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Living in Fear: The Dynamics of Extortion in Mexico's Drug War

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Abstract

Why do drug trafficking organizations sometimes prey on the communities in which they operate but sometimes provide assistance to these communities? What explains their strategies of extortion and cooptation toward civil society? Using new survey data from Mexico, including list experiments to elicit responses about potentially illegal behavior, this paper measures the prevalence of extortion and assistance among drug trafficking organizations. In support of our theory, these data show that territorial contestation among rival organizations produces more extortion, and, in contrast, DTOs provide more assistance when they have monopoly control over a turf. The paper uncovers other factors that also shape DTOs' strategies toward the population, including the degree of collaboration with the state, leadership stability and DTO organization, and the value and logistics of the local criminal enterprise.

1 Introduction

Drug trafficking organizations (DTOs) have employed different strategies toward the communities in which they operate. Sometimes, these DTOs have exhibited "benign" relationships with these communities, providing them with assistance. For example, early in its existence, the Mexican drug cartel La Familia Michoacana provided loans and grants to individuals, businesses, and even churches within the communities where it operated. These activities were widely known and even publicized in local newspapers. The DTO

also allegedly targeted criminals from whom the community needed protection for "divine justice." In December 2010, when La Familia Michoacana lost its leader, hundreds in Michoacán marched in support of the DTO with signs reading, "Long Live to La Familia Michoacana."[1]

Other times, the relationships between DTOs and their communities are predatory. For instance, after the killing of its leader, La Famila Michoacana fragmented, and other drug cartels such as Los Zetas, los Caballeros Templarios, and the Cartel Jalisco Nueva Generación disputed their territory. As these groups battled for control, the population increasingly suffered from the ongoing violence - but also from extortion. These criminal groups would charge "protection" fees to individuals and businesses to the point that, in 2013, *Autodefesas* – or self-defense groups formed by local entrepreneurs – took up arms against the criminal groups that were preying on them.

These examples are not anomalies: other criminal organizations in Mexico have been known for engaging in these strategies. For example, the former leader of the Sinaloa Cartel, Joaquin el "Chapo" Guzmán, reportedly prohibited his forces from kidnapping people (a lucrative business for other DTOs); his organization also engaged in food distribution, provided subsidies to local communities, built roads and churches, and passed out cash to win support – or silence – in the communities where the criminal group worked. Similarly, former Gulf Cartel boss Osiel Cardenas paid for annual toy giveaways in communities where the gang reigned and otherwise sought a good relationship with residents.[2]

Los Zetas, one of Mexico's largest criminal organizations, is also known for extorting communities and businesses, killing anyone who refuses to pay. In Coahuila, the group operated from inside the prison of Piedras Negras, where they would bring the bodies of their victims to incinerate them. Hundreds are thought to have perished there, including children and women. The prison also served as the criminals' headquarters to store the

[1]From *Jornada* newspaper by Ferrer and Martinez (2013).
[2]The Washington Post, Kevin Sullivan and Jorday, June 10, 2004.

drugs that would be hidden inside cars and subsequently brought into the U.S (Smulders et al., 2017).

The Tijuana DTO, furthermore, also began kidnapping professionals and petit bourgeoisie – e.g. taco stand owners, doctors, and engineers. To avoid being kidnapped, business owners were usually given an opportunity to pay *derecho de piso*, a cuota (tax), regularly. Apparently, these practices increased significantly when the DTO divided into two factions, one led by Fernando Sánchez Arellano "El Ingeniero," and the other led by Eduardo Teodoro García Simental, "El Teo" (Jones, 2013).

These divergent strategies for engaging with civil society require explanation. Why would drug cartels that pursue illegal profits sometimes diversify to other crimes (e.g., engaging in extortion, robbery, kidnappings, and other violations against the communities in which they operate) but then at other times even provide assistance to these same communities?

To answer this question, we focus on the drug war in Mexico, where violence has surged since 2006. Drug-related violence occupies a gray zone between civil war and violent crime (Kalyvas, 2015). Access to massive profits turns DTOs into powerful organizations, allowing them to recruit a large number of armed men to serve as assassins, buy military arsenals to fight the state and rival DTOs, and buy off government officials and law enforcement agents, in addition to choosing various strategies to engage with the communities around them.

There is a vibrant scholarly literature on the logic of drug trafficking violence (Trejo and Ley, 2017; Lessing, 2015; Castillo et al., 2013; Shirk and Wallman, 2015; Astorga and Shirk, 2010; Phillips, 2015; Osorio, 2015; Dube et al., 2013; Lessing, 2015; Bagley, 2012; Snyder and Duran-Martinez, 2009; Durán-Martínez, 2015); however, DTOs' strategies for engaging with the communities they operate in remain under-theorized.

In their interaction with these communities, DTOs may exhibit patterns of coercion and cooptation. With respect to coercion, we examine extortion, which we define as a DTO charging fees for protection. In terms of cooptation, we explore when DTOs provide

assistance to the community - loans, cash for health emergencies or burials - or assistance in the form of protection, as discussed in Gambetta (1996).

To account for variation in DTO strategies toward civil society, this paper develops a theory about DTO incentives and structure. A first set of variables that influence how DTOs interact with the community comes from the civil conflict literature (Mampilly, 2011; Arjona, 2017; Kalyvas, 2006; Humphreys and Weinstein, 2006), among others, which argues that armed rebels collaborate with the population in order to successfully gain control of territory by supplanting the state or staking secessionist claims.

If DTOs do not seek to topple the state, but rather to make money from their illicit activities, then why do these armed groups aspire to control territory? DTOs often seek active control of a territory or "turf" not only to hide from the state and protect themselves from other criminal groups, but also to extract profits from the illegal trade connected to a given territory. DTOs aspire to control territories that are valuable for the production, processing and trafficking of drugs: areas suitable for drug cultivation, strategic locations (e.g. ports, border-crossings), and consumer markets (Osorio, 2015; Calderón et al., 2015). Since deals among criminal groups are hard to enforce, DTOs commonly aspire to retain monopolistic control of these turfs. Our theory argues that DTOs require active collaboration from the community in order to retain control of these valuable territories: this cooperation provides DTOs with information as simple as who enters and leaves the territory and as complex as who in the community might be supplying information to the state or cooperating with other criminal groups.

As is the case with armed rebels, pure coercion is not sufficient for gathering the type of information that is necessary to keep their turf safe (Kalyvas, 2006). Following Olson (1993), Metelits (2009) and Arjona (2017), our theory argues that DTOs will be better able to establish collaborative arrangements when they control a region and expect to control it in the future. Under monopolistic control, DTOs can be more confident of reaping future gains if they continue to show restraint, and they may even provide a share of those gains to the community to ensure its continued cooperation.

A second factor we consider is DTOs' relationship with the state. These criminal organizations need some level of informal state protection to successfully produce, process, and traffic drugs (Snyder and Duran-Martinez, 2009; Arias, 2017). We hypothesize that violence against the community (in the form of disappearances, kidnappings, death threats, forceful recruitment, and extortion) should be more prevalent where local criminal groups operate with the complicity, tolerance, acquiescence, and/or cooperation of the state. When DTOs collaborate with law enforcement agents and the police, these aforementioned crimes will likely go unpunished, allowing DTOs to operate extortion networks with complete impunity.

A third set of variables that influence how DTOs interact with the community focuses on leadership style and organizational structure. Los Zetas, for example, is a loosely organized criminal group with hundreds of criminal cells operating in a semi-autonomous fashion all over the county. The Sinaloa cartel, in contrast, has traditionally been more centralized and is organized around a handful of powerful drug capos. In principle, a DTO that has leadership stability and is hierarchical should be better able to restrain its armed cells than a criminal organization that is more decentralized.

A related factor is the disruption of hierarchical systems. As existing literature suggests, the Mexican federal government's drug war strategy to arrest or kill drug *capos* has resulted in negative externalities such as an increase in violence (Phillips, 2015; Calderón et al., 2015; Guerrero, 2011b). The neutralization of a DTO's leadership breaks chains of command, reduces DTOs time-horizon, and increases territorial contestation. According to our theory, these processes generate more predation on the part of DTOs.

A last factor considers the characteristics of the turf and the logistics of the local criminal enterprise that likely influence DTO behavior toward the population. Turf can be distinguished in terms of logistics and value. Border-crossings are extremely valuable territories in Mexico, given the value of the US drug consumption market. Controlling these turfs is very profitable –and also challenging because of the high amount of competition from criminal rivals. Keeping control of these turfs in border-crossing areas

might require more community collaboration – and hence assistance – than transit areas where drugs are moved from production zones to their destination through dirt roads, high-speed highways, and other transportation hubs.

Our approach builds on and expands the emerging literature on criminal governance. In contrast to Arias (2017), our paper does not consider whether any characteristics of civil society and civilians at large affect the ability of criminal organizations to coerce or assist local communities. We offer a theory and evidence about how two of the characteristics of micro-armed regimes highlighted by Arias (2017) – inter-cartel competition and patterns of state-DTO collaboration – influence criminal groups' behavior toward the community.

Our account expands on Felbab-Brown et al. (2017), who argue that armed groups –including DTOs – often engage in limited public goods provisions to gain legitimacy within the community. In their approach, armed group behavior is influenced, among other factors, by levels of territorial control as well as strategic factors related to the value of controlling certain territories. In contrast to their approach, our paper moves beyond narrative by relying on survey and statistical evidence to support our claims.

To test our theory, we conducted a series of list experiments embedded in a probabilistic nationwide survey. The survey was carried out in Mexico in July 2011. We focus on experimental questions that assess extortion by DTOs and the use of DTO assistance. These questions are sensitive in that individuals may feel social pressure or even fear, if asked about these topics directly, which would then influence their reported preferences. We therefore asked these questions through list experiments.

To measure the critical explanatory variable of territorial contestation, we use Coscia and Rios (2012)'s dataset on Mexican DTOs' areas of operation. The authors developed a Web crawler to extract information from Google News on the activity of criminal groups in Mexico. We also use additional measures of contestation, including executions among rival DTOS, homicides rates, and homicides by firearms.

To test our hypotheses, we use the multivariate regression models of survey data

for list experiments as proposed by Imai (2011) and Blair and Imai (2012). We specify a linear model with identical covariates to examine the dynamics of civilian extortion and assistance by DTOs. The results match our theoretical expectations. DTOs extort civilians primarily in contested territories, where various DTOs fight for control of drug production, trafficking, and distribution. In contrast, DTOs provide assistance – and they extort at significantly lower levels – in territories controlled by a single DTO. Moreover, our results demonstrate that the highest levels of extortion are observed in contested municipalities with high levels of inter-cartel violence.

Our results also show that, controlling for levels of inter-cartel contestation, the party in control of the local government shapes DTO behavior. Extortion is lower in states and municipalities governed by the National Action Party (PAN), where national authorities developed coordinated interventions to confront DTOs, than in states governed by the Institutional Revolutionary Party (PRI), which is known for a history of negotiating informal protection rackets with DTOs (Ríos, 2015; Astorga and Shirk, 2010; Shirk and Wallman, 2015; Durán-Martínez, 2015). Surprisingly, the highest levels of extortion are found in states governed by the Party of the Democratic Revolution (PRD).

Our results also demonstrate that DTO organization and leadership stability shape criminal group behavior toward the community. Less hierarchical DTOs exhibit significantly higher levels of extortion and less assistance than more hierarchical criminal organizations. Moreover, our results show that drug capo arrests are associated with significantly less assistance, which suggests that leadership stability is a key factor that enables DTOs to establish collaborative relationships with the community.

Finally, border crossings that require more community collaboration in order to maintain control are associated with more assistance than transit points. Drug producing turfs are associated with less extortion.

The paper proceeds as follows. The first section identifies the puzzle and presents some evidence from the Mexican context. The second section provides testable hypotheses and generates a theory by drawing on the literature on civil war and mafia crime. The third

section describes our methods and presents our empirical results and conclusions.

2 The drug war and increase in criminal extortion

In recent years, due to a shifting drug supply and the war on drugs, the environment in which DTOs in Mexico operate has changed significantly, and DTOs have become more violent and have also expanded their operations into areas of criminality.

The production and transportation of drugs out of Mexico has increased dramatically, and, at the same time, conflict and competition with DTOs has increased. Crackdowns in Colombia and the Caribbean (Bagley, 2012; Shirk and Wallman, 2015) produced a larger market share for DTOs in Mexico. [3] At the same time, Mexican politics have shifted: during the long period of dominance by the Institutional Revolutionary Party (PRI), deals with DTOs existed throughout the country; due to the party's hierarchical organization and discipline, these deals could be enforced without much violence. Some have even suggested that these pacts secured a state-sponsored division of territory among DTOs (Grillo, 2011). However, contested power upended these deals, both at a local level in the 1990s and, when the National Action Party (PAN) won, at a national level in 2000 (Trejo and Ley, 2017; Shirk and Wallman, 2015; Astorga and Shirk, 2010; Ríos, 2015; Osorio, 2015; O'Neil, 2009). DTOs now had to negotiate protection with governors and mayors without central oversight, and they began to form their own militias where state protection was no longer guaranteed Trejo and Ley (2017). Moreover, President Felipe Calderón initiated an aggressive campaign against the DTOs when he took office in 2006. The federal strategy involved "joint operations" that sent thousands of military troops and federal police to combat DTOs; this approach also relied on a "leadership strategy" that targeted DTO leaders and their lieutenants. In 2009, the government released a list of Mexico's 37 most wanted drug lords, and by January 2011, the army, navy, and

[3] It is estimated that more than 90% of the cocaine that is bound for the US passes through Mexico. Moreover, in recent years, Mexican DTOs have grown their share of the heroin market, increasing the cultivation of opium for heroin production. Together, Mexican DTOs traffic more than an estimated quarter-million pounds of heroin into the US (DEA, 2015).

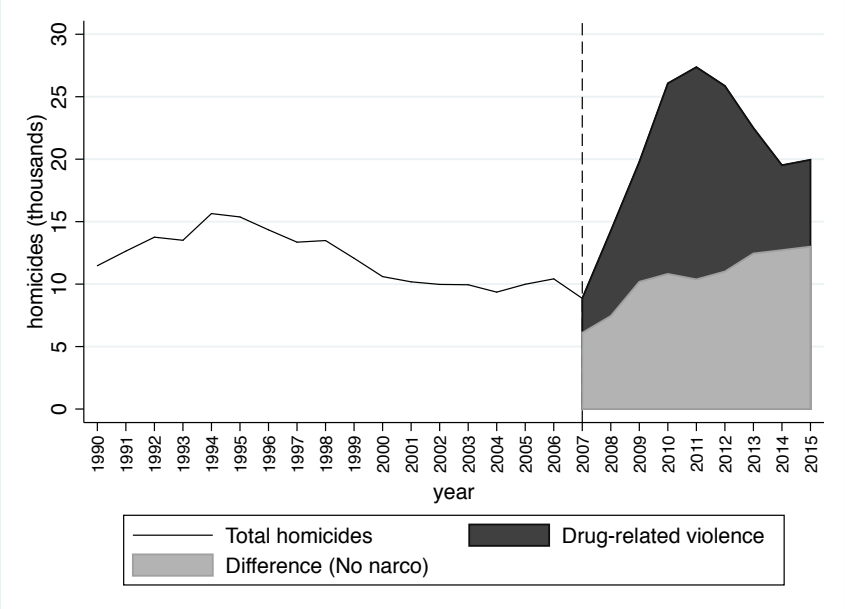
federal police had captured or killed 20 out of the 37 (twice the number of kingpins captured during the two previous administrations).The federal system has complicated this strategy (Durán-Martínez, 2015) because local leaders control many of the levers in the system and can use them at the command of DTOs. For example, 90 percent of police officers are under the command of state and municipal authorities (Guerrero, 2011b), and governors both control state prosecutors and have a strong influence in the judiciary. Even if local authorities are not in charge of prosecuting crimes related to drug trafficking, they provide allies who have local information and serve as first respondents to most crimes; they can therefore influence which crimes get investigated as well as who is prosecuted or indicted (Trejo and Ley, 2017).

DTOs have also undergone several changes that resulted from the shifting market and war on drugs. First, especially as the government arrested and killed DTO leaders, large DTOs fractured into smaller ones (Guerrero, 2011a; Phillips, 2015). This also increased the number of groups. Mexican authorities[4] have detected at least nine DTOs and more than 37 criminal cells, in addition to hundreds of youth gangs working directly or indirectly with the cartels.

These structural changes, and other shifts, also increased violence. Overall, violence related to DTOs has increased, due to these changes (including Calderón's policies) (Guerrero, 2011a,b; Escalante, 2011; Dell, 2015; Calderón et al., 2015; Osorio, 2015; Coscia and Rios, 2012; Lessing, 2015). Figure 1 shows the number of homicides from 2002 to 2015 in the country. Deaths are classified according to whether they are drug-related homicides (see Section 5.2 below) or murders that affect the general population (light area). A sharp increase in violence is noticeable with the onset of the drug war, most of it due to inter-cartel conflict. Using a quasi-experimental empirical approach, Calderón et al. (2015) show that targeting leaders produces systematic increases in violence between DTOs and violence affecting the surrounding communities. Much of this violence is located in strategically important areas for DTOs and is still conducted by just a handful of DTOs. In

[4]Data from the Procuraduría General de la República.

Figure 1: **Total homicides, 1990-2015**



Notes: The graph shows the total number of homicides in Mexico from 1990 to 2015 as reported by the National System of Health Information (SINAIS). The black area corresponds to the total number of "deaths presumably related to criminal rivalry," as reported by the federal government. The gray area shows the difference between the two series.

this environment, DTOs fight each other for control of territory that is valuable for the production, transportation, and trafficking of drugs to the most profitable markets, most prominently the U.S.

Another important change has been the diversification of strategies used by DTOs in this environment. Before 2006, DTOs mostly focused on trafficking drugs to the U.S.; now, however, they engage in many other crimes including extortion, human trafficking, and kidnapping. For example, the number of cases of extortion reported to local public prosecutors' offices increased from 3,157 in 2006 to 5,127 in 2015.

Government collaboration is increasingly evident in many of these activities. In its 2017 report, Amnesty International claims that forced disappearances, a "generalized practice" in Mexico, are committed with the participation of state agents (AI, 2017). The "burning fields" operated from inside the prison in Piedras Negras (mentioned earlier) seems to have occurred with the complicity of the local government – the evidence suggests that the Zetas bribed the governor, the state prosecutor, and local police in

Figure 2: **Reported cases of extortion and business theft, 2000-2015**

Source: Data from Secretariado Nacional de Seguridad Publica (SNSP).

Coahuila so they could kidnap, vanish, and otherwise threaten the population with impunity.[5] Likewise, a report by an Interdisciplinary Group of Independent Experts of the Inter-American Commission of Human Rights implicates local officials, and perhaps also federal police and armed forces, as complicit in a massive student disappearance from Ayotzinapa Rural Teachers College in September of 2014. The relationship between DTOs and officials, especially at the local level, allows much of their use of violence and, potentially, their diversification of tactics.

We argue that competition between DTOs for drug trafficking territory in Mexico, produced by a combination of these factors, generates many of the incentives for extortion; this has supplanted cooperative relationships with communities in many cases. Extortion also depends, however, on local governments that are either too weak to confront or too eager to collude with DTOs.

[5]From Proceso by Cedillo (2017).

3 Theoretical framework

To explain the logic of DTO strategies toward civil society, we start with the assumption that DTOs are primarily business organizations – albeit illegal ones – whose main goal is the production, transport, and sale of a good. To pursue this goal, DTOs aspire to control valuable territories, including areas suitable for drug cultivation, routes to move drugs from production zones to consumer markets (mainly in the U.S.), and hubs along these lines (including ports and border crossings[6]).

DTOs rely at times on community collaboration to maintain and contest territory. At a minimum, to operate in secrecy, DTOs require that the community does not inform the state or rival DTOs of their presence. Information about when and where DTOs conduct their operations, who leads them, or where they hide between operations presents risks of being caught by the state or outmaneuvered by rival DTOs and, subsequently, a loss of territory. On the other side of this calculation and in order to accomplish their territorial goals, DTOs can use more active community cooperation. DTOs cannot monitor all of the territory they seek to control, and, in particular, they cannot monitor all the actions of individuals in these territories. They need locals to provide them with information on who enters and leaves the territory, who is working with the state or rival DTOs, or who is trafficking drugs without paying their "taxes." DTOs, then, want to obtain the community's silence and, at times, direct collaboration.

Overall, we build a theory on this idea that DTOs seek to profit. We assume that DTOs want to maximize their payoff from their business. We then argue that interactions with the community depend on the circumstances surrounding their territorial control as well as their organizational features and relationship with the government.

[6]Ports are usually the primary entry point for cocaine coming from South America and for chemicals coming from China needed to produce methamphetamine.

3.1 Territorial control

DTO's current territorial control, as well as its expected control over time, are critical for understanding its behavior toward civilians. Drawing on Olson (1993), Metelits (2009), and Arjona (2017), we formulate the following hypothesis: if a DTO is in control of a region and expects to remain in control, it will develop self-restraint and even provide some share of the benefits from their trade to the population in order to maintain loyalty, enhance its legitimacy, and increase its capacity through continued control (Iannaccone, 1992; Berman et al., 2011; Berman and Laitin, 2008; Felbab-Brown et al., 2017). We are building on ideas that coercion is costly and fails to produce full cooperation in many cases. For example, a community may keep silent because its members fear torture or even death if they report on the DTO. However, as is the case with rebel groups and even governments, this strategy may not produce active community collaboration (Kalyvas, 2006; Wood, 2003; Arjona, 2017; Mampilly, 2011). Obtaining high-quality intelligence about their territory may require self-restraint and even reciprocation of benefits, rather than coercion (Wood, 2003), which, at the extreme, can also backfire and inspire a strong campaign by a community against the DTO (Kalyvas, 2015). We therefore expect a DTO with this type of monopoly to cooperate, or at a minimum, restrain itself in its interactions with the communities in which it operates.

In contrast, we expect competition between DTOs for territorial control to be accompanied by increases in civilian extortion for several reasons. First, territorial contestation shortens time horizons, incentivizing armed groups to behave more as "roving" bandits rather than as "stationary bandits" (Olson, 1993). DTOs do not anticipate that they will be in control for long in these cases, so they reap as much as possible while they are. In addition, when armed groups compete for territorial control, sustaining cooperative relationships with the community becomes more difficult because competition creates a common pools problem: why would a criminal group restrain from preying on the community through extortion (or other negative behavior toward the population) when they

expect other criminal groups not to restrain themselves (for which, potentially, all of the DTOs operating in the community may also be blamed) (Humphreys and Weinstein, 2006)? In the extreme, competing DTOs can commit so much abuse that citizens will refuse to pay extortion fees – or will migrate – because no criminal organization can credibly offer protection. Third, because fighting an active challenger is costly, DTOs facing contested territorial control may also adjust to declining profits from their "core" business by diversifying into a host of other criminal activities, including extortion, kidnapping for ransom, human trafficking, and theft. With the exception of extreme scenarios where profits from some of these activities dry up, these activities provide greater profit than drug trafficking alone in the short-term.

Based on this discussion, we not only expect that DTOs should be more prone to extortion when they are vying for territorial control, but also that extortion should be most pronounced where DTOs use violence against each other. This violence not only typically shortens time horizons: it also imposes financial costs, which encourages DTOs to turn against the population to extract resources, as just described. Additionally, turf wars tend to empower the most violent contingents of DTOs, who may then either shape group behavior or even start operating on their own, with little restraint in their interactions with the community.

At the same time, when DTOs increase extortion, they also tend to stop providing benefits to communities: DTOs reap fewer rewards from information when a rival has clearly invaded an entire area, rather than when these rivals only have secret ties or subtle incursions into mainly monopolistic territories. DTOs may also be less likely to receive credit for providing assistance to these communities. Moreover, once violence spreads, DTOs typically also have fewer resources with which to provide assistance. Finally, as less violent contingents of DTOs are disenfranchised, their preferred policies of providing benefits from their trade to the community may also be overruled.

Overall, then, we theorize that DTO monopolistic control should be associated with lower rates of extortion and higher rates of public service provision. Conversely, com-

petition among rival criminal gangs should be associated with higher rates of extortion and lower rates of service provision, especially when violent conflict breaks out between DTOs.

3.2 DTO relationships with the state

A second factor we consider is the relationship between DTOs and the state. In many cases, criminal groups "must find ways to work with the state or receive protection from the state to function" (Arias, 2017, p.10). Some forms of DTO-state collaboration generate low levels of violence – for example, the symbiotic relationship between the PRI and DTOs during the era of one-party rule allowed the state to control the division of territory among the limited number of large DTOs. But, in contrast, when DTOs compete against each other and establish collusive pacts with different parts of the state to buy impunity, high rates of violence follow.

In terms of community collaboration, we theorize that complicity between DTOs and law enforcement institutions –prosecutors, judges and police – can produce impunity that encourages extortion and other criminal activity. When DTOs extort, steal from, kidnap, or even make individuals disappear, the community cannot access legal punishment if the police, prosecutors, and judges are colluding with the criminals. Drawing from the economics of crime literature (Becker, 1968; Stigler, 1970), we hypothesize that higher levels of collaboration with law enforcement institutions are associated with a higher probability that DTOs will engage in extortion and other criminal activities affecting the community, given that this lower DTOs' costs of engaging in these behaviors.

Mexico's federal system also exhibits variation in the relationships between DTOs and the state. At the extreme, local authorities are at times too weak to resist or even demand concessions from DTOs, which become de facto rulers. In other states, local (or even regional and national) authorities cooperate with, and in some instances submit to, DTOs. Finally, some states resist DTO corruption and capture. We lack reliable measures

about degree of local state collaboration, but the party controlling the governorship and the municipality serve as reasonable proxies. As Trejo and Ley (2017) argues, PAN governments have adopted policies to undo the informal protection deals that DTOs had established during PRI control. Moreover, during the Calderon administration, PAN-controlled states had more federal resources, including the armed forces and the federal police to fight DTOs (Durán-Martínez, 2015). This meant that states governed by the PAN under President Calderón were not only more inclined to undo corrupt deals with DTOs, but they were also more able to resist DTOs because they received more resources to do so. We therefore expect less extortion from DTOs in states with PAN incumbents during the Calderón administration, the period we focus on in this paper.

In contrast, we expect PRI incumbents to be more willing to sustain informal protection deals created under the one-party rule (Ríos, 2015; Blume, 2017; Trejo and Ley, 2017; Shirk and Wallman, 2015). In these places, we expect that collusive agreements between DTOs and governors, local prosecutors, and police are more likely to persist, translate into higher levels of impunity, and, in turn, produce higher levels of DTO extortion.

With respect to other political parties like the left-wing Party of the Democratic Revolution (PRD), we do not have clear expectations. On the one hand, local PRD governments might behave much like the PAN in that, when they take office, they disrupt informal protection deals between the PRI and DTOs. On the other hand, the PRD lacked the federal resources provided to PAN states, which made them significantly weaker. Existing literature has shown that PRD governments have been disproportionately targeted by DTOs for assassination (Trejo and Ley, 2016; Blume, 2017). Politicians get killed for a variety of reasons, including (1) accepting money from a criminal group and then getting caught in fighting between DTOs; (2) refusing to cooperate with criminal organizations; or (3) having a political opponent with DTO-connections (Blume, 2017). If these arguments are correct, PRD governments' vulnerability to assassinations may also suggest involvement in these states in DTO capture. We might therefore expect higher levels of extortion among PRD governments.

3.3 Leadership style and organizational capacity

Beyond territorial competition among DTOs and state collaboration with DTOs, we theorize that leadership style and organizational characteristics also change the chances that DTOs will engage in extortion. Mexican drug cartels are large criminal networks centered on one or several capos who control a number of regional bosses. Regional bosses, in turn, control cities, towns, rural regions, and the routes for drug distribution. Regional bosses hire local commanders who then control the *sicarios* (soldiers). *Sicarios* are assisted by *halcones* (falcons), who are lower-ranked cartel members who patrol local territories (Grillo, 2011).

Beyond these general characteristics, however, DTOs vary in their use of organizational hierarchy and this also changes over time. Some cartels such as the Sinaloa Cartel and Gulf cartels are organized hierarchically. Other cartels such as the Zetas and the Cartel Jalisco Nueva Generación are decentralized. These are loose associations of various criminal groups, rather than a strictly structured top-down group.

DTOs also vary in their size, from criminal cells that are mostly local (e.g., Guerreros Unidos or Los Ardillos), to regional networks (e.g., La Familia Michoacana, The Beltrán Leyva Organization, and the Tijuana Cartel), to national and transnational criminal enterprises (e.g., the Sinaloa Cartel, the Zetas, and the more recent Cartel Jalisco Nueva Generación).

Building on insights that hierarchical structures can better overcome principal-agent and other disciplinary problems (e.g. Shapiro (2013)), we argue that, in principle, less hierarchical DTOs should have more problems disciplining their criminal cells and soldiers and less capacity to engage in collaborative relationships with the community; this should then translate to more extortion and less assistance.

Moreover, in principle, criminal organizations with stable leadership should be better able to control armed men than DTOs that suffer leadership turnover. Leadership stability creates longer-term time horizons, which are necessary to develop ongoing cooperative

relationships with the community (Olson (1993)) and to engage in governance provision (Felbab-Brown et al. (2017)), because a stable leader knows that he will still be in control in the future to reap the rewards of investment in a community.

As argued above, DTOs in Mexico have suffered increasing rates of leadership turnover in the last decade, which, in turn, has shifted their focus from a strategy of trafficking drugs while maximizing collaboration with the community to a strategy of diversifying their portfolio to other crimes to increase their immediate profit. This metamorphosis was in part the unanticipated result of President Calderón's (2006-2012) ''beheading" strategy. When violent gangs are either separated from capos who know how to traffic drugs or are forced out of drug trafficking, they turn to other mechanisms to generate profits, including extortion. We therefore expect lower levels of assistance and higher levels of extortion among DTOs that suffer leadership turnover.

3.4 Characteristics of turf

Beyond the characteristics of the criminal organization, some characteristics of their turf might influence DTO behavior toward the population. Territories vary in their value and in the logistics of the local criminal activity. These might influence how DTOs engage with the community. In our statistical models, we will control for three types of turfs. First, drug producing areas, which in the Mexican context mainly include regions that allow marijuana and poppy cultivation. Growing these crops might require continued cooperation from the local community and might therefore be associated with more assistance.

Second, transit points or turf that allows DTOs to transport drugs within the country. In the Mexican context, these include dirt roads, small highways, and even high-speed freeways or airstrips. Because of the high degree of mobility, these operations are less embedded in the community and rely instead on "halcones" and some deals with states. Transit points might therefore be associated with less assistance.

Third, border-crossings allow for drug smuggling across countries. Border-crossings are incredibly valuable turf in Mexico because of the value of the U.S. drug market, which is estimated to be around 100 billion annually (Kilmer et al., 2014). Control of this type of turf might require more active community collaboration, not only to keep trafficking points secret – for example, the location of hidden tunnels used to smuggle drugs – but also for intelligence. Monopolistic control of these locations is critical to DTOs, and so they want information about any other operations occurring in these crossings, including their use without permission or ''tax" payments, or any designs on them by rival DTOs. We therefore expect that DTOs will offer significant assistance with this type of turf.

Based on our theoretical discussion, we empirically test the following hypotheses. Our main independent variable shapes extortion and assistance in opposite directions, so that more contestation and more inter-cartel violence increase extortion and reduce assistance. For our other independent variables, our theory has strong implications for either extortion or assistance, and sometimes both. We articulate each hypothesis here.

H1: *Extortion by DTOs is higher and assistance lower in places contested by DTOs.*

H2: *Extortion by DTOs is higher and assistance lower in places of high inter-cartel violence.*

H3: *Extortion is higher where DTOs have collaborative relationships with the state.*

H4: *Extortion is higher and assistance lower among DTOs that have high leadership instability.*

H5: *Extortion is higher and assistance lower among more decentralized and less hierarchical DTOs.*

H6: *Assistance is higher where DTOs engage in drug production.*

H7: *Assistance is higher around border crossings than around other drug trafficking corridors.*

4 Implementation

4.1 List experiments and survey design

There is a significant literature on the problems related to measuring citizens' engagement in and attitudes toward crime and civil conflict (Warr, 2000; Stylianou, 2003; Kalyvas and Kocher, 2009; Bullock et al., 2011; Mosher et al., 2011; Lyall et al., 2013; Matanock and Garcia-Sanchez, 2014; Bruck et al., 2016). The highly sensitive nature of these topics motivates all actors involved to hide information.

The literature suggests maximizing the incidence of truthful responses to sensitive issues with unobtrusive measures, including list experiments. (Blair and Imai, 2012; Gonzalez-Ocantos et al., 2012; Imai, 2011; Sniderman, 2011; Glynn, 2013; Holbrook and Krosnick, 2010; Corstange, 2009; Kuklinski et al., 1997a,b; Sniderman and Grob, 1996).[7]

We conducted a series of list experiments in a nationwide survey carried out in Mexico in July 2011.[8]

It is important to note that the extortion questions are framed as issues of avoiding harm. Respondents understood we were not simply asking about transactions involving the purchase of drugs, the payment of private security guards, or the ubiquitous practice

[7] A list experiment creates two groups of individuals, a control and a treatment group, assigned randomly from the overall sample so that the two groups are equivalent. Individuals in the control group are shown a list of n items. The treatment group receives the same list with the n items plus an additional ''sensitive" item that we seek to measure. Interviewees are then asked to specify a number of items they have/do/agree with but not to mention which specific items. The difference of the mean item responses between the control and treatment groups provides an adequate estimate of the aggregate proportion of the population that has/does/agrees with the sensitive item. For more detailed explanations, see Blair and Imai (2012); Imai (2011); Glynn (2013); Corstange (2009).

[8] The survey was collected in collaboration with the polling unit at the Office of the Mexican Presidency. The design of the survey was entirely our own. Our sole commitment to the polling unit was to share our results. The enumerators were from a survey company, and we trained them on how to conduct list experiments. We do not believe our collaboration with Mexican officials affected answers because enumerators introduced themselves as part of the academic team and explained that the goal of the project was academic research. We worked closely with our institutional review board (IRB) to design the survey and all of our procedures.

of bribing traffic policemen.

Table 1: **Description of List Experiments**

	Card 1	**Card 2**
Introduction to all groups	Please tell me how many of these things you have done in the past six months. We just want to know how many you have done, do not tell me which ones.	Please tell me how many of these things you have done in the past six months. We just want to know how many you have done, do not tell me which ones.
Control Group	1. I got drunk at a party I went to. 2. I did some exercise outdoors. 3. I attended church almost every Sunday.	1. I have received benefits from the Oportunidades program. 2. I have participated in a tanda.* 3. I gave charity (limosna).
Treatment Group 1	**4. I have seen cars or trucks with armed men who are not policemen in broad daylight.**	**4. I have given money to drug or criminal organizations so that they protect me.**
Treatment Group 2	**4. I asked for help from someone working for organized crime.**	**4. I have given money to the police so that they protect me.**

* Rotating Savings and Credit Association (ROSCA).

We randomly selected 300 sampling points from the 65,000 electoral precincts that exited in Mexico in 2011. The sample was stratified by type of electoral precinct (urban and rural or semi-urban) as defined by the Federal Electoral Institute (IFE), and by levels of drug-related violence at the municipal level (low, medium, and high) for a total of six strata.

Our strategy was to oversample areas of high violence in order to guarantee sufficient spread across areas of differing degrees of DTO dominance. We used the "Deaths Presumably Related to Criminal Rivalry" (SEGOB, 2011) dataset published by the Mexican

government to stratify our sample. The dataset classifies deaths into three categories: 1) Homicides resulting from violence between DTO members (Executions); 2) Killings from clashes between the Mexican authorities and DTOs (Confrontations); and 3) Deaths related to unexpected attacks by DTOs on Mexican authorities (Aggressions).[9] We classify the level of inter-cartel violence using the total number of drug-related deaths in municipalities from January to May of 2011.

Drug-related deaths are highly concentrated in a few places: half of these deaths occurred in 19 municipalities during the study period, while about two thirds of the municipalities reported no executions between DTO members. Given this distribution, we classify the high-violence group as the five most violent municipalities, which have a third of the total deaths related to criminal rivalry.[10] The medium-violence group includes the next 14 municipalities with most drug-related deaths, so that both groups together account for half of the homicides. The low-violence group comprises the rest of the municipalities (n=2,437).[11]

Within each strata, we sampled electoral precincts with a selection probability proportional to its population size using the quartiles of the distribution of the number of registered voters, for a total of 22 groups.[12] We collected 9 questionnaires in each sampling point. Respondents were randomly assigned to one control group and two treatment groups of similar size for a total of 900 observations in each group and 2,700 observations for the whole sample. Summary statistics by treatment group and balance tests are shown in Table A1 in the Appendix. Given the randomization strategy, regional characteristics are identical across groups. There were small differences in education, age, and gender

[9]Each case was classified by a special council integrated by members of the army, navy, federal police, ministry of interior, and the general public prosecutor's office. We are aware that the data might underestimate drug-related deaths; as will become apparent below, we use a variety of alternative measures of violence as to check the robustness of our models.

[10]By design, about half of the sampling points in these places fell in rural precincts outside of the main urban conglomeration.

[11]The entire state of Tamaulipas (area in grey) had to be left out of the sample to protect our enumerators due to the intensity of violence during the study period.

[12]We used two groups of population size (above and below the median) for rural districts with high levels of violence.

across groups that are taken into account in the analysis.

4.2 Testing the list experiment

List experiments rely on two assumptions: (a) no liars, and (b) no design effects. Floor and ceiling effects can generate "liars" if an individual has performed none or all of the actions listed; he or she may lie so as to not reveal that he or she has performed (or not performed) the sensitive item. Thus, all of the lists are designed to include items rarely expected from the same individual, so that most individuals will have performed at least one of the control items but not all of them (as noted above).

The other assumption inherent in the list experiment is that there is no "design effect." That is, adding an item to the list will not have an effect upon the responses for the other items on the list. A "design effect" would entail that the items are not independent from each other.

We follow Blair and Imai (2012) to formally test that the identification assumptions for list experiments hold. Suppose that in a list experiment there are J control items and a single sensitive item $J + 1$. Let Z_{ij} be an indicator variable of whether individual i has a preference for item j or, as in our experiment, she has been exposed to such situation. Let $Y_i(0) = \sum_{j=1}^{J} Z_{ij}$ and $Y_i(1) = \sum_{j=1}^{J+1} Z_{ij}$ represent the potential answers respondent i would give to the list experiment under the control and treatment conditions, respectively. Finally, let $Z^*_{i,J+1}$ be the truthful answer to the sensitive item.

The "no design effect" assumption implies that $Y_i(1) = Y_i(0) + Z_{i,J+1}(1)$, while the "no liars assumption" entails that $Z_{i,J+1}(1) = Z^*_{i,J+1}$. Under both assumptions, the mean difference estimator is an unbiased estimate of the proportion in the population with an affirmative preference for (or exposure to) the sensitive item. Moreover, under these assumptions, it is possible to estimate the joint distribution of $(Y_i(0), Z^*_{i,J+1})$, where each type of respondent type is represented by $\pi_{yz} = Pr(Y_i(0) = y, Z^*_{i,J+1} = z)$. In particular, if T_i is the treatment status of individual i, then π_{y1}, which is the estimated proportion of

respondents in the sample that have been exposed to y control items and to the sensitive item, can be estimated as:

$$\pi_{y1} = Pr(Y_i \leq y \mid T_i = 0) - Pr(Y_i \leq y \mid T_i = 1). \quad (1)$$

Consequently, the proportion π_{y0} of respondents that have been exposed to y control items but not to the sensitive item can be inferred from the difference between the estimated mass probability $Pr(Y_i = y \mid T_i = 0)$ and π_{y1}.

All of the experiments were piloted in advance to avoid potential identification threats. The distribution of answers for each experiment for the control and two treatment groups are shown in Table 2. The table also shows the estimated π_{y1} for each experiment. According to these estimates, approximately 9.7% of the (unweighted) sample has been extorted by DTOs, while 11.9% have received help from them. The prevalence of DTO activities is evident, with a remarkable 38.2% of respondents estimated to have seen armed convoys during daylight hours. Also interesting among these summary statistics, and quite worrisome, is that police extortion is estimated to be even higher than criminal extortion.

Under the assumption of no design effects, we should expect the cumulative distribution of y in the control group to be greater than or equal to the corresponding distribution under the treatment (Blair and Imai, 2012). Nevertheless, this distribution should be greater by at most one item at each level y. Algebraically, these two hypotheses are equivalent to the null hypothesis that $\pi_{yz} \geq 0$ for all y and z. Since this is the case for each list experiment, we conclude that there is no evidence of design effects in our survey.[13]

The low proportion of respondents in the two control groups for which $Y_i(0) = 3$ also confirms that the experiments have no ceiling effects. The absence of design effects

[13]We also use the procedure proposed in Blair and Imai (2012) that compares two tests for stochastic dominance using the Bonferroni correction. As expected, we fail to reject the null hypothesis with a Bonferroni-corrected p-value for each list experiment equal to 1.

(i.e., the inclusion of the sensitive item does not seem to reduce the number of reported items) and the positive estimated proportions π_{11} are clear indicators of the absence of substantial floor effects.

Table 2: **Answer distribution of list experiments**

Card 1

	Control Group		**Treatment Groups**					
			Convoys			**Help from crime**		
Y_i	Freq.	Prop.	Freq.	Prop.	$\pi_{y,1}$	Freq.	Prop.	$\pi_{y,1}$
0	148	16.6%	108	12.1%	4.5%	127	14.2%	2.4%
1	424	47.5%	293	32.7%	19.3%	391	43.7%	6.2%
2	265	29.7%	346	38.6%	10.4%	300	33.5%	2.3%
3	56	6.3%	113	12.6%	4.0%	68	7.6%	1.0%
4			36	4.0%		9	1.0%	
Total	893	100%	896	100%	**38.2%**	895	100%	**11.9%**

Card 2

	Control Group		**Treatment Groups**					
			Narco extortion			**Police extortion**		
Y_i	Freq.	Prop.	Freq.	Prop.	$\pi_{y,1}$	Freq.	Prop.	$\pi_{y,1}$
0	181	20.2%	171	19.1%	1.1%	161	17.9%	2.3%
1	505	56.4%	465	52.0%	5.6%	470	52.4%	6.3%
2	167	18.7%	202	22.6%	1.7%	207	23.1%	1.9%
3	42	4.7%	45	5.0%	1.3%	55	6.1%	0.4%
4			12	1.3%		4	0.4%	
Total	895	100%	895	100%	**9.7%**	897	100%	**10.9%**

Notes: The table shows the number respondents and the distribution of answers for each outcome and treatment group. The table also shows the estimated proportion of each respondent type $\pi_{yz} = Pr(Y_i(0) = y, Z^*_{i,J+1} = z)$ under the no-design effect and no-liars assumptions (see Imai 2011), where $Y_i(0)$ represents the total number of affirmative answers for control items and $Z^*_{i,J+1}$ denotes the truthful occurrence of the sensitive item.

5 Empirical analysis of DTO Strategies

5.1 Average effects

Our baseline linear model to measure the prevalence of DTO extortion and assistance in our sample is as follows:

$$y_{ij} = \alpha + \beta_1 T_i + \sum_k \delta_k X_{ik} + \sum_l \gamma_l Z_{jl} + \epsilon_{ij} \tag{2}$$

where y_i is the number of items reported by the respondent i in municipality j and T_i is an indicator variable for treatment. The model also includes k individual covariates and l socio-economic characteristics at the municipality level.

The results of the list experiments show a significant presence of DTOs, including their use of both extortion and assistance strategies toward the communities in which they operate. Table 3 shows our estimated coefficients for each of the four list experiments described above. The estimated coefficients of the models in the first column are equivalent to those of a simple difference in means test. The models in column (2) adjust for the sampling design using individual sampling weights, and the models in column (3) also include individual and regional socio-economic characteristics.

Our results show that, on average, one in ten Mexicans were extorted by criminal organizations in the six months prior to the survey. Police extortion seems to be as prevalent as criminal extortion. The prevalence rate of help from criminals is twice as high once we adjust for our oversampling of violent places. This suggests that narco help, as we demonstrate below, is more prevalent in places with low levels of violence. Finally, our results indicate that almost half of the Mexican population had seen a non-state armed convoy during daylight in the months prior to the survey. The security situation certainly does not represent stable state control. Column (3) shows that our results are not substantially affected when adjusting for slightly imbalanced individual characteristics.

Table 3: **Average Effect of List Treatment**

	Average effect					
Treatment	(1)		(2)		(3)	
Card 1						
Convoy	0.38	***	0.46	***	0.45	***
	(0.04)		(0.07)		(0.07)	
Help from criminals	0.12	***	0.23	***	0.22	***
	(0.04)		(0.06)		(0.06)	
Card 2						
Criminal extortion	0.10	**	0.13	**	0.12	**
	(0.05)		(0.06)		(0.05)	
Police extortion	0.11	***	0.14	**	0.17	***
	(0.04)		(0.07)		(0.06)	
Sampling weights	No		Yes		Yes	
Individual covariates	No		No		Yes	
Regional covariates	No		No		Yes	

Notes: The rows show the estimated coefficients of four different list experiments included in the Survey on Public Safety and Governance in Mexico in 2011. There were two questions (card 1 and 2) for which respondents were randomly assigned into one control and two treatment groups (see Table 1). The coefficients are estimates of the proportion of the survey sample exposed to the sensitive item. The models in Column (2) adjust for sampling weights, and the models in Column (3) include individual and regional socio-economic characteristics. Robust standard errors in parenthesis. *** : $p < 0.01$, ** : $p < 0.05$, * : $p < 0.1$.

5.2 Explanatory variables

In order to test the specific hypotheses derived from our theory, we use a multivariate regression model of survey data for list experiments as proposed by Imai (2011) and Blair and Imai (2012).[14] We specified a linear model with identical covariates for the two treatments analyzed in this paper, inquiring into the dynamics of extortion by DTOs and the assistance also provided by these criminal groups. The baseline models are similar to the ones described in equation 2 but also include interaction variables of the treatment indicator with each of the individual and municipal characteristics. We adjusted our baseline specification as follows:

[14]We use the *List* package for R (Blair and Imai, 2012).

$$y_{ij} = \alpha + \beta_1 T_i + \sum_k (\delta_k + \tau_k T_i) X_{ik} + \sum_l (\gamma_l + \eta_l T_i) Z_{jl} + \epsilon_{ij} \quad (3)$$

where τ_k and η_l are the coefficients for the interaction terms between the treatment indicator and the k individual and l regional characteristics, respectively.

Our theory highlights DTO territorial contestation as key independent variable shaping DTO behavior. To measure DTO contestation, we use Coscia and Rios (2012)'s [15] data on areas of operation of Mexican DTOs. As noted above, those authors used a Web crawler to extract information on the activity of criminal groups in Mexico from Google News. This consists of panel data where each column is a dummy variable indicating whether a given DTO was present in a municipality during a certain year. The data are available at the municipal level from 1990 to 2010.

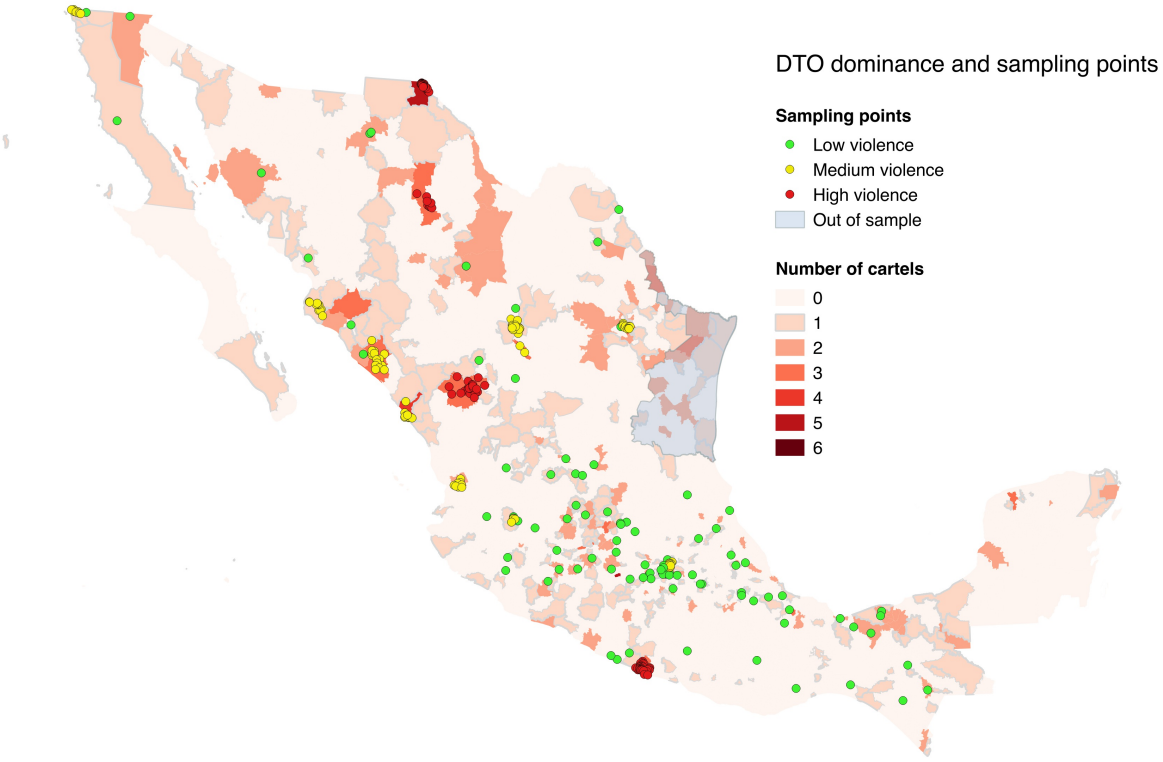
For our analysis, a municipality is ''contested" if two or more groups have a dominant presence; a municipality is a monopoly if only a unique, dominant group only has a presence. We estimate that, between 2008 and 2010, DTOs had a monopolistic presence in 10.9 percent of the municipalities (n=268) and contested an additional 4.9 percent (n=120). We estimate that more than half of the population lived in a municipality with a dominant presence of at least one criminal group (59% of the population lives in this 15.8% of municipalities), from which less than half lived in contested territories (27% of the population lives in the other 84.2% of municipalities).

We stratified municipalities by levels of violence ("Low", "Medium", and "High") as described in Section 4. Table 4 below shows that all high-violence municipalities in our sample were contested and all low-violence municipalities had no DTO activity, which make us more confident about our measure of territorial control. Maps in Figure A1 of the Appendix show areas of dominant presence for selected DTOs. Figure 3 displays our sampling points and the estimated number of cartels in each municipality.

Our theory argues, furthermore, about the importance of arrests of DTO's leadership.

[15] We thank Viridiana Rios in particular for facilitating our access to the original dataset.

Figure 3: **DTO dominance and sampling points**



Notes: The graph shows the geographic distribution of 300 sampling points of the Survey on Public Safety and Governance in Mexico conducted in 2011. Sampling points are colored according to the level of drug-related violence in each municipality ("High", "Medium," and "Low"). The first two categories include the most violent municipalities and concentrate, respectively, a third and a half of the total number of deaths related to criminal rivalry from January to May 2011, as reported by the government SEGOB (2011). The figure also shows the number of dominant DTOs in each municipality between 2008 and 2010. The areas were estimated using the Coscia and Rios (2012) database, which describes the yearly territorial presence of criminal groups using Google News queries. We define a cartel as having had a dominant presence in a municipality if it has had operations (it appears in the database) in every year between 2008 and 2010.

This may matter either because it increases DTO violence or because it changes the structure of the organization. We include a dummy variable to indicate whether a drug capo or lieutenant was captured in a municipality within the last three years (January 2008 to May 2011). We use Calderón et al. (2015)'s dataset and update it up to 2011 with data from Guerrero (2011a).

Our theory also argues that state capture by DTOs is potentially important. We therefore control for indicators of which party controlled a municipality, an important proxy as described above. We estimate the effect of a municipality controlled by the PAN or the PRI, with the PRD as the base category.[16] We also present a second model where we interact territorial control by DTOs with party incumbency. Moreover, following studies that stress the importance of coordinated efforts to fight – or protect – DTOs, (Durán-Martínez, 2015), we examine cases where the same party controls the state *and* the municipality.

We also control for whether there was a military joint operation in place at the time of the survey. These operations were coordinated efforts between the military and police forces (federal, state, and local) to regain state control and reestablish the rule of law in places overridden by violence and criminal activity. This also indicates federal resources directly used against DTOs in these states. At the time of the survey, there were 6 joint operations in 9 states.

To test for the effects of DTO organization, we classify these groups according to their hierarchical organization ("Standard", "Regional" or "Clustered"), drawing from the United Nations Office of Drug Enforcement's typology of crime organizations (UNODC, 2002). Standard hierarchy groups are the most common form of organized crime organizations. They are characterized by a single leader with a direct line of command to regional bosses and a clearly defined hierarchy where systems of internal discipline are strict. The Sinaloa Cartel, prior to the arrest of "El Chapo" Guzmán in 2016, and

[16]This group also includes very few electoral precincts where there was party alternation between January and June of 2011. The analysis does not change if these are excluded.

the Juárez Cartel typify this classification. Regional hierarchy groups are characterized by a single leadership structure and a clear line of command from the center – but they also have an important degree of autonomy at the regional level. The Gulf Cartel typifies this classification. Clustered hierarchy groups are formed by component criminal organizations or gangs that have a governing arrangement between these affiliates. Each component has a higher degree of autonomy than those in the other two types of organizations. Los Zetas typifies this classification.

Classifying groups into these categories is done using information produced through surveys by the United Nations Office of Drug Enforcement's typology of crime organizations among security experts and organizations from sixteen member countries, in combination with existing literature and journalistic accounts.

DTO organization is subject to frequent changes when members are captured, killed, or otherwise removed. Our classification corresponds to how DTO organization looked in 2011, when the survey was collected. To further test these characteristics, especially should the reader disagree with our classification, we ran our models using our categorization as well as simply an indicator for each individual DTO.

Our theory also argues that the characteristics of turf matter, including suitability for drug production, transportation infrastructure, and distance to the U.S. border. We use information on the Mexican transportation network and available information on government seizures to measure these, respectively.[17] Our theory distinguishes between the following territories: drug-producing, transportation, and border-crossings. We define a municipality as a "drug producer" if at least five hectares of crops of marijuana or opium poppy were eradicated by the government between January 2010 and May 2011. A municipality is a potential "transit point" if it has strategic transportation infrastructure, in particular airports, ports, and/or highways. Finally, a municipality is a potential "crossing point" if it has one of the more than 30 known border crossings to the United

[17]Data on transportation infrastructure is available at the National Institute of Statistics and Geography (INEGI). Data on government seizures is available via the Mexican Freedom of Information Act.

States.

We also include a dummy variable indicating whether the polling point (electoral section) is considered urban according to Mexico's Federal Electoral Institute and a variable indicating the municipal level of development by using the marginalization index constructed with 2010 census data (CONAPO, 2010).

The models below also include individual variables that allow us to highlight groups of respondents that show distinctive patterns, and to control for any imbalance in randomization. We include a full set of demographic variables – sex, age, occupation (including unemployment), education, and recipient of social transfers through the *Oportunidades* program as a proxy for poverty – that control for individual characteristics which may affect citizens' likelihood of being victimized.[18]

Table 4 presents summary statistics of municipal characteristics by the degree of territorial contestation between DTOs for all municipalities in Mexico. Column 1 shows summary statistics of contested municipalities. Columns 2 and 3 show the difference for places with monopolistic control and no dominant DTO, respectively.

We also include in the table extortion-related complaint rates at local public prosecutor offices as reported by the Secretarido Nacional de Seguridad Publica (SNSP). We use this data as an alternative measure for extortion in subsequent sections, comparing it with our reported rates through the list experiment in our survey.

[18]We do not include self-reported income in the main tables because this variable tends to be very unreliable as a proxy for poverty. We did collect this information, though, and the results do not vary when included.

Table 4: **Municipal characteristics by level of DTO's contestation**

	Units	Period	Contested mean (1)	Monopoly (diff) (2)		No cartel (diff) (3)	
Violence and extortion[1]							
Executions	total	08-11	153.06	-119.95	***	-149.88	***
Executions	rate	08-11	20.53	-4.44		-14.84	***
Homicides	rate	08-11	33.63	-3.89		-16.96	***
Hom by firearms males 19-39	rate	08-11	93.72	-20.79		-56.32	***
Extortion (SNSP)	rate	08-11	3.65	-1.28	**	-3.11	***
Socioeconomic characteristics							
Urban municipality	perc	2011	0.71	-0.15	***	-0.40	***
Population	thou	2011	253.83	-118.60	***	-231.76	***
PAN mayor	perc	2011	0.30	-0.04		-0.07	*
PRI mayor	perc	2011	0.53	-0.02		-0.16	***
Other mayors	perc	2011	0.17	0.06		0.24	***
Marginalization index	unit	2010	-1.01	0.38	***	1.15	***
Low marginalization	perc	2010	0.72	-0.14	***	-0.48	***
Medium marginalization	perc	2010	0.20	0.02		0.03	
High marginalization	perc	2010	0.08	0.12	***	0.44	***
Human development index	unit	2010	0.84	-0.03	***	-0.08	***
Illiteracy	perc	2010	0.08	0.02	***	0.10	***
Schooling	years	2010	7.71	-0.68	***	-1.87	***
Drug trafficking indicators2							
Producer	perc	08-11	0.18	0.03		-0.03	
Transit point	perc	2011	0.57	-0.15	***	-0.44	***
Border crossing	perc	2011	0.07	-0.04	*	-0.06	***
Road distance to USA	km	2011	795.73	87.51	*	272.45	***
Joint operation	perc	2011	0.54	-0.15	***	-0.32	***
Leader capture	perc	08-11	0.06	-0.01		-0.05	***
Opium poppy eradication	plots	08-11	14.96	68.42		-0.54	
Marijuana eradication	plots	08-11	65.23	37.17		-52.99	***
Cocaine seizures	kgs	08-11	96.91	50.74		-72.14	**
Heroine seizures	kgs	08-11	1.78	1.71		-1.48	***
Marijuana seizures	tons	08-11	10.18	2.85		-9.13	***
Municipalities	total		120	268		2068	

Notes: The table shows socioeconomic characteristics, drug trafficking indicators, and violence and extortion rates at the municipal level according to the number of DTOs with reported activities. Contestation was estimated using the Coscia and Rios (2012) database, which maps the yearly territorial presence of criminal groups using Google News queries. We define a cartel as having had a dominant presence in a municipality if it has had operations (as it appears in the database) in every year between 2008 and 2010. A territory is contested if two or more cartels have had a dominant presence. [12]: Data from 08-11 corresponds to the period between January 2008 and May 2011. Rates from 2011 were annualized to estimate average yearly rates across municipalities.

It can be seen that violent conflict between DTOs and territorial contestation are highly correlated. Contested territories are more violent than those with monopolistic

control and even more with respect to places with no DTO activity, both in total number of deaths and rates per hundred thousand inhabitants (using alternative measures for violence). Similarly, extortion-related complaint rates at local public prosecutor offices are also higher in contested places.

With respect to socioeconomic characteristics, the differences in Table 4 also suggest that territorial contestation tends to happen in urban and more developed places, with strategic transportation infrastructure, and closer to the US border. In contrast, monopolies are more prevalent in rural and poorer areas. Nevertheless, they seem to grow more crops of marijuana and opium poppy and transit almost twice the drugs than contested places, although none of these differences were statistically significant.

Interestingly, kingpin captures tend to happen equally between contested municipalities and those under monopolistic control, but state action in the form of joint operations tends to focus on contested places. It is worth noting that there are no differences in incumbent parties between these two types of territories. Nevertheless, municipalities with no DTO dominant presence tend to have fewer PRI governments.

5.3 Territorial control

Table 5 below shows the estimated coefficients for the experiments on DTO extortion and assistance. To untangle the relationship between contestation and violent conflict between DTOs, we estimated three models for each experiment: one using our proxy for territorial contestation, a second using our categories of the level of DTO violence, and a third interacting both variables. For interpretation purposes, we use as the baseline category places of high violence, all of them contested in our sample. We also group places of medium and low violence into a single category to make comparisons on interacted variables more intuitive.

The coefficients for monopolistic control, lower violence, and their interaction are negative and significant in Columns 1 through 3, indicating higher levels of extortion

by criminal groups in contested and high violence areas as compared to less violent areas under monopolistic control. These results support our theory about the effects of territorial contestation increasing and monopoly control decreasing extortion.

In contrast, the coefficients in the last three columns of Table 5 show that, as predicted by our theory, areas of monopolistic control are associated with more assistance from criminal groups. Moreover, the model in column (6) predicts more help in places under monopolistic control and low violence than in those with no dominant presence of DTOs and low violence.

Table 5: **Estimates on narco extortion and help**

	Narco extortion			**Narco help**		
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Sensitive item						
Violence and contestation						
Monopoly	-0.13**			0.18***		
	(0.05)			(0.07)		
No cartel	0.13			0.18		
	(0.10)			(0.12)		
Low violence		-0.14**			0.08	
		(0.06)			(0.07)	
x Contested			-0.10			-0.03
			(0.08)			(0.09)
x Monopoly			-0.19***			0.16**
			(0.05)			(0.08)
x No cartel			0.05			0.16
			(0.11)			(0.14)
Government interventions						
Joint operation	0.19**	0.13*	0.15**	0.13	0.14	0.11
	(0.08)	(0.08)	(0.07)	(0.08)	(0.09)	(0.09)
Leader capture	-0.14***	-0.06	-0.10	-0.21***	-0.25***	-0.20***
	(0.05)	(0.05)	(0.06)	(0.06)	(0.07)	(0.07)
Characteristics of the turf						
Drug producer	-0.12**	-0.12**	-0.11*	-0.02	-0.04	-0.02
	(0.06)	(0.05)	(0.06)	(0.06)	(0.07)	(0.06)
Transit point	0.07	0.00	0.06	-0.16*	-0.18**	-0.17*
	(0.11)	(0.11)	(0.10)	(0.09)	(0.09)	(0.09)
Border Crossing	-0.03	-0.12**	-0.07	0.17**	0.23***	0.16*
	(0.06)	(0.06)	(0.06)	(0.08)	(0.08)	(0.09)
Other controls						
PRI mayor	-0.11	-0.09	-0.10	0.01	-0.07	0.02
	(0.10)	(0.09)	(0.09)	(0.11)	(0.11)	(0.11)
PAN mayor	-0.09	-0.03	-0.05	-0.05	-0.11	-0.04
	(0.10)	(0.09)	(0.10)	(0.11)	(0.12)	(0.12)
Urban	0.08	0.08	0.09	0.16**	0.16**	0.16**
	(0.09)	(0.09)	(0.09)	(0.07)	(0.08)	(0.07)
Marginalization-Med	0.03	0.06	0.05	-0.20	-0.19	-0.19
	(0.14)	(0.14)	(0.14)	(0.13)	(0.13)	(0.13)
Marginalization-High	-0.00	0.11	0.01	-0.28**	-0.22*	-0.28**
	(0.16)	(0.15)	(0.16)	(0.13)	(0.11)	(0.13)
Observations	1,778	1,778	1,778	1,782	1,782	1,782
R-squared	0.10	0.10	0.10	0.08	0.07	0.08

Notes: The rows show estimated coefficients for the sensitive item of two list experiments included in the Survey on Public Safety and Governance in Mexico in 2011. There were two questions (card 1 and 2) for which respondents were randomly assigned into one control and two treatment groups (see Table 1). A full coefficient table is available upon request. All models include individual level characteristics. Robust standard errors by municipality in parenthesis. *** : $p < 0.01$, ** : $p < 0.05$, * : $p < 0.1$.

In terms of the other covariates in the model, leadership arrests have a significant and substantial negative coefficient for assistance. These results support the idea that DTOs with stable leadership can better sustain collaborative relationships with the community. The capture of a national or regional leader does not seem to influence extortion, contrary to our expectations. The effect of drug capo arrests on extortion appears to be mediated through how these cause significant increases of inter-cartel violence, as demonstrated by (Calderón et al., 2015) and (Phillips, 2015). More inter-cartel violence, in turn, is associated with more DTO extortion.

The models in Table 5 control for joint operations, where we find significantly higher levels of extortion. There is substantial debate in the literature about whether joint operations directly caused violence or if, instead, they were assigned to places where violence was already escalating (Escalante Gonzalbo, 2011; Merino, 2011; Rosas, 2011). Our results cannot determine causality, although they do demonstrate that places where joint operations took place are also associated with significantly higher levels of extortion.

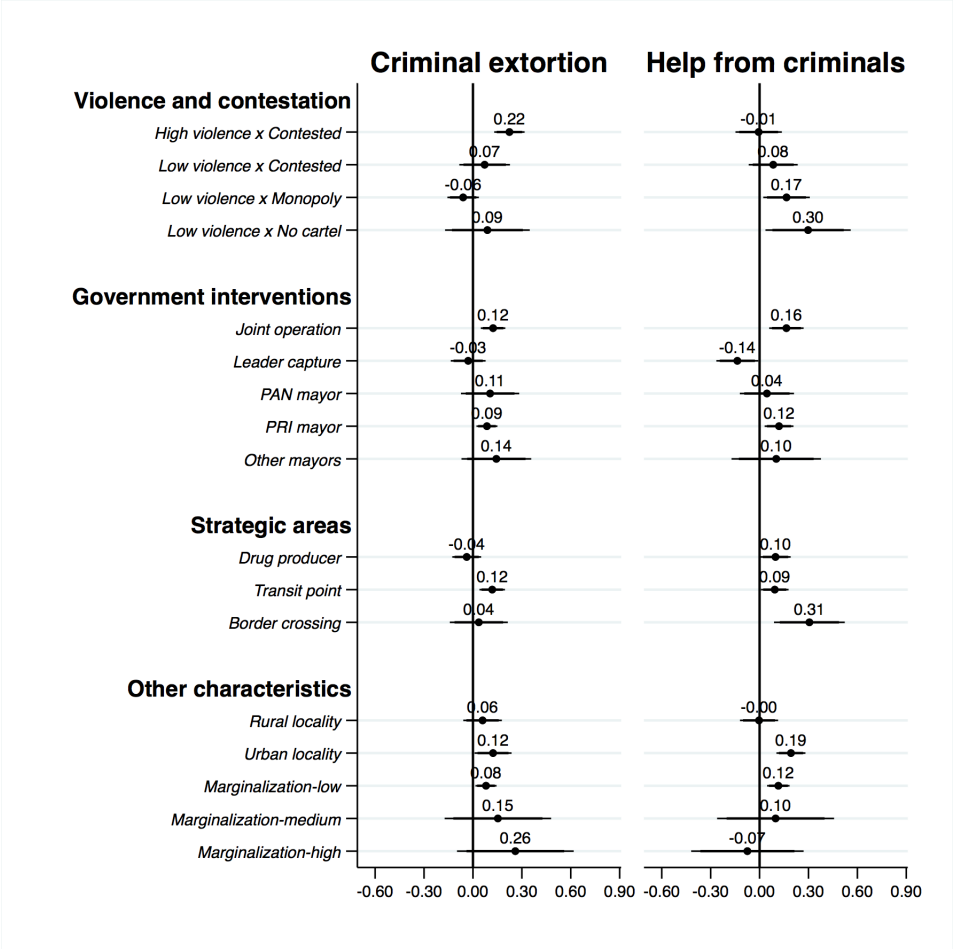
Finally, we find significantly more assistance in border-crossings and less assistance in transit points, in support of our theory. Drug-cultivating areas exhibit less extortion and, contrary to our expectations, we do not find more assistance here.

The party controlling the municipality has no effect on extortion nor help. In subsequent sections, we find strong effects when accounting for the party controlling the state, which suggests that governors more than mayors are a key determining factor. In terms of individual-level variables, we found higher rates of extortion affecting poor, middle-aged males with medium levels of education. In contrast, we found that the poor and elderly population tend to receive the most help from narcos. We did not find significant differences by sex or between other age groups.

Figure 4 below shows the average predictions from the full interacted model. For ease of interpretation, we present predicted values and their 90% and 95% confidence intervals. As expected, the model predicts a 22% incidence of extortion in contested municipalities with high levels of violence and the lowest prevalence in places under

monopolistic control. The model also predicts a 17% prevalence of narco help in the later municipalities, significantly different from zero.

Figure 4: **Predicted rates of DTO extortion and co-optation**



Notes: The figure shows predicted rates of DTO extortion and assistance, and their 90% and 95% confidence intervals, for two list experiments included in the Survey on Public Safety and Governance in Mexico in 2011. There were two questions (card 1 and 2) for which respondents were randomly assigned into one control and two treatment groups (see Table 1). A full coefficient table is available upon request. All models include regional socio-economic characteristics and robust standard errors.

5.4 DTO relationships with the state

Our theoretical approach stresses that, conditional on levels of contestation, DTOs will be able to extort more if they collaborate with local law enforcement. In Mexico's federal system, gaining collaboration from governors is critical because they appoint local prosecutors and police, which in turn shapes which crimes get investigated and prosecuted (Trejo and Ley, 2017). Moreover, following a strand in the literature that stresses the

importance of coordinated efforts to fight or protect DTOs (Durán-Martínez, 2015), this section presents models on partisan control of governors and mayors.

Table 6 shows the estimated coefficients of our models of the effects of partisan control on DTO extortion and assistance, and Figure 5 displays the predicted rates of Models 1 and 3. As described, the baseline scenario is a contested territory with a PRD governor. Consistent with our theory, results show that areas with a PAN governor have significantly lower extortion rates, especially those with a co-partisan mayor. Municipalities under this PAN juxtaposition also have the lowest predicted rates of extortion for both contested and monopolized territories (not shown here). We do not find significant differences for PAN-controlled municipalities with respect to help.

Table 6: **Estimates on narco extortion and help by incumbent party**

	Narco extortion		**Narco help**	
Variable	(1)	(2)	(3)	(4)
Sensitive item				
PRI gov other may	-0.01		0.03	
	(0.07)		(0.10)	
PRI gov and may	-0.15*		0.13*	
	(0.08)		(0.08)	
PAN gov other may	-0.23***		0.07	
	(0.08)		(0.10)	
PAN gov and may	-0.24***		-0.03	
	(0.09)		(0.08)	
Contested				
x PRI gov other may		0.04		0.19
		(0.11)		(0.16)
x PRI gov and may		-0.14		0.22**
		(0.11)		(0.10)
x PAN gov other may		-0.26**		0.16
		(0.11)		(0.11)
x PAN gov and may		-0.23*		0.11
		(0.12)		(0.10)
Monopoly	-0.09*		0.20***	
	(0.05)		(0.06)	
x PRI gov other may		-0.16		0.24
		(0.11)		(0.18)
x PRI gov and may		-0.28***		0.42***
		(0.09)		(0.09)
x PAN gov other may		-0.33***		0.48**
		(0.12)		(0.20)
x PAN gov and may		-0.23**		0.14*
		(0.09)		(0.08)
x Other incumbents		-0.08		0.22
		(0.14)		(0.19)
No cartel	0.15		0.17	
	(0.09)		(0.12)	
Observations	1,778	1,778	1,782	1,782
R-squared	0.11	0.11	0.08	0.09

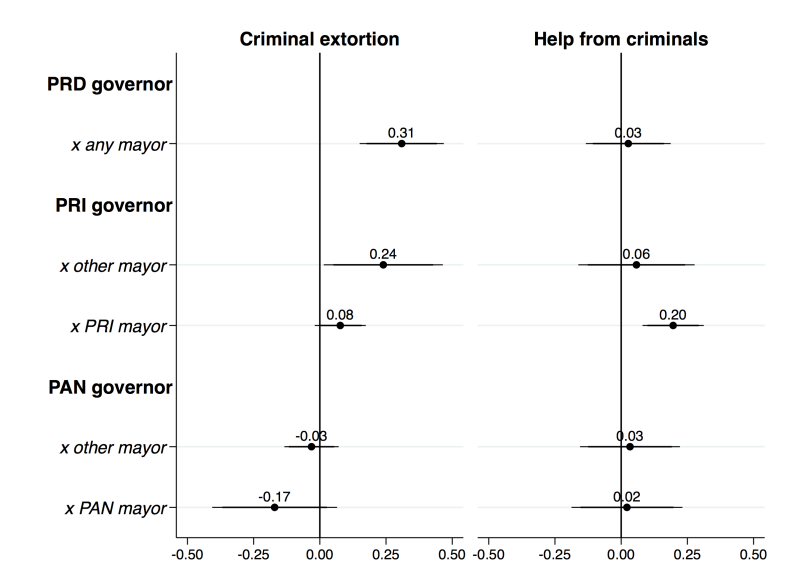
Notes: The rows show estimated coefficients for the sensitive item of two list experiments included in the Survey on Public Safety and Governance in Mexico in 2011. There were two questions (card 1 and 2) for which respondents were randomly assigned into one control and two treatment groups (see Table 1). A full coefficient table is available upon request. All models include individual level characteristics. Robust standard errors by municipality in parenthesis. *** : $p < 0.01$, ** : $p < 0.05$, * : $p < 0.1$.

Moreover, in line with our theoretical expectations, PRI-governed states show significantly higher extortion rates than PAN-controlled areas. The difference in the predicted

rate of extortion in places with PRI juxtaposition, relative to places with PAN juxtaposition, is more than 20 percentage points. Noticeably, we also find the highest predicted rates of DTO assistance when the PRI holds both the municipality and the governorship.

Surprisingly, the highest levels of extortion are found in the baseline scenario, that is, PRD-controlled governorships. This seems to be consistent with the argument that PRD governments were easy prey for powerful DTOs without federal government backing during Calderón's presidency, either through killing a disproportionate number of their mayors or, apparently, coercing or capturing them to impose a predatory criminal order without much state restraint.

Figure 5: **Predicted rates of narco extortion and help by incumbent party**



Notes: The figure shows predicted rates of DTO extortion and assistance, and their 90% and 95% confidence intervals, for the two list experiments included in the Survey on Public Safety and Governance in Mexico in 2011. There were two questions (card 1 and 2) for which respondents were randomly assigned into one control and two treatment groups (see Table 1). Full coefficient table is available upon request. All models include regional socio-economic characteristics and robust standard errors.

5.5 Leadership style and organizational capacity

This section explores the role of criminal organization on DTO strategies toward the population. Figure A1 in the Appendix shows the areas of operation of selected drug-trafficking organizations between 2008 and 2010 using the Coscia and Rios (2012) database. The figure also displays if the areas are under monopolistic control or under contestation according to our definitions above.

Table 7: **Estimates on narco extortion and help by type of DTO hierarchy**

	Narco extortion	**Narco Help**
Sensitive item		
Standard x Contested	0.09	-0.14
	(0.06)	(0.16)
Sinaloa x Contested	0.10	-0.11
	(0.06)	(0.15)
Juarez x Contested[1]	-0.17	-0.22
	(0.11)	(0.16)
Regional x Contested		
Golfo x Contested	0.05	0.05
	(0.19)	(0.32)
Clustered x Contested	0.14**	-0.20***
	(0.06)	(0.07)
Zetas x Contested	0.22*	-0.38***
	(0.11)	(0.10)
Familia x Contested	0.35*	0.01
	(0.18)	(0.16)
Tijuana x Contested	0.15***	-0.11
	(0.06)	(0.11)
Beltran Leyva x Contested	0.03	-0.24***
	(0.08)	(0.07)

Notes: The rows show estimated coefficients for the sensitive item of two list experiments included in the Survey on Public Safety and Governance in Mexico in 2011. There were two questions (card 1 and 2) for which respondents were randomly assigned into one control and two treatment groups (see Table 1). Groups are classified according to their hierarchical organization (Standard, Regional or Clustered) drawing from the United Nations typology of crime organizations (UNODC, 2002). 1: All municipalities with dominant presence of the Juárez cartel were contested during the period of study. A full coefficient table is available upon request. All models include individual level characteristics. Robust standard errors by municipality in parenthesis. *** : $p < 0.01$, ** : $p < 0.05$, * : $p < 0.1$.

Conditional on levels of contestation, we expect higher levels of extortion and lower assistance among clustered hierarchy groups than among standard and regional hierarchy groups. To test these hypotheses, we run an individual model for each type of organization (Standard, Regional, Clustered). The model includes a dummy variable indicating the presence of that particular type of organization interacted with our variable for territorial contestation (Monopoly, Contested, No Cartel).

The coefficients in Table 7 show the estimated differences in DTO extortion and assistance between contested and monopolistic areas of operation of the corresponding organization. The table also reports coefficients for models where each DTO is treated separately.

The results are broadly consistent with our theoretical expectations. Clustered criminal groups exhibit significantly higher levels of extortion under conditions of territorial contestation, as reflected in the negative and statistically significant coefficient for the interaction of these variables. In terms of assistance, we also find significantly lower levels provided by clustered DTOs. We do not find evidence that standard and regional hierarchy groups engage in significantly more extortion or less assistance under conditions of high territorial contestation. We should emphasize that our findings probably underestimate the levels of extortion for Los Zetas and the Gulf DTOs: as mentioned above, we were not able to collect surveys in Tamaulipas, where these two groups have fought a bloody turf war.

In combination with the evidence above that capo removals matter, this evidence suggests that DTO organization has important effects on interactions with the community.

5.6 Robustness tests and external validity

Our empirical approach uses a set of variables and definitions for violence and territorial contestation. In this section, we use alternative measures for the dependent and some of our independent variables as well as other data sources as robustness checks. Tables 8

and 9 show the estimated coefficients of alternative models for narco extortion and help.

First, we use alternative measures for violence. Columns (1) in both tables replicate our analysis using the tertiles of the average annual rate of drug-related executions from 2008 to May 2011 as our measure for violence. Although we believe that the total number of executions is a more direct measure of the intensity of the inter-conflict, we present this model to account for population size. As before, we use contested municipalities with high levels of violence (last tertile) as the baseline scenario. We observe once again that DTO extortion is lower and help is more prevalent in places with monopolistic control.

Some critics of government data on drug-related deaths argue that it suffers bias from underestimation or misclassification of cases. The database only includes cases with an open investigation from the federal or local public attorney offices and known by the federal authorities, and their inclusion in the database might change if they no longer meet the established criteria (SEGOB, 2011). Therefore, in Model 2 we use homicide rates by firearms of males between 15 to 39 years old (SINAIS, 2011). This series has some advantages: 1) homicide data comes directly from death certificates, reducing potential underestimation biases, 2) homicides in this group of age and gender best reflect the geo-temporal variance of reported executions between criminal groups (Calderón et al., 2015), and 3) homicides by firearms are directly related to drug-related violence, since most of the executions occur in this modality. Using this series as our measure of violence, we found very similar results to those in our baseline model.

The models in Column 3 do not rely on external data for our measures of violence and contestation at the municipal level. Instead, we use a measure of local violence directly taken from our survey. We asked our respondents: *"From a scale from 0 to 10, where 0 means no violence and 10 means the worst level of violence, how would you grade violence in your locality?"* We estimated the average grade at the precinct level and defined our categories of violence (Low [0-3], Medium [3-8], and High [8-10]). This measure could also be conceived as a proxy of territorial contestation, given that it is to be expected that respondents would answer that they observe more violence where DTOs contest a

territory. We observe again that extortion is less prevalent and help from narcos more frequent in localities with medium and low violence.

The second strategy in our robustness checks is to use alternative measures of territorial contestation. Our baseline measure defines that a cartel has a dominant presence in a municipality if it has had activity in that place for at least three consecutive years (2008-2010) using the Coscia and Rios (2012) database based on online news articles. We chose the window of three years to avoid overestimating the number of cartels because of temporary or single events within a year that do not necessarily reflect DTOs' control or influence over a municipality.[19] As a robustness check, we present in column (4) of Tables 8 and 9 our baseline model using the number of DTOs in 2010 (the last year available) as reported in Coscia and Rios (2012). We observe once again that extortion is significantly lower in places of low violence, with the highest reduction in places where a single cartel operates. The coefficient for help is also positive and substantive (but not significant) for this scenario.

An alternative dataset on DTO's area of operation comes from Osorio (2015). The author bases his analysis on online articles from local and national newspapers and government reports and uses a supervised coding protocol for text analysis and automated identification of event data.[20] The database identifies drug-related events by type (executions, confrontations, government interventions, etc.) and actors involved, including criminal groups. Column (5) in both tables presents models using our baseline definition for territorial contestation but using Osorio's dataset on the number of DTOs. Results show that extortion is significantly lower in contested places with low violence versus places with high violence. In this model, however, we did not find significant effects for extortion and help for the monopoly scenario.

It is worth noting that the Coscia and Rios (2012) and Osorio (2015) datasets differ

[19]For example, some captures of kingpins occurred when they were in transit in municipalities outside they area of operation. The Coscia and Rios database would have a positive entry for these cases linking the municipality and the DTO.

[20]The *Eventus ID* protocol was developed by (Osorio and Reyes, 2014).

considerably after 2004. The number of municipalities with at least one DTO in the first dataset more than doubles the number reported in the second dataset. Moreover, there is a group of municipalities in the Osorio (2015) dataset that reports no DTO presence but have high levels of executions and homicides, as measured with official statistics.[21]

Finally, to demonstrate the external validity of our findings, the last three columns in Table 8 present models with alternative measures of extortion at the municipal level using an extended sample of municipalities in Mexico. The model in Column 6 uses official data on extortion rates in 2011 as reported by the Mexican Government (SNSP, 2011). The database contains the number of cases of extortion with a pre-trial or full investigation as *reported* by local public prosecutor offices from all municipalities in Mexico. The estimated coefficients confirm our results that extortion rates are considerably higher in contested areas than those under the monopoly and no cartel scenarios. Similarly, coefficients show that violence intensifies the prevalence of this criminal activity in the later scenarios.

Data from reported cases severely underestimates crime incidence since most of the crimes go unreported due to fear, insecurity, and lack of trust in the government. An alternative strategy is to rely on self-reported data from victimization surveys. The last two columns in Table 8 show similar models using questions about extortion included in the 2011 National Victimization Survey as the dependent variable (ENVIPE, 2011). The survey asks respondents if they have been victims of extortion in the last six months or if there has been extortion in their neighborhood. The variables are expressed as the number of people reporting extortion per thousand inhabitants using population weights from the victimization survey. Once again, we observe that the worst scenario for civil society is that of two or more criminal groups engaging in violent confrontation for control of the drug market. In fact, the predicted rate of individual extortion for the contested-high-violence scenario (50.3) is at least 20% greater than those for the monopoly (41.1)

[21] Acapulco is the most extreme case, as Osorio's dataset reports no DTO activity there between 2000 and 2010. The city was the second most violent place in Mexico in 2011 after Ciudad Juárez and the fifth most violent between 2008 and 2011.

and no-cartel (38.8) low-violence scenarios. We observe similar results the prevalence of extortion in the neighborhood is used as the dependent variable.

5.7 The need for list experiments

Our data make an important broader point beyond this particular paper: crime appears to be systematically underreported in Mexico. Comparing crime incidents reported to local public attorney offices (SNSP) and victimization surveys (ENVIPE) in 2011, we estimate that underreporting bias is as high as 87.2% for common crimes and 93.2% for extortion. Even victimization surveys can suffer from underreporting if citizens feel unsafe revealing predatory or abusive behavior by criminal groups or the police.

Our estimates for criminal extortion in 2011 reveal that at least 12% of the population living in contested territories have been extorted by criminal groups. This compares to the 6% of respondents in contested areas giving the same answer when asked directly in the national victimization survey. Our estimate is only closer to the 17% of the population reporting extortion in their neighborhoods throughout DTO-contested places. This comparison of extortion rates reveals the advantages of using experimental methodologies like the item count technique to increase truthful responses when measuring criminal incidents.

6 Conclusions

Mexican DTOs have shifted their activities: they no longer focus primarily on the shipment of illegal drugs to international markets, and instead have diversified into criminal activities that prey on citizens such as extortion, kidnapping, human trafficking, and the collection of protection money.

The paper develops a theoretical framework to understand DTO strategies of extortion and cooperation in their interactions with the civilian population. Four factors influence DTO behavior toward the communities where they work: i) degree of territorial

contestation and violent conflict between DTOs; ii) collaboration with the state and law enforcement; iii) DTO organization and leadership stability; and iv) the characteristics of the local turf.

When DTOs are in firm control of their territories, they can behave as more benign stationary bandits and offer assistance to the community. But as these criminal organizations violently compete for control of territory and trafficking routes, the incentives to turn against citizens and extort resources increase. In this respect, DTO behavior resembles behavior by rebel groups.

A second factor that influences DTO behavior toward the community is the degree of government collaboration and/or collusion. In contrast to insurgents, DTOs do not seek to topple the state; instead, they traffic drugs and engage in other illicit activities –such as extortion – to extract profits. DTOs often find ways to receive protection from the state and buy impunity from law enforcement to perform these activities. Holding levels of contestation constant, the more DTOs are protected by the state, the more criminals can engage in illicit activities to harm the population without facing legal sanctions.

Our approach elaborates and refines Snyder and Duran-Martinez (2009), who argue that illicit markets can be peaceful when state-sponsored protection rackets form. The reality, however, is that there can be collusive agreements between DTOs and the state that are peaceful –for example, the symbiotic relationship between the PRI and the narcos during the era of one-party rule – and collusive agreements with the state that are extremely predatory. The most predatory criminal order is found where DTOs violently compete against each other *and* where DTOs can count on the collaboration with, or protection from, law enforcement. Under these conditions, victimized citizens can't turn to the state for legal retribution because the police, prosecutors, and courts are working for, or protecting, criminals.

Other factors that shape DTO behavior are criminal organization and leadership stability. More hierarchical criminal organizations that are headed by strong and stable leaders are better able to control their armed criminals from terrorizing the communities

where they work. Hierarchical organizations with leadership stability also have longer time-horizons that allow them to make investments in communities, offering assistance to the members of the communities in exchange for restraining the use of violence.

The Mexican federal government attempted to subdue DTOs by assaulting their organization from the top down and fragmenting them into smaller groups. However, the efficacy of this strategy rested on the assumption that violence would not affect the population while "criminals would exterminate each other."[22] That assumption turned out to be highly mistaken: disorganized crime became significantly more dangerous for Mexican society than organized crime.

Lastly, we have offered a theory about DTO behavior that accounts for the value of the territory or turf, as well as its logistics, for DTO behavior. Holding the levels of territorial competition constant, we have argued that DTOs cooperate more with the population in areas where local criminal activity requires more community collaboration for the DTO to keep control of territory. We have highlighted a distinction between border crossings and transit points. Keeping control of the former require more active community collaboration than the latter, and hence DTOs are more likely to engage in assistance there than in transit points. Our expectation was that DTOs would also engage in more assistance in drug-producing territories, but the data did not support this claim. Further research is necessary to better understand how the nature of the turf –and in particular drug production – influences DTO behavior toward the community.

To support our theoretical approach, the paper used list experiments to explore the sensitive questions about extortion and assistance from DTOs. Our statistical models provide evidence of the pervasiveness of DTO extortion in regions that are contested and suffer high levels of inter-cartel violence. We also offered evidence that DTOs behave differently where PAN, PRI, or PRD control the state and the municipality. The estimates also provided evidence that DTO organization, leadership stability and the value and

[22]Personal interviews with a high-security official during the Calderón presidency that asked to remain anonymous.

logistics of the turfs matter. We presented evidence, moreover, that the patterns hold using a variety of measures of inter-violence. Finally, to demonstrate the external validity of our findings, we presented models with alternative measures of extortion, including official data on extortion rates in 2011 as reported by the Mexican Government (SNSP, 2011) and extortion data derived from victimization surveys.

Taken together, our theory and empirical evidence advance knowledge about DTO behavior toward the population. Our paper presents a compelling explanation of why citizens are increasingly living in fear in Mexico. Lethal violence is not the only or most pervasive danger for the general population. Citizens are trapped in networks of extortion and coercion where DTOs prey on them, often with the acquiescence or direct collaboration of local states and law enforcement agents. Federalism complicates Mexican security dilemmas because it creates many potential sources for DTOs to buy off institutional protection and impunity. Mafia states describe an increasingly prevalent micro-criminal order in Mexico, one where DTOs contest violently for control of local turfs and where criminals extort, kidnap, rape, and terrorize the community with the acquiescence – or direct collusion - of local states and their security apparatuses.

Table 8: **Robustness checks and out of sample validity: narco extortion**

Source	Survey					SNSP	ENVIPE	
Dependent variable	List experiment					Extortion rate	Extortion prevalence	Extortion in neigh.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High violence								
x Monopoly	-0.13**	-0.12**		-	-	-8.22***	-	-
	(0.05)	(0.05)				(2.31)		
x No cartel	0.13	0.24*		-	0.06	-	-	-
	(0.15)	(0.15)			(0.07)			
Medium violence			-0.12					
			(0.08)					
Low violence			-0.21**					
			(0.10)					
x Contested	-0.09	-0.14		-0.14**	-0.22***	-4.21*	-14.90	-65.23*
	(0.24)	(0.19)		(0.06)	(0.04)	(2.38)	(13.06)	(39.49)
x Monopoly	-0.19	-0.25*		-0.26*	0.10	-5.59**	-24.16*	-76.97**
	(0.13)	(0.13)		(0.14)	(0.11)	(2.31)	(12.82)	(38.86)
x No cartel	0.10	-0.02		-0.13	-0.02	-6.77***	-26.44**	-91.14**
	(0.12)	(0.12)		(0.11)	(0.09)	(2.30)	(13.07)	(39.02)
Observations	1,778	1,778	1,778	1,778	1,778	2,456	896	896
R-squared	0.10	0.10	0.10	0.10	0.11	0.16	0.06	0.11
Var for violence	Executions rate, 08-11	Homicides by firearms, 08-11	Violence in locality 2011	Executions total, Jan-May 2011				
Var for contestation	Coscia & Rios, 2008-2010		None	Coscia & Rios, 2010	Osorio, 2008-2010	Coscia & Rios, 2008-2010		
Unit of analysis	Individual					Municipality		

Notes: Columns (1) to (5) show estimated coefficients for the sensitive item of a list experiment included in the Survey on Public Safety and Governance in Mexico in 2011. Respondents were randomly assigned into one control and two treatment groups (see Table 1). Data on extortion complaints in Column (6) comes from the Secretariado Ejecutivo del Sistema Nacional de Seguridad Pública (SNSP, 2011). Data on victimization in Columns (7) and (8) comes from the Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública (ENVIPE, 2011). Data on executions come from the "Deaths Presumably Related to Criminal Rivalry" dataset published by the Mexican government (SEGOB, 2011). Data on homicides by firearms is based on death certificates (SINAIS, 2011). A full coefficient table is available upon request. All models include regional socio-economic characteristics. Robust standard errors in parenthesis. *** : $p < 0.01$, ** : $p < 0.05$, * : $p < 0.1$.

Table 9: **Robustness checks: help from DTOs**

Source	Survey				
Dependent variable	List experiment				
	(1)	(2)	(3)	(4)	(5)
High violence					
x Monopoly	0.21***	0.19***		-	-
	(0.08)	(0.07)			
x No cartel	0.18	0.25		-	-0.25**
	(0.16)	(0.17)			(0.12)
Medium violence			0.14**		
			(0.07)		
Low violence			0.13		
			(0.20)		
x Contested	0.57***	0.36*		0.09	0.02
	(0.21)	(0.21)		(0.07)	(0.06)
x Monopoly	0.24*	0.30*		0.23	0.03
	(0.13)	(0.15)		(0.15)	(0.08)
x No cartel	0.29**	0.26*		0.03	0.10
	(0.14)	(0.15)		(0.14)	(0.13)
Observations	1,782	1,782	1,782	1,782	1,782
R-squared	0.08	0.08	0.08	0.07	0.08
Var for violence	Executions rate, 08-11	Homicides by firearms, 08-11	Violence in locality 2011		
Var for contestation	Coscia & Rios, 2008-2010		None	Coscia & Rios, 2010	Osorio, 2008-2010

Notes: Columns (1) to (5) show estimated coefficients for the sensitive item of a list experiment included in the Survey on Public Safety and Governance in Mexico in 2011. Respondents were randomly assigned into one control and two treatment groups (see Table 1). Data on executions come from the "Deaths Presumably Related to Criminal Rivalry" dataset published by the Mexican government (SEGOB, 2011). Data on homicides by firearms is based on death certificates (SINAIS, 2011). A full coefficient table is available upon request. All models include regional socio-economic characteristics. Robust standard errors in parenthesis. *** : $p < 0.01$, ** : $p < 0.05$, * : $p < 0.1$.

Appendix for

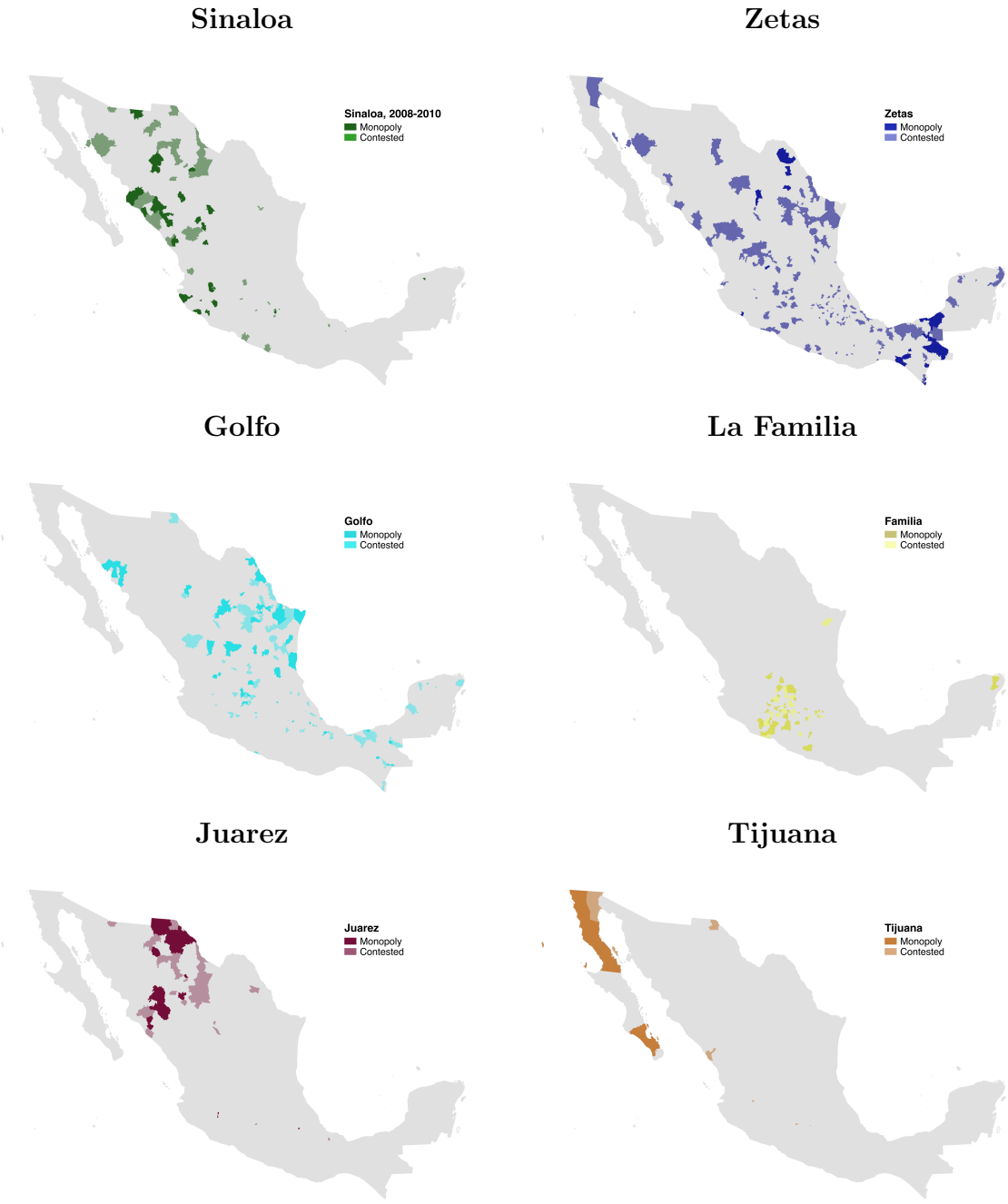
Living in Fear: The Dynamics of Extortion in Mexico's Drug War

Table A1: **Summary statistics**

Variable	Control % (1)	Treatment Group 1 (diff) (2)		Treatment Group 2 (diff) (3)	
Observations	900	900		900	
DTO contestation and violence					
Low violence	0.33	0.00		0.00	
Medium violence	0.33	0.00		0.00	
High violence	0.33	0.00		0.00	
No cartel	0.15	0.00		0.00	
Monopoly	0.23	0.00		0.00	
Contested	0.62	0.00		0.00	
Municipal characteristics					
Urban locality	0.55	0.00		0.00	
PAN mayor	0.19	0.00		0.00	
PRI mayor	0.73	0.00		0.00	
Other mayors	0.08	0.00		0.00	
Joint operation	0.67	0.00		0.00	
Leader capture	0.27	0.00		0.00	
Drug producer	0.37	0.00		0.00	
Transit point	0.79	0.00		0.00	
Border Crossing	0.15	0.00		0.00	
Marginalization Index-Low	0.88	0.00		0.00	
Marginalization Index-Medium	0.06	0.00		0.00	
Marginalization Index-High	0.05	0.00		0.00	
Individual characteristics					
Man	0.50	0.02		0.06	***
Age 18-35	0.44	0.06	***	0.03	
Age 36-50	0.31	-0.00		-0.03	
Age 51-65	0.16	-0.04	***	-0.01	
Age 66 or more	0.09	-0.01		0.00	
Edu-None or Primary	0.37	-0.05	**	-0.02	
Edu-Secondary or High School	0.47	0.04	*	-0.01	
Edu-College or more	0.16	0.00		0.03	*
Oportunidades	0.23	0.00		-0.00	
Peasant	0.07	-0.01		-0.01	
Self Employed	0.17	-0.01		-0.00	

Notes: The table shows summary statistics of 2,700 interviews in the Survey on Public Safety and Governance in Mexico. Participants were randomly assigned into one control and two treatment groups. Column (1) shows average characteristics in the control group. Columns (2) and (3) show differences with respect to treatment groups. P-values of difference in means tests are also shown: *** : $p < 0.01$, ** : $p < 0.05$, * : $p < 0.1$.

Figure A1: **DTOs' areas of operation**



Notes: The figure shows the areas of operation of selected DTOs between 2008 and 2010. The areas were estimated using the Coscia and Rios (2012) database, which describes the yearly territorial presence of criminal groups using Google News queries. We define a cartel as having had a dominant presence in a municipality if it has had operations (as it appears in the database) in every year between 2008 and 2010. A territory is contested if two or more cartels have had a dominant presence.

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