

Gang rule: An experiment in countering criminal governance¹

Registered Report Stage 1: Proposal

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Abstract: Urban criminal groups rule tens to hundreds of millions of people worldwide. In Medellin, Colombia, gangs often police, enforce contracts, and tax businesses in their territories. The literature suggests that gang rule arises not only because governments fail to project their power, but also because they delegate governing to criminals. We cannot test these origins, but we can study Medellin's attempt to reverse this delegation. We worked with the government to develop a nonviolent approach to intensify municipal and community governance and displace gang rule. The city identified 80 neighborhoods where their governance is weak and gangs are strong. For 18 months the city intensified outreach and services to a random 40 of these neighborhoods—a 30-fold improvement in street-level staff plus an intensification of municipal services. As the first anti-gang randomized trial in any country, we study the impacts quantitatively and qualitatively, including a large-scale survey in late 2019.

JEL codes: C93, D23, E26, H11, K42, O17

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1 Introduction

From San Salvador to Mumbai to Johannesburg, slums and poor neighborhoods around the world are commonly ruled by criminal organizations and other armed groups. These urban gangs, mafias, and militias not only control territory, they commonly rule over and provide services to local citizens. Even in the most developed countries, urban gang rule was common up through the twentieth century. While these groups often coexist with the state, in the extreme these armed group can turn large portions of cities into no-go areas for the state, as in Rio de Janeiro today. Unlike insurgents and political armed groups, criminal groups seldom try to overthrow the government or secede.³ But they can exert state-like control over populations under-served by the state—a phenomenon known as “criminal governance” (Arias 2006).

In Medellín, Colombia’s second-largest city and industrial heartland, most low- and middle-income neighborhoods are occupied by one of roughly 400 criminal gangs called “combos.” Combos don’t just sell drugs and collect extortion from local businesses. They police the busy commercial streets, and they settle disputes between neighbors. Residents call them to handle noise complaints or domestic abuse. The combos regulate markets too, including microfinance and cooking gas distribution. In many neighborhoods, no one sells staple consumer goods—eggs, milk, or the Colombian tortillas known as arepas—without their permission. The city, however, remains the main provider of other services, such as infrastructure, education or health. Ultimately, what we observe is an uneasy duopoly over some specific governance activities.

Criminals govern when the state allows them to—or so a growing number of criminal governance case studies argue. Scholars trace the origins of the Sicilian mafia and California prison gangs to the state’s inability to protect production or regulate illegal transactions (Acemoglu et al 2019, Gambetta 1993, Skarbek 2011). The market’s demand for contract enforcement and lower transaction costs opened up a business opportunity for strongmen and gangs. Similarly, work by Arias (2006) in Brazil and by Gray (2003) in Jamaica have shown how

³ Kalyvas 2015, Lessing 2015, Reno 2002

criminal governance over communities arises not because of the state exited, but rather because the state essentially delegate governance to criminal actors.

This hypothesis is hard to test. Criminal groups are obviously difficult to observe and their governance is difficult or dangerous to measure. Where the case study data exists, these are naturally small-N studies, usually limited to just one or two groups. This limits the range of variation in governance to explain. One of the few large-N studies comes from Sanchez de la Sierra (2019), in villages in the eastern Democratic Republic of the Congo. In a region more or less vacated by the state, he shows how roving armed groups turn stationary and begin to govern when there are taxable local resources. This is a rural analogue to a common urban phenomenon.

The flip side of this hypothesis is that criminal governance recedes when the state stops delegating to gangs and tries to project its authority. Of course, once an urban armed group is entrenched and governing, it is unclear whether the state can easily displace them. Citizen cooperation and legitimacy may be inelastic to a state's investment in governing again. This is the question this paper sets out to answer: how elastic is criminal governance to a state's attempt to re-exert authority through intensified normal day-to-day governance. If you live in one of the hundreds of cities where gangs govern, it is hard to think of a more important and more difficult policy challenge than displacing criminal governance.

Beyond this practical question, however, our broader goal is to advance our understanding of criminal governance beyond case studies. Medellin offers an unusual opportunity to study variation across a large sample of armed groups in a somewhat controlled environment, including their governing styles and gang and citizens' responses to state strengthening. While the experimental trial described in this document is central to the paper, we also intend to discuss the large-N qualitative and quantitative data on criminal governance being collected. This descriptive analysis is an important contribution as well.

We have been working with the city government of Medellin to scale up and study an existing anti-criminal governance operation. Beginning in one large neighborhood called La Loma in 2011, the city tried to displace combos from dispute resolution and other governing by growing the number of street-level bureaucrats and improving service delivery. These full-time "liaisons"

sought to rejuvenate community government organizations, advertise and link people to government agencies, resolve disputes and dilemmas or introduce professional mediators from the city, and identify public service needs (such as garbage pickup or poor playgrounds) and mobilize the community and city to address them. There was no change in policing or criminal justice activity. Our qualitative investigations suggested that citizen loyalties and use of state services were fairly elastic, and that the state rose in reach and legitimacy. The criminals, meanwhile, seemed relieved to no longer have to respond to local governance needs, as they saw it as one of their least profitable business lines.

We worked with the city to study this intervention at scale. We believe this to be the first randomized trial of any anti-gang intervention of any kind in the world.⁴ The city identified 80 small neighborhoods called “sectors” where its presence was weak and combos were strong and governed to some degree. Beginning in April 2018, and continuing until the end of 2019, the city provided liaisons and intensified service delivery to 40 of these sectors, randomly-selected. Control sectors received their normal level of urban outreach and services. We ensured that sectors were at least 250 linear meters from each other, to minimize any risk of spillovers. We will also be able to estimate spillovers using a city-wide representative survey that will provide data on blocks near the experimental sample.

Since most sectors are small (about 1,000-3,000 residents) this is a high-intensity operation. Relative to the baseline levels of street-level bureaucrats in this neighborhood, it represents a roughly 30-fold increase. Not all the city, however, requires such high-intensity intervention. Blattman et al. (2019) estimate that roughly 400 sectors throughout the city are subject to some level of criminal governance. Hence, scaling up this intervention to all places where it is potentially needed implies a 10-fold increase relative to the size of the current

⁴ There is a dearth of strategies, experience, and evidence, especially outside the US. Indeed, a recent Campbell systematic review of anti-gang interventions outside the OECD found that the entirety of the literature was just four small case studies (Higginson et al. 2015). Even within the US, we are not aware of large-sample rigorous evaluations of interventions to reduce gang power and influence. Most US based research on gangs and criminal governance has focused mainly on the determinants of gang affiliation and risk factors (e.g. Craig et al. 2002; Cureton 1999; Curry et al. 2002; Decker and Curry 2000). There is, however, some empirical evidence on specific programs as the Gang Resistance Education and Training (Esbensen et al. 2001), CeaseFire Chicago (Skogan et al. 2008) and the US Department of Justice’s Comprehensive Gang Prevention, Intervention and Suppression Model (Spergel 2007), among others, but none include large experimental trials that allow to identify a causal effect.

experiment—something well within a city’s budget, should this intervention prove effective. We will evaluate the intervention in November 2019, roughly 18 months after it began.

Our hypothesis is that by improving public-service delivery, providing non-criminal alternatives for dispute resolution and contract enforcement, and strengthening the ability of formal and informal groups to identify problems and solutions to everyday community problems, the city can increase its legitimacy and citizen use of its services at the expense of the local combo, without using coercion and without provoking violent responses.⁵ This approach to combating criminal governance echoes the idea of “salami tactics” in the theoretical conflict literature, where the more powerful actor gradually reduces opposition "slice by slice" until its power is irrevocably reduced (e.g., Schelling 1966, Fearon 1997). Whether or not the state can succeed is the focus of this study.

Our primary outcomes are indexes of relative state-versus-combo service usage and state-versus-combo legitimacy in the eyes of citizens. Using similar data collected in Bogotá in 2017, we estimate we are powered to detect a 12-13% change in service provision and legitimacy measures.⁶ Given the high intensity of the Medellín intervention, we believe improvements of this magnitude are plausible. Secondary outcomes include violence and combo visibility and extortion, though we do not necessarily expect to see any change in these outcomes.

This study has grown out of our 3-year-long intensive qualitative and quantitative study of gangs, crime, and policy responses in Medellín. Blattman et al (2019) describes the general organization of crime in Medellín and lessons from past interventions, based on hundreds of qualitative interviews with government, police, combo members, and criminal bosses, plus

⁵ The intervention we are studying is the city’s consciously designed strategy for increased citizen’s perceived legitimacy of the state, and knowledge of and ability to access state services as an alternative to the gang. However, absent a more effective and more intensive police force, we do not expect to displace other services that gangs sometimes provide, such as policing and security. Yet, many of the functions the city is trying to provide—essentially, problem-solving—are an attempt to directly substitute for the gangs. Hence we think the connection between the intervention and the outcomes is direct as well as indirect. As we mention above, the city has piloted this in one neighborhood for several years and we qualitatively observed the neighborhood. The city may be mistaken in its expectation of having impacts on gang governance, but based on our qualitative assessment we believe it to be a reasonable hypothesis.

⁶ See Blattman et al. (2018) for a detailed description of the service and legitimacy measures used in the Bogotá survey.

thousands of residential and business surveys. This paper will employ the same data sources to describe the nature and logic of criminal governance in Medellin.

It is essential to understand this phenomenon and how to respond. In 1950, a third of the world lived in cities. By 2050, that fraction will reach two-thirds. Worldwide, tens to hundreds of millions of these city dwellers live in communities where criminal groups often wield some degree of control. For them, armed criminal groups regulate virtually every aspect of daily life, from household finances to community relations and politics. Urban gangs in the United States no longer control neighborhoods to the degree they did some decades ago, but they still govern many aspects of life in prison, especially in California and now spreading outwards (Skarbek 2012, 2014). In Latin America, urban armed groups frequently constitute the primary threat to security and state authority, provoking armed violence on par with or exceeding many civil wars (Lessing 2017). Leading examples include major cities in Brazil, Jamaica, Mexico, El Salvador, and Guatemala.⁷ Criminal governance is less common in Africa, Europe, and Asia, but there are areas of concern, including slums in South Africa, Kenya, Pakistan, India, and Hong Kong (Covey 2010).⁸

Besides demonstrating the feasibility of rigorous evaluation of anti-gang policies, we pilot an intervention that can be replicated, providing an alternative to the more common policy response: violent and coercive crackdowns by police. At least as important, we will improve our theoretical and empirical understanding of criminal governance by closely studying a state's efforts to reduce it. We aim to suggest answers to questions such as "why do gangs govern?" or "under which circumstances or contexts do gangs govern?" The opportunity to run a large-scale experiment to counter gangs with local government buy-in is, on its own terms, unprecedented.

⁷ See Duran-Martinez (2015) on Mexico; Sives (2002) on Jamaica; Lessing (2017) and Arias (2006) on Brazil; and Bruneau et al. (2011) for the Mara gangs of Central America.

⁸ Scholars of state formation and economic development have long noted that warlords and organized-crime groups can, over time, transform into or be incorporated into legitimate governing states (Olson 1993, Tilly 1985). This is a decades and centuries-long phenomenon, however, and may be a better description of the emergence of early states rather than of today's modern states.

This is not simply a policy experiment, however, but a new window into the operation and resilience of criminal governance, and its relationship to state and community governance.⁹

Broadly, we also speak to a largely case study-based literature on state-building. The literature on fixing failed states focuses on ways for weak states to fill sovereignty gaps and empower communities to move away from hostile *de facto* rulers (e.g. Ghani and Lockhart 2009; del Castillo 2008; Karim 2019). In the past decade, these studies have been complemented by a wave of improved micro-level datasets and quantitative methods, a turn toward experimental program evaluations, and applied formal theory. Most of these new studies focus on insurgencies in the Middle East and Central Asia, and situations of civil war and militarized conflict. These studies have transformed our understanding of insurgency and counter-insurgency (e.g. Berman and Matanock 2015). However, this wave of scholarship has paid less attention to non-insurgent armed groups, and nearly always focuses on militarized or highly repressive interventions. Our study instead looks at a major effort at state-building through non-military means, in an urban setting.

Despite the urbanization of the world and violence, the vast majority of empirical and theoretical work on conflict and non-state armed governance has focused on more rural and peripheral revolutions and insurgency.¹⁰ We can learn a great deal about urban gangs from rural insurgent groups, since there are many similarities, but urban armed groups need more study.¹¹

⁹ Our study has parallels to a literature on civil society and community governance, one that challenged how scholars think about state-society relations. In many settings, local governance may be co-produced by community leaders and organizations on the one hand, and the formal state on the other. While some authors find that community governance often relies on insider-outsider distinctions that can be morally repugnant (Bowles and Gintis 2002), others argue that community-state co-governance may be ideal in settings of low state capacity (Cammet and Maclean 2014), including urban peripheries.

¹⁰ See for instance Weinstein et al. (2006), Kalyvas (2006), Collier and Hoeffler (2004), Fearon and Laitin (2003), Reno (1998).

¹¹ To a large extent, the boundaries between insurgency and criminality are not clear. One example of this situation is the transition of paramilitaries and guerrillas to global drug-dealing organizations in Colombia. This transition was slow, and involves large periods where both organizations could have been labeled simultaneously as insurgent and criminal. See for instance Duncan (2006) on the case of the Colombian paramilitaries.

2 Context

Medellin is a city of 2.3 million people, with a total of 3.7 million in the broader metropolitan area. It is divided administratively into 16 urban comunas plus an additional 5 peri-urban corregimientos (we will refer to all as comunas for simplicity). The comunas are formally divided into 269 neighborhoods called barrios.

Two years of qualitative work have revealed a complex, highly structured criminal underworld in Medellin (Blattman et al 2019). At the top lie roughly 17 mafia-like organizations called razones. Nearly every combo has a longstanding business and military alliance with a razon. Virtually every low- and middle-income neighborhood in the metropolitan area has at least one local combo, nearly 400 in all by our count. Combos vary in size and organization, but most have a core of 15 to 50 permanent, salaried members. Most combo members are poor, uneducated young men from the neighborhood between the ages of 15 and 25, with some as old as 35. Razón members tend to be older, and usually hail from one of Colombia's former paramilitary or guerilla organizations; only rarely do combo members rise to become important figures in the razones.

To earn money, razones and combos monopolize local illegal markets, especially retail drug sales, prostitution, and the local loan-sharking practice known as “gota a gota” (drop by drop). They frequently participate in and regulate local legal markets in consumer goods, especially cooking gas, arepas, milk, and eggs. They also extort outside construction sites and business operators (such as bus companies that operate routes through a combo's territory).

Some combos are vertically integrated into their ruling razones. Most, however, operate as semi-independent entities with an exclusive relationship with a single razón. These relationships are resilient but not unbreakable; some combos have changed their razón affiliation or attempted to become independent.

Many combos have also come to govern their “home” community, at least in part. Most combo members live and grew up in their territory, and have good local knowledge and networks. The coercive capacity they developed to run the drug and extortion markets can also be applied to

control crime, enforce contracts, and regulate everyday life. In some ways, the combo has comparative advantages over the state in terms of their costs of exercising authority and accessing information. When the state fails to police, regulate, or reduce transaction costs in contracting, combos seem to have found it relatively straightforward to step into this state-like role.

For instance, citizens often ask combos to resolve disputes within households and between neighbors, enforce contracts, prevent neighborhood crime, deal with unruly drug users and the homeless, set rules of community behavior, punish rule-breaking and unauthorized criminal behavior, and punish sexual violence. In addition to extorting outside businesses, combos may also “tax” local businesses and sometimes households, typically on a weekly basis. While this can be seen as extortion, the combo itself views it as fees for protection services provided. Some even provide payers with receipts.

While community governance is a source of some legitimacy, protection, and revenues for the combo, many combo leaders say that they find this role cumbersome and expensive. Some say they would prefer to focus on earning criminal rents and get out of the governance business. This provides an opening for the state to step in.

The state is relatively strong, organized, professional, and well-funded in Medellín. With a huge industrial, agricultural, and service sector, there are ample resources for city services and security. For decades, however, the city essentially chose not to project power or push resources into its slums, especially the hillside informal settlements.

Today, all of these areas are now formalized and have basic police, roads, utilities, basic services such as lighting and sanitation, and basic access to health or education. Still, the government’s remaining challenge is to regulate crime and everyday life in the city’s periphery. It has the resources to try, and the only question is its efficacy. Note, however, that the city does not have direct control over the police. The metropolitan police are a branch of the national security apparatus, and the force size is set by the central government and not the Mayor. Medellín has roughly 350 officers per 100,000 people, comparable to some US cities of similar size, though significantly lower than major cities like New York, Washington or Chicago. Each barrio has an

elected local community government to manage various aspects of community affairs and liaise with the city government.

Combos and razones established their power in the community partly in response to the illegal rents to be gained, partly due to the vacuum of government, and partly because of the strategic importance of the city to international narco trafficking routes (money laundering, a nearby metropole for narcos to live and raise families, etc).

In the long run, the city government and some communities want to eliminate these armed gangs. At the very least they would like to displace criminal groups from their role in community governance, and increase citizen trust in and the legitimacy of the state. But most cities do not know how to achieve these goals. There is little rigorous evidence on what works and why, especially outside the United States.

3 Intervention and experimental design

3.1 Experimental sample

For the experimental sample, the city identified 80 “sectors” with a significant combo presence, ensuring that they were spaced well apart from one another (usually more than 250m away).¹² A sector is an informal neighborhood, smaller than the barrio, usually with about 1,000-3,000 residents. Sectors may cut across multiple barrios, and were drawn to reflect self-defined communities (the barrio is the smallest formal administrative unit).

The main constraint on the sample size was the city’s immediate implementation capacity at the desired level of intensity. We also wanted to minimize the possibility of spillovers, and growing the number of treated sectors would have raised the risk of contamination. As discussed below,

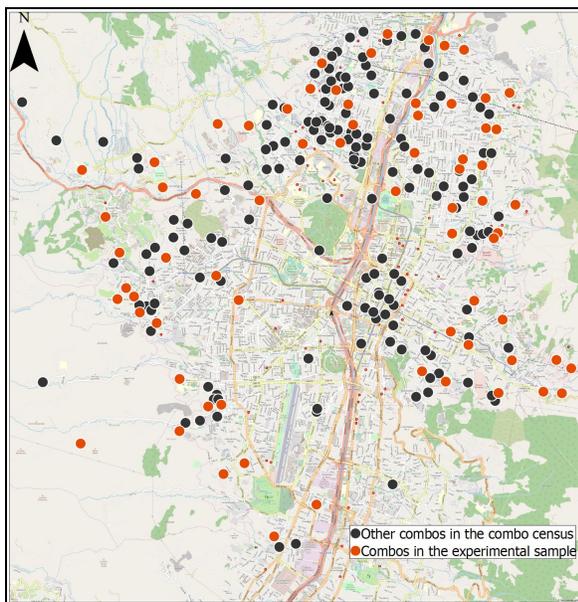
¹² First, they eliminated non-residential downtown areas, where crime is organized differently, there are few territorial combos, and criminal governance is limited. Second, city staff from each comuna were asked to identify small, informal neighborhoods where a combo: (i) provided security and taxed residents for security; (ii) was a major resource for the community to resolve disputes; (iii) regulated illegal and legal markets; and (iv) provided other government services (e.g. garbage collection). Our research team validated these sectors with city social workers from other branches of the government (e.g., the Victims Unit). Many hundreds of sectors have a serious combo presence, and the city narrowed these to the 80 where they believed criminal governance was greatest.

40 treated sectors in an experimental sample of 80 optimized statistical power at the level of intensity we desired.

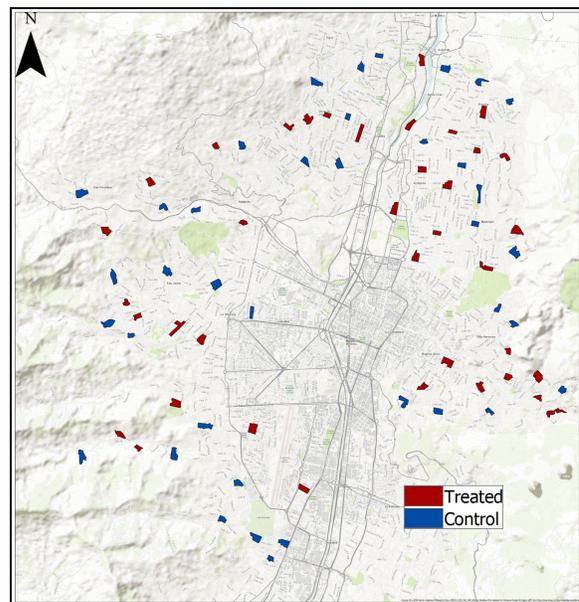
Figure 2 depicts our census of combos and the experimental sample for this intervention. The city lacked a complete listing of combos. Blattman et al (2019) developed the first comprehensive census of gangs, and identified a major landmark for each combo (*Panel a*). *Panel b* plots treatment and control sectors. Typically, a single combo exercises territorial control over the sector, though the sector may only be a small part of the combo territory. Exact combo boundaries are typically unknown to us or the city.

Figure 2: Panel a: Combo census and experimental sample (landmarks). Panel b: Experimental sample with treatment assignment

Panel a:



Panel b:



3.2 Intervention

The city government is improving governance and increasing service delivery in the targeted sectors. We expect most facets of the state to increase in these neighborhoods, with the exception

of the police and criminal justice system. Partly this is because the police and prosecutors are part of the national government and outside the Mayor's control. Partly this is because citizen trust in the police is mixed. Partly this is because we modeled the intervention after an existing, small-scale, non-coercive approach.¹³ And partly this is because we designed the intervention based on preliminary findings from the qualitative work.¹⁴ There is a dearth of civilian-led and non-violent anti-gang tools worldwide. These seem important to explore.

The intervention we are studying is the city's strategy to increase its legitimacy, and to foster the knowledge and ability that citizens have to access its services at the expense of the gangs. Absent a more effective and more intensive police force, we do not expect to displace core security services provided by gangs. However, many of the functions the city is trying to provide—essentially, problem-solving—is an attempt to directly substitute for the gang's activities and test, as we mentioned before, whether criminal governance is elastic to a state's attempt to re-exert authority through intensified, day-to-day governance.

The main coordinating agency in the city government is a large civilian agency in the Mayor's office called the Secretariat of Security. They have a staff of roughly 2,000 spread throughout the

¹³ This intervention is a relatively long term effort being implemented in La Loma, in rural Medellín. Intense gang presence led to two events of urban mass displacement in 2011 and 2013. Gangs directly threaten citizens and forced them to move to other parts of the city. The first time it was successful and most people never came back. The second time the city responded quickly, deploying liaisons in the area to help people access city services and cope with the threat. About 90% of the displaced families returned. To design the intervention, we interviewed the head of this program along with active liaisons.

¹⁴ We designed the intervention over a period of roughly six months, in repeated meetings and interviews with community members and field staff from the Secretariat of Security. The main inputs we outlined included activities where gangs played a major role as providers, gangs seemed to identify such activities as out of their core scope, there was a sustained citizen demand for these issues, the state seemed to be under-providing solutions, and more, targeted and sustained state presence presented as an alternative to replace gang involvement. Some activities that exemplify these situations are common dispute resolution issues, ranging from disputes over land plot borders to presence of pet waste, and family violence and internal issues.

city, with the aim of improving security and promoting “coexistence.”¹⁵ The intervention started in April 2018, and will run at least until November 2019 (the end of the current Mayor’s term).

For this study, the city government is extending and intensifying its presence and reach in 40 sectors, mainly by assigning full-time “street-level bureaucrats” to each neighborhood. They call them liaisons. Normally, the Secretariat of Security has one liaison per comuna—about 1 per 60,000 people. For the intervention, the Secretariat of Security assigned one liaison to each treatment sector (about 1 per 2,000 people). This is a 30-fold increase in street-level staff. In some neighborhoods, it is the first time the sector has had any direct outreach from the city government. Control sectors receive normal outreach and services from the city.

Liaisons are agents responsible for advocating and coordinating service delivery. They tend to be men and women under the age of 40 with a university education. The main roles of these liaisons are to: (1) problem solve, directly resolve disputes, or connect residents to appropriate dispute resolution bodies in the government, including the police, courts, or other officials; (2) coordinate delivery of existing city services where needed, such as: education, health, welfare, legal, and maintenance services; and (3) improve formal and informal community organizations' ability to organize and obtain public resources. The idea is for the liaisons to interact with the community, get to know people individually; identify problems, capabilities, and social capital; understand the combos and nature of criminal governance in the sectors; and help build solutions from the bottom up. This implies there is not a predetermined strategy from the top, but rather that the day-to-day activities by these community organizers should be adaptive.

Second, though coordination with the liaisons, the city government is intensifying its regular services. A team in the Secretariat of Security (with the participation of other city agencies) is deploying tailored solutions upon the liaisons’ request. These solutions range including: coordinating the presence of dispute resolution officials in sectors where neighbor disputes are

¹⁵ The Secretariat of Security of Medellín is a civilian agency in charge of coordinating citizen security policy and providing dispute resolution services to the community. The Secretariat manages a large share of the investment budget of other agencies involved in citizen security such as the Metropolitan Police and the Medellín branch of the Office of the Attorney General. Additionally, it runs dispute resolution offices distributed throughout the cities, called “Inspecciones de Policía.” The Secretariat’s yearly investment budget is usually around \$50 to \$100 million, of which the largest share is invested in technology.

commonplace; strategies such as Consejos de Convivencia (formal government-community meetings where city officials and community members agree on a formal list of commitments, which are then closely followed by the community until their resolution); and Caravanas de la Convivencia (massive, one weekend-long events, where the Secretariat of Security and other 20 city agencies present their services in detail and arrange changes in how such services are delivered to the community). This coordination is challenging, and in practice there are roughly 5-6 observable public events per month per sector.

Appendix A presents details on the instructions and supporting materials for the intervention, as well as on the monitoring tools developed to follow the liaisons' activities closely in each treatment sector.

3.3 Experimental design and randomization

We used a simple blocked randomized design. We blocked the sectors into pairs based on a measure of multivariate “distance” between one another using four baseline variables described in detail below: an index of crime; an index of relative visibility of the combo and the state; an index of relative governance service provided by the combo and the state; and an index of security and drug use perceptions. For the first index we used administrative data, for the second we surveyed three leaders in each community. We used these community-level measures as we hypothesized that they would be prognostic of our main outcomes—more detailed and individual-level measures of combo and state governance and legitimacy. Within each blocked pair of sectors, we used a Stata algorithm to randomly select one into treatment.

3.4 Baseline descriptive statistics and balance

Before the intervention began, we interviewed at least two and up to three knowledgeable community leaders or field workers per sector. We have an average of 2.3 surveys per sector—80 local representatives of the Secretariat of Security and 149 resident leaders. The brief instrument had three sets of questions covering the visibility of combos, authorities and city staff; the provision of services by combos, authorities and community leaders; and insecurity perceptions. Each baseline question had an ordinal set of answers, and we imputed numbers in

each case.¹⁶ In all cases, we arranged the variables such that a larger average number implies more gang visibility or governance, or more insecurity. To generate the indices, we produced z-scores for the answers to each question, aggregated those z-scores and produced a new one with the resulting sum. Additionally, we collected administrative data on a wide range of sector characteristics, including reported crimes, distance to public infrastructure and urban density.

Table 1 presents baseline means for treatment and control sectors, for standardized indexes and their component variables. We also present balance tests on all baseline characteristics, estimated using OLS regressions with block fixed effects. Note relative indices grow larger as the relative visibility or importance of the combos becomes more important. The random assignment of sectors produced the expected degree of balance along covariates.

Table 1. Balance tests on baseline characteristics between treatment and control units

Covariate	Means		Differences		
	Control	Treated	Coeff	p-value	SE
Index of relative visibility of the combo and the state	0.01	-0.01	-0.02	0.876	0.13
How frequently you see combo members? (0-3)	2.38	2.35	-0.0	0.856	0.14
How rarely you see mayor city workers? (0-3)	0.87	0.90	0.03	0.767	0.10
How rarely you see police? (0-3)	0.97	0.90	-0.06	0.486	0.09
What proportion of youth engage with the combo? (0-3)	1.74	1.48	-0.27	0.027**	0.12
Index of relative service provision of the combo and the state	0.01	-0.01	-0.02	0.896	0.13
Who resolves disputes between neighbors? (0-2)	0.95	1.00	0.05	0.555	0.08
Who resolves family violence? (0-2)	0.73	0.78	0.05	0.549	0.09
Who resolves theft cases? (0-2)	1.04	1.00	-0.04	0.636	0.09
Who grants permission to use sports facilities? (0-2)	0.32	0.37	0.05	0.458	0.07
Who grants construction permits? (0-2)	0.88	0.91	0.04	0.681	0.09
Who solves infrastructure problems? (0-2)	0.12	0.18	0.05	0.293	0.05
Who solves welfare problems? (0-2)	0.25	0.26	0.01	0.890	0.08
Who regulates drug use and sales? (0-2)	1.17	1.07	-0.10	0.314	0.10

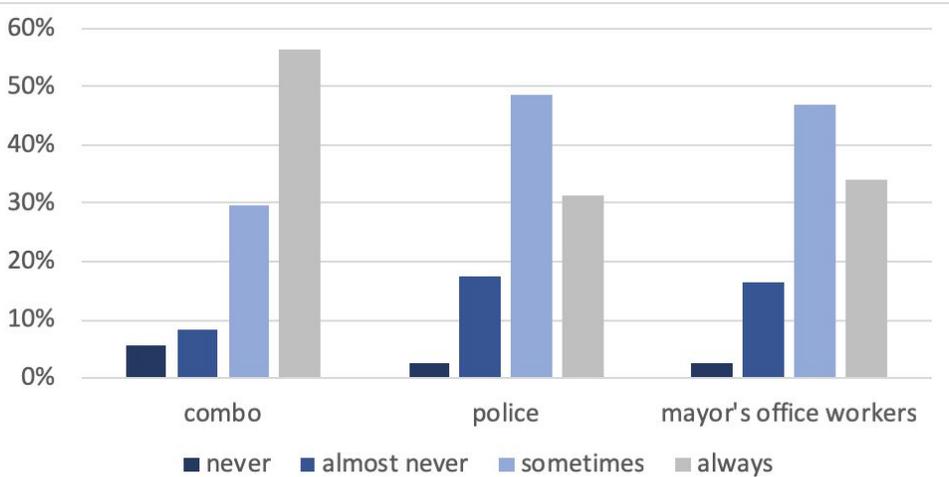
¹⁶ For example, for the question on “How frequently do you see combo members?” the possible alternative answers were never, almost never, sometimes, and always. We imputed numbers from 0 to 3. For the question “Who resolves disputes between neighbors?” the possible answers were most times the authorities or community leaders, both, and most times combo members. We imputed numbers from 0 to 2.

Who addresses sexual abuse cases? (0-2)	0.86	0.73	-0.13	0.112	0.08
Who addresses problems of missing people? (0-2)	0.42	0.45	0.03	0.753	0.09
Who resolves homicide cases? (0-2)	0.45	0.42	-0.03	0.776	0.09
Who grants permission to convene people to events? (0-2)	0.45	0.48	0.03	0.735	0.09
Who grants permission to participate in organizations? (0-2)	0.48	0.40	-0.08	0.279	0.07
Who grants permission to organize public parties? (0-2)	0.94	0.88	-0.05	0.533	0.08
Index of insecurity perception	0.07	-0.07	-0.14	0.228	0.11
How unsafe is it to walk during the day? (0-3)	0.61	0.61	0.00	1.000	0.08
How unsafe is it to walk during the night? (0-3)	1.33	1.42	0.09	0.345	0.09
How unsafe is it to speak on a mobile phone outside? (0-3)	1.12	1.00	-0.12	0.318	0.12
How unsafe is it to walk during the night for a man? (0-3)	1.53	1.36	-0.17	0.217	0.14
How unsafe is it to walk during the night for a woman? (0-3)	1.62	1.70	0.08	0.417	0.10
What share of youth use drugs regularly? (0-3)	2.09	1.88	-0.22	0.014**	0.08
How open and public is drug use? (0-3)	2.40	2.38	-0.02	0.837	0.11
Index of administrative crime	0.10	-0.10	-0.19	0.017**	0.08
Homicides per median sector area 2014-2017	1.51	1.26	-0.25	0.417	0.30
Gang related Homicides per median sector area 2014-2017	0.83	0.57	-0.26	0.218	0.20
Robberies per median sector area 2014-2017	18.19	14.82	-3.36	0.251	2.89
Calls for service on violence per median sector area 2014-2017	38.82	47.26	8.44	0.076*	4.62
Calls for service on drugs per median sector area 2014-2017	8.28	6.24	-2.04	0.192	1.53
Index of distance to public services and infrastructure	-0.14	0.14	0.29	0.186	0.21
Distance to the closest satellite urban center (mts)	307.88	339.75	31.87	0.642	67.99
Distance to the closest health center (mts)	273.53	330.70	57.17	0.376	63.82
Distance to the closest bus transport terminal (mts)	175.53	234.99	59.46	0.317	58.69
Distance to the closest cultural center (mts)	91.99	107.95	15.96	0.586	29.09
Distance to the closest education center (mts)	43.60	77.05	33.45	0.092*	19.36
Distance to the closest police or justice center (mts)	553.49	549.62	-3.88	0.970	100.84
Distance to the closest religious center (mts)	162.90	169.58	6.69	0.876	42.43
Total constructed area (sq. meters)	28,252.83	27,159.18	-1,093.65	0.691	2729.92
How hard is to work in the sector (city liaisons)	1.50	1.58	0.08	0.628	0.15
How hard is to work in the sector (enumerators)	1.05	1.30	0.25	0.058*	0.13

Figure 3 summarizes the information on some of the sub-components of the index of relative visibility. Notably, in many sectors, combo members are more visible than both the police and

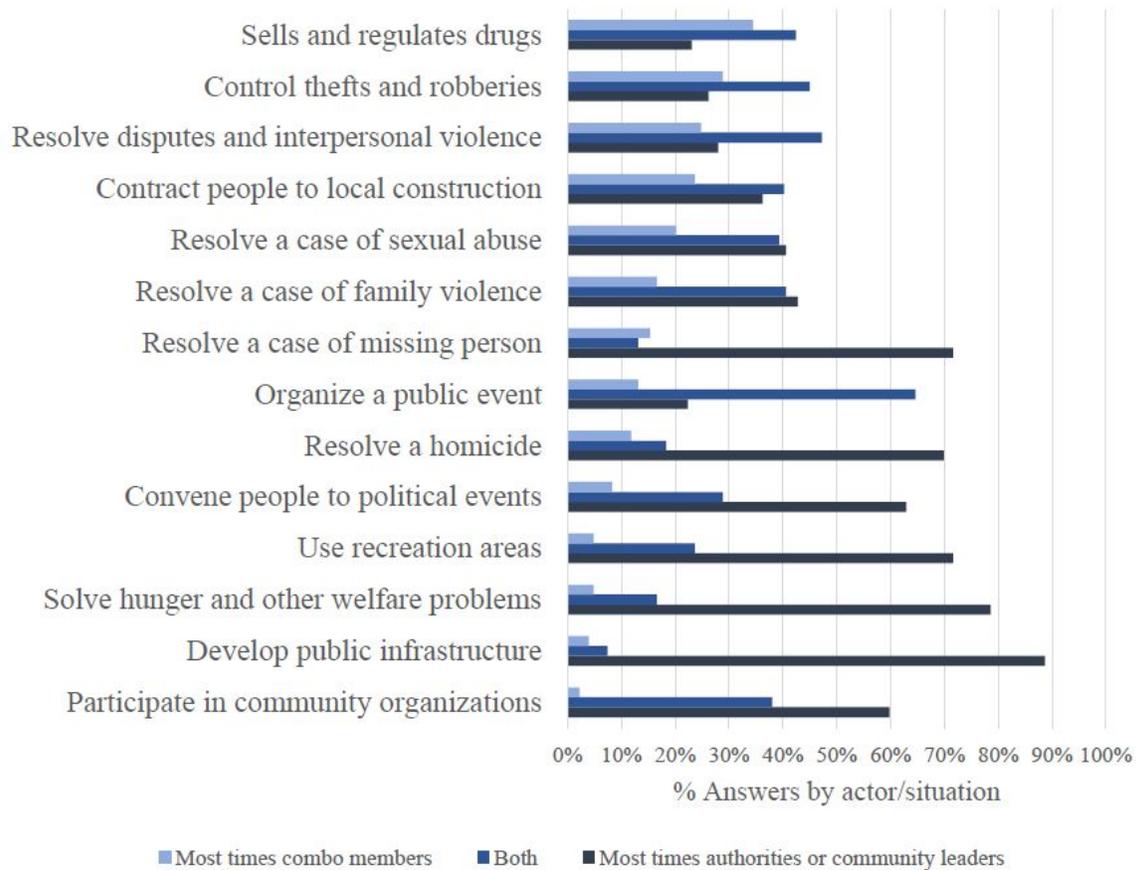
the mayor’s street-level staff. Indeed, the share of respondents reporting they always see combo members is just below 60%. If we add those who report seeing combo members sometimes or always, the share is just below 90%.

Figure 3. Combo and state visibility -- Responses to “How frequently do you see these people in the sector?”



Similarly, Figure 4 summarizes the information on the sub-components for the index of relative service provision provision. The results suggest that, effectively, combos not only regulate illegal markets but directly provide state services as security and dispute resolution, and organize public events. In practice, the data suggests there is a sort of duopoly in the provision of governance and public services over some specific activities, and a more consolidated state monopoly in others. First, the combos dominate the state in regulating common crime (e.g., drug sales and use, or thefts and robberies). Second, both the combo and the state dominate the state in regulating sexual violence and property rights (e.g., preventing or punishing sexual abuse, resolving family violence, providing land and construction permits, or organizing public events). Finally, the state dominates the combos in providing infrastructure and social services (e.g., hunger or welfare programs).

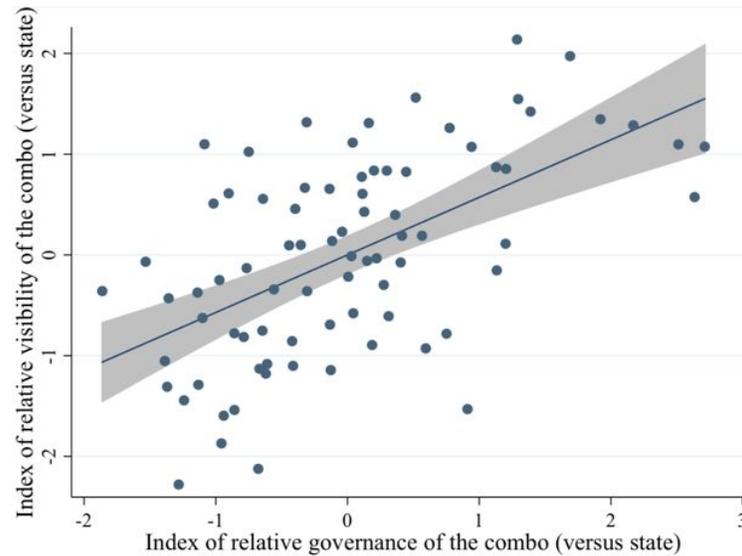
Figure 4. Combo versus state governance -- Responses to “Who solves or gives permission in the sector in the following situations?”



Importantly, our baseline measures suggest there is a great deal of variation in combo governance services. Figure 5 plots the index of relative governance of the combo and the state against the index of relative visibility of the combo and the state. Moving away from the origin implies that the respondent is more likely to see the combo than police or city staff on the streets, and more likely to turn to the combo over the authorities for the wide range of services included in the index (see Table 1 above). Not surprisingly, there is a positive correlation between the two (the correlation between both indices is 0.6). What is possibly more interesting and important is that there is a wide variation in the degree to which combos govern, even though these are all

“high combo” neighborhoods by construction. There are also many off-diagonal observations, especially in the upper right corner, implying large and ever-present combos who have chosen not to govern.

Figure 5. Correlation between relative visibility and governance of the combo



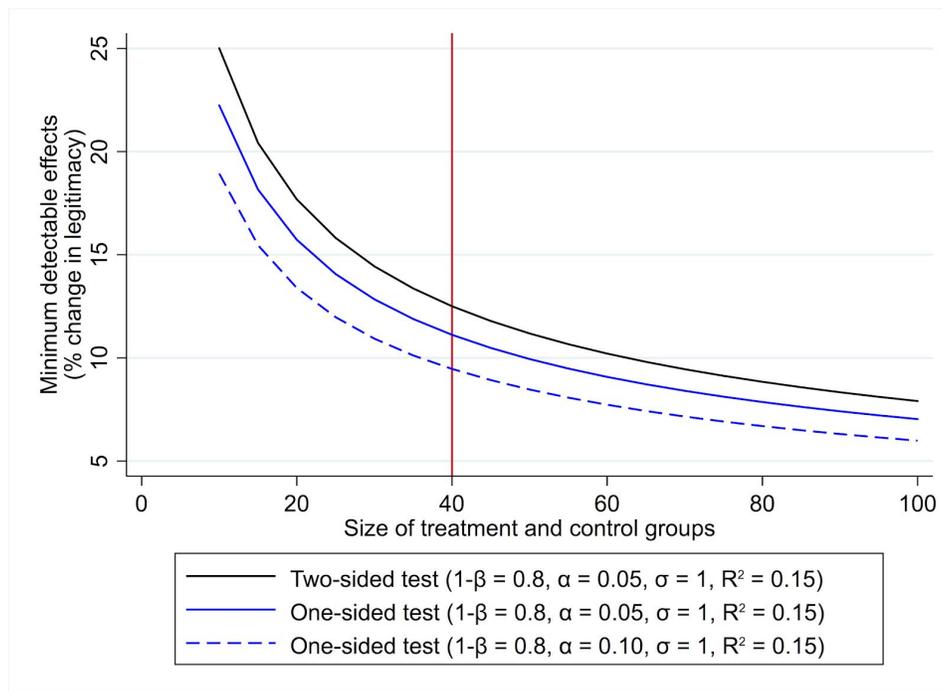
3.5 Statistical power

We worked with the city government to choose a treatment intensity, number of treated sectors, and total sample size to balance the need for statistical power with limits on the city’s capacity to intervene with relatively high intensity in the short term. As noted above, we have an experimental sample of 80 sectors.

With this sample size, we believe we are powered to detect improvements in state versus combo service provision and legitimacy of about 0.4 standard deviations. Put in perspective, with data on state legitimacy that a subset of the authors collected in a survey of 25,000 citizens in Bogotá in 2016, we estimate that we are powered to detect changes of 12% with a two-tailed test or 9%

with a one-tailed test.¹⁷ The Bogotá experiment was a low intensity operation compared to this intervention (state presence increased roughly one hour in daily police patrolling time), and yet the authors found effects of roughly 6-8% in perceived legitimacy after 8 months. Given the high intensity of the Medellín intervention over at least 18 months, we believe improvements of this magnitude are plausible. Indeed, these are arguably the minimum effects that would confirm our hypotheses on criminal governance and also justify this public investment from a city government’s perspective.

Figure 6. Minimum detectable effects for different sample sizes



Finally, Figure 6 illustrates our power analysis using percentage changes in perceptions of legitimacy based on the Bogotá data. Note the marginal improvements in minimum detectable effects start to diminish at around 40-45 units in both the treatment and control groups (the slope

¹⁷ The relatively small number of respondents in our baseline survey leads to a relatively low precision, hence we used the Bogotá data with a much larger survey to provide reasonably changes in measures of legitimacy. See Blattman et al (2018).

is less than one), hence our decision with the city government to treat 40 sectors. If the government increases the number of treatment and control units keeping the budget for intervention constant, and we assume that intensity is a function of the available budget per sector, then the improvements in statistical power would not pay for the sacrifice in intensity.

4 Predictions and primary outcomes

4.1 Theory

As we noted above, the city's intervention is based on several assumptions: that legitimacy is rooted in effective service provision, and that criminal groups are elastic in providing these services. Unlike insurgents, criminal groups do not provide governance as part of a project of "competitive state-building" (Kalyvas 2006).¹⁸ Rather, they often fill in gaps in official governance provision as a way to gain community support and protect their criminal activities. Thus, we predict, as the state begins to provide competing services, street gangs and mafias will reduce their role rather than violently compete. Naturally, criminal motives for governing and this elasticity may vary from context to context. We hope to capture a good deal of this variation in Medellin, given the large number of gangs and mafias. As we saw above, they are highly heterogeneous in their efforts to govern.

There are similarities between the city's approach to combating criminal governance and "salami tactics" in the theoretical conflict literature (Schelling 1966, Fearon 1997). This is a game theoretic approach where the more powerful actor gradually reduces opposition "slice by slice" until the opposition realizes (too late) that its power is past the point of no return. Unlike an instance where there is a rapid shift in power, in a successful salami tactic there is in principle never any incentive for the armed groups to attack the state violently.

Our field experiment will test the validity of this cluster of assumptions and overall approach. Naturally we would prefer to test finer mechanisms and distinct theories. This is usually the privilege of the third or fourth (or tenth) field experiment or quantitative study in a field. As the

¹⁸ Criminal organizations generally do not meet the conditions that justify resistance of state expansion, as described by Blair and Kalmanovitz (2016) in their study on the rights and legitimacy of non-state actors such as warlords.

first-ever large-scale experimental test of an anti-gang and criminal governance program, however, we think this relatively focused, intensive intervention is an ideal one to evaluate both from a policy and an academic perspective.

4.2 Outcomes

Measurement is obviously difficult, and one of our major activities since the baseline has been identifying ways to accurately measure criminal activity and governance at the sector level. We continue to experiment with measurement by trial and error, and will be conducting several survey experiment pilots before and during the endline survey. We pre-registered the experiment and outcomes in April 2018.¹⁹

We have two primary outcomes. The first is a measure of the relative governance roles of the combo versus the authorities, to capture citizen reports of actual service provision. The survey will emphasize governance roles our field work suggests are susceptible to the city's intervention. The second is a measure of the relative legitimacy of the combo versus the state. We will create both indexes based on survey questions.

We have several secondary outcomes mainly related to violence, combo visibility and extortion. We do not have strong priors or hypotheses about changes in these variables. It is possible that with less legitimacy and governance, the combos find it more difficult to collect extortion. It is also possible that security could decline if the combos reduce policing services. We will measure these variables through survey questions and administrative data (on violence and criminal reports).

Finally, we will also seek to measure "first-stage" outcomes to measure levels of service delivery per sector, to assess the consistency of treatment. We will do this using survey measures on service delivery by the liaisons and the city government, and survey measures on residents' participation and involvement in activities offered by the liaisons and the city government. We will complement with administrative data on service delivery.

¹⁹ The American Economic Association's registry for randomized controlled trials, RCT ID: [AEARCTR-0002622](https://www.aeaweb.org/registry/record.php?id=AEARCTR-0002622)

4.3 Endline data collection

We will conduct an endline survey in both the experimental sample of 80 sectors and on a representative sample of the city—7 blocks per neighborhood, in roughly 230 neighborhoods. The latter “non-experimental sample” of over 1,500 blocks will allow us to monitor broader levels of criminal governance as well as assess the validity of our assumption that spillovers from treatment to control sectors are not a material concern. The current version of the instrument is included in Appendix B. We expect changes during piloting.

Within each experimental sector we will survey roughly 30 citizens and businesses. Our plan is to randomly select up to 6 blocks within each sector for data collection. In selected blocks, we will randomly select one block face and then randomly select one household or business within that block face. In cases of no response we will replace the household or business by repeating the procedure starting with the block selection. We will collect the data between late October and early December 2019.

To ensure data quality we will follow the protocols and procedures of Innovations for Poverty Action for high-frequency checks, spot checks and back checks. Appendix C describes each one in detail.

5 Empirical strategy

5.1 Main statistical analysis for treatment effects

We will estimate intention to treat (ITT) effects at the community level, combining all survey responses into a community-level outcome. We will use regression estimators to control for possible confounders and improve precision, but the estimated effects can be interpreted as mean differences. In particular, we will estimate equation (1) for our primary and secondary outcomes:

$$Y_{sb} = \beta_0 + \beta_1 T_{sb} + \gamma_b + \Theta X_{sb} + \varepsilon_{sb} \quad (1)$$

where Y is the outcome in gang sector s and pair block b ; T is an indicator for assignment to the “relentless city governance” treatment; γ is a vector of pair block fixed effects (the randomization strata); and X is a vector of the main baseline indexes listed in Table 1. The coefficient of interest is β_1 . Appendix D describes the procedures to estimate treatment effects.

We will use standardized summary indices for our primary and secondary outcomes to reduce the number of hypotheses tested. Hence we will not adjust for multiple comparisons (see e.g., Kling et al. 2007). We do not expect to have attrition on our experimental sample, as access to all gang sectors is relatively safe even (or perhaps especially) in those where criminal governance is higher.

5.2 Threats to identification and estimation

Spillovers:

One potential threat to identification is interference between experimental units.²⁰ We believe the distance between sectors is generally large enough to mitigate both risks, and designed our experimental sample with this in mind. However, we will empirically test the presence of spillovers. To do so, we will estimate a version of equation 1 above on a pooled sample of the experimental sectors and blocks in the non-experimental (representative) sample, adding an indicator for the non-experimental sample as well as a measure of proximity to the experimental sample. We will investigate a decay function as well as indicators for proximity within a radius. This is intended as a test of our identification assumption rather than our main specification. A key concern when assessing spillovers is fuzzy clustering (see Abadie et al. 2017 and Blattman et al. 2018). For example, when one sector is assigned to treatment, all other sectors (or blocks) in the surrounding are assigned to a spillover condition as a cluster. These clusters may not follow an easy to model structure (such as a sector or neighborhood) but rather are fuzzy and depend on specific geographical characteristics. We do not expect fuzzy clustering to arise in our sample, given the way in which we selected our sectors. If evidence of it does arise, to account for this

²⁰ If combos displace their governance activities to other, nearby sectors, then treatment effects would be biased upwards. If, on the other hand, there is a generalized decrease of combo activity affecting nearby sectors, then treatment effects would be biased downwards.

problem, we will use randomization inference to produce exact p-values under the sharp null of no effect for any unit (in an approach that is agnostic of the distribution of treatment effects).

In our spillover analyzes, we will control for expected exposure to spillovers or expected weighted distance across all possible random assignments. Nonetheless, we will also test alternative methods in order to estimate direct treatment effects with confidence.

Treatment de-intensification in other areas:

The second source of potential interference between experimental units is treatment de-intensification outside treatment sectors. In principle, the intensification of city services in treatment sectors could come with the cost of the de-intensification in other parts of the city, including control sectors. This would not pose an identification problem, since the treatment-control difference would still be orthogonal to pre-treatment characteristics and trends. But it would change the interpretation of the treatment. In any event, we do not see this as a risk. The intensification of broader city services has generally a low marginal cost for the city, and treatment intensify per specific small sector was low all over the territory before. Moreover, all liaisons were hired by the city specifically to participate in the intervention and the opportunity cost of these hirings are not more staff for other places but any kind of investment the city could have made. Though we will not be able to fully rule out any spillovers, we closely monitored the intervention and state-citizen interactions, and qualitatively we are confident that control neighborhoods had no interaction with the services delivered (or the combos) of treatment sectors.

Measurement error:

We have taken steps to reduce experimenter demand and social desirability bias.

First, respondents have no reason to suspect that the survey has anything to do with the intervention or the city government. So at least one form of bias--experimenter demand--is unlikely to shape responses. Surveys are common in Medellin and this is just another public opinion poll as far as respondents are concerned.

Second, in advance of the endline survey, we are now piloting survey experiments for measuring sensitive behaviors and opinions. By the time the survey launches, we expect to have finished small-scale experiments that test how responses to gang governance and extortion questions change with list experiments or different forms of direct questions. We will integrate the most promising subset of these experiments into the full survey, to help assess potential social desirability. These are ongoing, and so we do not have results to share at present.

Finally, after accounting for experimenter demand effects, one can argue that any remaining social desirability bias is in some sense a feature and not a bug. The main aim of the intervention is to raise state legitimacy and shift norms of using the state instead of the gang. Any such change in norms would also be reflected in how people respond to questions from an independent survey firm unrelated to the intervention. Of course, we would prefer to be able to distinguish actual use of combo governance from self-reported changes due to norms. Our survey experiments will help with this. But we also want to be clear that these are difficult to separate, and we cannot eliminate the risk of social desirability bias. The remaining bias is technically of interest, and so we believe it does not undermine the study overall.

Note that another alternative, direct measurement of the relevant gang activity, is inherently difficult and dangerous. Moreover, we don't expect to have treatment effects on the most visible and core gang activities (such as drug selling). The goal of the intervention is to reduce gang legitimacy and their role in harder-to-observe dispute resolution and related governance. We do not see any way to assess these fairly secretive activities. Hence we rely on the survey data with its limitations.

5.3 Heterogeneity by initial level of criminal governance

Our major form of heterogeneity analysis is by baseline level of criminal governance as measured before we launched the experiment. Specifically, we will estimate equation (1) three additional times. Each time, we will use a subsample of the $n\%$ highest criminal governance block pairs, for $n = 25, 50, 75$.

We anticipate that the highest criminal governance gang sectors will have a larger effect. This is, there will be a larger increase in the city's governance role and legitimacy and a larger decrease in that of the combos. We expect this result because the marginal improvement in the city's governance capacity should be more important in places where it was lower at baseline, provided treatment intensity is relatively homogeneous across sectors. We acknowledge, however, the fact that combo governance competition will also be stronger in those sectors. This might outweigh the larger marginal improvement in the city's governance, so there is still uncertainty on the direction of the final outcome.

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Appendices

A. Instructions and supporting materials for the intervention

Intervention activities

The Secretariat of Security of Medellin is responsible for the implementation of the program and the assignment of a micro liaison to each of the 40 treated sectors. The Secretariat outlined the goals of the field team as follows:

- Map the security and convivencia issues of the assigned territory
- Convene meetings between state actors and the community (2 per year)
- Diagnose security or public nuisance issues (4 per month)
- Answer security or public nuisance issues (2 per month)
- Train citizens as security and public nuisance facilitators
- Disseminate information about the security and public nuisance law (monthly meeting or house visits)
- Discuss identified issues on security and public nuisance with the community (2 per month)

Materials and training sessions

At the beginning of the intervention the micro liaisons received a map of their assigned territory, the name of the territory (based on the official neighborhood where its located) and a unique sector code generated for the intervention. Also, they received a link to a google map with all 40 treated sectors. With this, they could identify the borders of their territories using GPS in real time. Finally, the evaluation team at the Secretariat of Security walked the borders of each of these territories with their assigned micro liaisons to make sure they knew the territory they are responsible for.

In February 2018, the field team of the Secretariat of Security held a one week training for the micro liaisons. In this training, the micro liaisons learned techniques to identify the security and convivencia problems in their neighborhood and the tools and programs the Mayor Office has implemented in these territories. They also discuss the safety protocols the micro liaisons must

follow in field. In February of 2019, the Secretariat of Security held a mandatory three day training to update microliaisons on changes to the intervention.

Figure A.1: Example of a map of a treated sector assigned to a micro liaison



Figure A.2: Screenshot of the google maps tool given to the micro liaisons



Follow up instrument and meetings

The Secretariat of Security developed a Google form where the micro liaison record their activities in the field. This instrument includes the unique code of the territory, the type of the activity completed, the number of participants and the gps location of the activity. All these activities must include evidence of the activity, usually a photograph, a list of participants and meeting minutes (if applicable). The Secretariat of Security uses this information to follow up with each of the micro liaisons and the evaluation team uses this for compliance purposes.

Finally, the Secretariat of Security and the evaluation team have monthly meetings with each of the micro liaisons to discuss their progress, the implementation issues and how to deal with them.

Figure A.3: Screenshot of the google form used by the Secretariat of Security to record micro liaisons activities

The screenshot shows a Google Form interface with the following elements:

- Navigation tabs: 'QUESTIONS' and 'RESPONSES' (with a count of 488).
- Question 1: 'Dirección *' with a 'Short answer text' input field.
- Question 2: 'Georreferenciación *' with a 'Short answer text' input field.
- Question 3: 'Fecha *' with a date picker icon and the text 'Month, day, year'.
- Question 4: 'Comportamiento contrario a la convivencia atendido *' with a list of five options:
 1. Actos de discriminación
 2. Agredir, permitir o inducir al maltrato físico o abuso hacia otros
 3. Almacenamiento o distribución de bienes ilícitos, drogas o sustancias prohibidas
 4. Amenazar o agredir verbalmente a otros
 5. Consumir o permitir el consumo de bebidas alcohólicas, drogas o sustancias prohibidas en el espacio público o luga...

B. Current version of the survey instrument

Note: We will submit the final version of the instruments before launching the end-line data collection. Below are the details of the current version for pilots, as of July 2019.

Residents Instrument

Resident questionnaire

2019-10-07

Conventions for the surveyor:

- *Italic: Do not read. Information for the respondent.*
- **Bold:** Important information. Read text with emphasis.

- NR: No response. This option should never be read. Select this option when the respondent does not know or refuses to answer the question.
- Single selection: Multiple options, only one answer. Identified with a circle.
- Multiple selection: Multiple options, multiple responses. Identified with a square.

Module I: Questions Surveyor (Fill before addressing the respondent)

Name of the surveyor	Date			District	Neighborhood
	Day	Month	Year		
	DD	MM	YY		

**** Interviewer: Here, you have to collect the informed consent!**

(Surveyor: Before starting the survey make sure that you and the respondent are in a place where they have privacy, that is, that there are no people around who can listen to the respondents' responses.

If there is no privacy, politely ask the interviewee that they move to a part of the home or business where there is privacy.

If the above is not possible, politely ask the interviewee to tell people who are preventing privacy, to give them a moment of privacy while answering the survey.)

**** START OF THE SURVEY ****

Start time of the survey (hh: mm): _____

In this survey, we will talk about the sector in which you live and how you perceive it. We understand by sector where your house is located and the blocks around.

Module II: Demographic

1. (Do not read): Sex of the respondent

Single selection

a. Male _____

b. Female _____

2. Your age is between...

Single selection

(Surveyor: do not read the "NR" option.)

- a. 18 and 25 _____
- b. 26 and 40 _____
- c. 41 and 64 _____
- d. 65 and more _____
- e. (Do not read): NR _____

3. How long have you been living **in this sector**?

Numerical answer

(Interviewer: record the answer in number of years and months. Example: if the respondent says: "a year and a half", write 1 year 6 months. If the respondent says that it takes less than a month, for example, 20 days, you must write 0 years 20 months. If the respondent says: "two and a half months", you must write 0 years 2 months)

____ years ____ months

Module III: Intervention of actors

Sometimes when people from Medellín encounter problems, actors such as the Mayor's Office, the police or the combo intervene.

4. *(Surveyor: show the respondent the P4 card.)*

I am going to read some situations that **could happen in this sector** and according to this scale of always intervene, frequently intervene, rarely intervene or never intervene, you will tell me how often **the mayor's office**, the **police** or the **combo** intervenes.

Let's try. According to this scale...

Unique selection

(Interviewer: If the person does not know, say: "respond based on what you believe." Do not read the "NR" option, or "This situation does not happen")

		Always intervene	Frequently intervene	Rarely intervene	Never Intervene	(do not read) This situation never happens	(do not read) NR
In this sector , When someone doesn't pick up after their dog, how often does the...	... Mayor's office or the police intervene?						
	... combo intervene?						

Now. According to this scale...

Unique selection

(Interviewer: If the person does not know, say: “respond based on what you believe.” Do not read the “NR” option, or “This situation does not happen”)

		Always intervene	Frequently intervene	Rarely intervene	Never Intervene	(do not read) This situation never happens	(do not read) NR
In this sector , when someone refuses to pay a person a large debt to someone else, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when there is domestic violence, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when two drunks fight in the street, how often do the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when intoxicated people are fighting in the street, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when someone does home improvements and affects a neighbor's house, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when someone is making noise and the	... Mayor's office or the police intervene?						

neighbors can't sleep, how often does the ...	... combo intervene?						
In this sector , when someone is smoking marijuana near children, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when someone is mugged on the street, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when a motorbike is stolen, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , someone is threatening someone else, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when it is necessary to prevent theft, that is to prevent people from happening , how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when you have to react to a robbery, that is happening , how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						

Module IV: Events and meetings

Now I am going to ask you about the events and meetings held by the Mayor's Office in this sector.

5. Tell me please ...

Unique selection, spontaneous response.

(Interviewer: do not read the "NR" option.)

	Yes and you attended	Yes but you did not attend	No	(do not read) NR
During the last 12 months have you seen in this sector public events carried out by the Mayor's Office ?				
During the last 12 months , have you seen meetings in this sector that are held by the neighborhood to discuss the problems of the neighborhood?				

6. During the **last 12 months** , have you seen **Mayoral employees in this sector**?

Unique selection, spontaneous response.

(Interviewer: do not read the "NR" option.)

- a. Yes and you interacted with them _____
- b. Yes but you did not interact with them _____
- c. No _____
- d. *(Do not read):* NR _____

Module V: Own perception of the actors

Now we will talk about your perception of Mayor's employees, the police officers and the combo members.

7. *(Interviewer: show the respondent the P7 card)*

Assume that in this sector you have a problem with a neighbor. According to this scale of always, almost always, almost never or never: To solve this problem, how often would you go to ...

Single selection.

(Interviewer: do not read the "NR" option. If the respondent tells you that you have no problems with a neighbor, remind him that it is an assumption and say: "But what would you do if it happened to you?")

	Always	Almost always	Almost never	Never	(do not read) NR
... to a Mayoral employee ?					
... a police officer ?					
... a combo member ?					

8. (Interviewer: show the P8 card to the respondent)

Suppose that in this sector a minor is sexually abused. According to this scale of always, almost always, almost never or never: How often would intervene ...

only Selection.

(Interviewer: do not read the “NR” option. If the respondent tells you that this has not happened, remind him that it is an assumption and say: “But, if this happened?”)

	Always	Almost always	Almost never	Never	(do not read) NR
... a Mayoral employee ?					
... a police officer ?					
... a combo member ?					

10. (Interviewer: show the respondent the P10 card)

According to this scale of very difficult, difficult, easy or very easy: How easy is it to contact ...

Single selection.

(Interviewer: do not read the “NR” option)

	Very difficult	Difficult	Easy	Very easy	(do not read) NR
... the Mayor's office when you need them in this sector ?					
... the police when you need them in this sector ?					
... the combo when you need them in this sector ?					

11. (Surveyor: show the respondent the P11 card)

According to this scale of very good, good, bad or very bad: How do you rate what ...

Unique selection.

(Interviewer: do not read the “NR” option. If the person says regular or another option say “But on the scale I gave him.”)

	Very good	Good	Bad	Very bad	(do not read) NR
...the Mayor's office does for this sector ?					
... the police do for this sector ?					
... the combo do for this sector ?					

12. (Surveyor: show the respondent the P12 card)

According to this scale of much better, better, worse or much worse: How would **this sector be without** the...

Single selection.

(Interviewer: do not read the "NR" option. If the person says the same or another option, say "But on the scale I gave him.")

	Much better	Better	Worse	Much worse	(don't read) NR
... Mayor's office staff ?					
... police officers ?					
... combo members ?					

13. (Surveyor: Show the respondent the P13 card)

According to this scale of very much, something, a little or not at all: How much do you trust in...

Unique selection.

(Interviewer: do not read the "NR" option)

	Very much	Somewhat	A little	Not at all	(do not read) NR
... the Mayor's office staff ?					
... the police officers ?					
... the combo members ?					

14. (Interviewer: show the respondent the P14 card)

According to this scale of very fair, somewhat fair not very fair or not fair at all: **when conflicts have to be resolved in this sector**: How fair are the...

Single selection.

(Interviewer: do not read the "NR" option)

	Very fair	Somewhat fair	Not very fair	Not fair at all	(do not read) NR
... Mayor's office staff?					
... police officers?					
... combo members?					

15. (Surveyor: show the respondent the P15 card)

According to this scale, to solve a problem in **this sector**, how fast are ...

Unique selection.

(Interviewer: do not read the "NR" option)

	Very fast	Somewhat fast	Somewhat slow	Very slow	(do not read) NR
... the Mayor's staff?					
... the police officers?					
... the combo members?					

Module VI: Perception of third parties about the actors

Now, we will talk about what you think your neighbors think about the Mayor's Office, the police and the combo.

16. (Surveyor: show the respondent the P16 card)

Think about your neighbors. According to this scale of very good, good, bad or very bad: How do you think **your neighbors rate...**

Unique selection.

(Interviewer: do not read the "NR" option)

	Very good	Good	Bad	Very bad	(do not read) NR
... what the Mayor's office staff does for this sector ?					
... what the police does for this sector ?					
... what the combo member does for this sector ?					

17. (Surveyor: show the respondent the P17 card)

According to this scale of much, little, something or nothing: How much do you think **your neighbors** trust...

Unique selection.

(Interviewer: do not read the "NR" option)

	Much	Somewhat	Little	Nothing	(do not read) NR
... Mayor's office staff?					
... police officers?					
... combo members?					

Module VII: Payments

Now we are going to ask another type of question

(Interviewer: With this example make sure the respondent understands the structure of the question)

18. (Interviewer: show card P18)

I am going to show you some situations. You will read them and you will tell me **how many** of them are true **for you**. Your answer should be a number between 0 and 4. Remember not to tell me which ones are true, but how many are true.

Unique selection, spontaneous response.

- You are Colombian
- You are of legal age
- You live in Medellín
- You have a pet

(Interviewer: Once the person gives you their answer, check what the correct answer should be according to the characteristics of the respondent. If it is not correct, ask the question again to make sure the person understands the methodology.)

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. (do not read) NR ___ We

Now, we will talk about some situations that may arise in this home.

18-0. (INTERVIEWER: Show the respondent the card P18-0)

I'll show a card with 4 problems that sometimes arise in the neighborhoods of the city. I am going to read you the situations and you are **not** going to tell me **which ones** have happened to you, **but** will tell me **how many** of them have happened **to this house** in the **last 12** months. Your answer must be a number between 0 and 4.

Unique selection, spontaneous response.

- **Neighbors have invented a gossip about someone from this house**
- **A neighbor has not let you sleep because of noise**
- **You have found dog poop around this house**
- **The electricity or water bill has reached very high**

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. (do not read) NR ___

18-1. (Surveyor: show the respondent the card P18-1)

I will show you a card with 5 problems that sometimes occur in the neighborhoods of the city. I am going to read the situations and you are **not** going to tell me **which ones** have happened to you, **but** you will tell me **how many** of them have happened **to this house** in the **last 12 months**. Your answer must be a number between 0 and 5.

Unique selection, spontaneous response.

- **Neighbors spread false gossip about someone in this house**
- **A neighbor would not let you sleep because of noise**
- **You have found dog poop around this house**
- **This house has been extorted**
- **The electricity bill or water bill was very high**

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. 5 situations ___
- g. (do not read) NR ___

Remember that this survey is completely anonymous, which means that your identity or that of your home will never be disclosed.

19A. We know that the **combo** charges extortion to some houses in the city either for security, for parking of vehicles or motorcycles, etc., but we do not know exactly what the value of that fee is. Therefore, we would like to know: how much does **this house** pay for extortion?

Numerical answer

(Interviewer: If the answer is "You know you pay but not how much" put 1, if you say it varies, enter the last value you paid. Do not read the "NR" option)

- a. \$ _____ *(If it is zero go to question 20)*
- b. *(Do not read):* NR *(Go to question 20)*

19B. How often does **this house** pay extortion?

Single selection, spontaneous response

(Interviewer: do not read the "NR" option.)

- a. Daily ____
- b. Weekly ____
- c. Biweekly ____
- d. Monthly ____
- e. Quarterly ____
- f. Semiannual ____
- g. Annual ____
- h. *(do not read)* NR ____

19C. Does **this house** pay extortion because there is a business here or they provide a service?

Single selection

(Interviewer: do not read the "NR" option.)

- a. Yes
- b. No
- c. *(do not read)* NR ____

Remember that this survey is completely anonymous, which means that your identity or business identity will never be disclosed.

20. We know that the **combo** charge extortion to some houses in the city either for security, for parking of vehicles or motorcycles, etc. Do you think **the houses from this sector** have they paid extortion in **the last 12 months**?

Single selection

(Interviewer: do not read the "NR" option.)

- d. Yes
- e. No
- f. *(do not read)* NR ____

21. **Let's talk about the businesses in this sector.** We know that the **combo** charges extortion to some **businesses** in the city. Do you think that the **business from this sector** have they paid extortion in **the last 12 months**?

Single selection

(Interviewer: do not read the "NR" option.)

- a. Yes ____
- b. No ____
- c. *(do not read)* NR

Module VIII: Perception of payment of fees and taxes

22. (Surveyor: show the respondent the P22 card)

We know that throughout the city, the **combo** charges for activities such as protection for people, homes, businesses in the sector or for solving problems between neighbors. Please answer yes or no.

Unique selection.

(Interviewer: do not read the "NR" option)

	Yes	No	(do not read) NR
Is it okay that the combo charge people in exchange for protecting people, homes, businesses in the sector or solving problems between neighbors?			
Are the fees that the combo charge people for these activities very high ?			

23. (Surveyor: show the respondent the P22 card)

We know that throughout the city, the **Mayor's office** collects **taxes** in exchange for the services it offers. Please answer with yes or no.

Unique selection.

(Interviewer: do not read the "NR" option)

	Yes	No	(do not read) NR
Is it good that the Mayor's office charges taxes in exchange for the services it offers?			
Are the taxes that the Mayor's office charge for the services it offers very high ?			

Module XI: Other activities

Remember that this survey is completely anonymous, which means that your identity or that of the household will never be disclosed.

24. Does the **combo** participate in politics by campaigning for a candidate for mayor, council or Local Action Board or donating to one candidate over another?

Single selection

(Surveyor: do not read the "NR" option.)

d. Yes ___

- e. No ___
- f. (do not read) NR

25. Have you felt pressured to vote for a candidate for mayor, council or Local Action Board that the boys support ?

Single selection

(Interviewer: do not read the "NR" option.)

- g. Yes ___
- h. No ___
- i. (do not read) NR

26. In this sector ¿Are there people who offer loan sharking or informal debts?

Single selection

(Interviewer: do not read the "NR" option.)

- j. Yes ___
- k. No ___
- l. (do not read) NR

27. Have you or someone in your household have used this credits in the **last 12 months**?

Single selection

(Interviewer: do not read the "NR" option.)

- m. Yes ___
- n. No ___
- o. (do not read) NR

**** END OF SURVEY ****

Time to complete the survey (hh: mm): _____

Module X: Questions for the Surveyor

26. Did you have any encounters with the combo during the survey?

Yes ___ No ___

27. How would you describe the interviewee's status during the survey?

- a. Calmed
- b. Hurried
- c. Nervous or afraid
- d. Angry
- e. Other _____

28. How would you describe the information given by the respondent?

- a. *Totally false*
- b. *Partially false*
- c. *Partially true*
- d. *Totally true*

29. What other observations do you have about the interview with the respondent?

Businesses instrument

Business questionnaire

2019-10-15

Conventions for the surveyor:

- *Italic: Do not read. Information for the respondent.*
- **Bold:** Important information. Read text with emphasis.
- NR: No response. This option should never be read. Select this option when the respondent does not know or refuses to answer the question.
- Single selection: Multiple options, only one answer. Identified with a circle.
- Multiple selection: Multiple options, multiple responses. Identified with a square.

Module I: Questions for the Surveyor (Fill out before addressing the respondent)

Name of the surveyor	Date			District	Neighbor hood
	Day	Month	Year		
	DD	MM	YY		

(Do not read): Type of business:

Single selection

(Surveyor: if the business fits in more than one category , select the main one)

- a. *Grocery stores, mini-shops and supermarkets, cigar shops, butcheries, salsa vendors.*
- b. *Prepared food (restaurants, cream sales, food stalls, bakeries).*
- c. *Hairdressers, barber shops and beauty salons.*
- d. *Clothing or footwear stores, tailors, cobblers.*
- e. *Motorcycle repair, car repair, sale of spare parts.*

- f. Hardware stores, sale of construction material, warehouses, scrap yards, locksmiths, glassworks and sale of paintings.
- g. Bars, discos, taverns, liquor sales.
- h. Billiards, casinos, entertainment.
- i. Stationary vendors, internet services and calls, variety stores.
- j. Laundry, parking.
- k. Carpentry, cabinetry, furniture factories.
- l. Pawn shop.
- m. Doctor's office, pharmacy, health and herbal stores.
- n. Tech stores, cell phones, computers and photographic studios.
- o. Pet food and accessories store, pet store, veterinary.
- p. Other businesses that do not fall into the previous categories. Which? _____

**** Surveyor: Here read the informed consent!**

(Surveyor: Before starting the survey make sure that you and the respondent are in a place where they have privacy, that is, that there are no people around who can listen to the respondents' responses.

If there is no privacy, politely ask the interviewee that they move to a part of the home or business where there is privacy.

If the above is not possible, politely ask the interviewee to tell people who are preventing privacy, to give them a moment of privacy while answering the survey.)

**** START OF THE SURVEY ****

Start time of the survey (hh: mm): _____

**In this survey, we will talk about this business and the sector.
We understand by sector where your business is located and the blocks around.**

Module II: Demographics

1. (Do not read): Sex of the respondent

Single selection

- a. Male _____
- b. Female _____

2. Your age is between...

Single selection

(Surveyor: don't read the "NR" option.)

- a. 18 and 25 _____
- b. 26 and 40 _____
- c. 41 and 64 _____
- d. 65 and more _____
- e. (Do not read): NR _____

3. How long has this business been in this sector?

Single selection

(Interviewer: record the answer as number of years and months. Eg: if the respondent says: "a year and a half", you must write _1_ years _6_ months. If the respondent says that it takes less than a month, for example , 20 days, you must write _0_ years _0_ months)

___ years ___ months

4. How long have you worked in this business?

Single selection

(Interviewer: record the answer as number of years and months. Eg: if the respondent says: "a year and a half", you must write _1_ years _6_ months. If the respondent says that it takes less than a month, for example , 20 days, you must write _0_ years _0_ months)

___ years ___ months

5. What is your role in this business?

Single selection

- a. Owner
- b. Administrator or manager
- c. Employee or unpaid partner
- d. Other. Which one? _____

6. What activities are you in charge of in this business? I am going to read you a list of activities and I want you to say "yes" or "no" for each of them.

Unique selection

Serving customers	Yes	No
Keeping accounts	Yes	No
Buying supplies	Yes	No
Administering or managing the business	Yes	No

7. How many people work in this business including you?

Numerical answer

(Interviewer: do not read the "NR" option)

_____ NR ____

Now, I am going to ask you for the clients which this business receive on a good and on a bad day.

8. How many clients does this business receive on a **good** day?

Numerical answer

(Interviewer: do not read the “NR” option)

_____ NR ____

9. How many clients does this business receive on a **bad** day?

Numerical answer

(Interviewer: do not read the “NR” option)

_____ NR ____

We know that businesses face different situations depending on their size. We don't want to ask you about the exact sales and profits of your business. However, it is important to know what category your business is in. That is why I am going to ask you about the sales and profits of this business in a good month and a bad month.

10. *(Interviewer: show the respondent the P10 card.)*

Using this card, please tell me how much **sales** this business in a **normal month**

Single selection

(Interviewer: do not read the “NR” option. Ask the respondent if they prefer that you give them daily values or monthly Read the ranges carefully until the person indicates a response option.)

a.	Less than 1.5 million pesos per month	Less than 50 thousand pesos per day
b.	Between 1.5 million and 4.5 million pesos per month	Between 50 thousand and 150 thousand pesos per day
c.	Between 4.5 million and 12 million pesos per month	Between 150 thousand and 400 thousand pesos per day
d.	Between 12 million and 30 million pesos per month	Between 400 thousand and 1 million pesos per day
e.	More than 30 million pesos per month	More than 1 million pesos per day
f.	<i>(not read or display on card) NR</i>	<i>(not read or display on card) NR</i>

11. *(INTERVIEWER: P9 show the respondent the card)*

Now, using this card, please tell me how **profits** this business in a **typical month** after removing costs

Selection unique

(Interviewer: do not read the “NR” option. Ask the respondent if they prefer you give them the daily or monthly values. Read the ranges carefully until the person indicates an answer option.)

a.	Less than 300 thousand pesos per month	Less than 10 thousand pesos per day
b.	Between 300 thousand and 900 thousand pesos a month	Between 10 thousand and 30 thousand pesos a day
c.	Between 900 thousand and 2.4 million pesos per month	Between 30 thousand and 80 thousand pesos per day
d.	Between 2.4 million and 6 million pesos per month	Between 80 thousand and 200 thousand pesos per day
e.	More than 6 million pesos per month	More than 200 thousand pesos per day
f.	<i>(do not read or show on card) NR</i>	<i>(do not read or show on card) NR</i>

12. Now I would like to ask you what security measures are implemented in this business to prevent theft and other crimes. I am going to read you a list of security measures and I want you to say “yes” or “no” for each of them.

(Interviewer: do not read the “NR” option)

The business has bars on the windows and / or doors	Yes	No	NR
The business has a security door or armored door	Yes	No	NR
The business has security dogs that take care of it	Yes	No	NR
The business has surveillance or security cameras	Yes	No	NR
The business has an alarm	Yes	No	NR
The business has the cell phone number of the police quadrant	Yes	No	NR
The business has one or more private security guards	Yes	No	NR
The business is part of a community vigilance committee or a citizen security front	Yes	No	NR

Module III: Intervention of actors

Sometimes when Medellin businesses have problems, actors such as the Mayor's Office, the police or the combo members intervene in them .

13. *(Interviewer: show the respondent the P13 card.)*

Occasionally, when Medellin businesses are faced with problems, actors such as the Mayor's office, the police or the combo members intervene in them. According to this scale...

Single selection

(Interviewer: If the person does not know, say: “respond based on what you believe.” Do not read the option “NR”, or “This situation does not happen”)

		Always intervene	Frequently intervene	Rarely intervene	Never Intervene	(do not read) This situation never happens	(do not read) NR
In this sector , when a client does not want to pay what he was entrusted with, how often do...	... the Mayor's office or the police intervene?						
	... the combo intervenes?						
In this sector , when businesses in this sector are robbed of money or products, how often do...	... the Mayor's office or the police intervenes?						
	... the combo intervenes?						
In this sector , when a person disturbs a business, how often do...	... the Mayor's office or the police intervenes?						
	... the combo intervenes?						
In this sector , when it is necessary to prevent future theft, how often do...	... the Mayor's office or the police intervenes?						
	... the combo intervenes?						
In this sector , when you have to react to a robbery that is happening , how often do...	... the Mayor's office or the police intervenes?						

	... the combo intervenes?						
--	----------------------------------	--	--	--	--	--	--

Module IV: Payments

14. (Interviewer: show card P14)

I am going to show you some situations. You will read them and you will tell me **how many** of them are true **for you**. Your answer should be a number between 0 and 4. Remember not to tell me which ones are true, but how many are true.

Unique selection, spontaneous response.

- You are Colombian
- You are of legal age
- You live in Medellín
- You have a pet

(Interviewer: Once the person gives you their answer, check what the correct answer should be according to the characteristics of the respondent. If it is not correct, ask the question again to make sure the person understands the methodology.)

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. (do not read) NR ___

14-0. (Surveyor: show the respondent the P14-0 card)

I am going to show you a card with 4 problems that sometimes happen to the city's businesses. I am going to read you the situations and you are **not** going to tell me **which ones** have happened to you, **but** you will tell me **how many** of them have happened **to this business** in the **last 12 months**. Your answer must be a number between 0 and 4.

Unique selection, spontaneous response.

- A client has left the business without paying
- The accounts of the business have been imbalanced
- The business has closed during a holiday
- A client has paid with fake currency

- a. 0 situations _____
- b. 1 situation _____
- c. 2 situations _____
- d. 3 situations _____
- e. 4 situations _____
- f. (do not read) NR _____

14-1. (Interviewer: show the respondent the P14-1 card)

I will show you a card with 5 problems that sometimes happen to the city's businesses. I am going to read you the situations and you are **not** going to tell me **which ones** have happened to you, **but** you will tell me **how many** of them have happened **to this business** in the **last 12 months**. Your answer must be a number between 0 and 5.

Unique selection, spontaneous response.

- A customer has left the business without paying
- The accounts of the business have been imbalanced
- The business was closed during a holiday
- The business has been extorted
- A customer has paid with fake currency

- a. 0 situations _____
- b. 1 situation _____
- c. 2 situations _____
- d. 3 situations _____
- e. 4 situations _____
- f. 5 situations _____
- g. (do not read) NR _____

Remember that this survey is completely anonymous, which means that your identity or business identity will never be disclosed.

15A. We know that the **combo members** charge an extortion to some businesses in the city, either to prevent theft, to guard, escort them while they open or close, etc., but we don't know exactly what the value of that fee is. Therefore, we would like to know: how much does **this business** pay for extortion?

Numerical answer

(Interviewer: If the answer is "Know you pay but not much" place 1, if says that varies place the last value you paid not read the "NR" option.)

- a. \$ _____ (If zero skip to question 16. The value can be zero)
- b. (Do not read): NR (Go to question 16)

15B. How often does **this business** pay for extortion?

Unique selection, spontaneous response

(Interviewer: do not read the "NR" option.)

- a. Daily ____
- b. Weekly ____
- c. Biweekly ____
- d. Monthly ____
- e. Quarterly ____
- f. Biannual ____
- g. Annual ____
- h. (do not read) NR ____

Remember that this survey is completely anonymous, which means that your identity or business will never be disclosed.

16. We know that the **combo members** charge an extortion to some businesses in the city either to prevent theft, to guard, escort them while they open or close, etc. Do you think that **the other businesses in this sector** have paid extortion in **the last 12 months**?

Single selection

(Interviewer: do not read the "NR" option.)

- a. Yes
- b. No
- c. (do not read) NR ____

17. If businesses in this sector refuse to pay extortion:

Single selection

(Interviewer: do not read the "NR" option.)

	Yes	No	NR	Only if you answer yes to the previous question,	Yes	No	NR
Do you think the combo members would assault the business owner or employees?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would steal the products or the business silver?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would damage the premises or the business assets?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would threaten the owner or employees of the business?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would threaten the life of the owner or the employees of the business?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would stop taking care of the business?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would do nothing and let the business continue working normally?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR

Remember that this survey is completely anonymous, which means that your identity or business identity will never be disclosed.

18. We know that throughout the city, it is normal for some businesses to have the ability to pay taxes and others not. During the last year has this business paid taxes?

Single selection

(Interviewer: do not read the "NR" option.)

- a. Yes ____
- b. No ____ *(Go to question 19)*
- c. (do not read) NR ____ *(Go to question 19)*

18B. How much does this business pay in taxes?

Numerical answer

(Interviewer: do not read the "NR" option or "know what you pay but not how much")

- a. \$ _____ *(The answer cannot be zero)*
- b. (do not read) Know that you pay but not how much
- c. (do not read) NR ____

18C. How often does **this business** pay taxes?

Single selection, spontaneous response

(Interviewer: do not read the "NR" option.)

- a. Daily ____
- b. Weekly ____
- c. Biweekly ____
- d. Monthly ____
- e. Quarterly ____
- f. Biannual ____
- g. Annual ____
- h. (do not read) NR ____

Module V: Perception of payment of fees and taxes

19. *(Surveyor: show the respondent the P19 card)*

We know that throughout the city, **combo members** charge for activities such as caring for people, homes, businesses in the sector or for solving problems between neighbors. Please answer yes or no

Single selection.

(Interviewer: do not read the "NR" option)

	Yes	No	(do not read) NR
Is it okay for the boys in this neighborhood to charge businesses in exchange for caring for people, homes, businesses in the sector, or solving problems between neighbors?			
Are the fees that the boys in this neighborhood charge to businesses for these activities very high ?			

23. (Surveyor: show the respondent the P22 card)

We know that throughout the city, the **Mayor's Office** collects **taxes** on people in exchange for the services it offers. Please answer yes or no.

Unique selection.

(Interviewer: do not read the "NR" option)

	Yes	No	(do not read) NR
Is it okay for Mayor's office to collect business taxes in exchange for the services it offers?			
Are the taxes that the Mayor's office charge to businesses for the services it offers very high?			

**** END OF THE SURVEY ****

Time of completion of the survey (hh: mm): _____

Module VI: Questions for the Surveyor

24. Time of completion of the survey _____

25. Did you have any encounters with the combo members during the poll?

Yes ___ No ___

26. How would you describe the respondent's status during the survey?

- a. Calmed
- b. Hurried
- c. Nervous or afraid

- d. *Angry*
- e. *Other* _____

27. *How would you describe the information given by the respondent?*

- a. *Totally false*
- b. *Partially false*
- c. *Partially true*
- d. *Totally true*

28. *Why did the person refuse to answer the survey?*

29. *What other observations do you have about the interview with the respondent?*

C. Data quality assessments and procedures

We will follow Innovations for Poverty Action’s protocols for research, including an operational plan that covers timelines, staffing needs, logistics, and procurement for surveys, for all stages including questionnaire development, training, piloting, tracking, interviews, and quality assurance. Quality assurance includes a plan to execute High Frequency Checks, Back Checks and Spot Checks during the data collection process.

High Frequency Checks

A high-frequency check (HFC) is a check that is routinely performed on a survey/research dataset as it is being collected to monitor the quality of the data collection process and flag any potential issues. HFCs are similar in concept to the quality assurance (QA) checks that are commonly used in the tech sector for validating and cleaning server-side data; however, when referring to an HFC we make 2 important assumptions:

- The data are collected via survey or other active collection process.
- The intended use of the data is to answer research question(s).

These assumptions focus our definition of the "quality" of our data to more clearly mean the data's ability to provide accurate and unbiased estimates of the outcomes and covariates of interest in our research study.

At IPA, HFCs are typically implemented in Stata, after the data have been downloaded, imported, and minimally cleaned. While the types of checks included among the HFCs can vary from project to project, they typically include checks of:

- Anomalous entries or submissions (e.g. outliers, duplicates, illogical responses, etc.)
- The consistency of data across forms/survey rounds
- The functioning of the survey program
- The performance of the enumerators
- General measures of "quality" (e.g. missingness, nonresponse, timing, etc.)

Given the wealth of information they can provide, it's hard to overstate just how important consistent implementation of HFCs are. Indeed, the ability to run faster and more detailed HFCs is one of the MAJOR advantages of digital data collection vis-a-vis paper.

To help projects run HFCs more efficiently, IPA has developed the ipacheck Stata package. The package contains a set of user-written Stata commands that perform common checks and export the results to easy-to-read Excel documents. These commands can roughly be divided into 4 categories: Survey Tracking, Logic Checks, Enumerator Summaries, and Research Summaries. They perform the following checks:

Survey Tracking

1. Check the progress towards productivity/recruitment goals by day and by geographic variable

Logic Checks

1. Check that all submissions are using the most recent version of the survey form
2. Check that all interviews were completed
3. Check that there are no duplicate observations

4. Check that all surveys have consent
5. Check that certain critical variables have no missing values
6. Check that follow up record information matches original
7. Check skip patterns and constraints
8. Check that no variable has all missing values
9. Check hard/soft constraints
10. Check specify other variables for items that were mismarked as 'other'
11. Check that date values fall within survey range
12. Check that there are no outliers for unconstrained variables
13. Compile all field comments
14. Check SurveyCTO text audit fields for duration per question

Enumerator Summary

1. Check the percentage of “don’t know” and “refusal” values for each variable by enumerator
2. Check the percentage giving each answer for key filter questions by enumerator
3. Check the percentage of survey refusals by enumerator
4. Check the number of surveys per day by enumerator
5. Check average interview duration by enumerator
6. Check the duration of consent and other important questions (anthropometrics, games, etc) by enumerator
7. Check the percentage of choosing "other" response by enumerator
8. Check summary statistics of key variables by enumerator

Research Summary

1. Check the frequencies of responses to key research variables.
2. Check the frequencies of responses by treatment status.
3. Check the frequencies of responses by demographic/geographic characteristics.
4. Check for any variables with low response variance.
5. Check refusal/not found rates by treatment status.

Backchecks

A backcheck (also known as a field audit or re-interview) refers to when a highly qualified field officer (also known as a backchecker) visits a respondent a second time to re-administer a selection of questions from the original questionnaire. Those backcheck responses are then compared to the original responses.

IPA protocols include a randomization plan to select at least 10% of the sample to be part of the backcheck. These data are compared to first collected data to identify discrepancies between answers, and thus to identify problems with the questionnaire, the field team, or both. The quality assurance plan also includes an action plan for what to do with discrepancies.

Spotchecks

Field supervisors must accompany a subset of field officers' interviews to monitor field officer performance and to check for survey issues. All field officers must be personally accompanied at least once during the first week of the survey. Accompaniments can be scaled down as the survey progresses, focusing them on surveyors with low performance on back checks or HFC.

D. Computer programs to estimate treatment effects

We will estimate the treatment effects using Stata code below. We will add p-values calculated via randomization inference. The analysis will be based on the survey instrument and pre-analysis plan in order to prevent changes once the data are collected. The code outputs the results in a predetermined table format, which can be copied directly into the final document.

Before this analysis is conducted will we also be using ArcGIS and R to generate control variables and organize the data. We use ArcGIS to generate distance controls from sectors to relevant resources, such as schools, churches and transportation. Then we will use Stata to append all relevant baseline, crime and control data to the end line survey results. Finally, we will use R to match the geo-coded Stata crime and survey data points to their respective sectors, barrios and combo territories.

Analysis Code

```
cap program drop analysis_table
program define analysis_table

// Run initialization:
clear mata
set matsize 10000
set more off

// Syntax (initialize with easier to understand labels)
syntax varlist, TREAT(varlist) COVARS(varlist) FILENAME(name)
local dep_vars `varlist' // creating a local for dep. variables
local M = `:word count `dep_vars"' // make matrix the same size as # vars

// Initializing matrices
mat control_mean = J(`M',1,.)
mat treated_mean = J(`M',1,.)
mat treated_ratio = J(`M',1,.)

mat regmat = J(`M',3,.)
mat stars = J(`M',2,0)

// Initializing row names.
mat rownames control_mean = `dep_vars'
mat rownames treated_mean = `dep_vars'
mat rownames regmat = `dep_vars'

loc m = 1
foreach x in `dep_vars'{

*****
* Main Specification *****
*****

reg `x' `treat' `covars' i.block, robust // noisily reg to error-check (Block hard coded)

mat regmat[`m',1] = _b[`treat'] // save beta estimate
```

```

mat regmat[m',3] = _se[treat'] // save sd

qui sum `x' if (^treat' == 0) // produce summary stats for control mean
mat control_mean[m',1] = r(mean) // save control mean

qui sum `x' if (^treat' == 1) // produce summary stats for treat mean
mat treated_mean[m', 1] = r(mean) // save treatment mean

// Calculate difference ratios
qui sum `x' // iff `x' is not a placeholder var (used to format table)
if abs(r(mean)) > .001 {
    mat treated_ratio[m', 1] = (treated_mean[m', 1] - control_mean[m', 1]) ///
        control_mean[m', 1] * 100
}

// Calculate p-value (To be replaced with RI P-value)
local p = (2 * ttail(e(df_r), abs(_b[treat']/_se[treat'])))

if (^p' < .1) mat stars[m',2] = 1 // Stars for Sig level - 10%
if (^p' < .05) mat stars[m',2] = 2 // Stars for Sig level - 5%
if (^p' < .01) mat stars[m',2] = 3 // Stars for Sig level - 1%

mat regmat[m',2] = `p' // put in p-val (will replace with RI p-values)

local ++m // move to the next row of the results matrix
}

*****
* Get number of treated units for title *****
*****

qui sum `treat' if `treat' == 1
local N = r(N)

*****
Merge matrices to form our larger, final matrix. *****
*****

quietly frmtable, statmat(control_mean) sdec(2) varlabels
quietly frmtable, statmat(treated_mean) sdec(2) varlabels merge
quietly frmtable, statmat(treated_ratio) sdec(0) varlabels merge
quietly frmtable, statmat(regmat) sdec(2,2,2) varlabels merge ///
    annotate(stars) asymbol(*,**,**)

*****
* Output data in LaTeX and RTF formats *****
*****

```

```

frmttable using out/tables/^filename', ///
ctitle("With `:var label `treat", `N' treated units", "\uline{\hfill Means \hfill}", "", "",
"\uline{\hfill Regression Difference \hfill}", "", "" \\\\
"Covariate", "Control", "Treated", "\% difference", "Coeff", "p-value", "SE") ///
tex fragment varlabels replace ///
multicol(1,2,4;1,5,3) ///
nocenter

frmttable using out/rtf_tables/^filename', ///
ctitle("With `:var label `treat", `N' treated units", "\uline{\hfill Means \hfill}", "", "",
"\uline{\hfill Regression Difference \hfill}", "", "" \\\\
"Covariate", "Control", "Treated", "\% difference", "Difference / SD" "Coeff", "p-value",
"SE") varlabels replace ///
multicol(1,2,4;1,5,3)

end
***** END

```

E. Administrative information

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Declaration of interest: We have no competing interests to declare.

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Gang rule: An experiment in countering criminal governance¹

Registered Report Stage 1: Proposal

Christopher Blattman Gustavo Duncan Benjamin Lessing
Santiago Tobon²

October 2019

Abstract: Urban criminal groups rule tens to hundreds of millions of people worldwide. In Medellin, Colombia, gangs often police, enforce contracts, and tax businesses in their territories. The literature suggests that gang rule arises not only because governments fail to project their power, but also because they delegate governing to criminals. We cannot test these origins, but we can study Medellin's attempt to reverse this delegation. We worked with the government to develop a nonviolent approach to intensify municipal and community governance and displace gang rule. The city identified 80 neighborhoods where their governance is weak and gangs are strong. For 18 months the city intensified outreach and services to a random 40 of these neighborhoods—a 30-fold improvement in street-level staff plus an intensification of municipal services. As the first anti-gang randomized trial in any country, we study the impacts quantitatively and qualitatively, including a large-scale survey in late 2019.

JEL codes: C93, D23, E26, H11, K42, O17

Keywords: criminal governance, organized crime, public services, state building, field experiment

Study pre-registration: The American Economic Association's registry for randomized controlled trials, RCT ID: [AEARCTR-0002622](https://www.aeaweb.org/aearegistry/record/0002622). **Proposed timeline:** Start date: 04/30/2018, End date: 11/30/2019

¹ For acknowledgements see the last section on administrative information.

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1 Introduction

From San Salvador to Mumbai to Johannesburg, slums and poor neighborhoods around the world are commonly ruled by criminal organizations and other armed groups. These urban gangs, mafias, and militias not only control territory, they commonly rule over and provide services to local citizens. Even in the most developed countries, urban gang rule was common up through the twentieth century. While these groups often coexist with the state, in the extreme these armed group can turn large portions of cities into no-go areas for the state, as in Rio de Janeiro today. Unlike insurgents and political armed groups, criminal groups seldom try to overthrow the government or secede.³ But they can exert state-like control over populations under-served by the state—a phenomenon known as “criminal governance” (Arias 2006).

In Medellín, Colombia’s second-largest city and industrial heartland, most low- and middle-income neighborhoods are occupied by one of roughly 400 criminal gangs called “combos.” Combos don’t just sell drugs and collect extortion from local businesses. They police the busy commercial streets, and they settle disputes between neighbors. Residents call them to handle noise complaints or domestic abuse. The combos regulate markets too, including microfinance and cooking gas distribution. In many neighborhoods, no one sells staple consumer goods—eggs, milk, or the Colombian tortillas known as arepas—without their permission. The city, however, remains the main provider of other services, such as infrastructure, education or health. Ultimately, what we observe is an uneasy duopoly over some specific governance activities.

Criminals govern when the state allows them to—or so a growing number of criminal governance case studies argue. Scholars trace the origins of the Sicilian mafia and California prison gangs to the state’s inability to protect production or regulate illegal transactions (Acemoglu et al 2019, Gambetta 1993, Skarbek 2011). The market’s demand for contract enforcement and lower transaction costs opened up a business opportunity for strongmen and gangs. Similarly, work by Arias (2006) in Brazil and by Gray (2003) in Jamaica have shown how criminal governance over communities arises not because of the state exited, but rather because the state essentially delegate governance to criminal actors.

³ Kalyvas 2015, Lessing 2015, Reno 2002

This hypothesis is hard to test. Criminal groups are obviously difficult to observe and their governance is difficult or dangerous to measure. Where the case study data exists, these are naturally small-N studies, usually limited to just one or two groups. This limits the range of variation in governance to explain. One of the few large-N studies comes from Sanchez de la Sierra (2019), in villages in the eastern Democratic Republic of the Congo. In a region more or less vacated by the state, he shows how roving armed groups turn stationary and begin to govern when there are taxable local resources. This is a rural analogue to a common urban phenomenon.

The flip side of this hypothesis is that criminal governance recedes when the state stops delegating to gangs and tries to project its authority. Of course, once an urban armed group is entrenched and governing, it is unclear whether the state can easily displace them. Citizen cooperation and legitimacy may be inelastic to a state's investment in governing again. This is the question this paper sets out to answer: how elastic is criminal governance to a state's attempt to re-exert authority through intensified normal day-to-day governance. If you live in one of the hundreds of cities where gangs govern, it is hard to think of a more important and more difficult policy challenge than displacing criminal governance.

Beyond this practical question, however, our broader goal is to advance our understanding of criminal governance beyond case studies. Medellin offers an unusual opportunity to study variation across a large sample of armed groups in a somewhat controlled environment, including their governing styles and gang and citizens' responses to state strengthening. While the experimental trial described in this document is central to the paper, we also intend to discuss the large-N qualitative and quantitative data on criminal governance being collected. This descriptive analysis is an important contribution as well.

We have been working with the city government of Medellin to scale up and study an existing anti-criminal governance operation. Beginning in one large neighborhood called La Loma in 2011, the city tried to displace combos from dispute resolution and other governing by growing the number of street-level bureaucrats and improving service delivery. These full-time "liaisons" sought to rejuvenate community government organizations, advertise and link people to government agencies, resolve disputes and dilemmas or introduce professional mediators from the city, and identify public service needs (such as garbage pickup or poor playgrounds) and mobilize the community and city to address them. There was no change in policing or criminal justice

activity. Our qualitative investigations suggested that citizen loyalties and use of state services were fairly elastic, and that the state rose in reach and legitimacy. The criminals, meanwhile, seemed relieved to no longer have to respond to local governance needs, as they saw it as one of their least profitable business lines.

We worked with the city to study this intervention at scale. We believe this to be the first randomized trial of any anti-gang intervention of any kind in the world.⁴ The city identified 80 small neighborhoods called “sectors” where its presence was weak and combos were strong and governed to some degree. Beginning in April 2018, and continuing until the end of 2019, the city provided liaisons and intensified service delivery to 40 of these sectors, randomly-selected. Control sectors received their normal level of urban outreach and services. We ensured that sectors were at least 250 linear meters from each other, to minimize any risk of spillovers. We will also be able to estimate spillovers using a city-wide representative survey that will provide data on blocks near the experimental sample.

Since most sectors are small (about 1,000-3,000 residents) this is a high-intensity operation. Relative to the baseline levels of street-level bureaucrats in this neighborhood, it represents a roughly 30-fold increase. Not all the city, however, requires such high-intensity intervention. Blattman et al. (2019) estimate that roughly 400 sectors throughout the city are subject to some level of criminal governance. Hence, scaling up this intervention to all places where it is potentially needed implies a 10-fold increase relative to the size of the current experiment—something well within a city’s budget, should this intervention prove effective. We will evaluate the intervention in November 2019, roughly 18 months after it began.

Our hypothesis is that by improving public-service delivery, providing non-criminal alternatives for dispute resolution and contract enforcement, and strengthening the ability of formal and

⁴ There is a dearth of strategies, experience, and evidence, especially outside the US. Indeed, a recent Campbell systematic review of anti-gang interventions outside the OECD found that the entirety of the literature was just four small case studies (Higginson et al. 2015). Even within the US, we are not aware of large-sample rigorous evaluations of interventions to reduce gang power and influence. Most US based research on gangs and criminal governance has focused mainly on the determinants of gang affiliation and risk factors (e.g. Craig et al. 2002; Cureton 1999; Curry et al. 2002; Decker and Curry 2000). There is, however, some empirical evidence on specific programs as the Gang Resistance Education and Training (Esbensen et al. 2001), CeaseFire Chicago (Skogan et al. 2008) and the US Department of Justice’s Comprehensive Gang Prevention, Intervention and Suppression Model (Spergel 2007), among others, but none include large experimental trials that allow to identify a causal effect.

informal groups to identify problems and solutions to everyday community problems, the city can increase its legitimacy and citizen use of its services at the expense of the local combo, without using coercion and without provoking violent responses.⁵ This approach to combating criminal governance echoes the idea of “salami tactics” in the theoretical conflict literature, where the more powerful actor gradually reduces opposition "slice by slice" until its power is irrevocably reduced (e.g., Schelling 1966, Fearon 1997). Whether or not the state can succeed is the focus of this study.

Our primary outcomes are indexes of relative state-versus-combo service usage and state-versus-combo legitimacy in the eyes of citizens. Using similar data collected in Bogotá in 2017, we estimate we are powered to detect a 12-13% change in service provision and legitimacy measures.⁶ Given the high intensity of the Medellín intervention, we believe improvements of this magnitude are plausible. Secondary outcomes include violence and combo visibility and extortion, though we do not necessarily expect to see any change in these outcomes.

This study has grown out of our 3-year-long intensive qualitative and quantitative study of gangs, crime, and policy responses in Medellín. Blattman et al (2019) describes the general organization of crime in Medellín and lessons from past interventions, based on hundreds of qualitative interviews with government, police, combo members, and criminal bosses, plus thousands of residential and business surveys. This paper will employ the same data sources to describe the nature and logic of criminal governance in Medellín.

It is essential to understand this phenomenon and how to respond. In 1950, a third of the world lived in cities. By 2050, that fraction will reach two-thirds. Worldwide, tens to hundreds of millions of these city dwellers live in communities where criminal groups often wield some degree of control. For them, armed criminal groups regulate virtually every aspect of daily life, from

⁵ The intervention we are studying is the city’s consciously designed strategy for increased citizen’s perceived legitimacy of the state, and knowledge of and ability to access state services as an alternative to the gang. However, absent a more effective and more intensive police force, we do not expect to displace other services that gangs sometimes provide, such as policing and security. Yet, many of the functions the city is trying to provide—essentially, problem-solving—are an attempt to directly substitute for the gangs. Hence we think the connection between the intervention and the outcomes is direct as well as indirect. As we mention above, the city has piloted this in one neighborhood for several years and we qualitatively observed the neighborhood. The city may be mistaken in its expectation of having impacts on gang governance, but based on our qualitative assessment we believe it to be a reasonable hypothesis.

⁶ See Blattman et al. (2018) for a detailed description of the service and legitimacy measures used in the Bogotá survey.

household finances to community relations and politics. Urban gangs in the United States no longer control neighborhoods to the degree they did some decades ago, but they still govern many aspects of life in prison, especially in California and now spreading outwards (Skarbek 2012, 2014). In Latin America, urban armed groups frequently constitute the primary threat to security and state authority, provoking armed violence on par with or exceeding many civil wars (Lessing 2017). Leading examples include major cities in Brazil, Jamaica, Mexico, El Salvador, and Guatemala.⁷ Criminal governance is less common in Africa, Europe, and Asia, but there are areas of concern, including slums in South Africa, Kenya, Pakistan, India, and Hong Kong (Covey 2010).⁸

Besides demonstrating the feasibility of rigorous evaluation of anti-gang policies, we pilot an intervention that can be replicated, providing an alternative to the more common policy response: violent and coercive crackdowns by police. At least as important, we will improve our theoretical and empirical understanding of criminal governance by closely studying a state's efforts to reduce it. We aim to suggest answers to questions such as “why do gangs govern?” or “under which circumstances or contexts do gangs govern?” The opportunity to run a large-scale experiment to counter gangs with local government buy-in is, on its own terms, unprecedented. This is not simply a policy experiment, however, but a new window into the operation and resilience of criminal governance, and its relationship to state and community governance.⁹

Broadly, we also speak to a largely case study-based literature on state-building. The literature on fixing failed states focuses on ways for weak states to fill sovereignty gaps and empower communities to move away from hostile de facto rulers (e.g. Ghani and Lockhart 2009; del Castillo 2008; Karim 2019). In the past decade, these studies have been complemented by a wave of improved micro-level datasets and quantitative methods, a turn toward experimental program

⁷ See Duran-Martinez (2015) on Mexico; Sives (2002) on Jamaica; Lessing (2017) and Arias (2006) on Brazil; and Bruneau et al. (2011) for the Mara gangs of Central America.

⁸ Scholars of state formation and economic development have long noted that warlords and organized-crime groups can, over time, transform into or be incorporated into legitimate governing states (Olson 1993, Tilly 1985). This is a decades and centuries-long phenomenon, however, and may be a better description of the emergence of early states rather than of today's modern states.

⁹ Our study has parallels to a literature on civil society and community governance, one that challenged how scholars think about state-society relations. In many settings, local governance may be co-produced by community leaders and organizations on the one hand, and the formal state on the other. While some authors find that community governance often relies on insider-outsider distinctions that can be morally repugnant (Bowles and Gintis 2002), others argue that community-state co-governance may be ideal in settings of low state capacity (Cammet and Maclean 2014), including urban peripheries.

evaluations, and applied formal theory. Most of these new studies focus on insurgencies in the Middle East and Central Asia, and situations of civil war and militarized conflict. These studies have transformed our understanding of insurgency and counter-insurgency (e.g. Berman and Matanock 2015). However, this wave of scholarship has paid less attention to non-insurgent armed groups, and nearly always focuses on militarized or highly repressive interventions. Our study instead looks at a major effort at state-building through non-military means, in an urban setting.

Despite the urbanization of the world and violence, the vast majority of empirical and theoretical work on conflict and non-state armed governance has focused on more rural and peripheral revolutions and insurgency.¹⁰ We can learn a great deal about urban gangs from rural insurgent groups, since there are many similarities, but urban armed groups need more study.¹¹

2 Context

Medellin is a city of 2.3 million people, with a total of 3.7 million in the broader metropolitan area. It is divided administratively into 16 urban comunas plus an additional 5 peri-urban corregimientos (we will refer to all as comunas for simplicity). The comunas are formally divided into 269 neighborhoods called barrios.

Two years of qualitative work have revealed a complex, highly structured criminal underworld in Medellin (Blattman et al 2019). At the top lie roughly 17 mafia-like organizations called razones. Nearly every combo has a longstanding business and military alliance with a razon. Virtually every low- and middle-income neighborhood in the metropolitan area has at least one local combo, nearly 400 in all by our count. Combos vary in size and organization, but most have a core of 15 to 50 permanent, salaried members. Most combo members are poor, uneducated young men from the neighborhood between the ages of 15 and 25, with some as old as 35. Razón members tend to be older, and usually hail from one of Colombia's former paramilitary or guerilla organizations; only rarely do combo members rise to become important figures in the razones.

¹⁰ See for instance Weinstein et al. (2006), Kalyvas (2006), Collier and Hoeffler (2004), Fearon and Laitin (2003), Reno (1998).

¹¹ To a large extent, the boundaries between insurgency and criminality are not clear. One example of this situation is the transition of paramilitaries and guerrillas to global drug-dealing organizations in Colombia. This transition was slow, and involves large periods where both organizations could have been labeled simultaneously as insurgent and criminal. See for instance Duncan (2006) on the case of the Colombian paramilitaries.

To earn money, razones and combos monopolize local illegal markets, especially retail drug sales, prostitution, and the local loan-sharking practice known as “gota a gota” (drop by drop). They frequently participate in and regulate local legal markets in consumer goods, especially cooking gas, arepas, milk, and eggs. They also extort outside construction sites and business operators (such as bus companies that operate routes through a combo’s territory).

Some combos are vertically integrated into their ruling razones. Most, however, operate as semi-independent entities with an exclusive relationship with a single razón. These relationships are resilient but not unbreakable; some combos have changed their razón affiliation or attempted to become independent.

Many combos have also come to govern their “home” community, at least in part. Most combo members live and grew up in their territory, and have good local knowledge and networks. The coercive capacity they developed to run the drug and extortion markets can also be applied to control crime, enforce contracts, and regulate everyday life. In some ways, the combo has comparative advantages over the state in terms of their costs of exercising authority and accessing information. When the state fails to police, regulate, or reduce transaction costs in contracting, combos seem to have found it relatively straightforward to step into this state-like role.

For instance, citizens often ask combos to resolve disputes within households and between neighbors, enforce contracts, prevent neighborhood crime, deal with unruly drug users and the homeless, set rules of community behavior, punish rule-breaking and unauthorized criminal behavior, and punish sexual violence. In addition to extorting outside businesses, combos may also “tax” local businesses and sometimes households, typically on a weekly basis. While this can be seen as extortion, the combo itself views it as fees for protection services provided. Some even provide payers with receipts.

While community governance is a source of some legitimacy, protection, and revenues for the combo, many combo leaders say that they find this role cumbersome and expensive. Some say they would prefer to focus on earning criminal rents and get out of the governance business. This provides an opening for the state to step in.

The state is relatively strong, organized, professional, and well-funded in Medellín. With a huge industrial, agricultural, and service sector, there are ample resources for city services and security.

For decades, however, the city essentially chose not to project power or push resources into its slums, especially the hillside informal settlements.

Today, all of these areas are now formalized and have basic police, roads, utilities, basic services such as lighting and sanitation, and basic access to health or education. Still, the government's remaining challenge is to regulate crime and everyday life in the city's periphery. It has the resources to try, and the only question is its efficacy. Note, however, that the city does not have direct control over the police. The metropolitan police are a branch of the national security apparatus, and the force size is set by the central government and not the Mayor. Medellin has roughly 350 officers per 100,000 people, comparable to some US cities of similar size, though significantly lower than major cities like New York, Washington or Chicago. Each barrio has an elected local community government to manage various aspects of community affairs and liaise with the city government.

Combos and razones established their power in the community partly in response to the illegal rents to be gained, partly due to the vacuum of government, and partly because of the strategic importance of the city to international narco trafficking routes (money laundering, a nearby metropole for narcos to live and raise families, etc).

In the long run, the city government and some communities want to eliminate these armed gangs. At the very least they would like to displace criminal groups from their role in community governance, and increase citizen trust in and the legitimacy of the state. But most cities do not know how to achieve these goals. There is little rigorous evidence on what works and why, especially outside the United States.

3 Intervention and experimental design

3.1 Experimental sample

For the experimental sample, the city identified 80 "sectors" with a significant combo presence, ensuring that they were spaced well apart from one another (usually more than 250m away).¹² A

¹² First, they eliminated non-residential downtown areas, where crime is organized differently, there are few territorial combos, and criminal governance is limited. Second, city staff from each comuna were asked to identify small, informal neighborhoods where a combo: (i) provided security and taxed residents for security; (ii) was a major

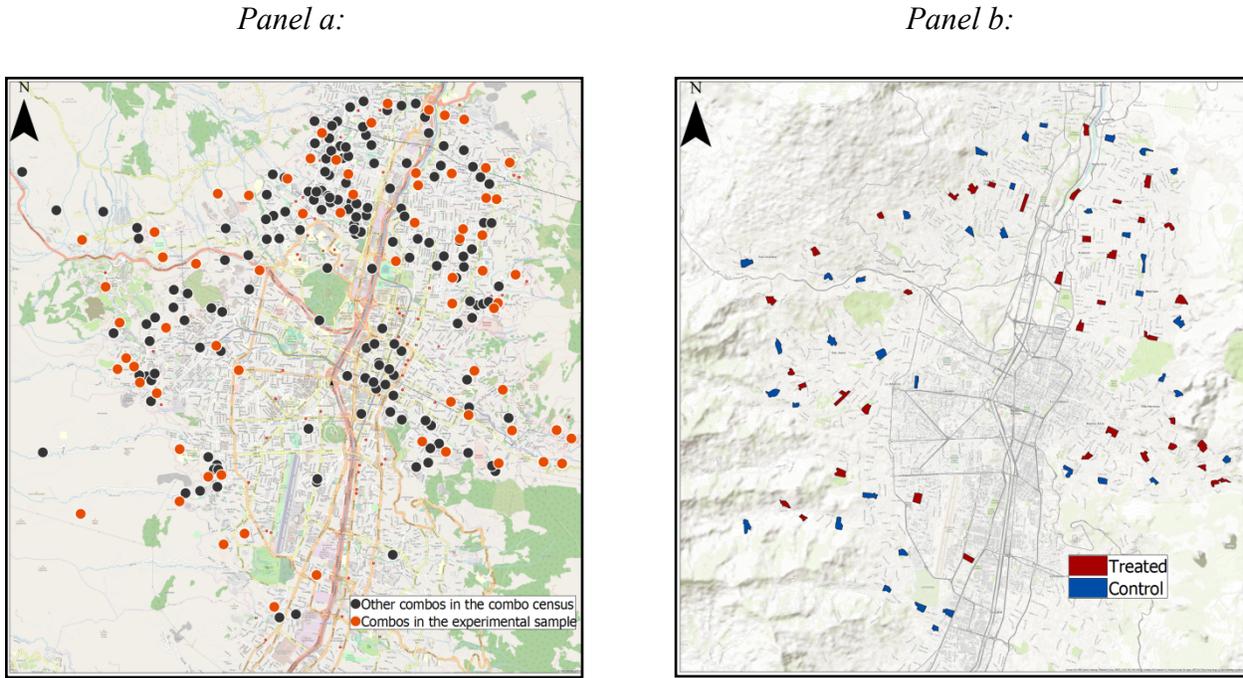
sector is an informal neighborhood, smaller than the barrio, usually with about 1,000-3,000 residents. Sectors may cut across multiple barrios, and were drawn to reflect self-defined communities (the barrio is the smallest formal administrative unit).

The main constraint on the sample size was the city's immediate implementation capacity at the desired level of intensity. We also wanted to minimize the possibility of spillovers, and growing the number of treated sectors would have raised the risk of contamination. As discussed below, 40 treated sectors in an experimental sample of 80 optimized statistical power at the level of intensity we desired.

Figure 2 depicts our census of combos and the experimental sample for this intervention. The city lacked a complete listing of combos. Blattman et al (2019) developed the first comprehensive census of gangs, and identified a major landmark for each combo (*Panel a*). *Panel b* plots treatment and control sectors. Typically, a single combo exercises territorial control over the sector, though the sector may only be a small part of the combo territory. Exact combo boundaries are typically unknown to us or the city.

resource for the community to resolve disputes; (iii) regulated illegal and legal markets; and (iv) provided other government services (e.g. garbage collection). Our research team validated these sectors with city social workers from other branches of the government (e.g., the Victims Unit). Many hundreds of sectors have a serious combo presence, and the city narrowed these to the 80 where they believed criminal governance was greatest.

Figure 2: Panel a: Combo census and experimental sample (landmarks). Panel b: Experimental sample with treatment assignment



3.2 Intervention

The city government is improving governance and increasing service delivery in the targeted sectors. We expect most facets of the state to increase in these neighborhoods, with the exception of the police and criminal justice system. Partly this is because the police and prosecutors are part of the national government and outside the Mayor’s control. Partly this is because citizen trust in the police is mixed. Partly this is because we modeled the intervention after an existing, small-scale, non-coercive approach.¹³ And partly this is because we designed the intervention based on

¹³ This intervention is a relatively long term effort being implemented in La Loma, in rural Medellín. Intense gang presence led to two events of urban mass displacement in 2011 and 2013. Gangs directly threaten citizens and forced them to move to other parts of the city. The first time it was successful and most people never came back. The second time the city responded quickly, deploying liaisons in the area to help people access city services and cope with the threat. About 90% of the displaced families returned. To design the intervention, we interviewed the head of this program along with active liaisons.

preliminary findings from the qualitative work.¹⁴ There is a dearth of civilian-led and non-violent anti-gang tools worldwide. These seem important to explore.

The intervention we are studying is the city's strategy to increase its legitimacy, and to foster the knowledge and ability that citizens have to access its services at the expense of the gangs. Absent a more effective and more intensive police force, we do not expect to displace core security services provided by gangs. However, many of the functions the city is trying to provide—essentially, problem-solving—is an attempt to directly substitute for the gang's activities and test, as we mentioned before, whether criminal governance is elastic to a state's attempt to re-exert authority through intensified, day-to-day governance.

The main coordinating agency in the city government is a large civilian agency in the Mayor's office called the Secretariat of Security. They have a staff of roughly 2,000 spread throughout the city, with the aim of improving security and promoting "coexistence."¹⁵ The intervention started in April 2018, and will run at least until November 2019 (the end of the current Mayor's term).

For this study, the city government is extending and intensifying its presence and reach in 40 sectors, mainly by assigning full-time "street-level bureaucrats" to each neighborhood. They call them liaisons. Normally, the Secretariat of Security has one liaison per comuna—about 1 per 60,000 people. For the intervention, the Secretariat of Security assigned one liaison to each treatment sector (about 1 per 2,000 people). This is a 30-fold increase in street-level staff. In some neighborhoods, it is the first time the sector has had any direct outreach from the city government. Control sectors receive normal outreach and services from the city.

¹⁴ We designed the intervention over a period of roughly six months, in repeated meetings and interviews with community members and field staff from the Secretariat of Security. The main inputs we outlined included activities where gangs played a major role as providers, gangs seemed to identify such activities as out of their core scope, there was a sustained citizen demand for these issues, the state seemed to be under-providing solutions, and more, targeted and sustained state presence presented as an alternative to replace gang involvement. Some activities that exemplify these situations are common dispute resolution issues, ranging from disputes over land plot borders to presence of pet waste, and family violence and internal issues.

¹⁵ The Secretariat of Security of Medellín is a civilian agency in charge of coordinating citizen security policy and providing dispute resolution services to the community. The Secretariat manages a large share of the investment budget of other agencies involved in citizen security such as the Metropolitan Police and the Medellín branch of the Office of the Attorney General. Additionally, it runs dispute resolution offices distributed throughout the cities, called "Inspecciones de Policía." The Secretariat's yearly investment budget is usually around \$50 to \$100 million, of which the largest share is invested in technology.

Liaisons are agents responsible for advocating and coordinating service delivery. They tend to be men and women under the age of 40 with a university education. The main roles of these liaisons are to: (1) problem solve, directly resolve disputes, or connect residents to appropriate dispute resolution bodies in the government, including the police, courts, or other officials; (2) coordinate delivery of existing city services where needed, such as: education, health, welfare, legal, and maintenance services; and (3) improve formal and informal community organizations' ability to organize and obtain public resources. The idea is for the liaisons to interact with the community, get to know people individually; identify problems, capabilities, and social capital; understand the combos and nature of criminal governance in the sectors; and help build solutions from the bottom up. This implies there is not a predetermined strategy from the top, but rather that the day-to-day activities by these community organizers should be adaptive.

Second, though coordination with the liaisons, the city government is intensifying its regular services. A team in the Secretariat of Security (with the participation of other city agencies) is deploying tailored solutions upon the liaisons' request. These solutions range including: coordinating the presence of dispute resolution officials in sectors where neighbor disputes are commonplace; strategies such as Consejos de Convivencia (formal government-community meetings where city officials and community members agree on a formal list of commitments, which are then closely followed by the community until their resolution); and Caravanas de la Convivencia (massive, one weekend-long events, where the Secretariat of Security and other 20 city agencies present their services in detail and arrange changes in how such services are delivered to the community). This coordination is challenging, and in practice there are roughly 5-6 observable public events per month per sector.

Appendix A presents details on the instructions and supporting materials for the intervention, as well as on the monitoring tools developed to follow the liaisons' activities closely in each treatment sector.

3.3 Experimental design and randomization

We used a simple blocked randomized design. We blocked the sectors into pairs based on a measure of multivariate "distance" between one another using four baseline variables described in detail below: an index of crime; an index of relative visibility of the combo and the state; an index of relative governance service provided by the combo and the state; and an index of security and

drug use perceptions. For the first index we used administrative data, for the second we surveyed three leaders in each community. We used these community-level measures as we hypothesized that they would be prognostic of our main outcomes—more detailed and individual-level measures of combo and state governance and legitimacy. Within each blocked pair of sectors, we used a Stata algorithm to randomly select one into treatment.

3.4 Baseline descriptive statistics and balance

Before the intervention began, we interviewed at least two and up to three knowledgeable community leaders or field workers per sector. We have an average of 2.3 surveys per sector—80 local representatives of the Secretariat of Security and 149 resident leaders. The brief instrument had three sets of questions covering the visibility of combos, authorities and city staff; the provision of services by combos, authorities and community leaders; and insecurity perceptions. Each baseline question had an ordinal set of answers, and we imputed numbers in each case.¹⁶ In all cases, we arranged the variables such that a larger average number implies more gang visibility or governance, or more insecurity. To generate the indices, we produced z-scores for the answers to each question, aggregated those z-scores and produced a new one with the resulting sum. Additionally, we collected administrative data on a wide range of sector characteristics, including reported crimes, distance to public infrastructure and urban density.

Table 1 presents baseline means for treatment and control sectors, for standardized indexes and their component variables. We also present balance tests on all baseline characteristics, estimated using OLS regressions with block fixed effects. Note relative indices grow larger as the relative visibility or importance of the combos becomes more important. The random assignment of sectors produced the expected degree of balance along covariates.

¹⁶ For example, for the question on “How frequently do you see combo members?” the possible alternative answers were never, almost never, sometimes, and always. We imputed numbers from 0 to 3. For the question “Who resolves disputes between neighbors?” the possible answers were most times the authorities or community leaders, both, and most times combo members. We imputed numbers from 0 to 2.

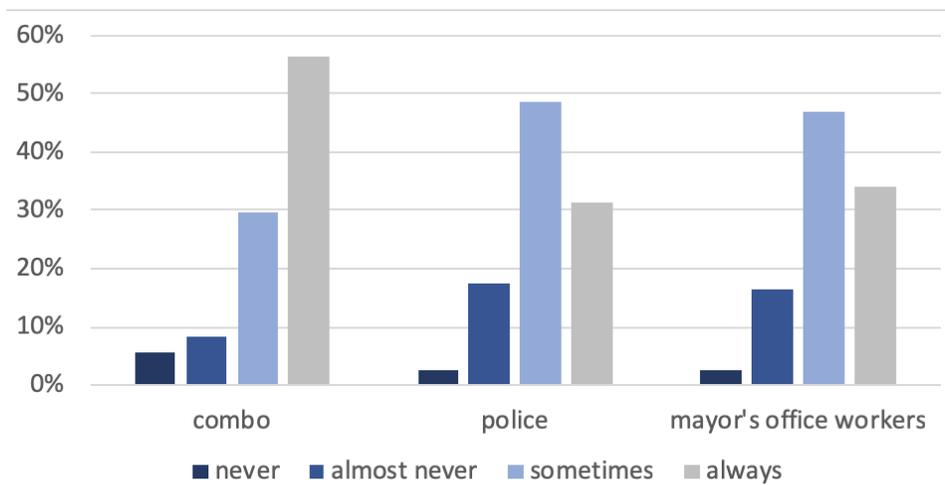
Table 1. Balance tests on baseline characteristics between treatment and control units

Covariate	Means		Differences		
	Control	Treated	Coeff	p-value	SE
Index of relative visibility of the combo and the state	0.01	-0.01	-0.02	0.876	0.13
How frequently you see combo members? (0-3)	2.38	2.35	-0.0	0.856	0.14
How rarely you see mayor city workers? (0-3)	0.87	0.90	0.03	0.767	0.10
How rarely you see police? (0-3)	0.97	0.90	-0.06	0.486	0.09
What proportion of youth engage with the combo? (0-3)	1.74	1.48	-0.27	0.027**	0.12
Index of relative service provision of the combo and the state	0.01	-0.01	-0.02	0.896	0.13
Who resolves disputes between neighbors? (0-2)	0.95	1.00	0.05	0.555	0.08
Who resolves family violence? (0-2)	0.73	0.78	0.05	0.549	0.09
Who resolves theft cases? (0-2)	1.04	1.00	-0.04	0.636	0.09
Who grants permission to use sports facilities? (0-2)	0.32	0.37	0.05	0.458	0.07
Who grants construction permits? (0-2)	0.88	0.91	0.04	0.681	0.09
Who solves infrastructure problems? (0-2)	0.12	0.18	0.05	0.293	0.05
Who solves welfare problems? (0-2)	0.25	0.26	0.01	0.890	0.08
Who regulates drug use and sales? (0-2)	1.17	1.07	-0.10	0.314	0.10
Who addresses sexual abuse cases? (0-2)	0.86	0.73	-0.13	0.112	0.08
Who addresses problems of missing people? (0-2)	0.42	0.45	0.03	0.753	0.09
Who resolves homicide cases? (0-2)	0.45	0.42	-0.03	0.776	0.09
Who grants permission to convene people to events? (0-2)	0.45	0.48	0.03	0.735	0.09
Who grants permission to participate in organizations? (0-2)	0.48	0.40	-0.08	0.279	0.07
Who grants permission to organize public parties? (0-2)	0.94	0.88	-0.05	0.533	0.08
Index of insecurity perception	0.07	-0.07	-0.14	0.228	0.11
How unsafe is it to walk during the day? (0-3)	0.61	0.61	0.00	1.000	0.08
How unsafe is it to walk during the night? (0-3)	1.33	1.42	0.09	0.345	0.09
How unsafe is it to speak on a mobile phone outside? (0-3)	1.12	1.00	-0.12	0.318	0.12
How unsafe is it to walk during the night for a man? (0-3)	1.53	1.36	-0.17	0.217	0.14
How unsafe is it to walk during the night for a woman? (0-3)	1.62	1.70	0.08	0.417	0.10
What share of youth use drugs regularly? (0-3)	2.09	1.88	-0.22	0.014**	0.08
How open and public is drug use? (0-3)	2.40	2.38	-0.02	0.837	0.11
Index of administrative crime	0.10	-0.10	-0.19	0.017**	0.08

Homicides per median sector area 2014-2017	1.51	1.26	-0.25	0.417	0.30
Gang related Homicides per median sector area 2014-2017	0.83	0.57	-0.26	0.218	0.20
Robberies per median sector area 2014-2017	18.19	14.82	-3.36	0.251	2.89
Calls for service on violence per median sector area 2014-2017	38.82	47.26	8.44	0.076*	4.62
Calls for service on drugs per median sector area 2014-2017	8.28	6.24	-2.04	0.192	1.53
Index of distance to public services and infrastructure	-0.14	0.14	0.29	0.186	0.21
Distance to the closest satellite urban center (mts)	307.88	339.75	31.87	0.642	67.99
Distance to the closest health center (mts)	273.53	330.70	57.17	0.376	63.82
Distance to the closest bus transport terminal (mts)	175.53	234.99	59.46	0.317	58.69
Distance to the closest cultural center (mts)	91.99	107.95	15.96	0.586	29.09
Distance to the closest education center (mts)	43.60	77.05	33.45	0.092*	19.36
Distance to the closest police or justice center (mts)	553.49	549.62	-3.88	0.970	100.84
Distance to the closest religious center (mts)	162.90	169.58	6.69	0.876	42.43
Total constructed area (sq. meters)	28,252.83	27,159.18	-1,093.65	0.691	2729.92
How hard is to work in the sector (city liaisons)	1.50	1.58	0.08	0.628	0.15
How hard is to work in the sector (enumerators)	1.05	1.30	0.25	0.058*	0.13

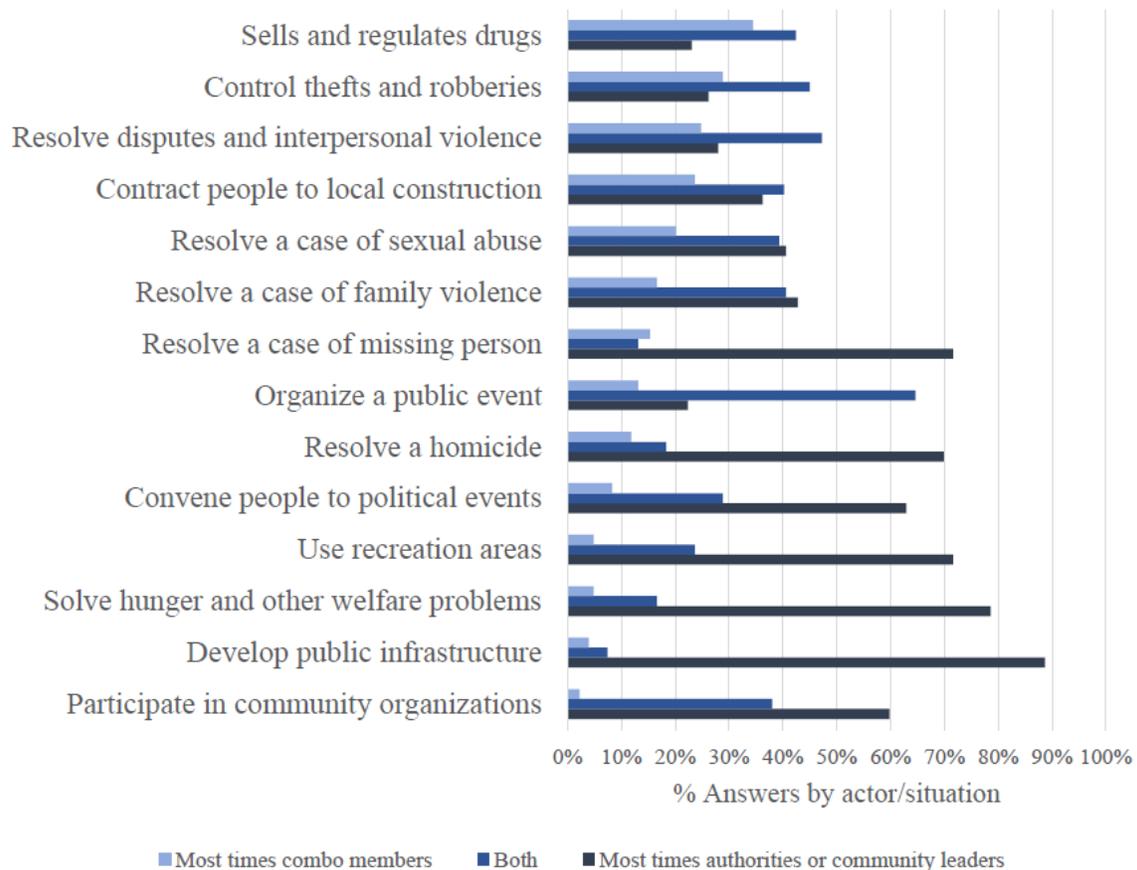
Figure 3 summarizes the information on some of the sub-components of the index of relative visibility. Notably, in many sectors, combo members are more visible than both the police and the mayor's street-level staff. Indeed, the share of respondents reporting they always see combo members is just below 60%. If we add those who report seeing combo members sometimes or always, the share is just below 90%.

Figure 3. Combo and state visibility -- Responses to “How frequently do you see these people in the sector?”



Similarly, Figure 4 summarizes the information on the sub-components for the index of relative service provision provision. The results suggest that, effectively, combos not only regulate illegal markets but directly provide state services as security and dispute resolution, and organize public events. In practice, the data suggests there is a sort of duopoly in the provision of governance and public services over some specific activities, and a more consolidated state monopoly in others. First, the combos dominate the state in regulating common crime (e.g., drug sales and use, or thefts and robberies). Second, both the combo and the state dominate the state in regulating sexual violence and property rights (e.g., preventing or punishing sexual abuse, resolving family violence, providing land and construction permits, or organizing public events). Finally, the state dominates the combos in providing infrastructure and social services (e.g., hunger or welfare programs).

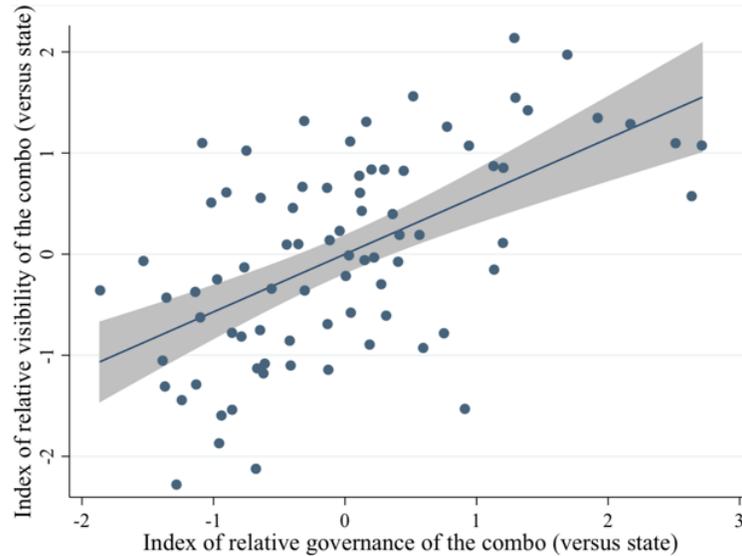
Figure 4. Combo versus state governance -- Responses to “Who solves or gives permission in the sector in the following situations?”



Importantly, our baseline measures suggest there is a great deal of variation in combo governance services. Figure 5 plots the index of relative governance of the combo and the state against the index of relative visibility of the combo and the state. Moving away from the origin implies that the respondent is more likely to see the combo than police or city staff on the streets, and more likely to turn to the combo over the authorities for the wide range of services included in the index (see Table 1 above). Not surprisingly, there is a positive correlation between the two (the correlation between both indices is 0.6). What is possibly more interesting and important is that there is a wide variation in the degree to which combos govern, even though these are all “high

combo” neighborhoods by construction. There are also many off-diagonal observations, especially in the upper right corner, implying large and ever-present combos who have chosen not to govern.

Figure 5. Correlation between relative visibility and governance of the combo



3.5 Statistical power

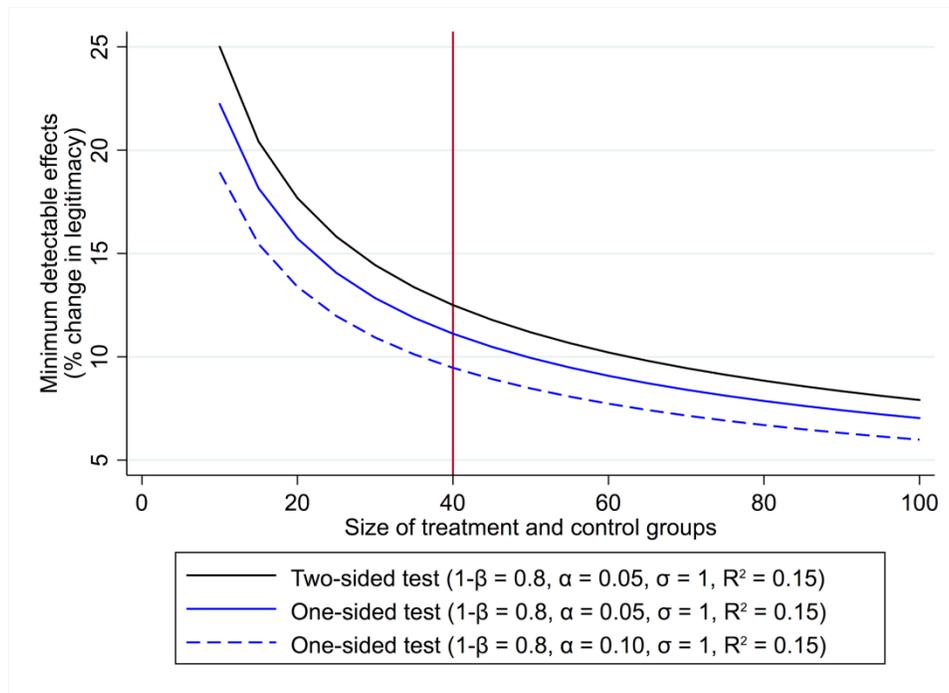
We worked with the city government to choose a treatment intensity, number of treated sectors, and total sample size to balance the need for statistical power with limits on the city’s capacity to intervene with relatively high intensity in the short term. As noted above, we have an experimental sample of 80 sectors.

With this sample size, we believe we are powered to detect improvements in state versus combo service provision and legitimacy of about 0.4 standard deviations. Put in perspective, with data on state legitimacy that a subset of the authors collected in a survey of 25,000 citizens in Bogotá in 2016, we estimate that we are powered to detect changes of 12% with a two-tailed test or 9% with a one-tailed test.¹⁷ The Bogotá experiment was a low intensity operation compared to this

¹⁷ The relatively small number of respondents in our baseline survey leads to a relatively low precision, hence we used the Bogotá data with a much larger survey to provide reasonably changes in measures of legitimacy. See Blattman et al (2018).

intervention (state presence increased roughly one hour in daily police patrolling time), and yet the authors found effects of roughly 6-8% in perceived legitimacy after 8 months. Given the high intensity of the Medellin intervention over at least 18 months, we believe improvements of this magnitude are plausible. Indeed, these are arguably the minimum effects that would confirm our hypotheses on criminal governance and also justify this public investment from a city government’s perspective.

Figure 6. Minimum detectable effects for different sample sizes



Finally, Figure 6 illustrates our power analysis using percentage changes in perceptions of legitimacy based on the Bogotá data. Note the marginal improvements in minimum detectable effects start to diminish at around 40-45 units in both the treatment and control groups (the slope is less than one), hence our decision with the city government to treat 40 sectors. If the government increases the number of treatment and control units keeping the budget for intervention constant, and we assume that intensity is a function of the available budget per sector, then the improvements in statistical power would not pay for the sacrifice in intensity.

4 Predictions and primary outcomes

4.1 Theory

As we noted above, the city's intervention is based on several assumptions: that legitimacy is rooted in effective service provision, and that criminal groups are elastic in providing these services. Unlike insurgents, criminal groups do not provide governance as part of a project of "competitive state-building" (Kalyvas 2006).¹⁸ Rather, they often fill in gaps in official governance provision as a way to gain community support and protect their criminal activities. Thus, we predict, as the state begins to provide competing services, street gangs and mafias will reduce their role rather than violently compete. Naturally, criminal motives for governing and this elasticity may vary from context to context. We hope to capture a good deal of this variation in Medellin, given the large number of gangs and mafias. As we saw above, they are highly heterogeneous in their efforts to govern.

There are similarities between the city's approach to combating criminal governance and "salami tactics" in the theoretical conflict literature (Schelling 1966, Fearon 1997). This is a game theoretic approach where the more powerful actor gradually reduces opposition "slice by slice" until the opposition realizes (too late) that its power is past the point of no return. Unlike an instance where there is a rapid shift in power, in a successful salami tactic there is in principle never any incentive for the armed groups to attack the state violently.

Our field experiment will test the validity of this cluster of assumptions and overall approach. Naturally we would prefer to test finer mechanisms and distinct theories. This is usually the privilege of the third or fourth (or tenth) field experiment or quantitative study in a field. As the first-ever large-scale experimental test of an anti-gang and criminal governance program, however, we think this relatively focused, intensive intervention is an ideal one to evaluate both from a policy and an academic perspective.

¹⁸ Criminal organizations generally do not meet the conditions that justify resistance of state expansion, as described by Blair and Kalmanovitz (2016) in their study on the rights and legitimacy of non-state actors such as warlords.

4.2 Outcomes

Measurement is obviously difficult, and one of our major activities since the baseline has been identifying ways to accurately measure criminal activity and governance at the sector level. We continue to experiment with measurement by trial and error, and will be conducting several survey experiment pilots before and during the endline survey. We pre-registered the experiment and outcomes in April 2018.¹⁹

We have two primary outcomes. The first is a measure of the relative governance roles of the combo versus the authorities, to capture citizen reports of actual service provision. The survey will emphasize governance roles our field work suggests are susceptible to the city’s intervention. The second is a measure of the relative legitimacy of the combo versus the state. We will create both indexes based on survey questions.

We have several secondary outcomes mainly related to violence, combo visibility and extortion. We do not have strong priors or hypotheses about changes in these variables. It is possible that with less legitimacy and governance, the combos find it more difficult to collect extortion. It is also possible that security could decline if the combos reduce policing services. We will measure these variables through survey questions and administrative data (on violence and criminal reports).

Finally, we will also seek to measure “first-stage” outcomes to measure levels of service delivery per sector, to assess the consistency of treatment. We will do this using survey measures on service delivery by the liaisons and the city government, and survey measures on residents’ participation and involvement in activities offered by the liaisons and the city government. We will complement with administrative data on service delivery.

4.3 Endline data collection

We will conduct an endline survey in both the experimental sample of 80 sectors and on a representative sample of the city—7 blocks per neighborhood, in roughly 230 neighborhoods. The latter “non-experimental sample” of over 1,500 blocks will allow us to monitor broader levels of

¹⁹ The American Economic Association’s registry for randomized controlled trials, RCT ID: [AEARCTR-0002622](https://www.aeaweb.org/aearegistry/rct/0002622)

criminal governance as well as assess the validity of our assumption that spillovers from treatment to control sectors are not a material concern. The current version of the instrument is included in Appendix B. We expect changes during piloting.

Within each experimental sector we will survey roughly 30 citizens and businesses. Our plan is to randomly select up to 6 blocks within each sector for data collection. In selected blocks, we will randomly select one block face and then randomly select one household or business within that block face. In cases of no response we will replace the household or business by repeating the procedure starting with the block selection. We will collect the data between late October and early December 2019.

To ensure data quality we will follow the protocols and procedures of Innovations for Poverty Action for high-frequency checks, spot checks and back checks. Appendix C describes each one in detail.

5 Empirical strategy

5.1 Main statistical analysis for treatment effects

We will estimate intention to treat (ITT) effects at the community level, combining all survey responses into a community-level outcome. We will use regression estimators to control for possible confounders and improve precision, but the estimated effects can be interpreted as mean differences. In particular, we will estimate equation (1) for our primary and secondary outcomes:

$$Y_{sb} = \beta_0 + \beta_1 T_{sb} + \gamma_b + \theta X_{sb} + \varepsilon_{sb} \quad (1)$$

where Y is the outcome in gang sector s and pair block b ; T is an indicator for assignment to the “relentless city governance” treatment; γ is a vector of pair block fixed effects (the randomization strata); and X is a vector of the main baseline indexes listed in Table 1. The coefficient of interest is β_1 . Appendix D describes the procedures to estimate treatment effects.

We will use standardized summary indices for our primary and secondary outcomes to reduce the number of hypotheses tested. Hence we will not adjust for multiple comparisons (see e.g., Kling

et al. 2007). We do not expect to have attrition on our experimental sample, as access to all gang sectors is relatively safe even (or perhaps especially) in those where criminal governance is higher.

5.2 Threats to identification and estimation

Spillovers:

One potential threat to identification is interference between experimental units.²⁰ We believe the distance between sectors is generally large enough to mitigate both risks, and designed our experimental sample with this in mind. However, we will empirically test the presence of spillovers. To do so, we will estimate a version of equation 1 above on a pooled sample of the experimental sectors and blocks in the non-experimental (representative) sample, adding an indicator for the non-experimental sample as well as a measure of proximity to the experimental sample. We will investigate a decay function as well as indicators for proximity within a radius. This is intended as a test of our identification assumption rather than our main specification. A key concern when assessing spillovers is fuzzy clustering (see Abadie et al. 2017 and Blattman et al. 2018). For example, when one sector is assigned to treatment, all other sectors (or blocks) in the surrounding are assigned to a spillover condition as a cluster. These clusters may not follow an easy to model structure (such as a sector or neighborhood) but rather are fuzzy and depend on specific geographical characteristics. We do not expect fuzzy clustering to arise in our sample, given the way in which we selected our sectors. If evidence of it does arise, to account for this problem, we will use randomization inference to produce exact p-values under the sharp null of no effect for any unit (in an approach that is agnostic of the distribution of treatment effects).

In our spillover analyzes, we will control for expected exposure to spillovers or expected weighted distance across all possible random assignments. Nonetheless, we will also test alternative methods in order to estimate direct treatment effects with confidence.

²⁰ If combos displace their governance activities to other, nearby sectors, then treatment effects would be biased upwards. If, on the other hand, there is a generalized decrease of combo activity affecting nearby sectors, then treatment effects would be biased downwards.

Treatment de-intensification in other areas:

The second source of potential interference between experimental units is treatment de-intensification outside treatment sectors. In principle, the intensification of city services in treatment sectors could come with the cost of the de-intensification in other parts of the city, including control sectors. This would not pose an identification problem, since the treatment-control difference would still be orthogonal to pre-treatment characteristics and trends. But it would change the interpretation of the treatment. In any event, we do not see this as a risk. The intensification of broader city services has generally a low marginal cost for the city, and treatment intensify per specific small sector was low all over the territory before. Moreover, all liaisons were hired by the city specifically to participate in the intervention and the opportunity cost of these hirings are not more staff for other places but any kind of investment the city could have made. Though we will not be able to fully rule out any spillovers, we closely monitored the intervention and state-citizen interactions, and qualitatively we are confident that control neighborhoods had no interaction with the services delivered (or the combos) of treatment sectors.

Measurement error:

We have taken steps to reduce experimenter demand and social desirability bias.

First, respondents have no reason to suspect that the survey has anything to do with the intervention or the city government. So at least one form of bias--experimenter demand--is unlikely to shape responses. Surveys are common in Medellin and this is just another public opinion poll as far as respondents are concerned.

Second, in advance of the endline survey, we are now piloting survey experiments for measuring sensitive behaviors and opinions. By the time the survey launches, we expect to have finished small-scale experiments that test how responses to gang governance and extortion questions change with list experiments or different forms of direct questions. We will integrate the most promising subset of these experiments into the full survey, to help assess potential social desirability. These are ongoing, and so we do not have results to share at present.

Finally, after accounting for experimenter demand effects, one can argue that any remaining social desirability bias is in some sense a feature and not a bug. The main aim of the intervention is to

raise state legitimacy and shift norms of using the state instead of the gang. Any such change in norms would also be reflected in how people respond to questions from an independent survey firm unrelated to the intervention. Of course, we would prefer to be able to distinguish actual use of combo governance from self-reported changes due to norms. Our survey experiments will help with this. But we also want to be clear that these are difficult to separate, and we cannot eliminate the risk of social desirability bias. The remaining bias is technically of interest, and so we believe it does not undermine the study overall.

Note that another alternative, direct measurement of the relevant gang activity, is inherently difficult and dangerous. Moreover, we don't expect to have treatment effects on the most visible and core gang activities (such as drug selling). The goal of the intervention is to reduce gang legitimacy and their role in harder-to-observe dispute resolution and related governance. We do not see any way to assess these fairly secretive activities. Hence we rely on the survey data with its limitations.

5.3 Heterogeneity by initial level of criminal governance

Our major form of heterogeneity analysis is by baseline level of criminal governance as measured before we launched the experiment. Specifically, we will estimate equation (1) three additional times. Each time, we will use a subsample of the $n\%$ highest criminal governance block pairs, for $n = 25, 50, 75$.

We anticipate that the highest criminal governance gang sectors will have a larger effect. This is, there will be a larger increase in the city's governance role and legitimacy and a larger decrease in that of the combos. We expect this result because the marginal improvement in the city's governance capacity should be more important in places where it was lower at baseline, provided treatment intensity is relatively homogeneous across sectors. We acknowledge, however, the fact that combo governance competition will also be stronger in those sectors. This might outweigh the larger marginal improvement in the city's governance, so there is still uncertainty on the direction of the final outcome.

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Appendices

A. Instructions and supporting materials for the intervention

Intervention activities

The Secretariat of Security of Medellin is responsible for the implementation of the program and the assignment of a micro liaison to each of the 40 treated sectors. The Secretariat outlined the goals of the field team as follows:

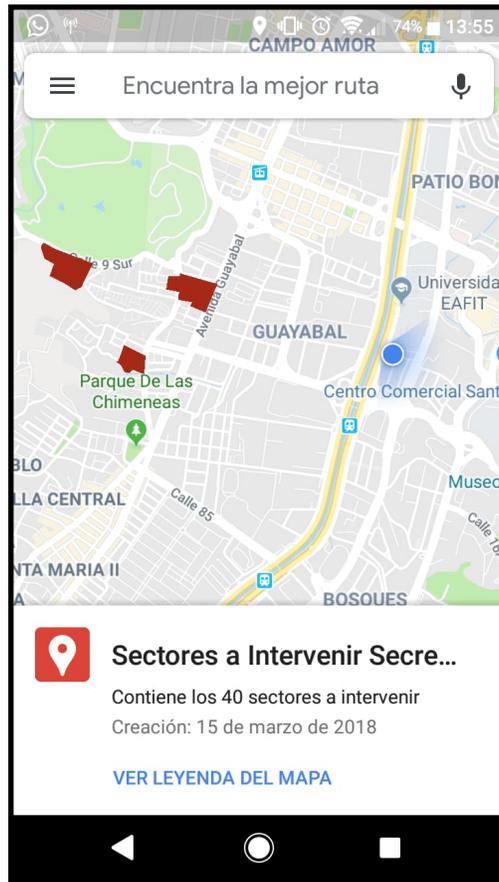
- Map the security and convivencia issues of the assigned territory
- Convene meetings between state actors and the community (2 per year)
- Diagnose security or public nuisance issues (4 per month)
- Answer security or public nuisance issues (2 per month)
- Train citizens as security and public nuisance facilitators
- Disseminate information about the security and public nuisance law (monthly meeting or house visits)
- Discuss identified issues on security and public nuisance with the community (2 per month)

Materials and training sessions

At the beginning of the intervention the micro liaisons received a map of their assigned territory, the name of the territory (based on the official neighborhood where its located) and a unique sector code generated for the intervention. Also, they received a link to a google map with all 40 treated sectors. With this, they could identify the borders of their territories using GPS in real time. Finally, the evaluation team at the Secretariat of Security walked the borders of each of these territories with their assigned micro liaisons to make sure they knew the territory they are responsible for.

In February 2018, the field team of the Secretariat of Security held a one week training for the micro liaisons. In this training, the micro liaisons learned techniques to identify the security and convivencia problems in their neighborhood and the tools and programs the Mayor Office has implemented in these territories. They also discuss the safety protocols the micro liaisons must follow in field. In February of 2019, the Secretariat of Security held a mandatory three day training to update microliaisons on changes to the intervention.

Figure A.2: Screenshot of the google maps tool given to the micro liaisons



Follow up instrument and meetings

The Secretariat of Security developed a Google form where the micro liaison record their activities in the field. This instrument includes the unique code of the territory, the type of the activity completed, the number of participants and the gps location of the activity. All these activities must include evidence of the activity, usually a photograph, a list of participants and meeting minutes (if applicable). The Secretariat of Security uses this information to follow up with each of the micro liaisons and the evaluation team uses this for compliance purposes.

Finally, the Secretariat of Security and the evaluation team have monthly meetings with each of the micro liaisons to discuss their progress, the implementation issues and how to deal with them.

Figure A.3: Screenshot of the google form used by the Secretariat of Security to record micro liaisons activities

QUESTIONS RESPONSES 488

Dirección *

Short answer text

Georreferenciación *

Short answer text

Fecha *

Month, day, year 

Comportamiento contrario a la convivencia atendido *

1. Actos de discriminación
2. Agredir, permitir o inducir al maltrato físico o abuso hacia otros
3. Almacenamiento o distribución de bienes ilícitos, drogas o sustancias prohibidas
4. Amenazar o agredir verbalmente a otros
5. Consumir o permitir el consumo de bebidas alcohólicas, drogas o sustancias prohibidas en el espacio público o luga...

B. Current version of the survey instrument

Note: We will submit the final version of the instruments before launching the end-line data collection. Below are the details of the current version for pilots, as of July 2019.

Residents Instrument

Resident questionnaire

2019-10-07

Conventions for the surveyor:

- *Italic: Do not read. Information for the respondent.*
- **Bold:** Important information. Read text with emphasis.
- NR: No response. This option should never be read. Select this option when the respondent does not know or refuses to answer the question.
- Single selection: Multiple options, only one answer. Identified with a circle.
- Multiple selection: Multiple options, multiple responses. Identified with a square.

Module I: Questions Surveyor (Fill before addressing the respondent)

Name of the surveyor	Date			District	Neighborhood
	Day	Month	Year		
	DD	MM	YY		

**** Interviewer: Here, you have to collect the informed consent!**

(Surveyor: Before starting the survey make sure that you and the respondent are in a place where they have privacy, that is, that there are no people around who can listen to the respondents' responses.

If there is no privacy, politely ask the interviewee that they move to a part of the home or business where there is privacy.

If the above is not possible, politely ask the interviewee to tell people who are preventing privacy, to give them a moment of privacy while answering the survey.)

**** START OF THE SURVEY ****

Start time of the survey (hh: mm): _____

In this survey, we will talk about the sector in which you live and how you perceive it. We understand by sector where your house is located and the blocks around.

Module II: Demographic

1. (Do not read): Sex of the respondent

Single selection

- a. Male _____
- b. Female _____

2. Your age is between...

Single selection

(Surveyor: do not read the "NR" option.)

- a. 18 and 25 _____
- b. 26 and 40 _____

- c. 41 and 64 _____
- d. 65 and more _____
- e. (Do not read): NR _____

3. How long have you been living **in this sector**?

Numerical answer

(Interviewer: record the answer in number of years and months. Example: if the respondent says: "a year and a half", write 1 year 6 months. If the respondent says that it takes less than a month, for example, 20 days, you must write 0 years 20 months. If the respondent says: "two and a half months", you must write 0 years 2 months)

____ years ____ months

Module III: Intervention of actors

Sometimes when people from Medellín encounter problems, actors such as the Mayor's Office, the police or the combo intervene.

4. *(Surveyor: show the respondent the P4 card.)*

I am going to read some situations that **could happen in this sector** and according to this scale of always intervene, frequently intervene, rarely intervene or never intervene, you will tell me how often **the mayor's office**, the **police** or the **combo** intervenes.

Let's try. According to this scale...

Unique selection

(Interviewer: If the person does not know, say: "respond based on what you believe." Do not read the "NR" option, or "This situation does not happen")

		Always intervene	Frequently intervene	Rarely intervene	Never Intervene	(do not read) This situation never happens	(do not read) NR
In this sector , When someone doesn't pick up after their dog, how often does the...	... Mayor's office or the police intervene?						
	... combo intervene?						

Now. According to this scale...

Unique selection

(Interviewer: If the person does not know, say: "respond based on what you believe." Do not read the "NR" option, or "This situation does not happen")

		Always intervene	Frequently intervene	Rarely intervene	Never Intervene	(do not read) This situation never happens	(do not read) NR
In this sector , when someone refuses to pay a person a large debt to someone else, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when there is domestic violence, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when two drunks fight in the street, how often do the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when intoxicated people are fighting in the street, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						
In this sector , when someone does home improvements and affects a neighbor's house, how often does the ...	... Mayor's office or the police intervene?						
	... combo intervene?						

<p>In this sector, when someone is making noise and the neighbors can't sleep, how often does the ...</p>	<p>... Mayor's office or the police intervene?</p>						
	<p>... combo intervene?</p>						
<p>In this sector, when someone is smoking marijuana near children, how often does the ...</p>	<p>... Mayor's office or the police intervene?</p>						
	<p>... combo intervene?</p>						
<p>In this sector, when someone is mugged on the street, how often does the ...</p>	<p>... Mayor's office or the police intervene?</p>						
	<p>... combo intervene?</p>						
<p>In this sector, when a motorbike is stolen, how often does the ...</p>	<p>... Mayor's office or the police intervene?</p>						
	<p>... combo intervene?</p>						
<p>In this sector, someone is threatening someone else, how often does the ...</p>	<p>... Mayor's office or the police intervene?</p>						
	<p>... combo intervene?</p>						
<p>In this sector, when it is necessary to prevent theft, that is to prevent people from happening, how often does the ...</p>	<p>... Mayor's office or the police intervene?</p>						
	<p>... combo intervene?</p>						
<p>In this sector, when you have to react to a robbery, that is</p>	<p>... Mayor's office or the police intervene?</p>						

happening, how often does the combo intervene?						
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Module IV: Events and meetings

Now I am going to ask you about the events and meetings held by the Mayor's Office in this sector.

5. Tell me please ...

Unique selection, spontaneous response.

(Interviewer: do not read the "NR" option.)

	Yes and you attended	Yes but you did not attend	No	(do not read) NR
During the last 12 months have you seen in this sector public events carried out by the Mayor's Office ?				
During the last 12 months , have you seen meetings in this sector that are held by the neighborhood to discuss the problems of the neighborhood?				

6. During the **last 12 months** , have you seen **Mayoral employees** in this sector?

Unique selection, spontaneous response.

(Interviewer: do not read the "NR" option.)

- a. Yes and you interacted with them _____
- b. Yes but you did not interact with them _____
- c. No _____
- d. *(Do not read)*: NR _____

Module V: Own perception of the actors

Now we will talk about your perception of Mayor's employees, the police officers and the combo members.

7. *(Interviewer: show the respondent the P7 card)*

Assume that in this sector you have a problem with a neighbor. According to this scale of always, almost always, almost never or never: To solve this problem, how often would you go to ...

Single selection.

(Interviewer: do not read the “NR” option. If the respondent tells you that you have no problems with a neighbor, remind him that it is an assumption and say: “But what would you do if it happened to you?”)

	Always	Almost always	Almost never	Never	(do not read) NR
... to a Mayoral employee ?					
... a police officer ?					
... a combo member ?					

8. (Interviewer: show the P8 card to the respondent)

Suppose that in this sector a minor is sexually abused. According to this scale of always, almost always, almost never or never: How often would intervene ...
only Selection.

(Interviewer: do not read the “NR” option. If the respondent tells you that this has not happened, remind him that it is an assumption and say: “But, if this happened?”)

	Always	Almost always	Almost never	Never	(do not read) NR
... a Mayoral employee ?					
... a police officer ?					
... a combo member ?					

10. (Interviewer: show the respondent the P10 card)

According to this scale of very difficult, difficult, easy or very easy: How easy is it to contact ...

Single selection.

(Interviewer: do not read the “NR” option)

	Very difficult	Difficult	Easy	Very easy	(do not read) NR

... the Mayor's office when you need them in this sector ?					
... the police when you need them in this sector ?					
... the combo when you need them in this sector ?					

11. (Surveyor: show the respondent the P11 card)

According to this scale of very good, good, bad or very bad: How do you rate what ...

Unique selection.

(Interviewer: do not read the "NR" option. If the person says regular or another option say "But on the scale I gave him.")

	Very good	Good	Bad	Very bad	(do not read) NR
...the Mayor's office does for this sector ?					
... the police do for this sector ?					
... the combo do for this sector ?					

12. (Surveyor: show the respondent the P12 card)

According to this scale of much better, better, worse or much worse: How would **this sector be without** the...

Single selection.

(Interviewer: do not read the "NR" option. If the person says the same or another option, say "But on the scale I gave him.")

	Much better	Better	Worse	Much worse	(don't read) NR
... Mayor's office staff ?					
... police officers ?					
... combo members ?					

13. (Surveyor: Show the respondent the P13 card)

According to this scale of very much, something, a little or not at all: How much do you trust in...

Unique selection.

(Interviewer: do not read the "NR" option)

	Very much	Somewhat	A little	Not at all	(do not read) NR
... the Mayor's office staff?					
... the police officers ?					
... the combo members?					

14. (Interviewer: show the respondent the P14 card)

According to this scale of very fair, somewhat fair not very fair or not fair at all: **when conflicts have to be resolved in this sector:** How fair are the...

Single selection.

(Interviewer: do not read the "NR" option)

	Very fair	Somewhat fair	Not very fair	Not fair at all	(do not read) NR
... Mayor's office staff?					
... police officers?					
... combo members?					

15. (Surveyor: show the respondent the P15 card)

According to this scale, to solve a problem in **this sector**, how fast are ...

Unique selection.

(Interviewer: do not read the "NR" option)

	Very fast	Somewhat fast	Somewhat slow	Very slow	(do not read) NR
... the Mayor's staff?					
... the police officers?					
... the combo members?					

Module VI: Perception of third parties about the actors

Now, we will talk about what you think your neighbors think about the Mayor's Office, the police and the combo.

16. (Surveyor: show the respondent the P16 card)

Think about your neighbors. According to this scale of very good, good, bad or very bad: How do you think **your neighbors rate...**

Unique selection.

(Interviewer: do not read the "NR" option)

	Very good	Good	Bad	Very bad	(do not read) NR
... what the Mayor's office staff does for this sector ?					
... what the police does for this sector ?					
... what the combo member does for this sector ?					

17. (Surveyor: show the respondent the P17 card)

According to this scale of much, little, something or nothing: How much do you think **your neighbors trust...**

Unique selection.

(Interviewer: do not read the "NR" option)

	Much	Somewhat	Little	Nothing	(do not read) NR
... Mayor's office staff ?					
... police officers ?					
... combo members ?					

Module VII: Payments

Now we are going to ask another type of question

(Interviewer: With this example make sure the respondent understands the structure of the question)

18. (Interviewer: show card P18)

I am going to show you some situations. You will read them and you will tell me **how many** of them are true **for you**. Your answer should be a number between 0 and 4. Remember not to tell me which ones are true, but how many are true.

Unique selection, spontaneous response.

- You are Colombian
- You are of legal age
- You live in Medellín
- You have a pet

(Interviewer: Once the person gives you their answer, check what the correct answer should be according to the characteristics of the respondent. If it is not correct, ask the question again to make sure the person understands the methodology.)

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. (do not read) NR ___ We

Now, we will talk about some situations that may arise in this home.

18-0. (INTERVIEWER: Show the respondent the card P18-0)

I'll show a card with 4 problems that sometimes arise in the neighborhoods of the city. I am going to read you the situations and you are **not** going to tell me **which ones** have happened to you, **but** will tell me **how many** of them have happened **to this house** in the **last 12** months. Your answer must be a number between 0 and 4.

Unique selection, spontaneous response.

- Neighbors have invented a gossip about someone from this house
- A neighbor has not let you sleep because of noise
- You have found dog poop around this house
- The electricity or water bill has reached very high

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. (do not read) NR ___

18-1. (Surveyor: show the respondent the card P18-1)

I will show you a card with 5 problems that sometimes occur in the neighborhoods of the city. I am going to read the situations and you are **not** going to tell me **which ones** have happened to you, **but** you will tell

me **how many** of them have happened **to this house** in the **last 12 months**. Your answer must be a number between 0 and 5.

Unique selection, spontaneous response.

- **Neighbors spread false gossip about someone in this house**
- **A neighbor would not let you sleep because of noise**
- **You have found dog poop around this house**
- **This house has been extorted**
- **The electricity bill or water bill was very high**

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. 5 situations ___
- g. (do not read) NR ___

Remember that this survey is completely anonymous, which means that your identity or that of your home will never be disclosed.

19A. We know that the **combo** charges extortion to some houses in the city either for security, for parking of vehicles or motorcycles, etc., but we do not know exactly what the value of that fee is. Therefore, we would like to know: how much does **this house** pay for extortion?

Numerical answer

(Interviewer: If the answer is "You know you pay but not how much" put 1, if you say it varies, enter the last value you paid. Do not read the "NR" option)

- a. \$ _____ *(If it is zero go to question 20)*
- b. (Do not read): NR *(Go to question 20)*

19B. How often does **this house** pay extortion?

Single selection, spontaneous response

(Interviewer: do not read the "NR" option.)

- a. Daily ___
- b. Weekly ___
- c. Biweekly ___
- d. Monthly ___
- e. Quarterly ___
- f. Semiannual ___
- g. Annual ___
- h. (do not read) NR ___

19C. Does **this house** pay extortion because there is a business here or they provide a service?

Single selection

(Interviewer: do not read the "NR" option.)

- a. Yes
- b. No
- c. (do not read) NR ____

Remember that this survey is completely anonymous, which means that your identity or business identity will never be disclosed.

20. We know that the **combo** charge extortion to some houses in the city either for security, for parking of vehicles or motorcycles, etc. Do you think **the houses from this sector** have they paid extortion in **the last 12 months**?

Single selection

(Interviewer: do not read the "NR" option.)

- d. Yes
- e. No
- f. (do not read) NR ____

21. **Let's talk about the businesses in this sector.** We know that the **combo** charges extortion to some **businesses** in the city. Do you think that the **business from this sector** have they paid extortion in **the last 12 months**?

Single selection

(Interviewer: do not read the "NR" option.)

- a. Yes ____
- b. No ____
- c. (do not read) NR

Module VIII: Perception of payment of fees and taxes

22. (Surveyor: show the respondent the P22 card)

We know that throughout the city, the **combo** charges for activities such as protection for people, homes, businesses in the sector or for solving problems between neighbors. Please answer yes or no.

Unique selection.

(Interviewer: do not read the "NR" option)

	Yes	No	(do not read) NR
Is it okay that the combo charge people in exchange for protecting people, homes, businesses in the sector or solving problems between neighbors?			
Are the fees that the combo charge people for these activities very high ?			

23. (Surveyor: show the respondent the P22 card)

We know that throughout the city, the **Mayor's office** collects **taxes** in exchange for the services it offers. Please answer with yes or no.

Unique selection.

(Interviewer: do not read the "NR" option)

	Yes	No	<i>(do not read)</i> NR
Is it good that the Mayor's office charges taxes in exchange for the services it offers?			
Are the taxes that the Mayor's office charge for the services it offers very high ?			

Module XI: Other activities

Remember that this survey is completely anonymous, which means that your identity or that of the household will never be disclosed.

24. Does the combo participate in politics by campaigning for a candidate for mayor, council or Local Action Board or donating to one candidate over another?

Single selection

(Surveyor: do not read the "NR" option.)

- d. Yes ___
- e. No ___
- f. *(do not read)* NR

25. Have you felt pressured to vote for a candidate for mayor, council or Local Action Board that the boys support ?

Single selection

(Interviewer: do not read the "NR" option.)

- g. Yes ___
- h. No ___
- i. *(do not read)* NR

26. **In this sector** ¿Are there people who offer loan sharking or informal debts?

Single selection

(Interviewer: do not read the "NR" option.)

- j. Yes ___
- k. No ___
- l. *(do not read)* NR

27. Have you or someone in your household have used this credits in the **last 12 months**?

Single selection

(Interviewer: do not read the "NR" option.)

- m. Yes ___
- n. No ___
- o. *(do not read)* NR

**** END OF SURVEY ****

Time to complete the survey (hh: mm): _____

Module X: Questions for the Surveyor

26. *Did you have any encounters with the combo during the survey?*

Yes ___ No___

27. *How would you describe the interviewee's status during the survey?*

- a. *Calmed*
- b. *Hurried*
- c. *Nervous or afraid*
- d. *Angry*
- e. *Other* _____

28. *How would you describe the information given by the respondent?*

- a. *Totally false*
- b. *Partially false*
- c. *Partially true*
- d. *Totally true*

29. *What other observations do you have about the interview with the respondent?*

Businesses instrument

Business questionnaire

2019-10-15

Conventions for the surveyor:

- *Italic: Do not read. Information for the respondent.*

- **Bold:** Important information. Read text with emphasis.
- **NR:** No response. This option should never be read. Select this option when the respondent does not know or refuses to answer the question.
- **Single selection:** Multiple options, only one answer. Identified with a circle.
- **Multiple selection:** Multiple options, multiple responses. Identified with a square.

Module I: Questions for the Surveyor (Fill out before addressing the respondent)

Name of the surveyor	Date			District	Neighborhood
	Day	Month	Year		
	DD	MM	YY		

(Do not read): Type of business:

Single selection

(Surveyor: if the business fits in more than one category , select the main one)

- a. *Grocery stores, mini-shops and supermarkets, cigar shops, butcheries, salsa vendors.*
- b. *Prepared food (restaurants, cream sales, food stalls, bakeries).*
- c. *Hairdressers, barber shops and beauty salons.*
- d. *Clothing or footwear stores, tailors, cobblers.*
- e. *Motorcycle repair, car repair, sale of spare parts.*
- f. *Hardware stores, sale of construction material, warehouses, scrap yards, locksmiths, glassworks and sale of paintings.*
- g. *Bars, discos, taverns, liquor sales.*
- h. *Billiards, casinos, entertainment.*
- i. *Stationary vendors, internet services and calls, variety stores.*
- j. *Laundry, parking.*
- k. *Carpentry, cabinetry, furniture factories.*
- l. *Pawn shop.*
- m. *Doctor's office, pharmacy, health and herbal stores.*
- n. *Tech stores, cell phones, computers and photographic studios.*
- o. *Pet food and accessories store, pet store, veterinary.*
- p. *Other businesses that do not fall into the previous categories. Which? _____*

**** Surveyor: Here read the informed consent!**

(Surveyor: Before starting the survey make sure that you and the respondent are in a place where they have privacy, that is, that there are no people around who can listen to the respondents' responses.

If there is no privacy, politely ask the interviewee that they move to a part of the home or business where there is privacy.

If the above is not possible, politely ask the interviewee to tell people who are preventing privacy, to give them a moment of privacy while answering the survey.)

**** START OF THE SURVEY ****

Start time of the survey (hh: mm): _____

**In this survey, we will talk about this business and the sector.
We understand by sector where your business is located and the blocks around.**

Module II: Demographics

1. (Do not read): Sex of the respondent

Single selection

- a. Male _____
- b. Female _____

2. Your age is between...

Single selection

(Surveyor: don't read the "NR" option.)

- a. 18 and 25 _____
- b. 26 and 40 _____
- c. 41 and 64 _____
- d. 65 and more _____
- e. (Do not read): NR _____

3. How long has this business been in this sector?

Single selection

(Interviewer: record the answer as number of years and months. Eg: if the respondent says: "a year and a half", you must write _1_ years _6_ months. If the respondent says that it takes less than a month, for example , 20 days, you must write _0_ years _0_ months)

___ years ___ months

4. How long have you worked in this business?

Single selection

(Interviewer: record the answer as number of years and months. Eg: if the respondent says: "a year and a half", you must write _1_ years _6_ months. If the respondent says that it takes less than a month, for example , 20 days, you must write _0_ years _0_ months)

___ years ___ months

5. What is your role in this business?

Single selection

- a. Owner
- b. Administrator or manager
- c. Employee or unpaid partner
- d. Other. Which one? _____

6. What activities are you in charge of in this business? I am going to read you a list of activities and I want you to say “yes” or “no” for each of them.

Unique selection

Serving customers	Yes	No
Keeping accounts	Yes	No
Buying supplies	Yes	No
Administering or managing the business	Yes	No

7. How many people work in this business including you?

Numerical answer

(Interviewer: do not read the “NR” option)

_____ NR ____

Now, I am going to ask you for the clients which this business receive on a good and on a bad day.

8. How many clients does this business receive on a **good** day?

Numerical answer

(Interviewer: do not read the “NR” option)

_____ NR ____

9. How many clients does this business receive on a **bad** day?

Numerical answer

(Interviewer: do not read the “NR” option)

_____ NR ____

We know that businesses face different situations depending on their size. We don't want to ask you about the exact sales and profits of your business. However, it is important to know what category your business is in. That is why I am going to ask you about the sales and profits of this business in a good month and a bad month.

10. (Interviewer: show the respondent the P10 card.)

Using this card, please tell me how much **sales** this business in a **normal month**

Single selection

(Interviewer: do not read the "NR" option. Ask the respondent if they prefer that you give them daily values or monthly Read the ranges carefully until the person indicates a response option.)

a.	Less than 1.5 million pesos per month	Less than 50 thousand pesos per day
b.	Between 1.5 million and 4.5 million pesos per month	Between 50 thousand and 150 thousand pesos per day
c.	Between 4.5 million and 12 million pesos per month	Between 150 thousand and 400 thousand pesos per day
d.	Between 12 million and 30 million pesos per month	Between 400 thousand and 1 million pesos per day
e.	More than 30 million pesos per month	More than 1 million pesos per day
f.	(not read or display on card) NR	(not read or display on card) NR

11. (INTERVIEWER: P9 show the respondent the card)

Now, using this card, please tell me how **profits** this business in a **typical month** after removing costs

Selection unique

(Interviewer: do not read the "NR" option. Ask the respondent if they prefer you give them the daily or monthly values. Read the ranges carefully until the person indicates an answer option.)

a.	Less than 300 thousand pesos per month	Less than 10 thousand pesos per day
b.	Between 300 thousand and 900 thousand pesos a month	Between 10 thousand and 30 thousand pesos a day
c.	Between 900 thousand and 2.4 million pesos per month	Between 30 thousand and 80 thousand pesos per day
d.	Between 2.4 million and 6 million pesos per month	Between 80 thousand and 200 thousand pesos per day
e.	More than 6 million pesos per month	More than 200 thousand pesos per day
f.	(do not read or show on card) NR	(do not read or show on card) NR

12. Now I would like to ask you what security measures are implemented in this business to prevent theft and other crimes. I am going to read you a list of security measures and I want you to say "yes" or "no" for each of them.

(Interviewer: do not read the “NR” option)

The business has bars on the windows and / or doors	Yes	No	NR
The business has a security door or armored door	Yes	No	NR
The business has security dogs that take care of it	Yes	No	NR
The business has surveillance or security cameras	Yes	No	NR
The business has an alarm	Yes	No	NR
The business has the cell phone number of the police quadrant	Yes	No	NR
The business has one or more private security guards	Yes	No	NR
The business is part of a community vigilance committee or a citizen security front	Yes	No	NR

Module III: Intervention of actors

Sometimes when Medellin businesses have problems, actors such as the Mayor's Office, the police or the combo members intervene in them .

13. (Interviewer: show the respondent the P13 card.)

Occasionally, when Medellin businesses are faced with problems, actors such as the Mayor's office, the police or the combo members intervene in them. According to this scale...

Single selection

(Interviewer: If the person does not know, say: “respond based on what you believe.” Do not read the option “NR”, or “This situation does not happen”)

		Always intervene	Frequently intervene	Rarely intervene	Never Intervene	(do not read) This situation never happens	(do not read) NR
In this sector , when a client does not want to pay what he was entrusted with, how often do...	... the Mayor's office or the police intervene?						
	... the combo intervenes?						

In this sector , when businesses in this sector are robbed of money or products, how often do...	... the Mayor's office or the police intervenes?						
	... the combo intervenes?						
In this sector , when a person disturbs a business, how often do...	... the Mayor's office or the police intervenes?						
	... the combo intervenes?						
In this sector , when it is necessary to prevent future theft, how often do...	... the Mayor's office or the police intervenes?						
	... the combo intervenes?						
In this sector , when you have to react to a robbery that is happening , how often do...	... the Mayor's office or the police intervenes?						
	... the combo intervenes?						

Module IV: Payments

14. (Interviewer: show card P14)

I am going to show you some situations. You will read them and you will tell me **how many** of them are true **for you**. Your answer should be a number between 0 and 4. Remember not to tell me which ones are true, but how many are true.

Unique selection, spontaneous response.

- You are Colombian
- You are of legal age
- You live in Medellín
- You have a pet

(Interviewer: Once the person gives you their answer, check what the correct answer should be according to the characteristics of the respondent. If it is not correct, ask the question again to make sure the person understands the methodology.)

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. (do not read) NR ___

14-0. *(Surveyor: show the respondent the P14-0 card)*

I am going to show you a card with 4 problems that sometimes happen to the city's businesses. I am going to read you the situations and you are **not** going to tell me **which ones** have happened to you, **but** you will tell me **how many** of them have happened **to this business** in the **last 12 months**. Your answer must be a number between 0 and 4.

Unique selection, spontaneous response.

- A client has left the business without paying
- The accounts of the business have been imbalanced
- The business has closed during a holiday
- A client has paid with fake currency

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. (do not read) NR ___

14-1. *(Interviewer: show the respondent the P14-1 card)*

I will show you a card with 5 problems that sometimes happen to the city's businesses. I am going to read you the situations and you are **not** going to tell me **which ones** have happened to you, **but** you will tell me **how many** of them have happened **to this business** in the **last 12 months**. Your answer must be a number between 0 and 5.

Unique selection, spontaneous response.

- A customer has left the business without paying
- The accounts of the business have been imbalanced
- The business was closed during a holiday
- The business has been extorted
- A customer has paid with fake currency

- a. 0 situations ___
- b. 1 situation ___
- c. 2 situations ___
- d. 3 situations ___
- e. 4 situations ___
- f. 5 situations ___
- g. (do not read) NR ___

Remember that this survey is completely anonymous, which means that your identity or business identity will never be disclosed.

15A. We know that the **combo members** charge an extortion to some businesses in the city, either to prevent theft, to guard, escort them while they open or close, etc., but we don't know exactly what the value of that fee is. Therefore, we would like to know: how much does **this business** pay for extortion?

Numerical answer

(Interviewer: If the answer is "Know you pay but not much" place 1, if says that varies place the last value you paid not read the "NR" option.)

- a. \$ _____ (If zero skip to question 16. The value can be zero)
- b. (Do not read): NR (Go to question 16)

15B. How often does **this business** pay for extortion?

Unique selection, spontaneous response

(Interviewer: do not read the "NR" option.)

- a. Daily ___
- b. Weekly ___
- c. Biweekly ___
- d. Monthly ___
- e. Quarterly ___
- f. Biannual ___
- g. Annual ___
- h. (do not read) NR ___

Remember that this survey is completely anonymous, which means that your identity or business will never be disclosed.

16. We know that the **combo members** charge an extortion to some businesses in the city either to prevent theft, to guard, escort them while they open or close, etc. Do you think that **the other businesses in this sector** have paid extortion in **the last 12 months**?

Single selection

(Interviewer: do not read the "NR" option.)

- a. Yes
- b. No
- c. (do not read) NR ____

17. If businesses in this sector refuse to pay extortion:

Single selection

(Interviewer: do not read the "NR" option.)

				Only if you answer yes to the previous question,			
Do you think the combo members would assault the business owner or employees?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would steal the products or the business silver?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would damage the premises or the business assets?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would threaten the owner or employees of the business?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would threaten the life of the owner or the employees of the business?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would stop taking care of the business?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR
Do you think the combo members would do nothing and let the business continue working normally?	Yes	No	NR	Has this happened in this sector?	Yes	No	NR

Remember that this survey is completely anonymous, which means that your identity or business identity will never be disclosed.

18. We know that throughout the city, it is normal for some businesses to have the ability to pay taxes and others not. During the last year has this business paid taxes?

Single selection

(Interviewer: do not read the "NR" option.)

- a. Yes ___
- b. No ___ (Go to question 19)
- c. (do not read) NR ___ (Go to question 19)

18B. How much does this business pay in taxes?

Numerical answer

(Interviewer: do not read the "NR" option or "know what you pay but not how much")

- a. \$ _____ (The answer cannot be zero)
- b. (do not read) Know that you pay but not how much
- c. (do not read) NR ___

18C. How often does **this business** pay taxes?

Single selection, spontaneous response

(Interviewer: do not read the "NR" option.)

- a. Daily ___
- b. Weekly ___
- c. Biweekly ___
- d. Monthly ___
- e. Quarterly ___
- f. Biannual ___
- g. Annual ___
- h. (do not read) NR ___

Module V: Perception of payment of fees and taxes

19. (Surveyor: show the respondent the P19 card)

We know that throughout the city, **combo members** charge for activities such as caring for people, homes, businesses in the sector or for solving problems between neighbors. Please answer yes or no

Single selection.

(Interviewer: do not read the "NR" option)

	Yes	No	(do not read) NR
Is it okay for the boys in this neighborhood to charge businesses in exchange for caring for people, homes, businesses in the sector, or solving problems between neighbors?			
Are the fees that the boys in this neighborhood charge to businesses for these activities very high?			

23. (Surveyor: show the respondent the P22 card)

We know that throughout the city, the **Mayor's Office** collects **taxes** on people in exchange for the services it offers. Please answer yes or no.

Unique selection.

(Interviewer: do not read the "NR" option)

	Yes	No	(do not read) NR
Is it okay for Mayor's office to collect business taxes in exchange for the services it offers?			
Are the taxes that the Mayor's office charge to businesses for the services it offers very high?			

**** END OF THE SURVEY ****

Time of completion of the survey (hh: mm): _____

Module VI: Questions for the Surveyor

24. Time of completion of the survey _____

25. Did you have any encounters with the combo members during the poll?

Yes ___ No ___

26. How would you describe the respondent's status during the survey?

- a. Calmed
- b. Hurried
- c. Nervous or afraid
- d. Angry
- e. Other _____

27. How would you describe the information given by the respondent?

- a. Totally false
- b. Partially false
- c. Partially true
- d. Totally true

28. Why did the person refuse to answer the survey?

29. *What other observations do you have about the interview with the respondent?*

C. Data quality assessments and procedures

We will follow Innovations for Poverty Action’s protocols for research, including an operational plan that covers timelines, staffing needs, logistics, and procurement for surveys, for all stages including questionnaire development, training, piloting, tracking, interviews, and quality assurance. Quality assurance includes a plan to execute High Frequency Checks, Back Checks and Spot Checks during the data collection process.

High Frequency Checks

A high-frequency check (HFC) is a check that is routinely performed on a survey/research dataset as it is being collected to monitor the quality of the data collection process and flag any potential issues. HFCs are similar in concept to the quality assurance (QA) checks that are commonly used in the tech sector for validating and cleaning server-side data; however, when referring to an HFC we make 2 important assumptions:

- The data are collected via survey or other active collection process.
- The intended use of the data is to answer research question(s).

These assumptions focus our definition of the "quality" of our data to more clearly mean the data's ability to provide accurate and unbiased estimates of the outcomes and covariates of interest in our research study.

At IPA, HFCs are typically implemented in Stata, after the data have been downloaded, imported, and minimally cleaned. While the types of checks included among the HFCs can vary from project to project, they typically include checks of:

- Anomalous entries or submissions (e.g. outliers, duplicates, illogical responses, etc.)
- The consistency of data across forms/survey rounds

- The functioning of the survey program
- The performance of the enumerators
- General measures of "quality" (e.g. missingness, nonresponse, timing, etc.)

Given the wealth of information they can provide, it's hard to overstate just how important consistent implementation of HFCs are. Indeed, the ability to run faster and more detailed HFCs is one of the MAJOR advantages of digital data collection vis-a-vis paper.

To help projects run HFCs more efficiently, IPA has developed the ipacheck Stata package. The package contains a set of user-written Stata commands that perform common checks and export the results to easy-to-read Excel documents. These commands can roughly be divided into 4 categories: Survey Tracking, Logic Checks, Enumerator Summaries, and Research Summaries. They perform the following checks:

Survey Tracking

1. Check the progress towards productivity/recruitment goals by day and by geographic variable

Logic Checks

1. Check that all submissions are using the most recent version of the survey form
2. Check that all interviews were completed
3. Check that there are no duplicate observations
4. Check that all surveys have consent
5. Check that certain critical variables have no missing values
6. Check that follow up record information matches original
7. Check skip patterns and constraints
8. Check that no variable has all missing values
9. Check hard/soft constraints
10. Check specify other variables for items that were mismarked as 'other'

11. Check that date values fall within survey range
12. Check that there are no outliers for unconstrained variables
13. Compile all field comments
14. Check SurveyCTO text audit fields for duration per question

Enumerator Summary

1. Check the percentage of “don’t know” and “refusal” values for each variable by enumerator
2. Check the percentage giving each answer for key filter questions by enumerator
3. Check the percentage of survey refusals by enumerator
4. Check the number of surveys per day by enumerator
5. Check average interview duration by enumerator
6. Check the duration of consent and other important questions (anthropometrics, games, etc) by enumerator
7. Check the percentage of choosing "other" response by enumerator
8. Check summary statistics of key variables by enumerator

Research Summary

1. Check the frequencies of responses to key research variables.
2. Check the frequencies of responses by treatment status.
3. Check the frequencies of responses by demographic/geographic characteristics.
4. Check for any variables with low response variance.
5. Check refusal/not found rates by treatment status.

Backchecks

A backcheck (also known as a field audit or re-interview) refers to when a highly qualified field officer (also known as a backchecker) visits a respondent a second time to re-administer a selection

of questions from the original questionnaire. Those backcheck responses are then compared to the original responses.

IPA protocols include a randomization plan to select at least 10% of the sample to be part of the backcheck. These data are compared to first collected data to identify discrepancies between answers, and thus to identify problems with the questionnaire, the field team, or both. The quality assurance plan also includes an action plan for what to do with discrepancies.

Spotchecks

Field supervisors must accompany a subset of field officers' interviews to monitor field officer performance and to check for survey issues. All field officers must be personally accompanied at least once during the first week of the survey. Accompaniments can be scaled down as the survey progresses, focusing them on surveyors with low performance on back checks or HFC.

D. Computer programs to estimate treatment effects

We will estimate the treatment effects using Stata code below. We will add p-values calculated via randomization inference. The analysis will be based on the survey instrument and pre-analysis plan in order to prevent changes once the data are collected. The code outputs the results in a predetermined table format, which can be copied directly into the final document.

Before this analysis is conducted we will also be using ArcGIS and R to generate control variables and organize the data. We use ArcGIS to generate distance controls from sectors to relevant resources, such as schools, churches and transportation. Then we will use Stata to append all relevant baseline, crime and control data to the end line survey results. Finally, we will use R to match the geo-coded Stata crime and survey data points to their respective sectors, barrios and combo territories.

Analysis Code

```
cap program drop analysis_table
program define analysis_table
```

```
    // Run initialization:
    clear mata
    set matsize 10000
    set more off
```

```
    // Syntax (initialize with easier to understand labels)
    syntax varlist, TREAT(varlist) COVARS(varlist) FILENAME(name)
```

```

local dep_vars `varlist' // creating a local for dep. variables
local M = `:word count `dep_vars'' // make matrix the same size as # vars

// Initializing matrices
mat control_mean = J(`M',1,.)
mat treated_mean = J(`M',1,.)
mat treated_ratio = J(`M',1,.)

mat regmat = J(`M',3,.)
mat stars = J(`M',2,0)

// Initializing row names.
mat rownames control_mean = `dep_vars'
mat rownames treated_mean = `dep_vars'
mat rownames regmat = `dep_vars'

loc m = 1
foreach x in `dep_vars'{

*****
* Main Specification *****
*****

    reg `x' `treat' `covars' i.block, robust // noisily reg to error-check (Block hard coded)

    mat regmat[`m',1] = _b[`treat'] // save beta estimate
    mat regmat[`m',3] = _se[`treat'] // save sd

    qui sum `x' if (`treat' == 0) // produce summary stats for control mean
    mat control_mean[`m',1] = r(mean) // save control mean

    qui sum `x' if (`treat' == 1) // produce summary stats for treat mean
    mat treated_mean[`m', 1] = r(mean) // save treatment mean

    // Calculate difference ratios
    qui sum `x' // iff `x' is not a placeholder var (used to format table)
    if abs(r(mean)) > .001 {
        mat treated_ratio[`m', 1] = (treated_mean[`m', 1] - control_mean[`m', 1]) ///
            control_mean[`m', 1] * 100
    }

    // Calculate p-value (To be replaced with RI P-value)
    local p = (2 * ttail(e(df_r), abs(_b[`treat']/_se[`treat'])))

    if (`p' < .1) mat stars[`m',2] = 1 // Stars for Sig level - 10%

```

```

if (`p' < .05)  mat stars[`m',2] = 2 // Stars for Sig level - 5%
if (`p' < .01)  mat stars[`m',2] = 3 // Stars for Sig level - 1%

mat regmat[`m',2] = `p' // put in p-val (will replace with RI p-values)

local ++m // move to the next row of the results matrix
}

*****
* Get number of treated units for title *****
*****

qui sum `treat' if `treat' == 1
local N = r(N)

*****
Merge matrices to form our larger, final matrix. *****
*****

quietly frmtable, statmat(control_mean) sdec(2) varlabels
quietly frmtable, statmat(treated_mean) sdec(2) varlabels merge
quietly frmtable, statmat(treated_ratio) sdec(0) varlabels merge
quietly frmtable, statmat(regmat) sdec(2,2,2) varlabels merge ///
annotate(stars) asymbol(*,**,*** )

*****
* Output data in LaTeX and RTF formats *****
*****

frmtable using out/tables/`filename', ///
ctitle("With `:var label `treat", `N' treated units", "\uline{\hfill Means \hfill}", "", "",
"\uline{\hfill Regression Difference \hfill}", "", "" \\\\
"Covariate", "Control", "Treated", "\% difference", "Coeff", "p-value", "SE") ///
tex fragment varlabels replace ///
multicol(1,2,4;1,5,3) ///
nocomp

frmtable using out/rtf_tables/`filename', ///
ctitle("With `:var label `treat", `N' treated units", "\uline{\hfill Means \hfill}", "", "", "\uline{\hfill
Regression Difference \hfill}", "", "" \\\\
"Covariate", "Control", "Treated", "\% difference", "Difference / SD" "Coeff", "p-value", "SE")
varlabels replace ///
multicol(1,2,4;1,5,3)

end

```

***** END

E. Administrative information

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