrols: Experimental Evidence on Co-Production of Public Safety

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Abstract

Effective public goods provision requires co-production by both citizens and the government. Search costs which impede citizens' abilities to share information constitute a critical and understudied impediment to this co-production. We experimentally evaluate search costs in a rural, conflict-affected province of the Philippines. We randomize the rollout of a police hotline which dramatically reduces the costs of reporting, and compare it against both the status-quo and an alternative intervention which builds trust but does not affect search costs. The hotline increased the likelihood of reporting crimes by 10–19 percentage points. The intervention reduced perceived insurgent activity but had no perceptible impact on ordinary crime. Our findings suggest that addressing search costs substantially impede to service delivery, potentially explaining why policies imported from higher-capacity countries may fail to achieve results in developing contexts.

^{*}matthew.nanes@slu.edu. The intervention, experimental design, and main analyses below were pre-registered at <https://osf.io/53bp4>. Some secondary analyses were not preregistered and are noted as such in-text. Replication files are available in the JOP Dataverse (<https://dataverse.harvard.edu/dataverse/jop>). The empirical analysis has been successfully replicated by the JOP replication analyst. Study procedures were approved by the UC San Diego IRB under protocols 170974 and 170415, with reliances approved by the IRBs at Saint Louis University and Florida State University. Funding was provided by Evidence in Governance and Politics Metaketa IV project, and by the UC San Diego Policy Design and Evaluation Lab. Supplementary material for this article is available in the appendix in the online edition.

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What affects the state’s ability to deliver services in developing contexts? Effective governance relies on co-production (Ostrom 1996), or joint action by citizens and the authorities. Co-production is a two-stage process. In the first stage, citizens provide information to the authorities. In the second stage, authorities use the information to allocate resources. Whether repairing potholes, identifying corruption, fighting crime, or reducing conflict, citizen-provided information allows authorities to concentrate on fixing problems rather than finding them.

Because much of the research on the first stage of co-production comes from developed contexts, scholars focus on citizen willingness to cooperate with authorities, taking for granted that citizens in these settings incur minimal transaction costs when providing information (Skogan and Hartnett 1997; Sunshine and Tyler 2003; Tyler 2003). This assumption does not square with the realities in developing contexts, where less-developed infrastructure impedes transportation and communication (Stasavage 2010; Laitin and Ramachandran 2016; Blair et al. 2019). We argue that search costs preventing citizens from contacting the authorities represent a key impediment to public goods provision in many low- and middle-income countries. Search costs which attenuate state-society interactions could prevent even well-intentioned governments from serving citizens efficiently, and cause institutions built for developed contexts to flounder in certain areas of the Global South.

In addition, the realization of public goods provision depends not just on citizen information sharing but also on how authorities use that information. Bureaucracy is not a transparent pass-through that converts information into action; bureaucrats and political leaders hold their own preferences over the deployment of resources, which may differ from the preferences of citizens. Thus, in the second stage of co-production, public goods provision depends on whether and how authorities respond to citizen-provided information.

We study the co-production of public service delivery by experimentally evaluating a police initiative designed to reduce the cost to citizens of contacting the police. Our study takes place in a rural province of the Philippines, where public safety is threatened

by ordinary crime as well as the presence of an insurgent group. The most common way citizens report information to the police is by traveling in person to a station, oftentimes a prohibitively costly endeavor. We partnered with the provincial police to randomize the roll-out and advertisement of a telephone hotline that citizens can use to call or text the police. The hotline is a simple version of the emergency phone lines ubiquitous in the developed world but frequently absent or unknown to citizens in many lower-income contexts.¹ During the intervention, police officers visited 99 randomly selected villages, engaged informally with citizens, and blanketed the area with 55,000 stickers containing the hotline number. To isolate the effects of search costs from potential increases in trust or perceived capacity stemming from police presence, we implemented a parallel treatment in 99 additional randomly selected villages. There, officers engaged in similar informal interactions with civilians but distributed 55,000 placebo stickers that did not include the hotline number. A final 100 villages in the control condition received policing as usual.

Results show that search costs are indeed an important impediment to the first stage of co-production. Drawing on a survey of civilians about six months after the intervention began, we find that areas that received the hotline advertisement experienced significantly higher rates of crime reporting, even after accounting for the impact of police trust-building. The effects of reducing search costs on threats to public safety were mixed. We find no effect on armed robbery, burglary, assault, or drug-pushing. However, civilians in treated villages report significantly less victimization by insurgents. The province where we conducted our research is home to a decades-long, anti-government movement by the communist New People's Army (NPA). In addition to periodically targeting police and military outposts, the NPA engages in extortion and racketeering. Citizens in treated villages report significantly less victimization by insurgents compared to those in the control or alternative treatment villages. We propose that these surprising and interesting patterns reveal a breakdown at

¹In a survey we ran of policing experts of low and middle income countries, respondents estimated that where hotlines exist only 25-50% of civilians are aware of them, and that are entirely absent in two of the seven countries evaluated.

the second stage of co-production, police action, in which the police responded disproportionately to information they viewed as a priority, namely insurgent activity, while failing to adequately respond to citizens' reports of other types of crimes.

This research makes four primary contributions. First, we highlight the obstacle that search costs could pose for public goods provision in similar contexts in the Global South. Despite important work on the role of transaction costs in state formation (Stasavage 2010; Zhang and Lee 2020), research on search costs and the co-production of public goods is limited. Institutions that function efficiently in developed contexts may be ill-suited in places around the world where it takes a lot of time and money for citizens to reach government authorities with their concerns.

To that end, we also contribute to a burgeoning political science literature on community policing, which builds on a more established literature on the same topic from criminology and sociology (Kelling et al. 1981; Weisburd and Green 1995; Skogan and Hartnett 1997; Haim et al. 2021). Research is often ambiguous about the mechanisms through which community-based policing initiatives should improve public safety. We show that the substantial barriers to reporting information could explain why trust-building community policing measures, which are widely shown to improve citizen-police relations in developed countries, have little effect in the Global South (Blair et al. 2021).

Third, our results speak to the information-centric model of insurgent conflict (Berman and Matanock 2015) by providing experimental evidence consistent with the idea that lower search costs for civilians can reduce insurgent activity (Kalyvas 2006; Shapiro and Weidmann 2015). Even though the intervention was only implemented in areas the government strongly controls, the police appear to have prioritized deterring insurgent activity over other efforts like crime reduction that could have improved state legitimacy.

Finally, we contribute to knowledge on the use of technology in reducing search costs in government service delivery (Duflo et al. 2012; Aker et al. 2017; Callen et al. 2020). The substantial increase in citizen willingness to contact the police was achieved using widely

available technology that cost only a few hundred dollars. Yet, for a citizen living in a peripheral village far from the nearest municipal station, the ability to send an SMS message to the police could save the better part of a day needed to travel to the station, report information, and return home. This inexpensive application of technology is easily adopted to a wide range of settings world-wide.

Co-Production of Public Goods

In the first stage of co-production, citizens share information with the state, helping the government identify needs and allocate resources efficiently (Scott 1998; Lee and Zhang 2017). Canonical literature on institutional organization identifies two mechanisms of information-gathering, “police patrols” and “fire alarms” (McCubbins et al. 1987). In a police patrol model, the institution proactively monitors behavior and attempts to identify problems. A fire alarm allows affected parties to bring problems to the authorities’ attention. The former approximates police officers patrolling streets in hopes of deterring crime or encountering a crime in progress, while the latter reflects the fire department’s method of waiting at the station until a citizen reports a fire.

A wide range of institutions attempt to harness the efficiency of fire alarms. For instance, citizens can report potholes or broken streetlights by filling out a web form or calling city hall. Despite the label, the police rely heavily on fire alarms to identify and deter crime. Police respond to calls for service, and use citizen reports of crimes or suspicious activities to decide where to allocate patrols (Weitzer and Tuch 2006). Similarly, governments fighting insurgencies depend on citizen information about rebel activities (Berman and Matanock 2015; Shapiro and Weidmann 2015).

Fire alarms’ effectiveness depends on citizens proactively sharing information. Citizens decide to share information based on their expected benefits of the government response, along with costs associated with reporting information. Costs from sharing information accrue from a wide range of sources. Corrupt officials may extort citizens seeking services,

or abusive police officers may harm citizens they perceive as disrespectful. Mundane costs like travel or waiting time, administrative fees, language barriers, and a lack of procedural knowledge also impact engagement. For example, Kruks-Wisner (2021) notes that Indian citizens participating in a grievance resolution program spent on average 144 rupees to travel to a police station, nine times the national poverty line of 32 rupees per day.

An important literature links these obstacles, which we refer to as “search costs,” with a range of governance outcomes, including the development of democratic assemblies (Stasavage 2010), procurement of marriage licenses (Zhang and Lee 2020), and socioeconomic development (Laitin and Ramachandran 2016). Search costs fundamentally shape state-society interactions. As Zhang and Lee (2020, 1003) write, “Focusing only on institutions while ignoring interactions risks misunderstanding the nature of state development and state power, which in turn has implications for policy interventions to improve state capacity.”

Once citizens engage with the state, the impact of that engagement on goods provision depends on the second stage of co-production, government action. Well intentioned and highly capable government agents are more likely to deliver services effectively. However, this second stage may break down if the government is unwilling or unable to act on citizen-provided information. Bureaucrats may fail to follow up on information due to laziness or corruption, or may lack the capacity to respond effectively. Authorities might also respond only to a subset of citizen information. For example, even in well-resourced police departments, it is typical to dispatch a forensics team to collect evidence from the scene of a murder, but not from the scene of a petty theft. Finally, divergence between citizens’ and authorities’ preferences can lead to a breakdown in the translation of citizen-provided information into public services.

Citizen information sharing is particularly important for public safety. Police departments rarely have sufficient resources to patrol every street, business, and home at all times. In most of the world, the majority of police action originates with citizen requests for service, exemplifying a fire alarm model. In the United States, for example, more than

3/4 of citizen-police contacts start with a citizen calling the emergency number (Bureau of Justice Statistics 2018). Thus, a major challenge for policing, as with public goods provision in general, is to increase citizens’ willingness to engage with authorities. This attempt to enhance public safety by improving citizen-police cooperation underlies “community policing” (Weisburd and Green 1995; Skogan and Hartnett 1997).

Most research on citizen-police cooperation focuses on citizens’ expected benefits from engaging with the police (Tyler 2003; Sunshine and Tyler 2003). Positive attitudes about police intentions and capacity may be achieved through a variety of mechanisms, including foot patrols (Kelling et al. 1981), de-fortification of police stations (Bayley 2008), enhanced personal (Haim et al. 2021), and group-based representation (Nanes 2021). In contrast, expectations that the police are incompetent, poorly equipped, or in collusion with criminals – as is common when dealing with organized crime (Arias 2006) – may hamper reporting.

Trust-based approaches to policing assume that the search costs of reporting information are negligible. In the United States, nearly every citizen has access to a phone with reliable service, calling 911 is free, and an operator typically answers the call within seconds. Yet, the costs of reporting information are much higher in many low- and middle-income countries. In some cases, hotlines do not exist at all. In others, like our research context in the Philippines, the majority of citizens are unaware of the hotline number, the police do not reliably staff the phone line, and hotline operators struggle to initiate police response.² In many places, the modal method through which citizens request help from the police is by traveling to the police station in person. The search costs associated with in-person reporting can be prohibitively expensive, particularly in rural areas where substandard transportation infrastructure makes travel difficult (Blair et al. 2019). In-person reporting also may entail missed work or family duties, and comes with substantial uncertainty about how long the process may take.

²These claim stems from conversations and an informal poll of experts on policing in middle and low income countries. We report more specific results from this poll in the Empirical Context section and in the SI.

We view both a moderate level of citizen trust in the police and reasonable search costs as necessary but not sufficient for citizens to contact the police. If citizens have extraordinarily low trust in the police, reducing search costs is unlikely to meaningfully improve citizen reporting. At the same time, if search costs are prohibitively expensive for most citizens, no amount of trust-building will induce citizens to contact the police in many cases.

While community policing programs often incorporate mechanisms that increase citizen-police contact, our understanding of the role of search costs is limited by two factors. First, many programs rely on direct, personal connections between officers and citizens to enhance contact. Personal ties affect some citizens differently than others and may alienate unconnected citizens (Haim et al. 2021). Second, by making cost-reducing initiatives just one part of a basket of interventions, studies of community policing conflate the effects of search costs, trust, and other mechanisms that may be working in parallel. This complexity makes it difficult to identify the independent effect of any given mechanism on public safety, raising the possibility that departments might waste resources constructing a holistic community policing program when a limited, inexpensive initiative may have met their needs.

Reporting Hotlines

Telephone and SMS hotlines are increasingly important vehicles through which governments can reduce the search costs citizens face when contacting authorities. Making a phone call takes substantially less time and incurs lower monetary costs compared to traveling to a police station in person. Hotlines staffed 24 hours a day, seven days a week give citizens the confidence that they can request help at any time. The ability to send an SMS message, which does not require as reliable cell signal and is usually cheaper than a voice call, further reduces citizens' costs. Citizens can send text messages covertly, obviating the discomfort from speaking with an authority figure and allowing them to report crimes in progress without alerting those around them. SMS hotlines also provide benefits to the authorities, who can quickly scan messages to prioritize their responses based on urgency.

The value of low-cost citizen reporting mechanisms extends beyond the police. Anti-corruption interventions frequently use SMS hotlines to receive information from citizens.³ In a study with a similar design to our own, Aker et al. (2017) distributed 10,000 leaflets with information about an SMS hotline for reporting election irregularities to randomly-selected locations in Mozambique. Treated areas exhibited higher voter turnout and higher perceived rates of ballot fraud. Hotlines also play a role in conflict zones, where government forces use them to gather information critical to identifying and combating insurgents. The Coalition Provisional Authority in Iraq established a voice-call hotline for reporting insurgent activity in 2006 and spent \$9.9 million US advertising the number (Shapiro and Weidmann 2015). Authorities credit the hotline with the discovery of 19 car bombs, 175 roadside bombs, 66 mortars, and 139 arrests between February 1 and October 21, 2006.⁴

Hypotheses

Our overarching theory is that high search costs substantially inhibit information flows from citizens to the police. We do not suggest that trust and procedural justice are unimportant, but rather that managing search costs should affect citizens' willingness to provide information to the police independently of these other factors. We expect that citizen access to, and knowledge of, an emergency hotline will sufficiently reduce search costs to improve information flows from citizens to the authorities.

Hypothesis 1: Increased exposure to an emergency hotline will increase crime victims' likelihood of reporting their issue to the police.

Public safety in the form of crime prevention is the product of joint citizen and police behavior. We expect that the hotline's impact on crime victimization and perceptions of safety depends not just on whether citizens transmit information but also on how the police

³<https://www.pna.gov.ph/articles/1122975>

⁴Semple, Kirk. "U.S. Backs Hot Line in Iraq to Solicit Tips About Trouble." *New York Times* 5 November 2006. <https://www.nytimes.com/2006/11/05/world/middleeast/us-backs-hot-line-in-iraq-to-solicit-tips-about-trouble.html>

use that information. As discussed above, many factors may interrupt the translation of information flows into public safety. Despite these caveats, we expect that in the context we describe below the hotline will cause measurable improvements in public safety.

Hypothesis 2: Increased exposure to an emergency hotline will improve public safety in the form of crime victimization.

We also provide evidence on our treatment’s impacts on citizens’ perceptions and evaluations of the police in an effort to paint a complete picture of the hotline’s impacts. However, because the mechanisms with theorize above are separate from those involving trust, we do not include these tests in our formal hypotheses.

As we note above, research on crime (Skogan and Hartnett 1997) and insurgency (Berman and Matanock 2015) propose largely similar mechanisms linking citizen information provision with reduced insecurity. We do not hypothesize *ex-ante* that there should be differences in the hotline’s impact across types of crimes. Differences in the effects of the hotline across types of threats to security could indicate a breakdown in co-production, either in the form of differential citizen reporting (first stage) or authorities’ actions (second stage). In the conclusion, we discuss several scope conditions governing these hypotheses to apply. For example, we do not expect search costs to be as important to public safety provision in areas with extensive rebel or criminal governance, including places where these non-state actors collaborate extensively with the state (Arjona 2016; Lessing 2021).

Empirical Context

We conduct our study in Sorsogon, one of 83 provinces in the Philippines. Located on the southern tip of Luzon, Sorsogon hosts a population of about 850,000 citizens. Most of the province is rural, with rice paddies and dense forests sitting against a mountainous backdrop. A large proportion of the population resides in semi-urban Sorsogon City, the provincial capital. Sorsogon Province is divided into 15 municipalities which encompass 541

barangays. A barangay, the smallest administrative unit in the Philippines, is akin to a village in rural areas or a neighborhood in urban areas. In Sorsogon, the median barangay has about 850 residents. Barangays serve as our study’s primary unit of analysis.

Our research team has deep ties to Sorsogon, including nearly a decade of research, which predated its selection for this study. Before approaching the Sorsogon police about an intervention, we conducted extensive qualitative and observational research about policing in the province. As we discuss in the following section and in the SI, our local knowledge and connections were crucial for assessing the ethical risks associated with the intervention. We learned from contacts who are not affiliated with the police that the provincial police chief is a known reformer committed to community-based approaches to policing that protected human rights. We also learned that the Sorsogon police were planning to launch a substantial community policing initiative, including advertising a new hotline. This initiative allowed us to evaluate home-grown interventions without introducing additional risks that might stem from us imposing policies in a context where they were not well-suited. As a result, the Sorsogon context can be thought of as a “case of convenience” (Koivu and Hinze 2017), driven primarily by ethical and practical considerations.

Given the nature of our site selection, a number of contextual characteristics are worth highlighting for scholars and policymakers considering how our results might apply in other parts of the world. First, about 75% of our sample barangays are considered rural, while the other 25% are semi-urban municipal centers. According to the World Bank, Sorsogon is classified as lower-middle income, in line with the Philippines as a whole.

Citizens in Sorsogon face a range of public safety threats. Serious crimes like murder, assault, rape, drug-related incidents, and armed robbery jointly compose 41% of reported crimes. Minor incidents like theft, public intoxication, juvenile delinquency, family/neighbor disputes and vehicle accidents constitute the remaining 59% of reports. Organized criminal gangs do not have a strong presence in the area. Two government institutions provide policing services in the Philippines. The first is the Philippine National Police (PNP), a full-

service police force under the authority of the national government. The PNP are relatively well-equipped compared to most police departments in similar lower-middle income countries. The Sorsogon Provincial Police Office (PPO) has about 850 officers distributed across 16 municipal stations, for a police-citizen ratio of about 1:1,000. While not as well-resourced as departments in OECD countries or those in upper-middle income countries like Colombia or Malaysia, PNP officers have reliable access to vehicles, weapons, and radios. PNP presence is distributed unevenly. Officers maintain a frequent presence in semi-urban centers but rarely patrol beyond the main highway in rural areas. In our survey, more than 45% of respondents say they see a PNP officer once per month or less. Trust levels in the PNP are moderate, with 66.8% of our respondents saying they trust the PNP in their area “a little” or “somewhat,” the middle two options on a four-point scale. For comparison, citizen trust in the police in Sorsogon is just slightly above the average trust level across Latin America and Africa, with similar reported trust levels to what is seen in Colombia, Ecuador, Uganda and Benin.⁵

Public safety is also delivered by barangay “tanods,” or semi-professional public safety officers employed by the government to work in their home barangay. Our surveys and exploratory work suggest that tanods handle most minor crimes, leaving the PNP to investigate and deter more serious crimes. This research focuses primarily on the activities of the PNP, but we discuss additional detail about tanods in the SI.

The Sorsogon Police depend heavily on citizens to provide information. More than twice as many entries in PNP crime blotters come from citizen reports (fire alarms) as from police operations (police patrols). Before the start of our study, the majority of those reports were made in person at a station, even though travel and waiting time to make an in-person report to the PNP often takes several hours.⁶ While most of the municipal police stations

⁵Based on the most recent round of surveys from LAPOP and Afrobarometer.

⁶According to blotters we collected covering January 2016 through February 2017, reports came through the following channels: police operations, including intelligence-gathering, investigations, and cultivated informants (30.7%), citizens in-person at the police station (43.3%), phone calls (16.0%), SMS messages (5.7%), and voluntary surrenders (4.3%).

had a public telephone number, citizen awareness of these phone numbers was very low and the phones were not reliably staffed. In this regard, Sorsogon Province is comparable to rural and semi-rural settings in some other developing countries. In the appendix, we present results from a survey of policing experts on seven middle- and low- income countries across Asia, Africa and Latin America (Nanes et al. 2022). In every case, at least 40% of crime reports are estimated to come via in-person reports. In contrast, only 5.6% of US residents who contacted the police in 2018 did so by going to a police station (Bureau of Justice Statistics 2018). Police hotlines do not exist in two of these seven countries. Where they exist, on average only about 25-50% of the population is aware of the hotline number.

In some ways, Sorsogon provides a hard test for our theory. In the Bicol Region where Sorsogon is located, only 62% of people reported having a cell phone in their household (Philippine Statistics Authority 2019). This rate is significantly lower than in other areas of the world with similar economic conditions.⁷ Finding treatment effects where mobile phone access is so limited means that similar policing contexts with better cell signal could benefit even more from increasing citizen knowledge about hotlines. On the other hand, our findings may not extend to areas where mobile access and connectivity is even more limited.

Finally, activities of the New People’s Army (NPA), a communist rebel group that has operated in the area since the 1960s, also threatens public safety in Sorsogon. This threat differs substantially between areas controlled by the government compared to those controlled by the NPA. In NPA-controlled areas, insurgents compete with the state for citizens’ loyalty, provide some limited local governance services (including their own justice system and negotiating tenancy terms with landowners), and engage in activities that are similar to organized crime groups, such as illegal resource extraction and the extortion of businesses and politicians. Violence in these areas is relatively rare today, though occasionally the NPA targets violence at the military, police, and local politicians. The Armed

⁷For example, across all countries in the most recent round of the Afrobarometer survey, cell-phone ownership was 70% in rural areas and 89% in semi-urban areas. The low rate of cell phone ownership in Sorsogon is explained in part by limited rural cell coverage; the region has the greatest urban-rural divide in the country in terms of 4G network usage.

Forces of the Philippines (AFP) takes the lead role on security provision in NPA-controlled areas – the PNP’s directives prevent officers for operating in these areas without an advance scout team and AFP operational support. As we discuss in the next section, practical and ethical considerations led us to *exclude* NPA-controlled barangays and directly surrounding barangays from our sample.

We include only government-controlled areas in our sample, where NPA activity is much more limited. NPA members sometimes travel through these areas and interact with civilians, but they generally keep a low profile. Interactions with civilians include attempts to identify potential sympathizers (especially youths) who might join the movement or help them expand their presence. They also include efforts to gather information about government programs and operations, and rare attempts to collect small-scale “revolutionary taxes.” Violence against civilians or government personnel in government-controlled areas is exceedingly rare, as the group is wary of turning civilians against them. Consistent with Kalyvas (2006), the NPA cannot gather reliable information about the identity of informants in government-controlled areas, rendering them unable to use selective violence. That said, a number of civilians we spoke with during our scoping work felt that they were victimized by NPA activities due to the fear of interacting with armed insurgents, anger about NPA recruiters approaching local youths, and feeling extorted by the “taxes.” In government-controlled areas, the PNP is the primary government security provider that attempts to deter NPA activity. PNP officers gather civilian-provided information about NPA sightings, conduct routine patrols to signal their presence, and investigate cases of recruitment and small-scale extortion.

The NPA’s presence in Sorsogon both complicates and contributes to our analysis. The diversity in threats to public safety raises the possibility that reduced search costs may not impact all types of public safety in the same manner, whether because of differences in citizen reporting or in the government’s response. On the other hand, the threats posed by insurgent organizations to government legitimacy are common across the globe. These

groups’ presence often complicates police-citizen interactions, as officers remain in fortified stations until called on (Bayley 2008). It is especially costly for citizens in conflict-affected areas to travel to the police station to file a report because they tend to be far from population centers, and the high visibility of this action risks notice by insurgents. Thus, search costs are particularly relevant to state-society relations in the shadow of insurgency. The scope of our study precludes claims about how search costs affect civilian tips to the government in insurgent- or gang-controlled areas. Instead, we speak to how search costs shape governments’ ability to consolidate their legitimacy in areas they “hold” but that remain adjacent to insurgent strongholds, which is a key outcome for scholars and practitioners of (counter)insurgency (Berman and Matanock 2015; Department of the Army 2006).

Ethics

Our collaboration with the Sorsogon police entailed several important ethical considerations. We briefly reflect on two of these considerations here, and include a more detailed discussion of ethics in the SI. As mentioned above, we only approached the PNP about partnering on an evaluation of their community policing and hotline interventions after substantial exploratory work and observational research on policing in Sorsogon. During this time, we relied heavily on knowledge from a broad network of key civilian informants that we developed over the course of more than a decade of research in the province, including local academics, NGOs, government agencies, staff of local politicians, community leaders, and ordinary citizens. Without deep local ties, we would not have been in a position to accurately assess the risks and benefits associated with the intervention.

Our study occurred during President Duterte’s “Drug War,” which led to at least 27,000 deaths from late 2016 through May 2020, including more than 5,600 at the hands of the police.⁸ Increasing contact between citizens and police officers would be deeply problematic

⁸Talabong, Rambo. “Kill or arrest? SC’s Carpio pins down what PNP means by ‘neutralize.’” *Rappler* 21 November 2017, <https://www.rappler.com/nation/189126-pnp-ejk-philippines-supreme-court-war-on-drugs-neutralize-carpio> and

if it increased abuse, and we were especially worried about this risk in the context of the Drug War. Our decision to even consider this type of intervention was influenced by the fact that the Drug War-related violence occurred almost exclusively in Manila and other major urban areas. There was virtually no drug- or anti-drug violence in Sorsogon.

We assessed the risk of police abuse and Drug War-related violence in three ways. First, our contacts across the province were in universal agreement that police abuse was neither systematic nor widespread in Sorsogon. They informed us that the Provincial Police Chief was a well-known opponent of the violent tactics advocated by Duterte. Second, before approaching the PNP, we conducted a representative citizen survey where we asked questions about police abuse and the drug war. 99% of respondents had not heard of any instances of police abuse in their community in the last six months, and 95% of respondents said that the PNP’s methods for fighting drugs had not become more violent in their area since Duterte’s election.⁹ Finally, our team monitored local news and available data sources, including ACLED’s dataset on the Philippine Drug War. These sources recorded only five drug-related deaths in Sorsogon Province between Duterte’s election and the initiation of our project, and none in the nine months preceding the intervention. To ensure our partnership did not contribute to new violence, members of our research team accompanied all PNP barangay visits that were part of the program, and were instructed to report instances of suspected abuse to our research manager and the PIs.

NPA presence also posed important ethical challenges, including the risk that the intervention might increase incentives for insurgents to target civilians with violence. To understand the nature of this risk, we engaged in extensive conversations with local experts on the insurgency, including individuals with current and former ties to the NPA in Sorsogon. Among these experts, there was unanimous agreement that both the community policing and

Human Rights Watch, “Our Happy Family is Gone: Impact of the ‘War on Drugs’ on Children in the Philippines.” <https://www.hrw.org/report/2020/05/28/our-happy-family-gone/impact-war-drugs-children-philippines>

⁹To reduce response bias to these potentially sensitive questions, respondents recorded their responses on an iPad that was out-of-sight to the enumerators and that locked after responses were submitted.

hotline interventions would raise substantial risks in NPA-controlled areas, but that they would not increase the risk of violence in government-controlled areas. We relied heavily on our local network in each municipality to identify areas where NPA presence was strong enough to make the intervention unsafe. We also consulted each municipal PNP station and the local AFP command, who had an incentive to exclude barangays where there was a risk of ambushes. Finally, we requested consent from municipal mayors, and from barangay captains and councilors in each of the potential sample barangays, who have traditionally been at the greatest risk of NPA targeting.¹⁰ We identified 298 of the 541 barangays in Sorsogon (55%) as “safe for research.” In all likelihood, this is a very conservative estimate of areas without a strong NPA presence. The AFP provided us with their intelligence reports from December 2015, suggesting that the NPA was only regularly active in 26% of barangays across the province, none of which were included in our sample.

As with many real-world randomized interventions, our design provided a potentially beneficial policy to only a subset of Sorsogon’s residents. However, we did not withhold policing services from anyone. The control condition described below was status-quo policing, and anyone in the province could use the hotline regardless of location. Finally, after we collected endline data, the police proceeded to advertise the hotline in control locations.

Study Design and Data Collection

Of the 298 barangays in our sample, we randomly assigned 99 barangays to receive the primary treatment, advertisement of a new province-level phone and SMS emergency hotline.¹¹ The Sorsogon PPO created the hotline in the months immediately before our study began but had not yet advertised it. At the start of our study, the hotline did not

¹⁰We consulted with each barangay captain at least twice prior to the intervention and then followed up at least once a month to give them the option to withdraw.

¹¹Barangays are an appropriate unit of treatment assignment because citizens’ experiences with crime are best described in terms of their immediate surroundings. Crime rates in one part of a municipality may not reflect the level of security among citizens in another part of the same municipality. Police leadership also viewed barangay-level assignments to be operationally expedient, as officers are frequently assigned to barangay-level beats.

receive any calls or texts most days, compared to dozens of daily walk-in reports and a more limited number of calls to each station’s unique phone number.¹² Due to the system’s technological simplicity, the hotline is not entirely anonymous: dispatchers can view the sender’s number. In practice, we are not aware of any instances in which the police linked the number to a name or location unless the sender provided it, and leadership lamented the frequency of SMS tips which did not provide a location. Furthermore, a citizen wanting to send an anonymous tip could easily purchase a SIM card not linked to their name. For the intervention, police officers posted 55,000 stickers containing the hotline number (Figure 1) in public locations like cafes, exterior walls of shops, and barangay halls, as well as inside private businesses and homes with the owners’ permission.

The hotline advertisement was designed to reduce search costs. However, the procedures for advertising it may have impacted citizens’ trust in the police by fostering informal contacts between officers and citizens. The sticker distribution may also have affected citizens’ perceptions of police capacity. To isolate the impact of search costs from these alternative mechanisms, an additional 99 randomly selected barangays received an alternative treatment, a community engagement program that replicated all procedures of the hotline treatment except for advertising of the hotline. Officers distributed 55,000 stickers similar to the hotline advertisements but lacking the phone number (Figure 1). In both treatment versions, officers went to the assigned community, introduced themselves, answered questions about policing, and attempted to build trust with citizens. In an additional 100 control barangays, policing practices remained consistent with the previous status quo.

The stickers had several advantages over other possible methods of advertising. First, they were inexpensive: enough stickers to completely blanket the treated villages cost only a few hundred dollars. These costs compare favorably with the \$9.9 million US spent advertising the tip line in Iraq. Second, the decentralized nature of the information makes it harder

¹²Phone lines at municipal stations are staffed haphazardly, and the 16 stations’ numbers are not widely known by citizens.

Figure 1: Community Policing Sticker

(A) Hotline Treatment

(B) Community Engagement Treatment



for criminals or insurgents to target the advertisements, compared to advertising through a small number of large billboards which are easily vandalized or destroyed.

While citizens were not informed about their barangay's treatment status, residents in control and alternative treatment barangays may have had some exposure to the hotline stickers. We explore geographic spillovers in the SI, and find no evidence that they systematically impacted outcomes. To the extent that spillovers occurred, they would likely bias the effects of the hotline treatment downwards, as respondents in control barangays exposed to the hotline advertisements would become more likely to report information to the police.

After the four-month intervention period, we surveyed ten randomly selected citizens in each study barangay (see SI for sampling information). We used civilian enumerators associated with a widely known research company, and made it clear to respondents that the police were not involved in the survey and would not have access to individual responses. We asked respondents about personal and community crime victimization, reporting, and their perceptions relating to various aspects of policing in the province.

In addition to the survey, we collected crime logs (called "blotters") from each municipal station in Sorsogon. These computerized logs track all incidents and alleged crimes brought to the police's attention, and include the incident's date, a short narrative, the way in which the police received the information, and the status of the case. We collected blot-

ters covering January 2016 through February 2019 which contained 14,100 entries, 98.9% of which listed the way in which the police learned of the information. We categorized contacts into personally came to the police station (40.1%), police operations including patrols and checkpoints (34.1%), telephone calls (17.5%), SMS messages (6.1%), and voluntary surrender (2.1%). The blotter data does not distinguish whether voice calls came via the new hotline or the preexisting municipal station phone number. Across all barangays in Sorsogon, SMS messages to the police increased by nearly 50% during and immediately following the intervention, from 5.25% of reports to 7.65%, compared to the same period in the previous year. The proportion of reports via phone call increased from 13.8% to 17% over the same period.

While illustrative, blotter data is ill-suited to evaluate the hotline’s impact on reporting or crime. First, a large portion of blotter entries are identified only by municipality, making it impossible to determine whether the sender was in a treatment or control barangay. Second, the number of crimes logged by the police depends on citizens’ willingness and ability to report to the police. As the reporting rate increases, the police become aware of a higher proportion of crimes, potentially creating the appearance that crime has increased even if the underlying crime rate has not. Without knowing how many *opportunities* citizens had to report crimes, administrative crime statistics cannot accurately measure the frequency with which citizens experience and report crime. Finally, in our experience the PNP do not log tips about insurgency to avoid inadvertently revealing tipsters’ identities, which could lead to retaliation or deter future tips. Thus, our analysis below follows existing research (Banerjee et al. 2012) in analyzing individual-level data from our crime victimization survey.

Results

The tables below present regressions testing our hypotheses. All models use OLS with standard errors clustered by barangay. In some models, we control for pre-treatment variables that may be correlated with outcomes, including the respondent’s age, education, length of time residing in the barangay, and household income. Enumerators also coded the

number of minutes walking that the respondent lives from the barangay center. Individuals on the periphery of town may be more susceptible to crime or less likely to report it. Despite enumerators' efforts to conduct surveys in private, occasionally bystanders could not be avoided. An enumerator-coded dummy variable records whether bystanders were present. The intervention procedures and the tests of the SMS hotline on citizen reporting conducted below were pre-registered in [redacted].

Reporting

Table 1 tests the hypothesis that the hotline increased willingness to report information to the police. *Hotline* is the key independent variable, coded 1 if the barangay received the stickers with the hotline number, otherwise 0. *Community Pol.* is a dummy variable indicating barangays that received either of the two treatments. Thus, the coefficient on *hotline* is the effect of the hotline advertisement plus police engagement, controlling for the independent effect of police engagement, compared to control.

Models 1 and 2 test the relationship between the treatment and the number of reports to the police in a barangay during the previous six months. The outcome is a standardized index of several measures of crime reporting.¹³ The index allows us to consider various types of crime reporting simultaneously without concern for Type I error due to multiple hypothesis testing. It includes information on crimes that typically fall under the PNP's purview, but not the minor crimes usually by barangay tanods. We provide more detail on the variable construction in the SI. We limit observations to respondents who reported that they were aware of at least one crime in their community during the preceding six-month period. Those who were not aware of crimes should have no reason to report information to the police. 6.3% of respondents report personally experiencing at least one of the crime

¹³For each of several types of crimes, we calculate each respondent's deviation from the control-group mean on the number of times they reported the crime to the police, standardized by the control-group standard deviation for the same variable. We then take the mean of each of these standardized deviations across each crime type. For the regressions, we normalize by taking the natural log of the index.

types included in our index during this time, while 25.7% were aware of at least one crime in their community.¹⁴

Table 1: Effects of Hotline on Crime Reporting

	(1) Index	(2) Index	(3) Personal	(4) Community
Hotline	0.102** (0.0498)	0.104** (0.0494)	0.114* (0.0676)	0.192** (0.0925)
Community Pol.	-0.0706 (0.0527)	-0.0608 (0.0533)	-0.0704 (0.0756)	-0.0531 (0.0865)
Age		-0.00129 (0.00138)	-0.00302 (0.00287)	-0.000141 (0.00246)
Education		0.0531*** (0.0135)	0.0301 (0.0243)	0.0434* (0.0231)
Income		56.70 (41.57)	-26.76** (10.48)	96.51 (72.75)
Decades Resided		0.0000111 (0.00860)	0.0422* (0.0224)	-0.00935 (0.0147)
Bystanders		-0.0324 (0.0402)	-0.0369 (0.0625)	-0.0886 (0.0644)
Dist. from Ctr.		-0.00400 (0.0235)	0.0518 (0.0410)	-0.0156 (0.0397)
Constant	0.217*** (0.0387)	0.155* (0.0927)	0.0681 (0.142)	0.621*** (0.147)
Observations	716	698	179	771
R^2	0.008	0.046	0.059	0.022

OLS with barangay-clustered SE in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$

Model 1 tests the relationship between the hotline treatment and the crime reporting index, controlling for engagement (*Community Pol.*). Among individuals who experienced or were aware of a crime, those living in barangays that received the hotline were more likely to report crimes to the police compared to those living in control barangays, even

¹⁴Conditioning the sample on those affected by crime could bias our results if the subset of respondents affected by crime have different baseline likelihoods of reporting. We address this possibility extensively in the SI. We show, for instance, that the analyzed subsample is balanced between hotline and non-hotline on all observed pre-treatment variables, suggesting they may also be balanced on (unobservable) baseline likelihood of reporting. When retaining the full survey sample regardless of victimization, coefficients on *Hotline* remain similar but standard errors increase, consistent with attenuation from the hotline resulting in fewer opportunities to report crimes.

controlling for other aspects of the intervention like enhanced officer presence or individual contacts with officers. In Model 2, we add respondent-level controls and the coefficient on *Hotline* remains positive and significant. We do not find a significant relationship between community engagement and crime reporting without the hotline.

Model 3 reports the effect of treatment on the number of crimes that respondents personally reported to the authorities, conditional on the respondent personally experiencing a crime. Model 4 uses as the dependent variable the number of crimes in the community that the respondent believes were reported to the authorities, among respondents aware of a crime. In both specifications, the effect of the hotline treatment remains positive and significant. Overall, the evidence suggests that the hotline increased citizens' willingness to report crimes to the police, and that this increase was caused by the hotline itself and not by any increase in police engagement with citizens. Conditional effects are substantively large, with increases in reporting of 10-19% difference between the control and hotline conditions.

An alternative explanation might be that the intervention signaled police strength, leading citizens to cooperate with them for fear of getting in trouble otherwise. However, it is difficult to see why the hotline treatment but not the trust-building measures would have such an effect. In the supporting information, we explore heterogeneous effects of the hotline on different sub-populations by interacting the treatment indicator with pre-treatment control variables. The treatment had a weaker (though still positive) impact on respondents living farther from the barangay center. Although one might expect the treatment to be stronger in remote areas (these citizens pay the highest cost of traveling to a police station), we speculate that this pattern is driven by weaker cell signal outside the barangay center and the fact that PNP officers were less likely to distribute stickers to these areas. The presence of bystanders did not appear to affect the treatment's impact, alleviating concerns about response bias.¹⁵ Finally, in the supporting information we fail to find evidence that the hotline treatment affected reporting on a second survey about a year later. However, as we

¹⁵People surveyed with bystanders present were less likely to say crimes were reported, but the interaction between the hotline and bystander indicators is not significant.

discuss in the SI, additional policing initiatives rolled out during the intervening period may have confounded our treatment and obscured its long-term impacts.

Public Safety

Given that the hotline drove higher crime reporting rates, what effect did this have on public safety? Because co-production depends on *both* citizen and state action, even if reduced search costs enhance citizen engagement with the state, subsequent reductions in crime will only occur if officers respond effectively to that information. Regressions in Table 2 test the relationship between the treatment and whether respondents experienced any of several types of public safety issues in the last six months.¹⁶ We selected issues that the PNP is most likely to deal with based on interviews with police officers and citizens, including major crimes and insurgent activity.¹⁷ Reported victimization rates for this six-month period range from 0.27% (armed robbery) to 3.66% (assault).

Results show no apparent relationship between the hotline treatment and incidences of armed robbery, burglary, assault, or drug-pushing, after controlling for the effects of the non-hotline intervention. Only victimization by the NPA exhibited a perceptible decline in hotline barangays. As we discussed above, the NPA’s primary impact on citizens in our sample comes via low-level harassment and extortion; NPA violence against civilians is very rare in government-controlled areas. These results are robust to several alternative tests. In the appendix, we also fail to find a relationship between the hotline treatment and the rate at which crimes are solved/cleared, or the percentage of issues about which the police are aware that they successfully resolved. Using an alternative survey outcome which asks

¹⁶Unlike the regressions above on citizen reporting, the tests below of crime victimization were not pre-registered. We pre-registered tests of the combined community policing intervention (i.e., aggregated hotline and trust-building barangays, compared to control) on crime [citation redacted], the results of which are presented in [citation redacted].

¹⁷We avoid mentioning the NPA by name on our survey, as doing so could potentially upset the NPA and pose a risk to the research team or subjects. Instead we worded the question to refer to “armed rebel groups.” Local contacts, including civilians as well as government security officials, indicated that this general term was unlikely to upset the NPA while still making our intentions clear. Indeed, our enumerators and subjects reported no resistance from NPA-affiliated individuals while carrying out the survey.

“how much of a problem is [type of crime] in your community,” we again find that only NPA activities, but not other types of crimes, are impacted by the hotline.

Table 2: Effects of Hotline on Crime Victimization

	(1) Armed Robbery	(2) Burglary	(3) Assault	(4) Drugs	(5) NPA
Hotline	0.0000753 (0.00246)	0.000666 (0.00774)	0.00896 (0.00933)	-0.00946 (0.00601)	-0.00818** (0.00391)
Community Pol.	0.000998 (0.00212)	0.00676 (0.00661)	0.0202** (0.00781)	0.00618 (0.00606)	0.00265 (0.00489)
Age	-0.000113 (0.0000738)	-0.000174 (0.000197)	-0.000743*** (0.000235)	-0.000468*** (0.000179)	-0.000236* (0.000130)
Education	0.00102 (0.000659)	0.00548** (0.00228)	0.000755 (0.00250)	0.00212 (0.00165)	0.00471*** (0.00135)
Income	2.933 (4.948)	19.30 (21.56)	66.11** (25.79)	-3.942 (3.998)	7.160 (9.075)
Decades Resided	0.0000946 (0.000153)	-0.0000874 (0.000768)	-0.000562 (0.000897)	0.0000502 (0.000584)	-0.000222 (0.000443)
Bystanders	0.00405 (0.00290)	0.00336 (0.00657)	0.0114 (0.00909)	-0.00137 (0.00526)	-0.00152 (0.00309)
Dist. from Ctr.	0.00110 (0.00104)	-0.000797 (0.00286)	-0.00555 (0.00371)	-0.000355 (0.00288)	0.000850 (0.00179)
Constant	0.00251 (0.00352)	0.0179 (0.0129)	0.0576*** (0.0162)	0.0347*** (0.0114)	0.0122 (0.00791)
Observations	2918	2918	2919	2868	2862
R^2	0.004	0.005	0.016	0.006	0.012

OLS with barangay-clustered SE in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$

To explore the impacts of the treatment on subjective attitudes, Table 3 tests the treatment’s impact on citizens’ satisfaction with the police (self-reported change over the past 6 months), perceived police legitimacy, perceived police responsiveness to citizens’ needs, and trust. While the hotline was not expected to directly affect attitudinal outcomes, effective service delivery by the police could have created a positive feedback loop in which citizens’ attitudes towards the police improved. Given the widespread lack of results on crime, we should not expect such improvements in attitudes. Indeed, the results in Table 3 indicate no systematic relationship between the treatment condition and citizens’ evaluations of police

legitimacy, responsiveness, or trustworthiness, and we find a marginally significant negative effect on satisfaction with the police. Finally, we find an unexpected negative and significant conditional effect of the hotline on citizen satisfaction with the police’s handling of NPA-related issues.

Table 3: Effects of Hotline on Attitudes Towards Police

	(1) Satisfaction	(2) Legitimacy	(3) Responsiveness	(4) Trust	(5) Satisfaction (NPA)
Hotline	-0.0896* (0.0478)	-0.00702 (0.0409)	0.0808 (0.0513)	-0.0564 (0.0454)	-0.186** (0.0724)
Community Pol.	0.0666 (0.0533)	0.00237 (0.0419)	-0.0409 (0.0549)	0.0120 (0.0471)	0.144* (0.0765)
Age	-0.00176 (0.00146)	-0.00645*** (0.00115)	0.00350** (0.00146)	0.00435*** (0.00121)	-0.00416** (0.00173)
Education	0.0336** (0.0153)	0.0470*** (0.0121)	-0.0218 (0.0137)	-0.0470*** (0.0124)	-0.00174 (0.0189)
Income	132.8*** (39.51)	-70.90** (34.18)	130.5*** (43.68)	76.86** (34.09)	300.1*** (90.79)
Decades Resided	-0.00486 (0.00737)	-0.00410 (0.00439)	0.00298 (0.00680)	-0.00232 (0.00643)	-0.0114 (0.00930)
Bystanders	0.0877** (0.0417)	0.0541 (0.0359)	-0.0691 (0.0449)	-0.0460 (0.0374)	0.123** (0.0581)
Dist. from Ctr.	-0.0339 (0.0244)	-0.0143 (0.0175)	0.0149 (0.0212)	-0.0175 (0.0195)	0.0139 (0.0274)
Constant	0.589*** (0.0965)	0.641*** (0.0816)	-0.158* (0.0888)	3.219*** (0.0780)	-0.139 (0.124)
Observations	2849	2892	2901	2882	2720
R^2	0.009	0.031	0.008	0.016	0.013

OLS with barangay-clustered SE in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$

The negative impact of the hotline on insurgency alone is important, as research shows that civilian-provided information about insurgents’ locations and activities is critical to the government’s ability to prevent insurgent violence (Berman and Matanock 2015; Sonin and Wright 2021). Given that insurgents hide within the fabric of the community, citizens possess information that allows government forces to deter their presence. When all actors involved expect that citizens will provide this information to the government, we should

observe less insurgent violence as insurgents go into hiding to avoid confrontation, especially in government-held areas (Kalyvas 2006). Our finding reaffirms this expectation from the conflict literature, and highlights an area where the research on crime and conflict share theoretical micro-dynamics (Kalyvas 2015).

We note that the reduction in NPA activity specifically (as opposed to the expected decrease in ordinary crime) was an unintended consequence of our project. We include an expanded discussion regarding the ethical implications of this unintended effect in the SI. For example, we learned from our civilian contacts that the police’s counterinsurgency efforts are primarily deterrence-based, not offensive operations which initiate violence, nor did the PNP seek to expand into NPA-controlled areas. Based on information from our civilian and NPA-affiliated contacts, along with AFP and ACLED incident reports, there is no evidence that the reduction in NPA activities led to additional violence. This pattern is consistent with research that posits that citizen cooperation with the authorities should further reduce violence in government-controlled areas because insurgents reduce their activity to avoid capture (Berman and Matanock 2015; Sexton 2016).

Table 4: Possible Interruptions in Crime Co-Production

Interruption	Impact of Reporting on Public Safety	Impact on Citizen Attitudes	Present in Research Context
Citizens report low-quality information	None	None	No
Citizens selectively report some issues but not others	Greatest impact on citizen-report threats	Improve	Maybe
Tips’ usefulness varies across threats	Greatest impact where information is useful	Improve	Maybe
Police do not follow up: laziness, corruption	None	Worsen	No
Police cannot follow up effectively: capacity	None	Worsen	No
Police follow up on some issues but not others	Greatest impact on police-prioritized threats	Worsen	Maybe

However, the finding that the hotline treatment reduced insurgent activity *but not any other types of crime* is surprising and interesting. Table 4 summarizes six potential sources of breakdown in co-production which could lead to these results. While we cannot definitively determine the relative importance of these potential explanations, our follow up interviews with officers and citizens suggest that the effect is largely driven by the fact that police chose to respond disproportionately to insurgent threats over ordinary crime.

The first possibility is that the tips citizens report are not useful. Our evidence contradicts this explanation. Before beginning our experiment, we surveyed nearly every officer in the province. Officers rated their trust in citizen-provided information an average of 79.1 out of 100. Officers selected an average response of 84.3 in agreement with the statement, “Most things that people report to the police are worth taking seriously,” and 93.5 that information from the community is important for them to do their job. Police leadership told us that most calls and texts to the hotline contained actionable information to which police should respond.

Second, citizen tips might be more useful for countering insurgency than for other issues. Research highlights the critical role that citizen tips play in reducing insurgent-related violence (Berman and Matanock 2015; Sonin and Wright 2021). However, there is similarly robust evidence of the importance that citizen tips play in preventing ordinary crimes (Skogan and Hartnett 1997; Weitzer and Tuch 2006). It seems unlikely that tips would measurably impact insurgency but not other types of crimes, all else being equal.

Third, citizens may have provided a larger increase in tips about insurgent activity relative to ordinary crimes. One reason for such a pattern might be that citizens view reporting via SMS messages as especially helpful for making sure insurgents do not find out about their actions. However, the increases in citizen reports about crimes like murders, assaults, and burglaries in treated barangays was substantively very large. Our survey and administrative data are not well-equipped to show whether reports about insurgency increased at

a disproportionately high rate, but our conversations with PNP personnel suggested that information about ordinary crimes dominates reports.¹⁸

Fourth, the police may have declined to follow up on tips due to laziness or corruption. Fifth, the police may have been unable to follow up effectively on tips due to insufficient capacity. Neither explanation is consistent with our results, as they would not account for the PNP’s increased success at deterring insurgents in treatment barangays. Officers reported to us that responding to information about insurgency requires substantially *more* effort and capacity than responding to most other public safety threats. In addition, based on months of fieldwork, including our interviews with citizens and our team’s monitoring of police officers, we observed little evidence of police corruption or incompetence.¹⁹ As we discussed earlier, the PNP in Sorsogon is relatively well-equipped, with a reasonable officer-to-citizen ratio and reliable access to vehicles and weapons.

Sixth and finally, the police may have followed up selectively on information about insurgency but not on information about other crimes. It is common for departments to prioritize some issues over others, for example dispatching a forensics team to a murder but not a convenience store robbery. While our survey of police officers did not ask specifically about the NPA, we know from our interviews and news reports that the PNP view deterring insurgents as a priority. Driven in part by national-level policy initiatives, police leadership in Sorsogon began emphasizing the importance of conducting additional patrols in areas designed to deter NPA personnel from traveling to government-controlled areas. Street-level officers seemed eager to participate in this initiative in order to reduce the long-term threat of ambushes and extortion against themselves, their colleagues, and their families.

As a consequence, actions to deter ordinary crimes often took a back seat. We found that police frequently rationalized certain crime types as being “not under their purview”

¹⁸Our survey did not ask respondents whether they had reported information about the NPA because the question was too sensitive. People are understandably reticent to admit to reporting insurgent behavior on surveys (Nanes and Haim 2020).

¹⁹During focus groups, corruption or incompetence among police officers rarely came up. We also sat in on several meetings between officers and barangay leaders, and had the impression that the barangay leaders were satisfied with police and trusted how they handled high-priority cases (e.g. murder or rape).

because responding to some threats to public safety requires an interagency response. For example, police often need to collaborate with the Department of Social Welfare and Development (DSWD) on sexual assault, or the Department of Public Works and Highways (DPWH) on road safety issues, but the PNP can respond to insurgent threats independently. We also have general evidence from our officer and citizen surveys that the police disagree with citizens about which threats to public safety are the most important (see supporting information). When asked to list the issues they considered to be the most important public safety concerns, officers tended to focus on “major” crime types at a rate that is 10-25% higher than citizens. While we did not ask about insurgency on the survey of police officers given that it was not a central part of our study *ex ante*, our interviews with officers suggest that they view insurgency as perhaps the most important “major” public safety threat, aligned with other categories police tend to focus on more than citizens.

This explanation is also consistent with the second puzzling pattern we identified, that citizens’ satisfaction with police performance on NPA-related issues decreased despite a reduction in NPA victimization. One possibility is that citizens believe that the police devoted too many resources to counterinsurgency at the expense of other issues. To the extent that citizens recognize that police attention is finite, they may be unhappy to see the police focusing more resources than they believe are warranted on a particular problem, leading to poor evaluations of police performance on that issue even as victimization decreases. In this way, the null and negative effects of the hotline on attitudes are consistent with the scenario in which citizens provided information about all types of crime, but the PNP only acted on tips related to issues they prioritized.

Discussion and Conclusion

Our information campaign around a little-used emergency hotline substantially increased information flows to the police. This increase in reporting occurred independently of traditional trust-building aspects of community policing like informal citizen-officer in-

teractions, suggesting that search costs independently impacted how much information authorities receive from citizens. This result provides new evidence on the specific mechanisms linking the policy bundle of community policing with citizens' behaviors. Whereas existing work focuses overwhelmingly on trust, legitimacy, and other attitudinal factors, these findings suggest that reasonable search costs are a precondition for the relevance of these other mechanisms. Attempts to transplant policies from wealthy contexts which focus on trust but ignore search costs are unlikely to have the desired impact where the physical costs of reporting information are high.

Several important scope conditions shape the lessons scholars and policymakers should take away from this study when applying our findings elsewhere. At the most basic level, pre-existing levels of search costs will greatly impact the effects of similar interventions in other contexts. The existence of hotlines, the prominence of in-person reporting, citizen knowledge of possible reporting methods, and cell coverage should jointly determine whether new initiatives to reduce search costs affect reporting rates. Based on these characteristics, similar interventions are likely to have similar effects in rural and semi-urban areas of low- and lower-middle income countries.²⁰ Our results may also be applicable to areas where ongoing conflict makes reporting challenges are particularly acute.

Second, although we highlight the importance of reducing search costs, we should not minimize the importance of simultaneously building trust in state institutions. Even if search costs are very low, people will not report issues to authorities without a minimal expectation that their concerns will be addressed. Efforts to lower search costs and build trust should be viewed as inseparable complements – either of these conditions without the other will likely fail to jump-start the first stage of co-production. Third, we emphasize that the scope of our study is likely limited to citizen reports that relate to ordinary crime, or to insurgent activity in government-controlled areas. The presence of organized crime groups, rebel governance, or areas where traditional authorities play the predominant role in security provision may

²⁰We draw this lesson by comparing Sorsogon to other countries in our expert survey on police hotlines and to average cell coverage in other rural areas, for example.

undermine the dynamics we discuss. In these places, states compete but also collaborate with non-state governance providers to a certain extent, making co-production more complicated than a two-player game between citizens and state authorities (Arias 2006; Arjona 2016; Lessing 2021). Finally, when it comes to the second stage of co-production, our results suggest that expectations should be largely shaped by an understanding of government priorities that vary both across space and over time. The specific factors that may hinder government response will also depend largely on the context-specific challenges to the second-stage of co-production listed in Table 4.

This article speaks to the ways that, in certain contexts, technology can improve bureaucratic capacity at minimal cost. Government agencies operating under constrained resources should employ technological solutions that allow them to deploy existing resources more efficiently. A basic voice and SMS hotline requires little more than a cell phone in a dispatcher’s hands, yet it allows that dispatcher to receive and prioritize information far more efficiently than requiring citizens to make reports in person. Similarly, making tens of thousands of people aware of the hotline cost only a few hundred dollars. This strategy need not be limited to the police. Other service-providing government agencies can harness similar technological solutions by making it easier for citizens to alert them to problems, serving as a force multiplier that allows for more efficient governance.

On the other hand, our results on crime and insurgency reinforce that state-society interactions are a two-way street. Co-production of public services succeeds only when citizens and the state both play their part. Selective responsiveness represents a key point at which co-production may fail. Authorities’ priorities frequently differ from those of citizens. In our case, we note that police officers are directly impacted by insurgent violence, and therefore it stands to reason that left to their own devices the police will prioritize counterinsurgency. Research on bureaucratic responsiveness should focus not just on *whether* front-line officials exert effort, but on how bureaucrats’ and citizens’ divergent priorities affect the areas in which officials elect to exert effort.

A breakdown in the second stage of co-production may have dire consequences for citizen-state relations. Not only does selective action fail to harness citizens' efforts in some areas, it risks further disenfranchising citizens and eroding their trust in the authorities. For example, recent research from a police feedback program in India finds that citizens who make official complaints at a police station initially report high levels of satisfaction with the process. However, when re-interviewed 2–4 weeks later, the majority report being unsatisfied, perhaps because their efforts yielded few results (Kruks-Wisner 2021). Indeed, our hotline caused citizens to become *less* satisfied with the police, as presumably they became frustrated by police effort in some areas but not others. Over the long term, initiatives that ask citizens to contribute to public safety but fail to reward them with tangible results may leave citizen-police relations worse-off than they were before.

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