

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)	(2)	(3)	(4)	(5)
	Satisfaction	Legitimacy	Responsiveness	Trust	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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Context: Security Provision in the Philippines

Security in the Philippines is provide by three distinct government institutions: The Philippine National Police (PNP), barangay Tanods, and the Armed Forces of the Philippines (AFP). The PNP is a national-level, full-service police force with duties, organizational structures, and capabilities similar to national police forces in countries like Spain, Israel, and Mexico. They fall under the purview of the Department of Interior and Local Government (DILG), a cabinet-level portfolio. The PNP employs about 220,000 personnel including both sworn officers and administrative staff. Commands are organized into 17 police regional offices (PROs), with each of the 81 provinces hosting a provincial police office (PPO) led by a police director (PD), and most municipalities hosting one or more municipal stations to which officers are assigned. Officers rotate frequently through municipal stations, though transfers out of a region are rare unless an officer requests to be moved. The PNP is responsible mainly for preventing and investigating serious crimes like major property crime, assault, and murder.

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Policing policies and procedures are determined in broad strokes by PNP leadership in Manila. However, leadership at the regional and provincial levels have substantial autonomy to develop and execute locally-appropriate procedures. This local autonomy created the space for our research, which was centered around evaluating initiatives specific to the Sorsogon PPO.

PNP crime fighting and deterrence efforts are supplemented by barangay Tanods, semi-professional public safety officers appointed by barangay leadership. Although their funding comes from the DILG, their command structure, duties, and capabilities are entirely separate from the PNP. Tanods primarily deter and investigate minor crimes like petty theft, harassment, disputes between neighbors, and vagrancy. They can pass more serious problems along to the PNP if they require additional resources.

Finally, the AFP is responsible for counterinsurgency. Its presence varies widely depending on the level of insurgent threat. In some areas of the southern Philippines which experience significant insurgent violence, the AFP is highly visible in populated areas, whereas in other parts of the country soldiers are rarely seen off base. Because the insurgent presence in the parts of Sorsogon where we worked is relatively limited, AFP activities are minimal. During the course of our research, we rarely observed AFP personnel or equipment. When we did, they appeared to be transporting personnel and supplies between bases; we did not observe anything resembling combat operations.

Context: Reporting Costs and Methods Beyond the Philippines

To further explore the way that citizens report information to the police in other developing or non-Western countries, we conducted an informal poll of experts on policing. We contacted 12 academics who we know to be experts on policing in at least one non-Western country, and asked them to complete a short survey. We received responses pertaining to 7 countries, the results of which are summarized in the table below.

Country	Estimated proportion of crimes reported via:			Typical travel / waiting time to submit an in-person report
	In person	Phone	SMS	
South Africa	40-60%	40-60%		1-2 hours
Liberia	40-60%	40-60%	0-20%	2-4 hours
Uganda	40-60%	40-60%	0-20%	1-2 hours
Iraq	40-60%	20-40%	0-20%	1-2 hours
Brazil	40-60%	40-60%	0-20%	1-2 hours
Pakistan	80-100%	0-20%	0-20%	>4 hours
India	40-60%	40-60%	0-20%	1-2 hours

Qualitative responses were consistent with our conceptualizations of police reporting in these contexts. While five of the seven countries have police hotlines (Liberia and Uganda being the two without hotlines), a substantial proportion of reports fail to use them. In South Africa, for example, people in rural or semi-urban areas “call the local police station, a police officer whom they know personally, or they walk to the police station and report in person. There is a centralized call center (called 10111) akin to 911 in the US but it is not operative in the less economically advanced parts of the country (e.g., Northwest Province where my work was located).” This is similar to the situation in the Philippines, where a hotline exists but is not widely used outside of major urban areas. In Iraq, “going to the police station in person is the most common in rural areas, or simply not reporting things at all.” Indeed, all seven responses mentioned “in person” or “visit the police station” in their answers to the open-ended question about reporting methods.

The proportion of reports that come via methods other than the hotline is notable given the substantial costs of reporting in person. All seven experts estimated that it requires more than an hour of travel and waiting to submit a report in person, increasing to 2-4 hours in Liberia and more than 4 hours in Pakistan. One issue has to do with poor staffing of the hotline by the police. Just as in our context, municipal stations do not always staff their phone lines 24 hours per day, experts note that hotlines have “unreliable service” (Brazil) or “very slow response times” (South Africa). Lack of citizen knowledge about the hotline may also explain hotlines’ limited uses. Of the five countries with hotlines in place, experts

estimated that 50-75% were aware of the hotline in Brazil and Iraq, 25-50% in South Africa and India, and less than 25% in Pakistan. Given the costliness of reporting in-person, we may infer that a substantial number of crimes go unreported because citizens are unwilling to pay those costs and do not know about or do not have access to a hotline.

The frequency of reporting crimes in-person and the challenges of reporting via a hotline stand in stark contrast to behavior in Western, developed contexts. For example, according to the Bureau of Justice Statistics Police-Public Contact Survey, of people in the United States who reported coming in contact with a police officer in 2018, 75.0% initiated the contact by calling a phone hotline (911, 311, or similar). An additional 4.4% had the police called on their behalf by a security company or bystander. Only 17.6% initiated contact in-person (5.6% went to a police station, and 12.0% approached an officer in a public place).

Research Ethics

This study faced a number of challenges to ethics and safety. In this section, we describe the procedures we designed and implemented to reduce these risks to the greatest possible extent. While no study is perfect, we are not aware of any adverse affects of our study to the safety or well-being of research subjects, police officers, research staff, or non-participating members of the community.

Before turning to a discussion of specific issues, we think it is relevant to disclose that one of the PIs of this study is a Filipino scholar, someone who was born and raised in the province and has extensive experience working on issues related to conflict and policing in the region. Our project would simply not have been possible to implement safely and ethically without extensive local knowledge. The Sorsoganon PI's intuitions and experience were crucial to every aspect of the research, including assessments of sample selection, wording of the questionnaire, potential long-term impacts, where meetings would be held, and the risks of police abuse and NPA backlash.

All procedures were approved by [University Redacted] Institutional Review Board. All three authors were at [University Redacted] when the project began. We subsequently obtained reliances from the IRBs at [University Redacted], [University Redacted], and [University Redacted] after [Author Redacted] and [Author Redacted] moved while the project was underway. We discussed our intervention and data collection procedures at length with academics familiar with the Philippines context before implementing them. We also submitted quarterly reports on risk assessment and mitigation to the funder, where they were reviewed by staff with experience managing field research in similar contexts. Next, we maintained a permanent presence in Sorsogon throughout program implementation. When possible, one or more of the PIs was in Sorsogon. At all other times, a senior research manager in Sorsogon was assigned to the project full-time and maintained constant communication with the PIs.

Police abuse and Drug War violence

The study presented special challenges to research ethics due to our partnership with a police department with a history of extrajudicial violence. In particular, our study coincided with President Rodrigo Duterte’s War on Drugs, a policy initiative aimed at “neutralizing” individuals involved in drug trafficking and dealing.¹ While the exact number of deaths under the program remains in dispute, there is no doubt that it led to a substantial amount of violence by police officers, including accusations of extrajudicial killings and unjustified uses of force.²

In this context, one ethical risk facing the study was that enhancing the police’s effectiveness could bolster their capacity for committing violence. If the police’s motives were not sound, providing them with additional information could backfire by contributing

¹Talabong, 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>

²Human Rights Watch puts the total number of program-related deaths at over 12,000, while the police said in February 2019 that its officers killed 5,176 individuals in anti-drug operations, with an additional 22,983 potential drug-related deaths under investigation (Atun et al. 2019).

to more extrajudicial killings rather than enhancing public safety. Despite these challenges, we felt comfortable partnering with the Sorsogon Provincial Police Office (PPO) for several reasons. Most importantly, very little anti-drug violence occurred in Sorsogon Province. Throughout the initiative, and especially after November 2016, a disproportionate number of fatal anti-drug operations occurred in the metro Manila area, hundreds of miles from our research (Atun et al. 2019). Only 2.4% of all anti-drug deaths are estimated to have occurred in the Bicol region (Sorsogon is one of six provinces in Bicol). Whether measured in absolute numbers of deaths or as a proportion of population, Sorsogon Province had one of the lowest rates of drug-related violence nation-wide (Atun et al. 2019). Even though the PNP is a national institution, with local officers receiving orders from a chain of command that initiates in Manila, provincial police leadership retains substantial autonomy over policing policy within their province.

To understand whether the intervention increased the risk of police abuse, we relied on 1) evaluations of police practices from an extensive network of local academics, NGOs, citizens, and others, 2) perceptions of police abuse on a representative survey of 2,700 citizens that we conducted several months prior to approaching the PNP about partnering on the One Sorsogon evaluation, and 3) third-party data sources on drug-war violence.

First, we relied on an extensive network of individuals with local expertise on police practices. This trusted network extends across all sample municipalities and was built over a long period of time by the Sorsogon PI and field research manager, both of whom grew up in Sorsogon and worked together on more than a dozen projects together in the province over the last decade. These contacts include academics at local universities, NGOs, government agencies, staff of local politicians, community leaders, and many civilians. It also includes former NPA members and individuals that continue to maintain strong relationships with the NPA - a group of individuals who have no interest in protecting the police's image. Before approaching the PNP leadership about partnering on an evaluation, we relied heavily on our trusted network to gain a better understanding of police practices in the Province.

These discussions occurred over an eight-month period, during which we were engaged in observational research on policing in Sorsogon as part of a separate research project.

Among our contacts, there was near-universal agreement that police abuse in Sorsogon was neither systematic nor widespread. Instead, the major concerns relayed to us about public safety in Sorsogon related to search costs, police unresponsiveness and ineffectiveness of the justice system. It was through these networks that we also came to learn that the Sorsogon PNP Chief was a known reformer who strongly opposed violent tactics, including those of the Duterte Drug War. Under his leadership, the Sorsogon PNP was implementing various programs explicitly aimed at showing the population that the local approach to policing was at odds with these brutal tactics. To emphasize, we learned about these programs not from the PNP but from third parties with local knowledge. Many of these individuals advocated for us to partner with the Sorsogon PNP despite the third parties' opposition to the Drug War and other police violence.

While we found these discussions with our network of local contacts encouraging, we also relied on a representative citizen survey in Sorsogon Province that we ran during the height of the Duterte Drug War, approximately four months before we first approached the PNP. On the survey, we asked a number of questions about police abuse, and the results largely corroborated what we heard in our qualitative scoping work:

- **98.8%** of respondents said they had not heard of any instances of police abuse in their community during the last six months.
- **96.2%** of respondents said they did not think PNP officers in their area 'use their authority to harass citizens'
- **97.5%** of respondents said they did not think that PNP officers in their area frequently 'take payments or gifts from citizens'
- **95.0%** of respondents said that the 'methods employed by the PNP for fighting drugs in my area' had not become more violent since the 2016 elections.
- **93.5%** of respondents said they did not think there was an increase of extrajudicial violence in their area since the 2016 elections.
- **98.1%** of respondents said they were not often afraid of PNP officers in their area.

To reduce response bias to these potentially sensitive questions, we had respondents “self-enumerate” their responses on an iPad that was out-of-sight to the enumerators and that locked after responses were submitted.

Third, we relied on third-party data sources to corroborate our information about the low-instance of police abuse in Sorsogon associated with the Drug War. The authors and our field manager regularly checked these sources in the months leading up to our partnership with the PNP, during the One Sorsogon intervention, and after the project concluded. Although incomplete, the most reliable real-time source of this information was ACLED’s special project dedicated to the Philippine Drug War. As we mentioned in the previous draft, ACLED’s dataset recorded only five drug-related fatalities in Sorsogon Province between Duterte’s election and the initiation of our project, and none in the nine months preceding the intervention. We also relied on the Philippine Daily Inquirer’s “Kill List,” news reports from the Bicol Daily Mail (the most reputable local news sources), and off-the-record discussions with local journalists.

While none of these three approaches on their own would have been enough for us to proceed with partnering on the One Sorsogon evaluation, in combination we felt that the risks were sufficiently low to make the intervention worthwhile. We felt this was especially true in the face of the potentially high ethical benefits associated with improved policing practices. The time and money it took citizens to contact the police was one of the factors people most commonly mentioned to us as an impediment to improving local public safety (including reducing violent crime and feuds) during our scoping work. To gut-check our evaluation of this tradeoff, we presented our project design and ethical considerations at several conferences and roundtables that included both quantitative and qualitative policing scholars (both in the Philippines and in the US) prior to the intervention. Finally, as we describe in our ethics appendix, we kept a large team of enumerators on staff for the duration of the project to monitor any instances of abuse that arose. In line with Lyall’s (2021) work

on “ethical redlines” in field experiments, our team met at regular intervals to discuss updates that pertained to ethics and we were prepared to walk away from the project at any time.

Changes to PNP behavior due to researcher presence

Second, we considered whether the presence of our research team could lead the PNP to change their behavior. We assessed two potential ethical concerns that relate to this issue.

Regarding program design and implementation, it was absolutely crucial to us that the intervention was “home-grown” and not imposed from the outside by our research team. We now recognize that we did not appropriately convey this aspect of the One Sorsogon program in the previous manuscript. The Provincial Director of the Sorsogon PNP was planning to implement both the One Sorsogon community policing program and the rollout of advertising for the new hotline prior to meeting with our research team. When we learned about the two initiatives, our main goal was to help the PNP evaluate the effects of these existing programs in a form that was true to how they would have been implemented without our presence. We limited our input on the intervention to small tweaks that would align the programs with best-practices from research on policing and ethics, along with implementing the random assignment procedure. We provided only very limited resources to support the intervention itself, and devoted the vast majority (95%+) of our research budget to the evaluation.

The home-grown nature of the hotline and One Sorsogon program was important because we wanted to make sure that it was designed by leaders who had an appropriate understanding of local conditions, including the police’s capacity to effectively implement the program. Perhaps even more crucially, evaluating a program that would have been implemented similarly regardless of our presence made it so that we as researchers were not introducing additional risks to officers or citizens that would not have existed in our absence. However, this is not at all to say that we delegated all ethical responsibility to the PNP;

our decision to partner with the PNP was still conditional on an evaluation of the program’s risks and benefits.

There is also a concern that the PNP was on its best ethical behavior while our research team was present, but that this was “outweighed by the possibility of harm by increased police presence (driven by the intervention) in the long run.” We think this is a significant concern, and was one that we took very seriously. First, we wanted to mitigate the possibility that street-level officers would act differently during community policing activities in the presence of our research team members who were monitoring for abuse. While the Provincial PNP leadership were aware of our monitors, municipal chiefs and street-level officers were not briefed about their presence and were not advised about the timing or location of their observations. The monitors were discretely located in villages during scheduled community policing patrols, attended town halls, and stood by during interactions between officers and small groups of citizens (a common practice for other citizens as well).

In terms of long-term impact of the program, we made it clear to the PNP leadership that we did not view this intervention to be a one-off project for us in Sorsogon. We view this long-term commitment to the area to be part of our ethical responsibility, especially in the face of concerns we heard from our network that we as researchers would simply “come and go” in a way that suited our interests but not those of the local population. As mentioned, our team has been working in Sorsogon for over a decade, and we planned to continue working on projects in the province for the foreseeable future. After our experience working on the evaluation of One Sorsogon over the course of multiple years, we continued to work with the Sorsogon PNP, including during a region-wide RCT involving the PNP that is still ongoing today.

As part of this ongoing commitment, we continue to regularly track PNP behavior through in-person monitoring, discussions with our network of local experts, and with administrative data sources. In the time since the intervention, our monitors and trusted local network have both reported that the Sorsogon police did not ramp up civilian abuse, even in

the face of multiple leadership changes. ACLED data suggest that violence against civilians in the province (both by the police and the NPA) have continued to decline through 2021.

Incentives for insurgents to target civilians

The backdrop of insurgency also represented a challenge to our research. As we discuss in the article, Sorsogon is a hotspot for the long-running violent conflict between the New People’s Army (NPA) and the Philippine government. A central consideration for the project was whether the intervention would create incentives for insurgents to target civilians. This was a concern to which we devoted a lot of attention before approaching the PNP about the project, as well as during the project planning and implementation stages. To understand the potential for this threat, we held extensive conversations with individuals in our network with knowledge of NPA incentives and behaviors, including individuals with former and current ties to the NPA. We also held conversations with intelligence officers from the local Armed Forces of the Philippines (AFP) command to get their perspective on the likely NPA response. Although NPA violence against civilians in Sorsogon is rare, the attacks that do occur are most commonly directed at barangay (village) captains and barangay councilors. As a result, our research manager and Sorsogon PI also had many conversations with barangay leaders, whose perspectives on the topic were particularly important to us.

The first step we took to mitigate this concern was to eliminate all barangays from our sample where the NPA retained an active presence. On this point, our incentives were aligned with the PNP, who are highly cognizant of areas where officers are under threat of NPA ambush. PNP officers are prohibited by protocol from operating in NPA-controlled areas, which are considered to be under the purview of the AFP. In addition to relying on the PNP, we relied heavily on our local network to identify areas where NPA presence was strong enough to make the intervention unsafe. Finally, we held individual conversations with municipal mayors, barangay captains and councilors in each of the potential sample barangays and required their consent to be included in the project. As mentioned, because

these individuals have traditionally been at the greatest risk of NPA targeting, we considered their endorsement and consent to be absolutely necessary. Through this procedure, we ended up with 298 of the 541 barangays in Sorsogon (55%) that we considered “safe for research.” In reality, 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 active in 26% of barangays across the province, none of which were included in our sample. While NPA personnel are occasionally seen outside these barangays, NPA interactions with civilians, or threats against civilians, in these areas are exceedingly rare due to the threat NPA personnel face to their own security in government-controlled places where the PNP regularly operates.

Eliminating areas from our sample with regular NPA presence was a crucial first step to our safety protocol, but it was also important to understand the specific incentives that might lead the NPA to target civilians, both inside and outside their areas of control. Our conversation with local experts on the topic, including those with NPA ties, suggested that at the most basic level, the pattern of violence against civilians follows the pattern expected by Kalyvas’ (2006) “control-collaboration” model. When the NPA uses violence against civilians in Sorsogon, it almost always occurs in the most strongly-infiltrated parts of the Province, which are areas with strong, but incomplete, NPA control.

For fear of stirring up the local equilibrium and turning public sentiment against them, the NPA engages almost exclusively in selective violence against suspected government informants. In the 55% of barangays that were considered safe for research, few civilians have relevant information about the NPA that would aid in counterinsurgency efforts. Even in the rare cases that they do, the lack of NPA presence in the area does not afford them enough information about the identity of informants in order to effectively target selective violence. As a result of this logic, all the people we spoke with (both on the NPA and government side, along with unaffiliated civilians) felt that neither the community policing

nor the hotline intervention would increase the risk of NPA violence targeted at ordinary civilians.

The threat of violence against barangay leaders in the safe-for-research areas was also perceived to be exceedingly low, both by our network of local experts and by the barangay leaders themselves. Violence against barangay leaders usually results from the NPA perception that leaders in their area of control are collaborating with the government. While the provision of information is important, the most common sources of violence stem from other forms of government collaboration. For example, the NPA expects barangay leaders in their area of control to facilitate their practice of collecting “revolutionary taxes,” especially from large businesses and politicians who operate in the area. However, the NPA simply did not have the ability to engage in this behavior in the areas that were designated as safe-for-research. This type of “taxation” is only possible when businesses operate in areas where the government does not have strong reach.

In sum, we had strong ex-ante reasons to believe that the intervention would not put civilians at risk of insurgent targeting. In addition, we actively monitored various sources of information to make sure that this reflected the situation on the ground once the intervention began. We held ongoing conversations with our network of local experts throughout the course of the project to get their perspective on any increased threats, and none were identified. The individuals we spoke with who had current ties to the NPA confirmed that NPA personnel in the area did not feel threatened by the intervention. We tracked incidents of NPA violence in local news reports and heard of none. No NPA-related incidents were recorded in our sample barangays by ACLED during the course of the intervention. Our team met with the leaders from each sample village at least once a month and gave them the option to opt out of the intervention at any stage, none of whom opted to do so.

We went to great lengths to communicate to barangay leaders and citizens that our enumerators were independent researchers affiliated with an internationally-known university, not the government. Before beginning work in a barangay, the assigned enumerator(s)

went to the Barangay hall and introduced themselves and the project to the Kapitan or other relevant local official. Only after receiving approval from the local government did the enumerator commence interviews. Enumerators wore uniforms signifying the locally-known research organization that employed them and carried letters of approval from the local government.

The unintended outcome that the police used citizen-provided information primarily to focus on counterinsurgency raises an important ethical concern, one which we did not sufficiently foresee *ex ante* due to our expectation that the intervention should reduce crime broadly-construed. Unlike criminal activity, which existing research foresees as normatively undesirable making crime-reducing interventions ethical, insurgency is a political conflict. Just as researchers should not conduct interventions which could foreseeably affect the outcome of an election, we believe that researchers should avoid tipping the scales in an armed political conflict, whether between a state and a rebel group or between states. While we have no reason to believe that our intervention in 99 of the Philippines' 40,000 barangays tipped the scales of the overall conflict, our results indicate that the NPA reduced its activities in treated barangays. Thankfully, there is no evidence that this reduction in activities increased violent engagement between the NPA and the authorities, but rather that the NPA either moved to other barangays outside the study area (perhaps safe haven barangays we deemed unfit for research) or decided to lie low. Thus, while we are concerned about our study's impact on the political conflict, and will take greater care in future research to avoid this type of impact, incident reports and our local contacts confirm that our study increased anti-insurgent violence, nor does existing theoretical research on "winning hearts and minds" imply that it should have done so.

Other concerns

Another threat to safety and ethics came from the sensitive nature of the survey questions. We asked respondents about their personal victimization on several types of

crimes. To avoid asking overly-sensitive questions, some crimes – notably sexual assault – were asked only at the community level, i.e. ‘are you aware of this occurring to anyone in your community,’ but not at an individual level. Asking about attitudes towards the police may also be sensitive, as respondents might fear reprisals for giving the “wrong” answer. All survey respondents gave written informed consent, and we acknowledged the sensitive nature of the research at that time. Respondents were told that they could skip any question or discontinue the survey at any time. To further guard against sensitivity, we conducted interviews in a private location, usually the respondent’s home, whenever possible. While interviewers often visited barangays in pairs, each interview was typically conducted by a single interviewer, all of whom are local to the area. Finally, data security was paramount. Interviewers recorded responses on tablet computers. Once a survey was finalized in the tablet, responses could not be viewed on that tablet. Only the PIs could view responses by logging in to a password-protected website on centralized computers. Even if the tablets had fallen into the wrong hands (which did not occur), nobody would have been able to view the survey responses.

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; patrols and requests for service continued uninterrupted. Furthermore, anyone in the province could use the hotline regardless of location; we simply randomized its advertisement. Finally, our intervention was a staggered rollout. After we collected endline data, the police advertised the hotline in control locations, just as they had previously done in treatment locations.

Social Desirability Bias

Though designed primarily to ensure the security of our research subjects and enumerators, the procedures described above surrounding privacy and data security also addressed

concerns of social desirability bias stemming for sensitive questions. Subjects could be reasonably certain that their responses would only be known to the enumerator and the PIs. In particular, they were proactively assured that the PNP would *not* receive any individual-level or otherwise identifiable data. Furthermore, response bias should affect respondents equally on average with regard to the hotline treatment condition. The main concern about differential response bias stems from enhanced police presence, which might make subjects more likely to provide positive evaluations of the police and less likely to say that insurgents are present in their area. First, of course, we find the opposite patterns, so such bias would attenuate our findings. Second, enhanced police presence occurred as part of the alternative Community Policing treatment, whose effects we control for in the analyses. Thus, any bias induced by increased police presence is accounted for in the coefficient on *Comm. Policing*, leaving the coefficient on *Hotline* unbiased.

Assignment and Sampling Procedures

In assigning barangays to treatment status, we intended to bloc-randomize on crime quartiles to ensure an even distribution of treatment conditions across baseline public safety levels. However, a coding error resulted in 21 blocs with only a handful of barangays each, plus one bloc with 211 barangays. Simulations using our treatment assignment code show that the probability of assignment to treatment condition does not vary in any meaningful way across blocs. We therefore ignore the blocs and treat all assignments as random with equal probability.

We randomly selected 10 names in each barangay from the list of registered voters, which we estimate contains about 85% of adults. Local enumerators went to the barangay to find and interview the selected individuals. If a subject was not home but was likely to come back the same day, the enumerator returned to conduct the interview later. If the selected individual was not available that day, the enumerator interviewed a “proxy,” the person available in the household with the next upcoming birthday. Proxies accounted for

30% respondents. If the home could not be located, or if everyone in the household refused to participate, the enumerator proceeded to the next randomly-selected subject from the voter list until the assigned number of barangay respondents had been interviewed. This procedure yielded a usable sample of 2,983 respondents.

Table 1: Study Timeline

Dates	Activity	Barangays	Respondents
Mar. – Jun. 2017	Intervention	99 Hotline Trt.	
		99 Community Policing Trt.	
		100 Control	
Sep. – Oct. 2017	Survey	298	2,983

Balance Across Treatment Conditions

We draw on barangay-level data from the 2010 census to evaluate balance across treatment groups. Table 2 shows results from OLS models which use treatment condition (Hotline or Community Policing dummies, with control as the excluded category) to predict several demographic variables from the census that occurred well prior to our study. In most cases, treatment assignment is uncorrelated with these variables. The only exception is a weakly-significant negative relationship between receiving the hotline and average barangay household size. In addition to this correlation being relatively imprecisely-estimated, the census measures the average across all individuals in the barangay, not the household size of our specific survey respondents.

Table 2: Balance on 2010 Census Characteristics

	(1) Population	(2) Male	(3) HH Size	(4) OFWs	(5) Education	(6) Age 18-39	(7) Catholic
Hotline	-48.47 (119.8)	-0.000450 (0.00262)	-0.113* (0.0641)	-0.000485 (0.00150)	-0.0649 (0.0398)	-0.0000664 (0.00604)	0.00297 (0.00548)
Community Pol.	-81.08 (114.0)	-0.00295 (0.00268)	-0.104 (0.0683)	-0.000815 (0.00149)	-0.0313 (0.0396)	-0.00360 (0.00655)	0.00380 (0.00487)
Constant	1002.2*** (101.1)	0.502*** (0.00191)	3.372*** (0.0486)	0.0121*** (0.000974)	1.906*** (0.0293)	0.538*** (0.00442)	0.951*** (0.00370)
Observations	2983	2983	2983	2983	2983	2983	2983
R^2	0.002	0.005	0.012	0.001	0.009	0.001	0.002

OLS with barangay-clustered SE in parentheses.

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

Reporting Index Variable Construction

The crime reporting index is composed of several component variables:

- `crime_report_num`, the sum of reports of armed robbery, burglary, simple assault, and “other” crimes of which the respondent was a victim in the past six months.
- `violentcrime_report_num`, the sum of reports of all violent crimes of which the respondent was a victim in the past six months.
- `ccrime_report_num`, the sum of reports of armed robbery, burglary, simple assault, and “other” crimes of which the respondent was aware in his or her barangay in the past six months.
- `cviolentcrime_report_num`, the sum of reports of all violent crimes of which the respondent was aware in his or her barangay in the past six months.
- `crimeres_idx`, an index (of similar construction) of citizens’ stated preferences for the police handling a burglary, armed robbery, or violent domestic abuse, rather than any other option. Other options include “nowhere,” “court,” “barangay captain or kagawad,” “tanods,” and “settle directly with the perpetrator.”)

We constructed the reporting index in Stata 15 using the following code:

```
foreach outcome in crime_report_num violentcrime_report_num
    ccrime_report_num cviolentcrime_report_num crimeres_idx {
    gen `outcome'_mc = `outcome' if midline==1 & Z_common==0
    egen mean_`outcome'_m = mean(`outcome'_mc)
    egen sd_`outcome'_m = sd(`outcome'_mc)
    drop `outcome'_mc
}
```

```

gen crime_reporting_idx = ( (crime_report_num -
    mean_crime_report_num_m) / sd_crime_report_num_m + ///
    (violentcrime_report_num - mean_violentcrime_report_num_m) /
    sd_violentcrime_report_num_m + ///
    (ccrime_report_num - mean_ccrime_report_num_m) /
    sd_ccrime_report_num_m + ///
    (cviolentcrime_report_num - mean_cviolentcrime_report_num_m) /
    sd_cviolentcrime_report_num_m + ///
    (crimeres_idx - mean_crimeres_idx_m) / sd_crimeres_idx_m ///
    ) /5

```

Uptake and Compliance

Given the nature of our treatment, uptake is best characterized as usage of the hotline, conditional on need. Unfortunately, we do not have a direct measure of hotline usage. As we discuss above, though administrative data shows a clear increase in phone and SMS reports during the course of our study, it does not distinguish between usage of our hotline and reports to municipal station phone lines. One way to explore the mechanism through which our treatment influenced hotline usage in a way that avoids conditioning on the occurrence of crime is to ask respondents whether they had the hotline number saved in their phone. If they replied affirmatively, the enumerator attempted to verify that the number was actually saved. Having the hotline saved is not a perfect measure of compliance, because the presence of the stickers meant that residents of treated barangays always had the number nearby. Still, we reasoned that residents of treated barangays might be more likely to save the number.

Table 3 shows that compared to respondents in other barangays, we fail to find a significant difference in the proportion of respondents in hotline treatment barangays who claimed they had the hotline number saved in their phone (Model 1), and indeed enumerators found no systematic difference between hotline and other barangays in the proportion of

respondents who actually had the correct number saved (Model 2). However, respondents in treated barangays were systematically more likely to have any phone number for the police, which could include the hotline, their local municipal station, or the general emergency number (Model 3). One possible interpretation of these patterns consistent with our results is that officers implementing the treatment encouraged citizens with whom they interacted to save the local municipal station phone number (not the hotline) in their phones. Given how new the hotline was, it is possible that participating officers fell back on their previous knowledge and asked citizens to save local station’s number that they were used to using. Additionally, in retrospect we realize that saving the number in ones phone is not an obvious response to receiving the treatment. There is little need to save a hotline number in one’s phone if the number is posted on hundreds of stickers around the village or neighborhood.

Conditioning on Crime Victimization when Estimating Crime Reporting

Our main results linking the hotline intervention with crime reporting condition on the occurrence of crime. We include only respondents who were aware of a crime in their community (or personally experienced a crime) based on two assumptions. First, people who are unaware of a crime have no opportunity to report a crime (and false reports of non-existent crime would signify a different construct than the one in which we are interested). Second, crime occurrence and crime reporting are endogenous with regard to the hotline treatment, which we expect *ex ante* to decrease the frequency of crime but increase the proportion of crimes that citizens report. Thus, conditioning our models of crime reporting on crime occurrence provides more informative results than looking at the impact of the hotline on the raw number of reports. If our expectations are correct that the hotline should move crime occurrence and crime reporting in opposite directions, an effective treatment may nevertheless yield null results, as the reduction in opportunities to report crimes cancels out

Table 3: Uptake

	(1)	(2)	(3)
	Hotline Claimed	Hotline Saved	Any Numb Saved
Hotline	0.0175 (0.0117)	0.00591 (0.00852)	0.0228** (0.0108)
Age	-0.000513 (0.000312)	-0.000128 (0.000245)	0.000848*** (0.000265)
Education	0.0211*** (0.00394)	0.00814*** (0.00290)	0.0322*** (0.00368)
Income	95.36*** (15.07)	85.11*** (12.57)	39.26 (43.60)
Decades Resided	-0.00123 (0.00136)	-0.00119 (0.00115)	-0.00124 (0.00128)
Bystanders	-0.0127 (0.0105)	-0.00874 (0.00755)	-0.00780 (0.00975)
Dist. from Ctr.	-0.00604 (0.00510)	-0.00870*** (0.00322)	-0.00667 (0.00463)
Constant	0.0612*** (0.0190)	0.0388** (0.0155)	-0.0263 (0.0166)
Observations	2879	2922	2922
R^2	0.033	0.022	0.041

OLS with barangay-clustered SE in parentheses.

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

Table 4: Balance on Pre-Treatment Observables Among Victims of Crime (Hotline)

	Hotline	Other	Difference	SE	$\Pr(T > t)$	N
Male	.402	.425	.024	.038	.529	783
Age	41.1	42.7	1.6	1.2	.168	791
Education	2.00	2.07	.07	.10	.532	789
Income	9,075	11,213	2,138	2,880	.458	777
Decades Resided	3.18	3.40	.22	.14	.119	787
Dist. from Ctr.	1.50	1.50	.00	.06	.950	791

increases in reporting rates. This problem is well-established in studies of crime reporting (Blair et al. 2019) and crime victimization (Banerjee et al. 2012; Nanes 2019).

However, crime occurrence occurs post-treatment, introducing the possibility of bias into our analysis. Bias would occur if the treatment’s impact on an individual’s probability of reporting a crime differs systematically between those aware of a crime in their community and those unaware of any crime. Of course, we cannot quantify this bias because we do not observe the state of the world in which individuals who did not experience a crime have an opportunity to report a crime to the police. To begin to understand the possibility of bias from subsetting our sample, we first test for balance between treated and untreated individuals on observable pre-treatment characteristics *among the subset of respondents aware of crime in their community*. Balance within this subset is not assured since we randomly assigned treatment conditions over barangays, not crime-aware individuals. If crime victims are similar on pre-treatment observables across treatment conditions, we might feel more comfortable assuming that they have similar baseline probabilities of reporting crimes. This procedure follows Blair et al. (2019) which addresses the same problem in analyzing a community policing treatment in Liberia.

Tables 4 and 5 show the results of balance tests for the subset of respondents aware of a crime in their community (i.e. the respondents included in the analyses in Table 2, Columns 1, 2, and 4) between the hotline condition and others (Table 4) and between the alternative trust-building condition and others (Table 5). We fail to find significant

Table 5: Balance on Pre-Treatment Observables Among Victims of Crime (Alternative Treatment)

	Alt. Treatment	Other	Difference	SE	Pr($ T > t $)	N
Male	.419	.414	-.005	.038	.898	783
Age	41.4	43.8	2.4	1.18	.04	791
Education	1.95	2.24	.29	.11	.007	789
Income	9,305	13,110	3,804	2,889	.188	777
Decades Resided	3.24	3.50	.26	.14	.071	786
Dist. from Ctr.	1.49	1.53	.04	.06	.469	791

differences on pre-treatment observables between crime-aware respondents in hotline treatment barangays and crime-aware respondents in other barangays. We do observe significant differences among crime-aware respondents between those in trust-building barangays and those in other barangays, with those in trust-building barangays tending to be about 2.4 years younger and obtain a lower level of formal education.³ Individuals in trust-building barangays have also resided in their barangay for fewer years on average, though this difference could be an artifact of the difference in age. These balance tests do not provide conclusive evidence for or against possibility of bias from conditioning on crime-awareness, but the failure to find any imbalances on the hotline treatment and the substantively small differences on age and education for the trust-building treatment suggest that it is plausible to assume this subset of respondents also had similar baseline probabilities of reporting crimes to the police.

Still, we might like to know how the hotline treatment impacted reporting without conditioning on crime occurrence. Table 6, Column 1 replicates the main results in-text from Table 1, Column 2 on the full survey sample, regardless of whether respondents were aware of a crime occurring. The coefficient on *Hotline* remains positive but is imprecisely-estimated, consistent with attenuation from the hotline resulting in fewer opportunities to report crimes.

³*Education* is an ordinal variable for highest degree obtained. The observed difference of .29 is equivalent to 29% of an additional degree.

We further explore the unconditioned effect of the hotline on reporting by considering results from three regressions identical aside from their dependent variables, similar to the procedures used in Blair et al. (2019) and Blair and 24 others (2020). In Column 2, the dependent variable is an indicator for whether an individual was aware of any crime in their community during the period of study (1 if yes, 0 if no). In Column 3, the dependent variable is an indicator for whether the individual was aware of a crime *and* it was reported to the police (1 if yes to both, 0 if unaware of a crime or if the crime went unreported). In Column 4, the dependent variable is an indicator for whether the individual was aware of a crime and it was *not* reported to the police (0 indicates that either they were not aware of a crime, or they were aware and it was reported).

Individually, these regressions provide ambiguous results with regard to reporting. However, the *relative* impact of treatment on each outcome compared to its impacts on other outcomes is informative. If the hotline improves public safety through our theorized mechanism, we would expect its effect to be more positive on 3 (reported crimes) than 2 (crimes), more positive on 3 (reported crimes) than 4 (unreported crimes), and more positive on 2 (crimes) than 4 (unreported crimes). The regressions in Table 6 show exactly this pattern. While these results are far from conclusive, combined with the conditioned results in the main text they provide further evidence that the hotline treatment increased citizens’ willingness to report information to the authorities.

Divergence between police and civilian priorities

We have general evidence that the police disagree with citizens about which threats to public safety are the most important, and that they tend to focus on “major” crime types. Our survey of police officers and citizens asked each respondent which out of a list of issues they considered to be the top 3 most important public safety concerns in their assigned municipality (PNP officers) or home barangay (citizens). Table 7 shows civilians are far more likely than the police to consider public intoxication, theft, and illegal gambling to be

Table 6: Effects of Hotline on Crime Reporting, Unconditioned Results

	(1) Index	(2) Experienced Crime	(3) Reported Crime	(4) Unreported Crime
Hotline	0.0301 (0.0239)	-0.0204 (0.0273)	0.0269 (0.0219)	-0.0473*** (0.0177)
Community Pol.	-0.00762 (0.0217)	0.0332 (0.0268)	-0.00484 (0.0216)	0.0380** (0.0181)
Age	-0.00321*** (0.000531)	-0.00381*** (0.000636)	-0.00138*** (0.000484)	-0.00243*** (0.000495)
Education	0.0559*** (0.00603)	0.0439*** (0.00670)	0.0238*** (0.00594)	0.0201*** (0.00480)
Income	95.29* (49.80)	86.32*** (31.00)	100.9*** (25.35)	-14.62 (14.65)
Decades Resided	0.000694 (0.00314)	0.000475 (0.00327)	-0.000886 (0.00178)	0.00136 (0.00260)
Bystanders	-0.0115 (0.0170)	-0.0183 (0.0195)	-0.0207 (0.0139)	0.00238 (0.0138)
Dist. from Ctr.	-0.0136* (0.00787)	-0.0221** (0.00879)	-0.0179** (0.00695)	-0.00413 (0.00685)
Constant	-0.0173 (0.0361)	0.385*** (0.0398)	0.179*** (0.0314)	0.205*** (0.0291)
Observations	2667	2890	2890	2890
R^2	0.089	0.060	0.032	0.029

OLS with barangay-clustered SE in parentheses.

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

Table 7: Most important public safety issues according to officers and citizens

Issue	PNP	Citizens	Difference
Public Intoxication	15.4%	37.2%	-21.8%
Theft	22.1%	36.5%	-14.4%
Illegal Gambling	30.1%	39.5%	-9.4%
Police Abuse	2.6%	4.3%	-1.7%
Sexual Harassment	9.1%	10.7%	-1.6%
Robbery	4.7%	5.8%	-1.1%
Vehicle Theft	2.9%	3.7%	-0.8%
Vehicle Accidents	55.5%	55.3%	0.2%
Illegal Guns	6.1%	1.8%	4.3%
Domestic Abuse	12.7%	4.6%	8.1%
Murder	36.6%	26.5%	10.1%
Illegal Drug Use	61.1%	48.8%	12.3%
Rape	41.5%	16.1%	25.4%
<i>Observations</i>	<i>773</i>	<i>2,983</i>	

Citizens and officers were each presented with the above list of public safety issues and asked to choose which three were the most important concerns in their municipality. The listed percentages show how often each issue was included in a respondent’s top three.

important. The police prioritize rape, illegal drug use, and murder.⁴ 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*, but our interviews with PNP leadership suggests that they view it as perhaps the most important “major” public safety threat, aligned with the categories that police tend to focus on more than citizens.

Additional Analyses

Table 8 explores heterogeneous treatment effects based on individual-level characteristics. We explore whether a respondent’s age, educational attainment, income, time resided in the barangay, and distance from the city center (barangay hall), as well as the presence of bystanders during the interview, systematically affect the relationship between treatment condition and willingness to report a crime (conditional on experiencing / being aware of a

⁴More than 61% of officers listed drug crimes as one of their top three most important issues. However, these responses may reflect social desirability bias driven by the perception that Manila wanted the institution to focus on drug-related crimes.

crime occurring in Models 2, 3, and 4). Aside from the addition of these interaction variables, the model specifications match those in Table 2 of the main text.

The only interaction term whose coefficient is significant across multiple models ($p < .05$) is distance from the city center: the farther an interviewee lives from the barangay hall, the less impact the hotline had on his or her likelihood of reporting a crime to the police. We think this outcome reflects the implementation of the treatment: police officers were unlikely to place stickers in the farthest reaches of a barangay, meaning that people who live far from the center received a much weaker version of the treatment.

Re-running Model 1 with just one interaction variable at a time (while retaining all controls), the only interaction significant at $p < .05$ is SMS hotline X Dist. from Ctr. The coefficient on the interaction between hotline and Age is negative and significant at $p < .10$, indicating that the treatment may have affected reporting more among younger respondents, presumably because young people are more inclined to send text messages.

Table 9 tests the treatment’s impact on crime clearance rates. For each entry in the police blotters in the six month period during and after our treatment, we coded whether the police had resolved the issue. Entries with a status of “conviction,” “solved,” or “victim settled” were coded as “1.” Entries with a status of “dropped” or “unsolved” were coded as “0.” During the window in question, 81.3% of the 1,367 entries with one of these statuses were resolved. Recall that the blotters were collected nearly a year after the time period in question ended, giving the police substantial time to resolve all cases. The data should be interpreted with caution, as an additional 1,218 entries either did not list a status or listed a non-standard status and were excluded from this analysis. The models fail to find evidence that either the hotline or community policing treatments systematically impacted clearance rates.

Table 10 analyzes the relationship between the hotline and NPA activities in greater detail. Model 1 changes the dependent variable to a question on how much of a problem the respondent believes NPA activity was in his or her barangay over the past six months, mea-

Table 8: Heterogeneous Effects of Hotline on Crime Reporting

	(2) Index	(3) Personal	(4) Community
Hotline	0.504*** (0.171)	0.0791 (0.0667)	0.595* (0.309)
Community Pol.	-0.0579 (0.0547)	-0.00902 (0.0122)	-0.0525 (0.0875)
Age	-0.0000213 (0.00158)	0.000350 (0.000384)	0.00204 (0.00278)
Hotline $\times$ Age	-0.00541 (0.00333)	-0.00154 (0.00123)	-0.00980 (0.00621)
Education	0.0521*** (0.0174)	0.00666 (0.00505)	0.0323 (0.0275)
Hotline $\times$ Education	-0.0116 (0.0272)	0.00955 (0.0115)	0.000330 (0.0499)
Income	52.43 (34.36)	0.475 (5.756)	78.42 (50.55)
Hotline $\times$ Income	165.3 (242.0)	-34.79 (72.69)	770.0 (724.1)
Decades Resided	0.00155 (0.00922)	-0.000103 (0.00321)	-0.0154 (0.0149)
Hotline $\times$ Decades Resided	0.00106 (0.0240)	0.00988 (0.00737)	0.0417 (0.0401)
Bystanders	-0.116** (0.0575)	-0.0222 (0.0225)	-0.203* (0.114)
Hotline $\times$ Bystanders	0.111 (0.0781)	0.0148 (0.0257)	0.152 (0.138)
Dist. from Ctr.	0.0260 (0.0312)	0.0198* (0.0102)	0.0207 (0.0503)
Hotline $\times$ Dist. from Ctr.	-0.0973** (0.0440)	-0.0264* (0.0134)	-0.112 (0.0774)
Constant	0.0461 (0.110)	-0.0307 (0.0307)	0.510*** (0.168)
Observations	698	771	771
R^2	0.060	0.023	0.035

OLS with barangay-clustered SE in parentheses.

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

Table 9: Effects of Hotline on Clearance Rates

	(1)	(2)	(3)
Hotline	0.508 (0.484)	0.0117 (0.392)	0.0511 (0.609)
Community Pol.	-0.364 (0.566)	-0.374 (0.394)	0.289 (0.607)
Constant	1.614*** (0.376)	1.930*** (0.326)	2.469*** (0.430)
Fixed Effects	None	Municipalities	Barangays
Clustering	Barangays	Municipalities	Barangays
Observations	1049	1049	1049

Logistic regression.

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

sured on a five-point scale from “not at all” to “a lot.” Whereas less than 1% of respondents reported being personally victimized, more than 22% selected 3, 4, or 5 on this question, suggesting that a notable proportion of respondents perceive the NPA to be a problem. Model 1 shows a negative and significant relationship between the hotline treatment and this measure, indicating that the treatment caused a significant decrease in NPA activity compared to control barangays. Model 2 deals with individuals’ satisfaction with the police’s handling of the NPA. Surprisingly, citizens in barangays that received the hotline are significantly *less* satisfied with the police’s handline of this issue.

This pattern is striking, as it is not immediately clear why citizens would simultaneously recognize NPA activity as less problematic while also expressing less satisfaction with the police’s effectiveness on this issue. To reiterate, while the army is primarily responsible for combat counterinsurgency operations, the police are primarily responsible for investigating the NPA’s criminal activities like extortion and harassment that most commonly impact civilians. Furthermore, as we discuss in-text, the negative correlation between the hotline treatment and attitudes towards the police is not limited to the NPA: there is some evi-

Table 10: Effects of Hotline on NPA Activity

	(1) Problem	(2) Satisfaction
Hotline	-0.168*** (0.0646)	-0.186** (0.0724)
Community Pol.	0.138** (0.0659)	0.144* (0.0765)
Age	-0.0126*** (0.00144)	-0.00416** (0.00173)
Education	0.131*** (0.0157)	-0.00174 (0.0189)
Income	88.61 (176.2)	300.1*** (90.79)
Decades Resided	0.00561 (0.00773)	-0.0114 (0.00930)
Bystanders	-0.0835* (0.0461)	0.123** (0.0581)
Dist. from Ctr.	0.00396 (0.0225)	0.0139 (0.0274)
Constant	-0.967*** (0.102)	-0.139 (0.124)
Observations	2850	2720
R^2	0.082	0.013

OLS with barangay-clustered SE in parentheses.

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

dence that the hotline caused citizens to become less satisfied with police service provision overall. For example, the result is unlikely to be driven by NPA sympathizers reacting to the police’s actions, as we find a positive and significant relationship between personal victimization by the NPA and perceived satisfaction with police actions against insurgents (see below). The positive individual-level correlation between victimization and satisfaction with the police is also inconsistent with the explanation that exposure to the treatment raised citizens’ expectations of the police, leading to less satisfaction despite apparent improvements in counterinsurgent effectiveness (Nussio et al. 2020).

Regressions in Table 11 confirm that the positive relationship between both victimization by the NPA and perception of NPA activities as a problem and satisfaction with police responses to the NPA hold at the individual level. In other words, even setting aside the barangay-level treatment, *individuals* who were personally victimized and perceive the NPA as a problem are the same people who rate the police’s actions on this issue more highly.

Figure 1 shows the percentage of administrative blotter entries reported via phone or sms (compared to reports by citizens at a police station, voluntary surrenders, and information acquired during police operations), for control and treatment barangays, in the six month periods pre- and post-treatment. Several characteristics of the blotter data call for caution when interpreting this figure. First, the police are less likely to enter an issue into the blotter if it does not require follow-up with the individual who reported it, or if they are concerned about retaliation against the reporter. Second, reports are conditional on citizens experiencing an issue that warrants reporting to the police. While presenting percentages reported via each method somewhat mitigates this issue, the numbers are still susceptible to changes in the prevalence of crime. Third, Figure 1 only includes blotter entries which list the date of the incident in question (not the date of entry into the blotter). Thus, tips warning of future incidents are more likely to be excluded.

Table 11: Could you please tell me how well you think the police are doing at dealing with these types of crime within the last 6 months? Armed Rebel Group

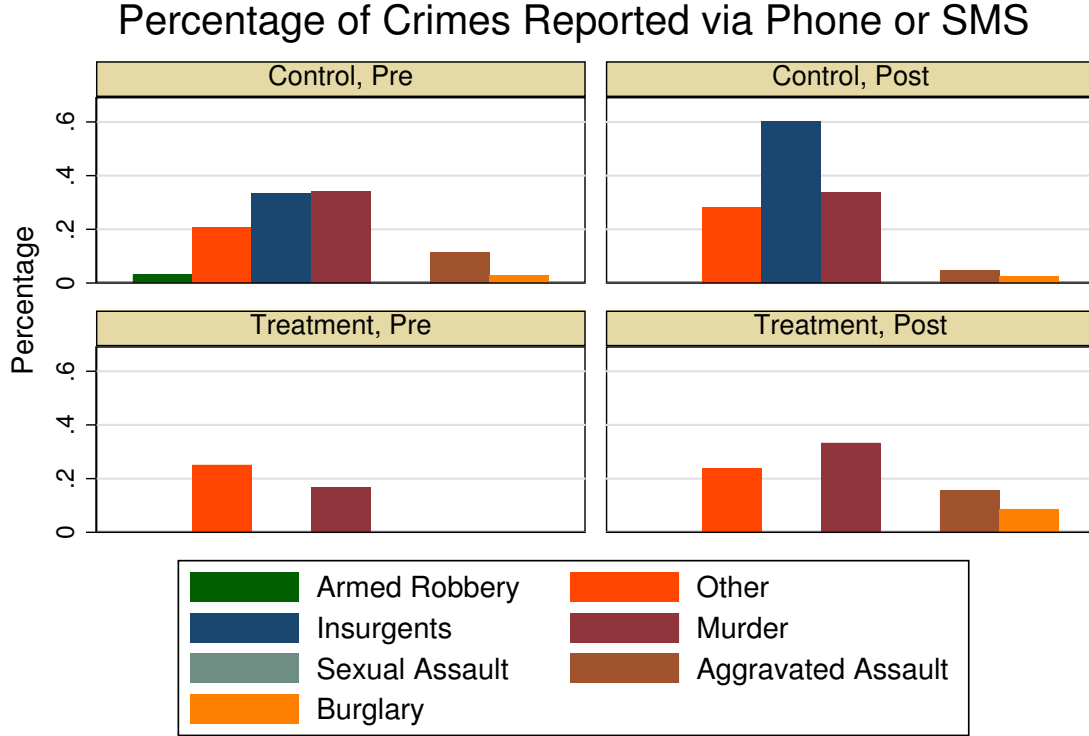
	(1)	(2)	(3)	(4)
NPA-Problem	0.294*** (0.0211)	0.301*** (0.0223)		
NPA-Victim			0.751** (0.297)	0.692** (0.305)
Age		-0.000568 (0.00168)		-0.00381** (0.00174)
Education		-0.0435** (0.0184)		-0.00538 (0.0190)
Income		266.0*** (59.13)		308.1*** (96.09)
Decades Resided		-0.0132 (0.00848)		-0.0119 (0.00960)
Bystanders		0.156*** (0.0578)		0.131** (0.0584)
Dist. from Ctr.		0.00834 (0.0269)		0.0140 (0.0270)
Constant	0.123*** (0.0340)	0.196* (0.105)	-0.272*** (0.0316)	-0.126 (0.109)
Observations	2748	2695	2743	2691
R^2	0.074	0.080	0.003	0.012

Responses range from -2 (least satisfied) to 2 (most satisfied).

OLS with barangay-clustered SE in parentheses.

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

Figure 1: Reporting Methods by Crime Type

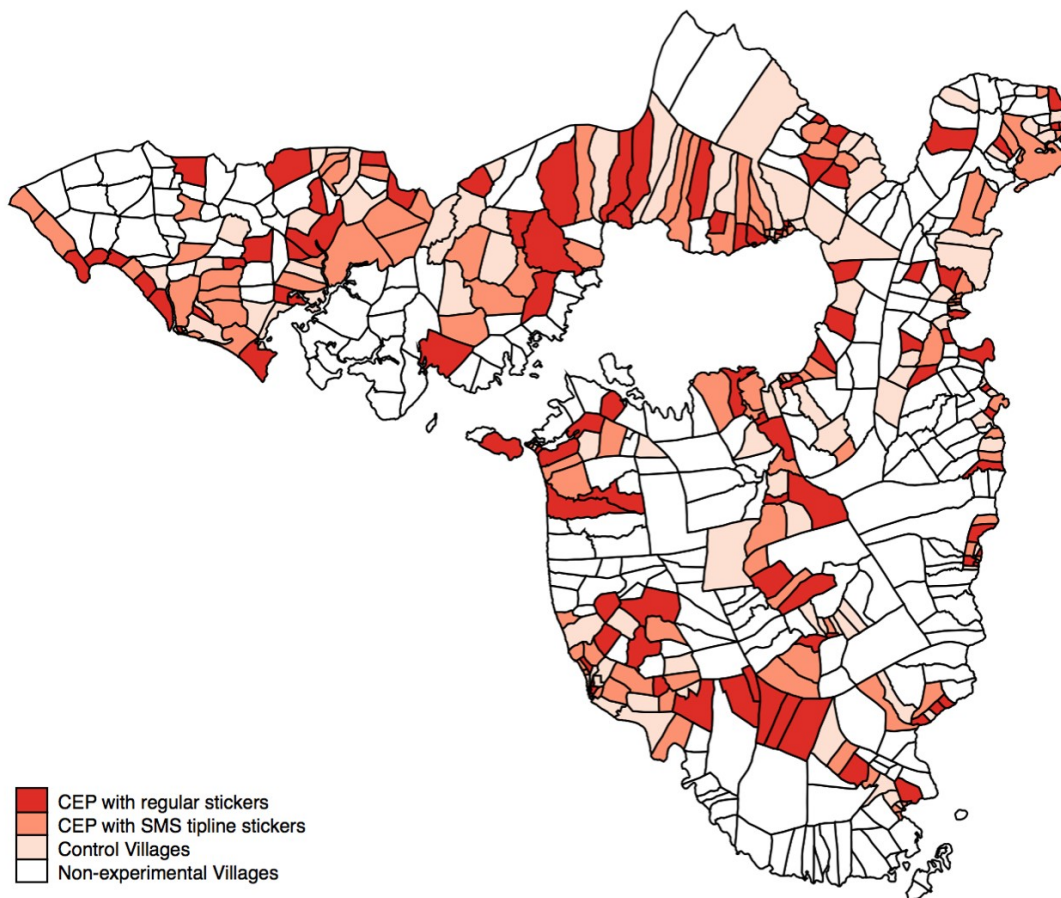


Spillovers

Our intervention is susceptible to spillovers of the treatment into barangays assigned to control, or of the hotline treatment into barangays assigned to the trust-building alternative intervention. Figure 2 shows the high potential for spillovers between treated and untreated barangays due to their proximity as well as the necessity of traveling between barangays of different treatment status as one travels through the province.

Spillovers across barangays could have occurred in three different ways. First, citizens living in barangays assigned to the control or trust-building conditions could have been exposed to the hotline, either because the police inadvertently advertised it in control barangays or because citizens traveled to hotline barangays. Recall that although we did not intend to advertise the hotline in non-hotline barangays, the hotline remained available to all citizens for use. If a resident of any non-hotline barangay became aware of the number,

Figure 2: Locations of Treated and Untreated Barangays



he or she could call it and receive the same police response as any other citizen. Information could have transferred in a variety of ways. For instance, during implementation we observed several of our hotline information stickers in moto-trikes and jeepneys (public buses). These vehicles travel between barangays assigned to both the treatment and control conditions, creating opportunities for individuals in control barangays to see the community policing message. If these types of information transfer occurred frequently, we should see significantly greater crime reporting in barangays close to treated barangays, relative to those farther away.

To evaluate whether proximity to a treated barangay influenced reporting, we consider whether at least one neighboring barangay received the treatment.⁵ In total, 14 barangays

⁵Using ArcMAP 10.4, we identify contiguous barangays using the “Polygon Neighbors” tool, then merge the resulting list of barangay dyads with our list of treatment assignments.

were neither assigned to any treatment nor have a contiguous neighbor assigned to treatment, 84 were assigned to treatment but had at least one neighbor in the control group, 28 were assigned to treatment group without any neighbors in the control group, and the remainder were both assigned to treatment and neighbored at least one barangay that was also assigned to treatment.

Models in Table 12 replicate those in Table 1 in-text, but add controls for whether a respondent’s barangay was adjacent to each of the treatment conditions. The reference category for the treatment and treatment-adjacent dummies is barangays assigned to control and not adjacent to any barangay assigned to treatment. The positive and significant effect of the hotline treatment persists in models 1, 2, and 4, with the coefficient in model 3 remaining positive but falling outside conventional levels of significance. Hotline-adjacent barangays exhibit no systematic relationship with crime reporting. Community policing-adjacent barangays show some evidence of an increase in reporting, through the coefficients are only marginally significant at $p < .10$.

Independently of citizens’ usage of the hotline, the treatments may have affected public safety in nearby control barangays by changing criminals’ or insurgents’ behaviors. Criminals may have been aware of the province-wide initiative and changed their behavior in both treated and untreated areas, negating the cross-sectional differences for which we tested. Alternatively, spillovers could reduce crime in treatment-adjacent barangays if arrests in treated barangays reduce the availability of criminals to commit crimes in both treatment and control barangays. In terms of insurgency, increased police presence from both treatments or enhanced information from the hotline might push the NPA to shift its activities to untreated barangays. If the impacts of the treatment are highly localized, the NPA may view adjacent barangays as the most efficient alternatives, leading to more insurgent activities in adjacent barangays. If the impacts of the treatment are more general, the NPA might move as far away as possible, decreasing insurgent activities in both treatment and treatment-adjacent barangays relative to non-adjacent control barangays.

Table 12: Effects of Hotline-Adjacent on Crime Reporting

	(1) Index	(2) Index	(3) Personal	(4) Community
Hotline	0.0986** (0.0487)	0.101** (0.0484)	0.110 (0.0676)	0.190** (0.0925)
Community Pol.	-0.0872* (0.0525)	-0.0787 (0.0534)	-0.0876 (0.0758)	-0.0748 (0.0875)
Hotline Adjacent	-0.0154 (0.0522)	-0.0322 (0.0513)	0.0757 (0.0673)	-0.0346 (0.0875)
Comm. Pol. Adjacent	0.123* (0.0651)	0.114* (0.0647)	0.108 (0.0695)	0.0548 (0.124)
Age		-0.00137 (0.00140)	-0.00369 (0.00289)	-0.000455 (0.00250)
Education		0.0520*** (0.0136)	0.0244 (0.0244)	0.0425* (0.0234)
Income		53.01 (39.98)	-32.97*** (11.41)	93.01 (71.25)
Decades Resided		0.000473 (0.00882)	0.0462** (0.0224)	-0.00813 (0.0151)
Bystanders		-0.0223 (0.0395)	-0.0474 (0.0651)	-0.0826 (0.0655)
Dist. from Ctr.		-0.00413 (0.0237)	0.0496 (0.0417)	-0.0152 (0.0401)
Constant	0.140** (0.0643)	0.0995 (0.111)	-0.0245 (0.142)	0.627*** (0.177)
Observations	707	689	178	761
R^2	0.016	0.052	0.083	0.022

OLS with barangay-clustered SE in parentheses.

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

Table 13 replicates Table 3 from the main text, but adds controls for treatment-adjacent status as above. The hotline’s lack of apparent impact on typical crime and its negative impact on insurgent activity persists after adding these controls. Hotline-adjacent barangays had fewer armed robberies, compared to non-adjacent control barangays ($p < .10$). Barangays adjacent to the trust-building version of community policing experienced *more* armed robberies, perhaps the only instance of crime spillovers we identify.

Overall, we find no evidence of systematic geographic spillovers on either reporting or crime. These models are limited by the assumption that spillovers should occur in geographically-proximate barangays. They do not account for other possible structures of spillovers, for example barangay kapitans who know each other talking about the intervention, or people talking to friends and relatives in other barangays. Still, we expect geographic proximity is closely correlated with the most likely spillover mechanisms, and it is encouraging that we find no evidence of widespread spillovers along this dimension.

Long-Term Impacts

Our main results come from data collected immediately following six months of treatment implementation. How long-lasting are these effects? On the one hand, stickers fade and become illegible over time. Repeated visits to the field by the research team found that our stickers remained easily legible for at least 15 months if sheltered from the weather, but those exposed to direct sunlight or rain became very difficult to read. If citizens rely on stickers to find the hotline number, we should observe a decrease in hotline usage over time. On the other hand, awareness of the hotline should be additive: once a citizen becomes aware of the hotline’s existence, he should not forget about it simply because the stickers faded. In fact, if awareness of the hotline spreads through citizens’ conversations with each other, usage may continue to increase over time.

More worryingly, citizens update their behavior based on past experiences. If citizens consistently observe that the police fail to act on information they provide, at some point

Table 13: Effects of Hotline-Adjacent on Crime Victimization

	(1) Armed Robbery	(2) Burglary	(3) Assault	(4) Drugs	(5) Insurgents
Hotline	-0.000134 (0.00246)	0.00102 (0.00767)	0.00928 (0.00931)	-0.00904 (0.00599)	-0.00811** (0.00379)
Community Pol.	0.00116 (0.00212)	0.00674 (0.00662)	0.0190** (0.00795)	0.00625 (0.00602)	0.00226 (0.00482)
Hotline Adjacent	0.00302** (0.00124)	-0.00390 (0.00724)	-0.00504 (0.00831)	-0.00617 (0.00617)	-0.00147 (0.00452)
Comm. Pol. Adjacent	-0.00718* (0.00385)	0.0105 (0.00815)	0.00911 (0.0103)	0.0112 (0.00688)	0.00133 (0.00557)
Age	-0.000118 (0.0000751)	-0.000187 (0.000195)	-0.000749*** (0.000240)	-0.000417** (0.000175)	-0.000238* (0.000133)
Education	0.00102 (0.000660)	0.00571** (0.00226)	0.000791 (0.00252)	0.00242 (0.00166)	0.00477*** (0.00137)
Income	3.092 (5.036)	19.34 (21.79)	66.55*** (25.58)	-3.704 (4.030)	7.306 (9.246)
Decades Resided	0.000107 (0.000150)	-0.000236 (0.000755)	-0.000588 (0.000905)	-0.0000249 (0.000584)	-0.000236 (0.000450)
Bystanders	0.00401 (0.00283)	0.00422 (0.00661)	0.0117 (0.00926)	-0.000720 (0.00531)	-0.00150 (0.00317)
Dist. from Ctr.	0.00119 (0.00106)	-0.00160 (0.00282)	-0.00580 (0.00377)	-0.00113 (0.00281)	0.000786 (0.00182)
Constant	0.00679 (0.00512)	0.0130 (0.0138)	0.0546*** (0.0182)	0.0270** (0.0119)	0.0125 (0.00840)
Observations	2888	2888	2889	2839	2833
R^2	0.006	0.006	0.016	0.007	0.013

OLS with barangay-clustered SE in parentheses.

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

they should cease providing information. Given the absence of improvements in public safety resulting from increased citizen tips in the short term, over the long term citizens should stop using the hotline.

We conducted a second survey as part of other research from August to October 2018, about a year after the initial survey and 17 months since the stickers were posted. Between the first and second surveys, the PNP rolled out an additional community policing program in the 99 hotline and 99 trust-building barangays, but not in the 100 control barangays. This additional community policing program likely obscures our ability to detect long-term impacts of either the hotline or the trust-building program compared to the control condition. However, as long as the new treatment’s impact was not conditional on the previous treatment condition, we can still draw inferences by comparing the hotline treatment barangays to the trust-building barangays using data from this second survey. We use the same model specifications as above but exclude the pure control barangays from the sample.

This evidence from nearly a year and a half after the treatment could indicate that the sticker’s informational impact was short-lived. However, it is also consistent with our interpretation that the police failed to harness citizen-provided information in the way that citizens hoped. By late 2018, we fail to find evidence of any difference in citizens’ willingness to report information to the police between barangays which received the hotline and those which received the alternative trust-building treatment (Table 14). It stands to reason that if previous reporting led to no apparent change in police behavior or the quality of public safety, citizens would eventually stop reporting crimes to the police even with the existence of a low-cost fire alarm.

Results in Table 15 confirms that the hotline had no detectable effect on crime measured in this second survey, including on counterinsurgency. Results in Table 16 similarly show no long-term impact of the hotline on attitudes towards the police.

Table 14: Effects of Hotline on Crime Reporting (Second Survey)

	(1)	(2)	(3)	(4)
	Index	Index	Personal	Community
Hotline	0.0237 (0.0494)	0.0261 (0.0506)	0.0257 (0.0640)	0.0761 (0.0892)
Age		-0.00246 (0.00207)	-0.00314 (0.00266)	-0.00256 (0.00303)
Education		0.0241 (0.0188)	0.0184 (0.0283)	-0.00670 (0.0367)
Income		454.5 (288.9)	530.9 (352.5)	52.94 (316.9)
Decades Resided		0.00317 (0.0177)	-0.0180 (0.0211)	-0.0227 (0.0300)
Bystanders		-0.0664 (0.0551)	-0.00822 (0.0631)	-0.0357 (0.0929)
Dist. from Ctr.		-0.0812*** (0.0294)	-0.0684* (0.0390)	-0.136*** (0.0448)
Constant	0.155*** (0.0321)	0.297*** (0.108)	0.409*** (0.135)	0.940*** (0.186)
Observations	456	447	200	486
R^2	0.001	0.050	0.081	0.024

OLS with barangay-clustered SE in parentheses.

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

Table 15: Effects of Hotline on Crime Victimization (Second Survey)

	(1) Armed Robbery	(2) Burglary	(3) Assault	(4) Drugs	(5) NPA
Hotline	0.000583 (0.00205)	0.00609 (0.00615)	0.00718 (0.00782)	-0.000276 (0.00230)	-0.000376 (0.00247)
Age	-0.0000718 (0.0000597)	-0.000373 (0.000226)	-0.00130*** (0.000358)	-0.000245** (0.000119)	-0.000341*** (0.000106)
Education	0.000832 (0.00105)	0.00107 (0.00173)	-0.00342 (0.00327)	0.00101 (0.00107)	0.00125 (0.00106)
Income	-4.731 (8.575)	77.38* (44.89)	22.41 (41.28)	-3.202 (8.650)	25.69 (28.36)
Decades Resided	-0.0000653 (0.000240)	0.000946 (0.00154)	-0.00000715 (0.00236)	-0.000206 (0.000391)	0.0000474 (0.000554)
Bystanders	0.00255 (0.00231)	-0.0102* (0.00537)	-0.0119 (0.00780)	-0.000604 (0.00226)	-0.000915 (0.00244)
Dist. from Ctr.	-0.000896 (0.000727)	-0.00258 (0.00267)	0.00201 (0.00412)	0.00243 (0.00197)	-0.000419 (0.00129)
Constant	0.00568 (0.00404)	0.0309* (0.0164)	0.104*** (0.0216)	0.0120 (0.00758)	0.0185*** (0.00655)
Observations	2937	2937	2938	2893	2888
R^2	0.002	0.007	0.010	0.006	0.010

OLS with barangay-clustered SE in parentheses.

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

Table 16: Effects of Hotline on Attitudes Towards Police (Second Survey)

	(1)	(2)	(3)	(4)
	Satisfaction (change)	Legitimacy	Responsiveness	Trust
Hotline	0.0158 (0.0442)	-0.0347 (0.0272)	0.0325 (0.0536)	-0.0204 (0.0412)
Age	-0.0000434 (0.00153)	-0.00789*** (0.00119)	0.00535*** (0.00156)	0.00470*** (0.00142)
Education	0.00313 (0.0135)	0.0139 (0.0109)	-0.0196 (0.0151)	-0.0479*** (0.0130)
Income	73.18 (178.2)	-190.3 (135.0)	-376.0* (209.1)	-189.8 (186.2)
Decades Resided	-0.00488 (0.0118)	0.0124 (0.00834)	-0.00578 (0.0129)	0.00556 (0.0105)
Bystanders	-0.0804* (0.0430)	-0.00956 (0.0289)	-0.167*** (0.0484)	-0.185*** (0.0396)
Dist. from Ctr.	0.00637 (0.0238)	-0.0102 (0.0163)	0.0236 (0.0237)	0.0419* (0.0214)
Constant	0.549*** (0.0895)	0.661*** (0.0695)	-0.159* (0.0949)	3.156*** (0.0808)
Observations	2888	2909	2915	2912
R^2	0.002	0.027	0.016	0.031

OLS with barangay-clustered SE in parentheses.

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

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