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Benjamin Lessing

Assistant Professor

Department of Political Science

University of Chicago

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Center on Democracy, Development and the Rule of Law
Freeman Spogli Institute for International Studies
Stanford University
Encina Hall
616 Serra St.
Stanford, CA 94305-6055

Voice: 650-723-4610
Fax: 650-724-2996
Website: <http://cddrl.stanford.edu/>

The Logic of Violence in Drug Wars: Cartel-State Conflict in Mexico, Brazil and Colombia

Benjamin Lessing*

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Abstract

Why have militarized interventions to curtail violence by drug cartels had wildly divergent results? In the past six years, state crackdowns drove a nine-fold increase in cartel-state violence in Mexico, versus a two-thirds decrease in Brazil. Prevailing analyses of drug wars as a criminal subtype of insurgency provide little traction, because they elide differences in rebels' and cartels' aims. Cartels, I argue, fight states not to conquer territory or political control, but to coerce state actors and influence policy outcomes. The empirically predominant channel is *violent corruption*—threatening enforcers while negotiating bribes. A formal model reveals that greater state repression raises bribe prices, leading cartels to fight back whenever (a) corruption is sufficiently rampant, and (b) repression is insufficiently *conditional* on cartels' use of violence. Variation in conditionality helps explain observed outcomes: switching to conditional repression pushed Brazilian cartels into nonviolent strategies, while Mexico's war "without distinctions" inadvertently made fighting advantageous.

*Postdoctoral Fellow, Center on Democracy, Development, and the Rule of Law (CDDRL) and Center for International Security and Cooperation (CISAC), Stanford University. Assistant Professor, Department of Political Science, University of Chicago (As of July 2013). E-mail: benlessing@gmail.com

INTRODUCTION

Organized criminal violence is an increasingly dire threat to citizen security, development, and even democratic stability; yet our understanding of its dynamics lags behind that of civil war. And while traditional insurgency waned over the last quarter-century (Blattman and Miguel 2010; Kalyvas and Balcells 2010), a new and extreme form of criminal conflict—in which drug cartels¹ battle not only one another but also the state itself—has ravaged Latin America’s three largest countries, producing casualties on par with the deadliest sub-national conflicts. Troublingly, states’ efforts to reduce cartel violence, often styled after anti-guerrilla campaigns, have had unforeseen and sometimes tragically counter-productive results.

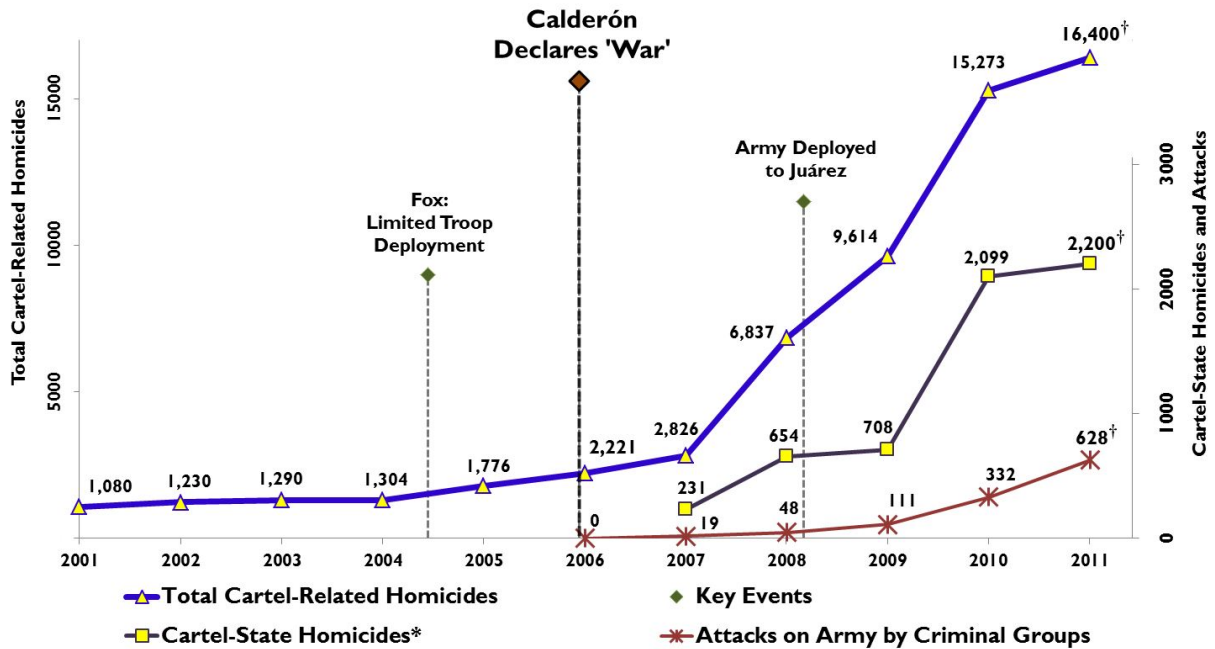
Weeks after his 2006 inauguration, President Felipe Calderón, hoping to curtail rising cartel violence, launched what would become Mexico’s largest non-humanitarian military deployment in modern times. Not even his harshest critics anticipated that by the end of his term, cartels would become an order of magnitude *more* violent, producing some 60,000 homicides overall and a concomitant rise in cartel-state homicides, attacks on army troops, and anti-state violence in general. In Rio de Janeiro, Brazil, decades of militarized crackdowns drove a similar escalation, reaching a high in 2007 of 1,330 civilians killed by police alone. The following year, a new “Pacification” strategy was rolled out that, despite enormous deployments of state firepower and the capture of key *favela* (slum) redoubts, quickly reversed the trend: by 2012 cartel-state violence had fallen by 68% to its lowest level in a decade.

Figures 1 and 2 capture both the staggering toll of drug wars and—given leaders’ genuine surprise at the results of their policy interventions—a critical knowledge gap. Why are some crackdowns met with sharp increases in cartel-state conflict while others virtually eliminate it?² Broadly, I argue that

¹The term ‘cartel’ raises hackles, since drug trafficking organizations (DTOs) rarely collude on price. I sin doubly by applying it to Brazilian DTOs, which unlike Mexico’s and Colombia’s are not popularly referred to as cartels. I use ‘cartel’ as shorthand for ‘DTOs of sufficient capacity to sustain confrontation with the state’; Rio’s DTOs clearly fit this definition.

²Rio de Janeiro’s conflict is metropolitan while Mexico’s and Colombia’s are national; are these cases comparable? Four factors suggest so. First, Rio’s conflict is comparably lethal and destructive. Second, the sustained cartel-state violence observed in Rio is highly anomalous with respect to the rest of Brazil, but similar to Colombia and Mexico. Third, Rio’s *sui generis* trafficking organizations—resilient, prison-based criminal networks—are comparable in organizational and military capacity to ‘cartels’ in producer and transshipment countries. Finally, in Brazil, policing policy is determined almost entirely by state governors, not presidents or mayors; this makes Rio de Janeiro State more comparable than Brazil as a whole.

FIGURE 1. Mexico's Drug War: 2001-2011



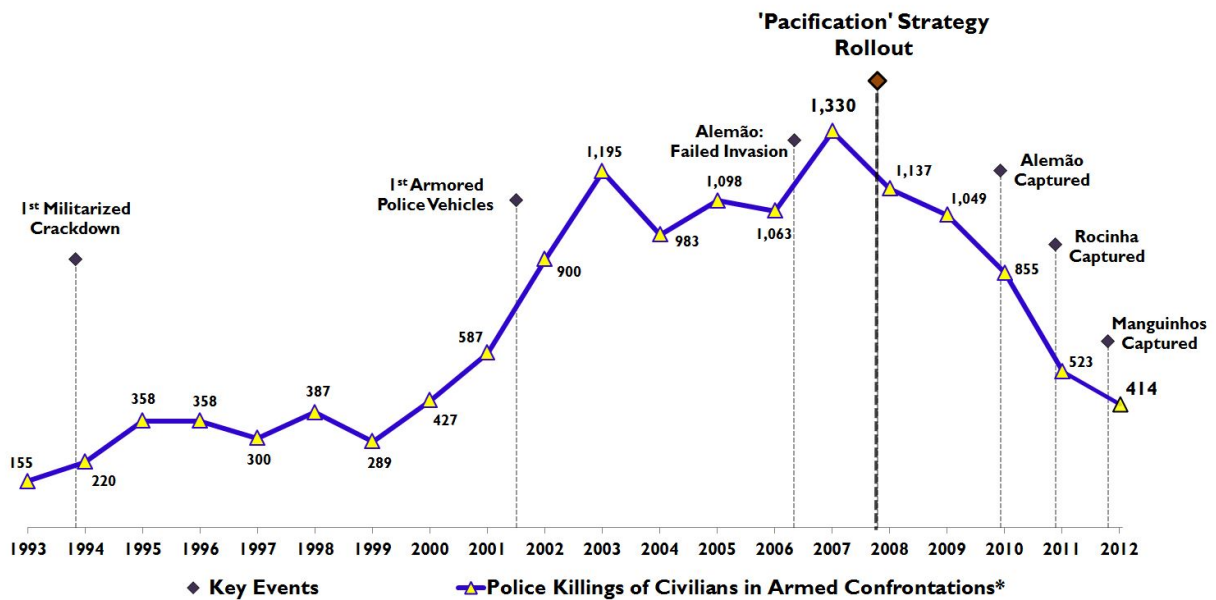
Sources: Aranda (2011); Shirk and Ríos (2011); SNSP (2011). *Portion of "Total Cartel-Related Homicides coded as cartel-state attacks (*agresiones*) and clashes (*enfrentamientos*) in SNSP (2011). [†]Estimates from partial-year data.

interventions are effective when they generate incentives for cartels to eschew violence. This answer flows from a novel analysis of a more basic puzzle: why do cartels fight the state at all, when, unlike rebels, they seek neither to topple nor secede from it?

The prevailing treatment of cartel-state conflict as a subtype of insurgency largely sidesteps this puzzle by eliding the difference in cartels' and rebels' battle aims. But rebels' motives for anti-state violence are distinct and significantly less puzzling: unlike cartels, they stand a reasonable chance of outright victory.³ Similarly, while turf war *among* cartels is an important driver of drug violence and a critical research agenda in its own right (e.g. Magaloni et al. 2013; Mejía et al. 2013; Ríos 2013), it is no mystery what cartels stand to gain by fighting each other. Both insurgency and turf war obey a logic of *conquest* that is well-theorized: in weakly institutionalized settings, actors will use violence to physically appropriate mutually prized territory or resources when they cannot reach stable bargained solutions (Fearon 1995; Powell 2002; Wagner 1994; Walter 2009); explanations of conflict consist of

³Fearon and Laitin (2007) find that 24% of center-seeking and 17% of autonomy-seeking civil wars ended in rebel military victory, while another 23% of the latter saw rebels win autonomy after fighting the state to a draw.

FIGURE 2. Rio de Janeiro's Drug War: 1993-2012



Sources: ISP-RJ (2013); SSP-RJ (2003). *Official category: 'Resistência com morte do opositor - Auto de Resistência'

reasons why bargaining fails (e.g. Dal Bó and Powell 2009; Fearon 2004).

It is less clear what cartels gain by fighting the state, especially when doing so attracts additional state repression. Indeed, traffickers around the world usually 'hide', maintaining anonymity or a low profile and avoiding confrontation. Understanding why they sometimes prefer confrontation is important in itself, but also because cartel-state violence may exacerbate turf war: once cartels attack state authorities, 'punching the ref' as it were, their usual incentives to contain inter-cartel violence (Durán-Martínez 2012; Schelling 1967) become moot.

Cartels fight states, I argue in the next section, with the aim of *coercion*: using violence to influence policy outcomes, via two distinct logics.⁴ In *violent lobbying*, cartels target political leaders in order to induce changes in de jure policy. In *violent corruption*, cartels target enforcement agents in order to intimidate them and reduce the price of bribes.⁵ This paper focuses on violent corruption, the more

⁴To Kalyvas (2006) I owe the analytic strategy of differentiating logics of violence within larger conflicts.

⁵The larger study from which this paper draws discusses additional logics of anti-state violence driven by inter-cartel turf war: competitive and internal signaling (Reuter 2009), and what Mexicans call '*calentando la plaza*,' i.e. violence in rival territory intended to attract law-enforcement. The list is not exhaustive: 'expressive' or 'irrational' violence certainly plays some role. But the sustained nature of cartel-state conflict, and the survival and sometimes expansion of the most violent cartels (witness Los Zetas in Mexico), suggests that anti-state violence is largely strategic.

prominent dynamic across cases. Violent lobbying was intense and salient in Colombia's 'narco-terror' period (1984-1993), but has been rare in contemporary Brazil and Mexico, as a novel cross-national dataset of cartel-related violent events confirms. The pattern is largely explained by the logics themselves: since the benefits of lobbying are universal—hence subject to free-rider problems—while those of corruption are particularistic (Olson 1965; Scott 1969), inter-cartel turf war undermines lobbying but encourages corruption.

When does corruption become violent? Snyder and Durán-Martínez (2009) crucially identify the instability of cartel-state bribe agreements as a driver of violence, but provide little analysis of why, when bribery fails, cartels 'fight' rather than 'hide'; or of the role that unrealized threats 'off the equilibrium path' play when bribes do occur. The third section address these questions with a formal model, adapting the conventional approach to wars of conquest—where bargaining breakdown equals conflict—to a context of coercion in which, when bribe negotiations fail, cartels must still choose between hiding or fighting.

The model illuminates the principal-agent problem underlying violent corruption: when state leaders expand anti-cartel repression, it inevitably allows state enforcers to extract larger bribes. Cartels offset this pressure on bribe prices with (additional) violence against enforcers whenever the leverage gained outweighs any 'extra' repression incurred. In particular, crackdowns provoke cartel-state violence when 1) enforcers fear cartel violence more than sanctions for bribe-taking—likely when corruption is rampant and hence rarely punished; and 2) state repression is not conditional on cartels' choice to hide or fight. Sufficient *conditionality of repression*—the extent to which repression falls more heavily on cartels that fight—can always induce cartels to hide, regardless of overall repressive capacity. Thus crackdowns in corrupt settings can create incentives to fight back, while conditionality creates counter-incentives to eschew violence.

The penultimate section takes the models' findings to the empirical cases. I argue that Rio de Janeiro's Pacification strategy sharply increased conditionality, leading cartels to shift from confrontation toward non-violent strategies. In Mexico, conditionality was high under single-party rule; democratization brought political and institutional fragmentation (Magaloni 2005), making conditionality

less practicable—one explanation for recent findings that political competition drives violence in Mexico (Dube et al. 2013; Durán-Martínez 2012; Osorio 2012). Calderón's determination to pursue all cartels equally, 'without distinction,' further reduced conditionality, contributing to sharp increases in cartel-state violence after 2006.

To be clear, much, if not most, drug violence is driven by turf war: some 88% of Mexico's drug-related homicides are among cartels. As such, any theory of cartel-state conflict constitutes at best a partial explanation. But a naive arithmetical accounting understates the importance of cartel-state conflict. Besides potentially exacerbating turf war, brazen anti-state violence disproportionately disrupts social and political life. The cessation of cartel-state conflict in Mexico would surely have greater substantive impact than a numerically equivalent reduction in inter-cartel homicides.

More broadly, cartel-state conflict and inter-cartel turf war are causally interrelated, but have both occurred in the absence of the other, indicating fundamentally distinct logics. A complete theory of drug war would account for both dynamics and their interactions in general equilibrium; as a first step, I analyze some linkages in a partial-equilibrium setting. The principal contribution, though, is identifying and theorizing cartel-state conflict itself, adapting our hard-won understanding of conflict to this substantively important but fundamentally distinct form of violence.

CONCEPTUALIZING CARTEL-STATE CONFLICT

Drug wars are often conceptualized as the far extreme of a continuum from political or ideological struggles to purely commercial or criminal ones. This is a distinction with a difference—Mexico's Zapatistas, for example, wage a more political battle than its Zetas cartel. But its usefulness is limited, first by its heavy normative valence: ideological motives are widely seen as morally superior to purely 'economic' ones. This produces conceptual contestation (Collier et al. 2006; Gallie 1956), both analytically, as in the muddled 'greed vs. grievance' debate (Blattman and Miguel 2010, 18), and in very real fighting and negotiation between armed groups and states over 'political' status itself.

Furthermore, criminal activities differ in their rent-producing characteristics (Schelling 1967). States and criminal groups directly compete for natural-resource rents and the right to extort (i.e. tax) pop-

ulations. In contrast, states may try to minimize drug profits, but cannot (legitimately) capture them. Moreover, theft, extortion, and kidnapping all require coercive expropriation, generating a constituency of (potential) victims willing to expend resources on prevention; the drug trade is based on voluntary exchange, generating a constituency of paying customers. This ‘demand’ for trafficking explains a critical fact: repression or elimination of one cartel generally helps its competitors. This is unlikely to be true of kidnapping rings, or, for that matter, most insurgencies.

In sum, the political/criminal distinction is a poor guide to cartels’ strategic concerns. This is especially true for cartel-state conflict, which has generally been treated as a criminal subtype of insurgency, despite the fact that cartels do not seek formal state power. This conceptual stretching (Collier and Levitsky 1997; Sartori 1970) has produced a proliferation of ‘insurgency with adjectives’ (e.g. Manwaring 2005; Metz 2007; Sullivan and Elkus 2008) and redefinitions of related concepts like ‘territory,’ ‘space,’ and even ‘the state’ (e.g. Sullivan 2012, 16-18), without fully illuminating the logics generating violence.

Purchase can be gained by focusing on combatants’ ‘proximate aims of fighting’. The UCDP/PRIO State-based Armed Conflict Dataset’s inclusion criteria require that armed groups fight “for the replacement of the central government, or the change of its composition,” or “control of a certain territory ...secession or autonomy” (Gleditsch et al. 2002; Themnér and Wallensteen 2011, 3). For Fearon and Laitin, such proximate aims do not define civil war (2003, 76), but characterize it in practice:

The aim of the rebel side in almost all civil wars is to take over the central government or to take political control of a region of the country. Rebel groups rarely say ‘we are fighting in order to induce the government to change its policy on X, and once that is accomplished we will disband and leave politics.’ (2007, 1-2)

Tellingly, this is *almost exactly* what cartels ‘say’, as in these communiqués from Colombian drug lord Pablo Escobar, regarding his campaign of terror attacks:

“We solemnly promise... that once extradition is legally prohibited, we will immediately suspend our military actions against the extraditers” (*Semana* 1986).⁶

⁶All quotes from foreign sources are the author’s translations.

“Recognizing the position of the National Constitutional Assembly [banning extradition], we have decided to disband our entire military organization” (*El Tiempo* 1991).

Generalizing, then, the proximate aim of fighting in insurgency is *conquest*, in which belligerents aim to expropriate from or replace opponents. Cartel-state conflict, by contrast, is a war of *coercion*, in which belligerents aim only to change opponents’ behavior—policy, in the case of states.

This distinction has the advantage of being easy to observe and operationalize; at the same time, it reflects deeper strategic differences. Of course, rebels’ ultimate aims may also involve changing policy; in theory, they might be satisfied with sufficient concessions. But, in one leading analytic approach, rebels anticipate that the state will renege once they disarm; such commitment problems drive them to fight for political control (Fearon and Laitin 2007). Civil war ‘solves’ the commitment problem to the extent that its outcomes are definitive, locking in a policy or distribution of rents that actors cannot (cheaply) affect once fighting is over (Powell 2004).⁷

With cartels, the commitment problem is surely worse: states cannot even publicly negotiate much less credibly commit. Yet this does not lead cartels to fight wars of conquest, because even military victory over the state would not lock in their preferred policy or distribution of rents. In the current international system, an overt narco-state granting itself a domestically legalized monopoly in trafficking is unthinkable (whereas nascent insurgencies can reasonably hope to win international legitimacy and support). Since decisive victory is not a factor, theories of cartel-state conflict (and perhaps wars of coercion more generally) must explain how fighting, or credibly threatening to fight, maximizes the ongoing flow of rents.⁸

Figure 3 extends the conquest/coercion distinction to a larger set of conflict and belligerent types; the contents of the cells are examples, not exhaustive descriptors. Of principal interest are the top rows, distinguishing cartel-state conflict from both revolutionary insurgency and inter-cartel turf war. The bottom rows map out international conflicts; international terrorism falls into place as an example of non-state actors seeking not to influence, not conquer, foreign governments (e.g. Pape 2003).

⁷In the other principal approach, information asymmetries lead to fighting. Here too, war solves the bargaining problem by producing a definitive outcome.

⁸Dynamic, ‘costly process’ models of war (e.g. Fearon 2004; Powell 2012) allow flow payoffs to fighting, but generally assume they are too small to generate fighting on their own.

FIGURE 3. Conquest vs. Coercion: Examples

		Proximate Aim of Fighting		
		‘Conquest’ (Expropriate / Replace Opponent)	‘Coercion’ (Change Opponent’s Behavior)	
Belligerent Dyads	Sub-National	State(s) vs. Domestic Non-State Actor (NSA)	<u>Revolutionary Insurgency</u>	<u>Cartel-State Conflict</u>
		Domestic NSA vs. Domestic NSA	<u>Inter-Cartel Turf War</u>	<u>Coercive Politics</u>
	Inter-National	State(s) vs. Foreign NSA	<u>Foreign Intervention</u>	<u>International Terrorism</u>
		State(s) vs. State(s)	<u>Interstate War</u>	<u>Armed Sanctions</u>

While cartel-state conflict and turf war are clearly causally interrelated, they are logically distinct. Turf wars occur throughout the illicit-drug supply chain, from coca fields to street-corners, though varying in intensity. Cartel-state conflict is relatively rare—most traffickers in most places avoid confrontation with the state—but of long duration once initiated. Critically, it can occur independently of turf war: in Colombia, cartels were at peace when cartel-state conflict broke out.

LOGICS OF VIOLENCE: LOBBYING VS. CORRUPTION

Implicit in the foregoing is the claim that cartels fight states to influence policy. While this may be patent in cases like Escobar’s war against extradition in Colombia, it is less clear in Mexico and Brazil, where public demands by cartels for changes in de jure policy are rare.

As Scott (1969) argued, though, corruption should also be understood as a mode of influence, with *policy outcomes* the true variable of interest. This insight extends to criminal firms; after all, if

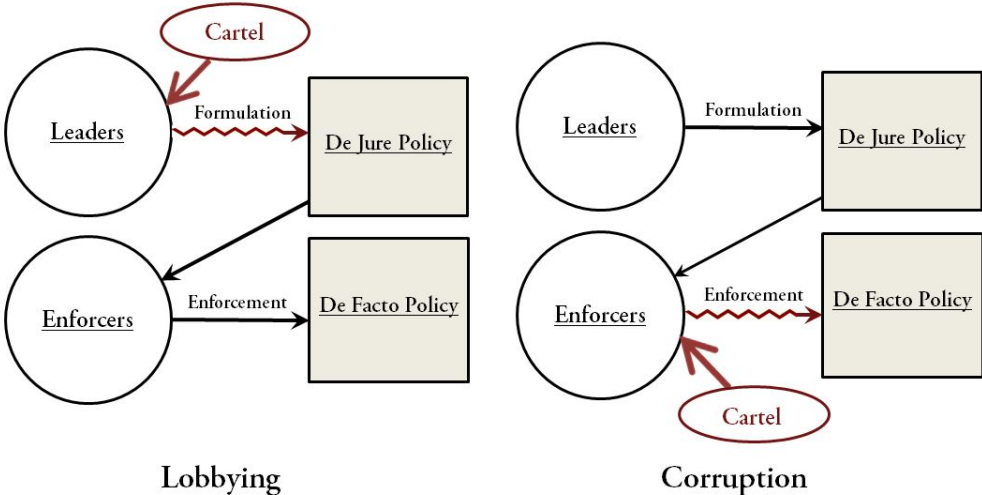
...the businessmen who protect their black-market sales by buying protection from a well-placed politician are changing the outcome of policy as effectively as they might by working collectively through chambers of commerce for an end to government price controls (1969, 1142),

then the trafficker who offers police a choice between ‘*plata o plomo*’ (‘bribes or bullets’) is changing

the outcome of policy as effectively as if he used terrorist attacks to cow the government into banning extradition.

To fix terms, I call efforts to influence the formulation of de jure policy *lobbying*, an activity normally aimed at *leaders* (usually chief executives, legislators, or precedent-setting judges); and efforts to influence enforcement, or de facto policy, *corruption*, usually aimed at *enforcers* (police, soldiers, investigators, sentencing judges, etc.) (Figure 4).

FIGURE 4. Levels of Policy Influence



Whether lobbying or corrupting, licit groups may use hardball tactics (Dal Bó et al. 2006), but they rarely resort to physical violence. Cartels, however, already face some level of repression; this gives them incentives to ‘hide’, maintaining a low profile and minimizing confrontation, but it can also make violence an appealing pathway to influence if it incurs little additional state repression. ‘Hiding’ and ‘fighting’ may not seem like opposites, but in practice they are mutually exclusive: the advantages of fighting—increased leverage over state actors—come at the cost of the low profile that hiding affords, and vice versa.

Crossing these dimensions yields four distinct strategies (Figure 5). Hiding strategies correspond to ‘conventional’ corruption and lobbying.⁹ *Violent corruption* is the use of violence to affect enforcement,

⁹Corruption is always illicit, but lobbying is sometimes above-board, hence the ‘illicit’ qualification.

usually to induce an enforcer to accept a (smaller) bribe, as in the model below.¹⁰ In *violent lobbying*, cartels pressure leaders to change de jure policy, often with terror attacks, which cartels offer to curtail in exchange for policy concessions.

FIGURE 5. Strategies of Influence

		Level of Policy Influence	
		Enforcement (de facto)	Formulation (de jure)
Type of Cartel Strategy	Fighting	<u>Violent Corruption</u>	<u>Violent Lobbying</u>
	Medellín Cartel	“The bullet or the bribe?”	Narco-Terrorism
	Hiding	<u>Corruption</u>	<u>(Illicit) Lobbying</u>
	Cali Cartel	“We don’t kill judges, we buy them.”	Narco-Politics

These strategies are exemplified by the two principal cartels of Colombia’s ‘narco-violence’ period (1984-1993). Pablo Escobar and his Medellín cartel epitomized the fighting approach at both levels. His campaigns of terrorist violence (bombings, high-level assassinations, and elite kidnappings) accompanied by overt, and ultimately successful, demands to abolish extradition and negotiate an amnesty typify violent lobbying. Meanwhile, his infamous offers of “*plata o plomo*” to judges, investigators and police—backed up by hundreds of killings—captures in a phrase the essence of violent corruption.

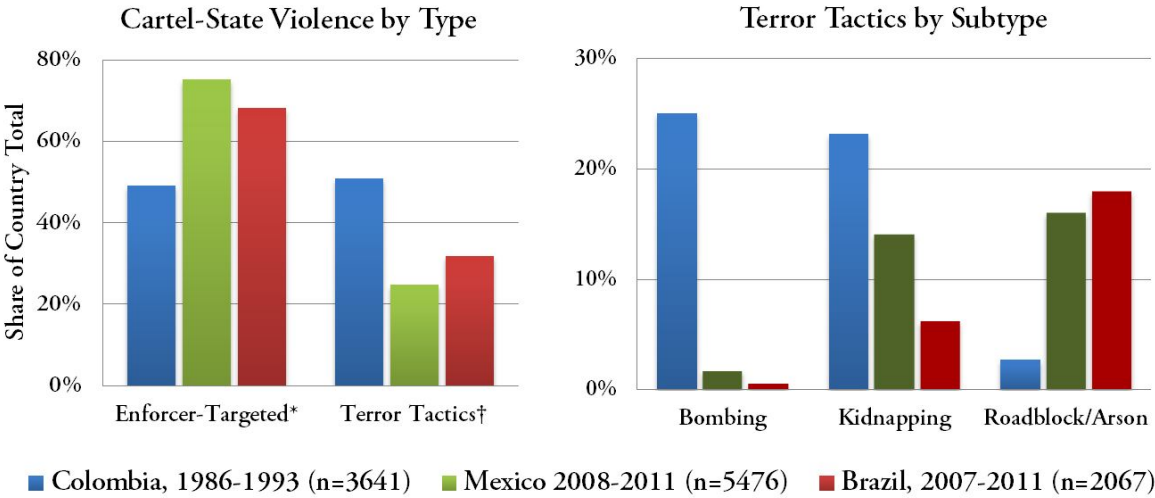
The Cali cartel, in contrast, deliberately eschewed violence. As leader Gilberto Rodriguez Orejuela put it, “We don’t kill judges... we buy them” (Lee 1994, 205). At the de jure level, the Orejuelas foreswore Escobar’s all-out war, ultimately collaborating with the state to bring him down They then organized the ‘Champagne Project,’ offering huge donations to both major presidential candidates in 1994 in exchange for a negotiated amnesty (Chepesiuk 2003, 190).

These examples demonstrate that corruption and lobbying are not mutually exclusive. However, the necessary conditions for violent corruption are less restrictive—requiring little beyond guns and bribable police—making it the more prevalent and important dynamic across cases, and the focus of this

¹⁰Possible variants include: a threat with a bribe offer of zero (‘pure intimidation’); pressuring enforcers to inflict repression on rivals; or the elimination of stubbornly honest individual enforcers.

paper. Even in Colombia, where Escobar’s violent lobbying against extradition is widely treated as *the* story (Reuter 2009, 277), violent corruption came first—Escobar threatened a judge and murdered two police officers in 1976—and continued throughout the narco-terror period (Bowden 2001). Still, terror tactics were anomalously prominent in Colombia, as Figure 6, drawing on a novel cross-national dataset of drug-related violent event reports, reveals. Given the particularly salient and disruptive nature of violent lobbying, I briefly explore this anomaly before turning to a deeper analysis of violent corruption.

FIGURE 6. Reports of Cartel-State Violent Actions



*All non-terror violent actions identifiable as cartel-state. †All terror actions regardless of victims.
 Source: Author's coding of newspaper reports; see Appendix B for details.

Lobbying requires, first, a realistic chance that leaders will change de jure policy. This depends on international pressures, domestic sentiment, and leaders’ own public commitments to policy positions (Fearon 1994), all of which change over time and in response to violence itself. Overall, states’ international commitments to drug prohibition and eradication make for few ‘open questions’ of formal drug policy. Of the cases studied here, only extradition—in the 1980s, in Colombia—remained an open question long enough to produce sustained violent lobbying.

A second condition for violent lobbying follows from Scott’s (1969) original analysis: lobbying generally requires collective action by interest-group members, because the benefits to changing de jure policy are more universal than the particularistic benefits of selective non-enforcement. Thus mechanisms for cost-sharing and deterring free riders (Olson 1965) help make lobbying an efficient pursuit,

while turf war tends to undermine it.

These factors largely explain variation in violent lobbying. In 1984, Colombian cartels were peacefully united under MAS (Chepesiuk 2003, 64), a mutual-protection organization masterminded by Escobar, who taxed members to finance collective military campaigns. Meanwhile, extradition was in judicial limbo and under political debate. In Mexico, by contrast, intense competition among cartels and a president personally committed to his war made lobbying unpromising. An exception to prove the rule is the Familia Michoacana cartel's 2009 street protests, coupled with public demands to remove federal police from Michoacán. Their regional hegemony negated the free-rider problem, though their assessment of Calderón's openness to policy change proved overoptimistic. Brazil's cartel leaders, who are mostly incarcerated, engage in occasional terror attacks aimed at changing carceral policy (Penglase 2005)—a low-salience issue with small audience costs for leaders—often around elections, when political leverage is high.

A MODEL OF VIOLENT CORRUPTION

Every Friday [the Major] would go up the favela to collect the *arrego*.¹¹ Traffickers live a life of war, but they also want to survive. Why exchange gunfire with the police if you can negotiate? [...] In Rio, peace depends on a delicate equilibrium between the traffickers' firepower and the corruption of the police.

Tropa de Elite (2007)

In public debate about drug policy, repressive crackdowns are often presented by advocates as the only alternative to corrupt pacts with drug cartels (e.g. Bonner 2010, 2012). This ignores a crucial point: “The greater the effectiveness of deterrence activities, the more they create incentives [for criminals] to invest in corruption and manipulation of the deterrence agencies” (Fiorentini and Peltzman 1997, 27). This dynamic becomes particularly important when enforcers are themselves “the licensed collector of [illicit] rents” (Reuter 2009, 277; Schelling 1967) and, perversely, enforcement of the law becomes both leaders' preferred outcome and the threat corrupt enforcers use to extract bribes. When leaders

¹¹Regular bribe payment in exchange for non-enforcement.

increase repression at the de jure level, it inadvertently but necessarily hands corrupt enforcers additional leverage over cartels at the de facto level.

This leverage can be significant: the kingpin of Rio's largest favela reported regularly paying half of his revenue in bribes, often leaving little or no profit (Werneck 2011). An arrested kingpin in Veracruz, Mexico, testified to paying \$2.5 million per month in bribes, around 75% of total revenues (Reforma 2013). To counter enforcers' leverage, cartels may 'threaten back': if enforcers face resistance or retaliation when bribe negotiation fails, they should settle for smaller bribes.

Dal Bó et al.'s '*Plata o Plomo?*' (2006) partially formalizes this logic: the ability to punish bribe-takers lowers the equilibrium bribe price, and increases overall corruption. Yet, despite invoking Pablo Escobar as motivation, their model involves apparently licit pressure groups not targeted for destruction by the state—coercion runs only one way. Moreover, in their model, threats are never acted on in equilibrium. In the cases studied here, we see both bribery *and* violence, as well as cartels that clearly opt for 'hiding' strategies in which there is no violence even off the equilibrium path.

To capture these dynamics, the cartel here faces a three-way choice between paying enforcers' bribe demand, hiding and fighting. Requiring credible threats produces a sharp distinction between 'hide-and-bribe' and 'fight-and-bribe' strategies. In the former, the cartel never arms (because arms don't help it hide), and crackdowns—increased levels of state repression—lead to larger bribes which are paid more frequently, raising the demand for corruption and pushing up bribe prices.

In a 'fight-and-bribe' strategy, however, the cartel counters that upward pressure by acquiring firepower that, if no bribe agreement is reached, both reduces its loss due to enforcement and hurts enforcers. As long as enforcers fear armed cartel resistance more than official punishment for bribe-taking, crackdowns increase the probability of fighting. Moreover, crackdowns can push cartels from hiding to fighting strategies. Conversely, an increase in conditionality, such that repression falls more heavily on cartels that fight, pushes cartels toward hiding strategies. In an extension, I explore one way inter-cartel turf war can drive cartel-state violence: the prior accumulation of firepower to fight other cartels makes fighting the state 'cheaper'.

Assumptions are discussed as they arise, but three are worth emphasizing. First, I use the model

to analyze the effects of exogenous policy shocks, without solving for the state's (or society's) optimal policy. This approach illuminates the tradeoffs decision-makers face while avoiding heroic assumptions about their preferences over key outcomes (drug interdiction, cartel-state violence, and bribery) and the political costs of changing policies. As Rodrik (2013) argues, past political-economy assumptions about leaders' interests can produce spurious or vacuous analyses, particularly if actual decision-makers may not fully understand the mechanisms being modeled. I also avoid standard social-welfare analysis, as it is unclear how society should weight the utility of traffickers and bribe-taking enforcers.

Secondly, bargaining breaks down in equilibrium, as in Dal Bó and Powell (2009), because the precise size of the 'pie' is private information and cannot be credibly communicated: to avoid being exploited, the offer-taker rejects the worst offers. This is substantively plausible; as a senior trafficker in Rio explained:

There's no way to pay [the police] everything they demand, because if we did we'd end up just working for them. [...] If there's no money to pay them with, well then it'll be with bullets.¹²

But when bribe negotiations fail, why 'pay' with costly bullets instead of hiding? This secondary inefficiency¹³ occurs because enforcers cannot commit to *not* exploiting an unarmed cartel, also plausible given the illicit context. Still, other information asymmetries and commitment problems remain to be explored in future work.

Finally, this static approach permits a relatively clear and tractable analysis of the core logic of violent corruption. Understanding the one-shot interaction is an important step toward a dynamic model that can address reputation-building, learning, and related issues. Indeed, the ongoing, non-decisive nature of cartel-state conflict suggests folk-theorem results, with ability to punish in the stage-game determining what outcomes are sustainable in dynamic equilibrium.

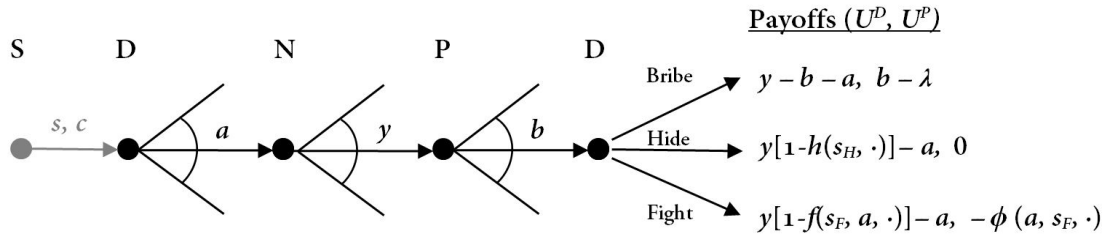
¹²Interview, Rio de Janeiro, March 29, 2010. All interviews are the author's.

¹³See note 23.

SETUP

The game has two players: a cartel D (he), and a state enforcer P (she). One can think of state leaders S as a non-strategic player, exogenously determining repressive-policy parameters. D moves first, purchasing an amount a of armament; D pays sunk costs of $-a$ no matter what branch the game follows. Next, drug profits y are realized, where y is a random variable distributed uniformly over $[\underline{y}, \bar{y}]$. D observes y but P does not; since D chooses a before learning y , there is no signaling. P then demands a bribe b , and D either pays the bribe (B), hides (H) or fights (F)¹⁴ (Figure 7).

FIGURE 7. Game Tree



If D rejects the bribe demand (playing H or F), P enforces, with the degree (s) and conditionality (c) of repressive force determined exogenously and publicly by S prior to play.¹⁵ Let s_O represent the degree of repression following $O \in \{H, F\}$.¹⁶ Since repression may be greater if D opts for violence—if, say, P can only use deadly force when fired upon—let $s_F = s$, while $s_H = s(1 - c) \leq s_F$. Thus $c \in [0, 1)$ parameterizes *conditionality*: as repression becomes unconditional ($c \rightarrow 0$), the relative reprieve D gains by eschewing violence evaporates ($s_H \rightarrow s_F$).¹⁷

Enforcement causes D to lose a share of realized drug profits, $h(\cdot) \in [0, 1]$ if hiding and $f(\cdot) \in [0, 1]$ if fighting; greater repression induces larger losses ($h'(s_H) > 0$ and $f'(s_F) > 0$). Since $s_H = s(1 - c)$, conditionality reduces D 's loss to hiding ($h'(c) < 0$), with no effect on fighting ($f'(c) = 0$). D does not

¹⁴Ultimately, D 's private information prevents P from retaining all the bargaining power.

¹⁵Substantively, factors beyond enforcers' direct control—from matériel to lethal-force regulations—determine the maximum impact of enforcement; this setup restricts P to an all-or-nothing choice over enforcement. Letting P decide how hard to enforce would likely generate a continuous menu of bribes, the 'shape' of which is not the focus here.

¹⁶I write $O \in \{H, F\}$ for D 's 'outside-option' actions in the last round, and $o \in \{h, f\}$ to index functions and variables in hide-and-bribe and fight-and-bribe strategies.

¹⁷Ruling out $c = 1$ guarantees that non-violent trafficking is always subject to *some* degree of repression.

use arms when hiding, so $h'(a) = 0$; when fighting, though, arms mitigate the loss from enforcement: $f'(a) > 0$. I normalize P 's payoff to enforcing when D hides to 0; when fighting, P suffers disutility of $-\phi(\cdot)$, where $\phi'(a) > 0$ and $\phi'(s) < 0$. For both players, then, military strength has offensive and defensive value, both punishing one's opponent and protecting oneself. Finally, no losses can be inflicted without some military capacity: h , f , and ϕ are zero when s_H , s_F , and a , respectively, are zero.

If D pays, he keeps all drug profits (y) minus the bribe (b) and his sunk costs (a). P receives b minus an expected sanction for bribe-taking and non-enforcement, λ . To ensure a bargaining range, assume $\lambda < \bar{y}$. I treat λ as exogenous, and unlike s and c , not directly set by the state. This reflects the idea that for individual enforcers, both punishment and psychological or moral costs depend overwhelmingly on how many other enforcers are taking bribes. Theoretical (e.g. [Tirole 1996](#)) and empirical (e.g. [Fisman and Miguel 2007](#)) work finds that corruption is a tipping-point phenomenon, either rampant (generating a low λ that feeds further corruption) or rare (generating a high λ , keeping cops honest). How to tip a corrupt force to a high λ is a research agenda unto itself, but states fight drug wars with the forces they have, so the more policy-relevant finding is that changes in s and c alone can eliminate both violence and bribery.¹⁸

To focus on credible threats, the solution concept is subgame perfect Nash equilibrium (SPNE), which requires D to choose the action with the highest payoff in the last round. Thus a necessary condition for fighting—on or off the equilibrium path—is that beyond some level of armament, D retains more profits by fighting than hiding:

$$\exists \tilde{a} > 0 : a \geq \tilde{a} \Rightarrow f(a, s_F, \cdot) \leq h(s_H, \cdot) \quad (C_{\tilde{a}})$$

This assumption is non-trivial, but substantively grounded: the rent-protecting, 'tommy-gun' effect of anti-state violence seems to be at least as important as the pain-imposing, 'plomo' effect. Intuitively, a hail of bullets sprayed from a getaway car may inflict little damage on police, but can vastly reduce

¹⁸Another key simplification is that λ does not depend on b . Future work could relax this, allowing higher λ for larger bribes, or a discontinuity at $b = 0$, if authorities distinguish non-enforcement from actual bribe-taking.

criminals' loss from enforcement. Empirically, fighting produces relatively few state casualties: in Rio from 2007-2008, police killed about 40 civilians for each officer killed (ISP-RJ 2013); from December 2012 through January 2013, the Mexican army lost 9 soldiers while killing 161 suspected traffickers (Notimex 2013). As an army commander explained:

“Disciplined soldiers... are going to win in these shoot-outs with... young kids who don't even know how to shoot. But then maybe the troops are being held up, while the bad guys are moving drugs” (International Crisis Group 2013, 14).

On the other hand, enforcers' salaries are low, so even small injury risks may have large intimidatory effects (Denyer-Willis 2013). In the specification below, which satisfies $C_{\tilde{a}}$, protective and punitive effects are of similar magnitude; further empirical work could clarify their relative weight in practice.

ANALYSIS

I first show some general results, then specify functional forms for y , h , f , and ϕ to pin down and further analyze the model.

In the last round, D always pays if b is small enough relative to realized y , but D 's choice of a in the first round determines which ‘outside option’ will be taken if b is rejected. Substantively, D cannot credibly threaten to fight unless he has sufficient firepower ($a \geq \tilde{a}$), and once he has, can no longer hide should a bribe not be agreed to. This produces a sharp division between ‘hide-and-bribe’ and ‘fight-and-bribe’ strategies.¹⁹

Lemma 1. ²⁰ *In equilibrium, D never plays $a \in (0, \tilde{a})$; his strategy takes one of the following forms:*

$$a_b^* = 0; \begin{cases} H & \text{if } y \in [\underline{y}, \frac{b}{h(\cdot)}) \\ B & \text{if } y \in [\frac{b}{h(\cdot)}, \bar{y}] \end{cases} \quad (\text{‘Hide-and-bribe’})$$

$$a_f^* \geq \tilde{a}; \begin{cases} F & \text{if } y \in [\underline{y}, \frac{b}{f(\cdot)}) \\ B & \text{if } y \in [\frac{b}{f(\cdot)}, \bar{y}] \end{cases} \quad (\text{‘Fight-and-bribe’})$$

¹⁹Generically, the optimal $a^* \neq \tilde{a}$, so I ignore mixed strategies.

²⁰Proofs given in Appendix A.

P 's strategy takes the form

$$b^*(a, \cdot) = \begin{cases} b_h^* & \text{if } a < \bar{a} \\ b_f^* & \text{if } a \geq \bar{a} \end{cases}$$

These do *not* constitute multiple equilibria. Rather, P has a single, kinked best-response function, and D compares best-response payoffs for hiding ($a_h^* = 0$) and fighting ($a_f^* \geq \bar{a}$) strategies, then chooses $a^* \in \{a_h^*, a_f^*\}$ to maximize his expected utility.

Changes in conditionality, as formalized, only affect D 's hide-and-bribe strategy and payoffs. This allows the model to address situations in which conditionality is *asymmetric*: switching from hiding to fighting may bring additional repression, but once a cartel starts killing police, switching back to hiding may not yield a commensurate reprieve. If fighting locks in full-bore repression, we should focus on the fight-and-bribe equilibrium, not D 's choice between hiding and fighting strategies. But for new or previously non-violent cartels, or when states let 'bygones be bygones', we should take D 's choice between a_h^* and a_f^* seriously.

The key outcomes for each strategy $o \in \{h, f\}$ are the equilibrium bribe price b_o^* and the probability the outside option $O \in \{H, F\}$ is taken:

$$\Pr_O = \frac{\frac{b^*}{o(\cdot)} - \underline{y}}{\bar{y} - \underline{y}}$$

The derivations of b_h^* and b_f^* are almost identical. First consider P 's 'unconstrained' optimization problems:

$$\widehat{b}_h^* = \arg \max_b \left[\left(1 - \frac{b - \underline{y}}{\bar{y} - \underline{y}} \right) (b - \lambda) + \frac{b - \underline{y}}{\bar{y} - \underline{y}} \cdot 0 \right] = \frac{\lambda + b(\cdot)\bar{y}}{2} \quad (1)$$

$$\widehat{b}_f^* = \arg \max_b \left[\left(1 - \frac{b - \underline{y}}{\bar{y} - \underline{y}} \right) (b - \lambda) - \frac{b - \underline{y}}{\bar{y} - \underline{y}} \phi(\cdot) \right] = \frac{\lambda + f(\cdot)\bar{y} - \phi(\cdot)}{2} \quad (2)$$

Comparing these, D 's incentive to make threats is clear: lowering P 's payoff to enforcement by ϕ (the 'plomo' effect) reduces the equilibrium bribe demand by $\frac{\phi}{2}$, at least for interior solutions. But there are

minimum (and maximum) bribes below (above) which D always (never) pays; for $o \in \{h, f\}$, write these as $b_o^m = o(\cdot)\underline{y}$ and $b_o^M = o(\cdot)\bar{y}$. P never has reason to demand more than the sure-to-be-rejected “high-ball” bribe, or less than the sure-to-be-accepted “low-ball” bribe:

Lemma 2. For $o \in \{h, f\}$, if $\widehat{b}_o^* > b_o^M$, P weakly prefers playing b_o^M to any other b , strictly so for any $b < b_o^M$. If $\widehat{b}_o^* < b_o^m$, P strictly prefers b_o^m to any other b .

For convenience, I rule out equilibria in which P plays $b > b_o^M$, as they are functionally identical to $b = b_o^M$. Thus, for $o \in \{h, f\}$, P 's true best-response functions are $b_o^* = \max[\min[\widehat{b}_o^*, b_o^M], b_o^m]$, and we can express corner-solution conditions in terms of λ :

$$b_h^* = \begin{cases} h(\cdot)\bar{y} & \text{if } \lambda > h(\cdot)\bar{y} & \text{("high-ball")} \\ h(\cdot)\underline{y} & \text{if } \lambda < h(\cdot)(\underline{y} - (\bar{y} - \underline{y})) & \text{("low-ball")} \\ \frac{\lambda + h(\cdot)\bar{y}}{2} & \text{otherwise} & \text{(interior solution)} \end{cases}$$

$$b_f^* = \begin{cases} f(\cdot)\bar{y} & \text{if } \lambda - \phi(\cdot) > f(\cdot)\bar{y} & \text{("high-ball")} \\ f(\cdot)\underline{y} & \text{if } \lambda - \phi(\cdot) < f(\cdot)(\underline{y} - (\bar{y} - \underline{y})) & \text{("low-ball")} \\ \frac{\lambda + f(\cdot)\bar{y} - \phi(\cdot)}{2} & \text{otherwise} & \text{(interior solution)} \end{cases}$$

These conditions have natural interpretations. The left-hand sides represent P 's reservation value, i.e. the smallest bribe she would be willing to accept; as in [Acemoglu and Wolitzky \(2011\)](#), this value is strictly smaller under fighting (i.e. coercion) because D 's threat to inflict $-\phi(\cdot)$ reduces P 's outside option. For the high-ball conditions, the right-hand sides represent the largest loss P can impose, i.e. D 's reservation value. If this does not exceed P 's reservation value, there is no bargaining range. Substantively, if police can never extract bribes large enough to cover their expected sanction from bribe-taking, we get pure enforcement. The low-ball condition occurs when P prefers a small bribe that will always be paid. As we observe both enforcement and bribery, I focus first on interior solutions.

Since $a_h^* = 0$, the hiding case is essentially solved:

Proposition 1. Assuming an interior solution and $a < \bar{a}$, the equilibrium bribe price b_h^* is increasing in

λ and s , and decreasing in c . The probability of bribery occurring is decreasing in λ , increasing in s , and decreasing in c .

Comparative statics on b_b^* are straightforward, as is the fact that higher expected punishment from bribe-taking (λ) deters bribery—this is why police corruption tends to be either rampant or rare. The final two results, however, are less intuitive. Crackdowns—increases in s —make bribery more likely because they reduce D 's outside option, making him more willing to pay any b . Thus *crackdowns increase the demand for corruption*. By the same token, increases in conditionality (c) diminish the effective force P can apply in response to hiding, thus reducing D 's incentive to reach a deal; beyond some point, no bribery occurs:

Corollary 1. *For any set of parameter values, $\exists c^{NB} \in (0, 1) : c > c^{NB} \implies \widehat{b}_b^* \geq b_b^M$, such that if $a = 0$, no bribes are paid.*

The fighting case is more complicated. Noting that D fights if $y < \widehat{y} = \frac{b_f^*}{f(\cdot)}$ and pays otherwise, D solves:

$$a_f^* = \arg \max_a \left[\int_{\underline{y}}^{\min[\max[\widehat{y}, \underline{y}], \bar{y}]} y(1 - f(\cdot)) \frac{1}{\bar{y} - \underline{y}} dy + \int_{\min[\max[\widehat{y}, \underline{y}], \bar{y}]}^{\bar{y}} (y - b_f^*) \frac{1}{\bar{y} - \underline{y}} dy - a \right] \quad (3)$$

Since f , ϕ , and hence b_f^* are all functions of a , we must now add additional structure in order to pin down a_f^* and further analyze the model.

Specification with Contest Success Functions

The assumption that s and a have both protective and punishing effects means that they have symmetric, opposite impacts on f and ϕ . Contest success functions (CSFs) are a tractable and well-worn method formalization of fighting when arms have these qualities (e.g. Skaperdas 1996). CSFs can represent “the proportionate share of the prize won” (Hirshleifer 1989, 102); in this case, letting $f(\cdot) \equiv \frac{s}{a+s}$, $f \in [0, 1]$ represents the share *lost*, since D retains $y(1 - f)$ under enforcement.

In a typical CSF specification, the other player would receive $y * f$. But it would be specious to assume that either P or S (leaders) ‘win’ the street value of interdicted drugs; it is precisely this

asymmetry that distinguishes cartel-state conflict from wars of conquest, usually modeled as zero- (or negative-) sum contests over a common prize. Here, P fights for the ‘prize’ of avoiding the punishment D threatens to impose, so define $-\phi(\cdot) \equiv -\varphi \frac{a}{a+s}$, where φ scales P ’s distaste for confrontation.²¹

To make the hiding case comparable, let $h(\cdot) \equiv \frac{s_H}{\eta+s_H}$, where η captures the rent-protective efficacy of hiding. Substantively, a setting where hiding produces large losses relative to standing ground is probably more territorial. Thus η can be seen as an inverse measure of the territoriality of the drug trade. Recall also that $s_H \equiv s(1-c) < s$, and note that Condition C_a is satisfied: $a > \eta \frac{s_F}{s_H} = \frac{\eta}{1-c} \equiv \tilde{a} \Rightarrow f > h$.

Finally, to analyze changes in the profitability of drug markets, I specify the distribution of y in terms of its expected value (i.e. mean), and fix its variance: $y \sim U \left[\frac{1}{2}\mu, \frac{3}{2}\mu \right]$. As in Dal Bó and Powell (2009), this permits distinguishing between short-term fluctuations (realizations of y) and shifts in the general economic climate. Meaningful solutions require that profits not be too small compared to the cost of fighting: $\mu > \frac{\varphi}{4}$.

This specification pins down an ‘unconstrained’ optimum \widehat{a}_f^* :

Lemma 3. *There is a positive range such that $s \in (\underline{s}, \bar{s})$ implies $\widehat{a}_f^* > 0$. For $s > \bar{s}$, $\widehat{a}_f^* < 0$; for $s \leq \underline{s}$, \widehat{a}_f^* is undefined.*

Since SPNE requires $a_f^* \geq \tilde{a}$, define $\tilde{a}_f^* = \max[\widehat{a}_f^*, \tilde{a}]$, which is always positive. Interior solutions prevail whenever \tilde{a}_f^* is smaller than the relevant critical value of a ;²² this is guaranteed by a sufficient degree of repression:

Lemma 4. $\exists s_I > 0$ such that $s > s_I$ implies an interior solution.

Taking comparative statics for interior solutions, the equilibrium bribe price (b_f^*) is increasing in λ and s , and the probability of bribery occurring ($1 - \text{Pr}_F$) is decreasing in λ , as in the hiding case. However, crackdowns do not always make bribery more likely:

Proposition 2. *Increases in s raise the probability of fighting whenever $\varphi > \lambda$, and decrease it if $\varphi < \lambda$.*

²¹For technical reasons, assume $\varphi \neq \lambda$.

²²I examine conditions and substantive interpretations of corner solutions below.

This is a key result. If $\varphi > \lambda$, P 's worst-case outcome from fighting D is worse than her expected punished for corruption. Since λ reflects, in part, the likelihood of detection and prosecution, it should be relatively small when corruption is rampant, and large when corruption is rare. Thus Proposition 2 tells us that *crackdowns in the face of rampant corruption increase traffickers' incentives to fight enforcers*. The finding has particular importance if conditionality is asymmetric, such that once fighting, cartels cannot gain a reprieve from repression by eschewing violence.

Equilibrium Selection

Whether D plays fight-and-bribe or hide-and-bribe depends on whether U_f^D , his ex-ante expected payoff when $a = a_f^*$, is greater than U_h^D , with $a = a_b^* = 0$. This calculation is sensitive to parameter conditions, particularly changes in state policy (s and c). Proposition 2 tells us that once in a fight-and-bribe equilibrium, crackdowns exacerbate fighting; they can also 'flip' D 's equilibrium strategy from hiding to fighting, as a numerical simulation illustrates.

FIGURE 8. Equilibrium Selection

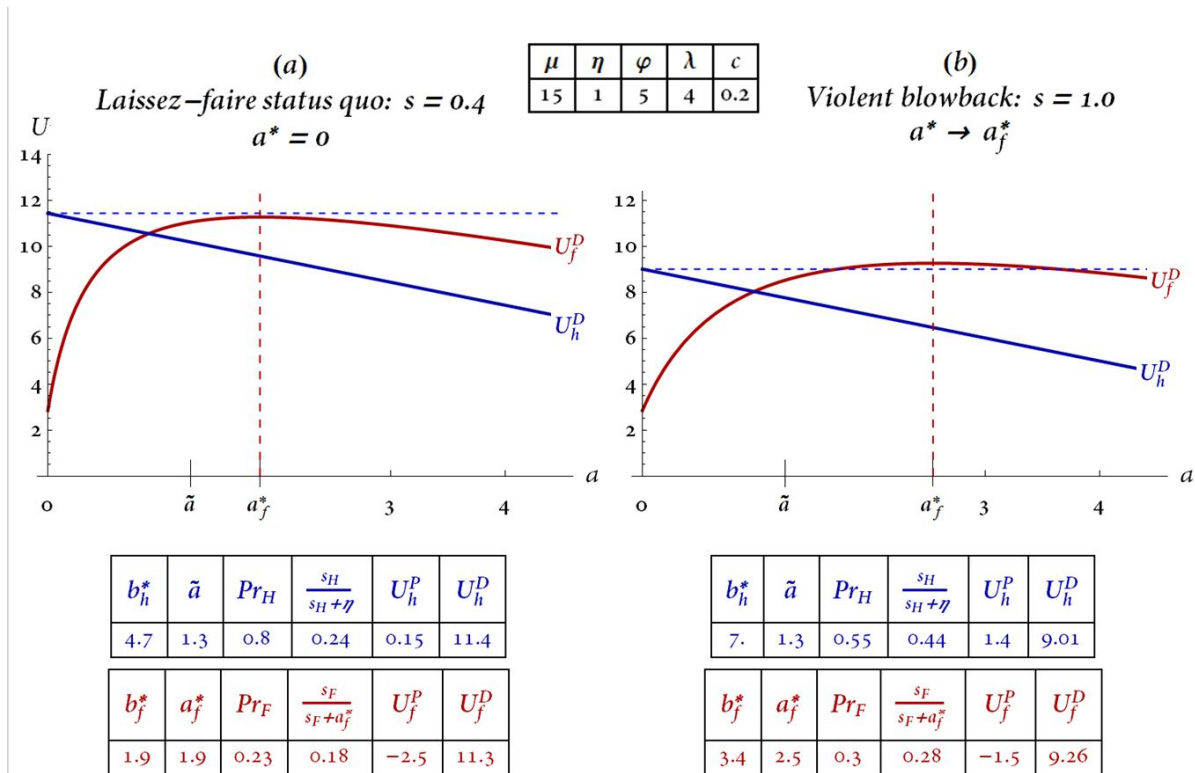
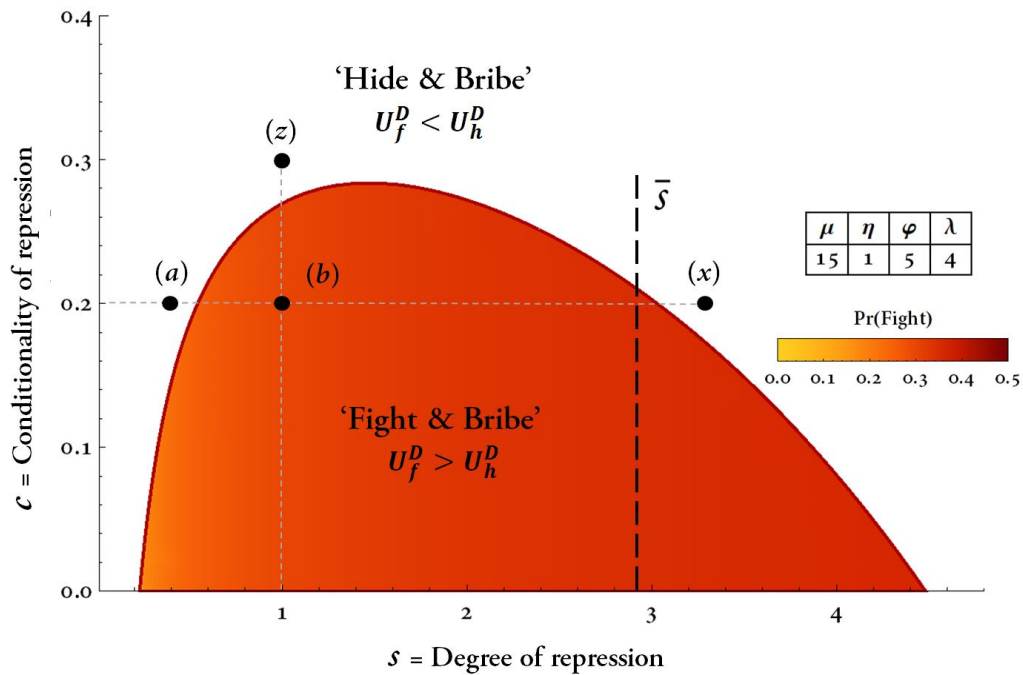


Figure 8’s vertical and horizontal axes show D ’s expected utility and choice of a , respectively. U_b^D is maximized at $a = 0$, shown by the dashed horizontal line for comparison. U_f^D is maximized at \tilde{a}_f^* (for interior solutions); D fights whenever that maximum lies above the dashed horizontal line. Scenario (a) represents a low-enforcement status quo. If D plays $a = 0$, P demands a bribe of 4.7, which D pays only 20% of the time. By playing $a = a_f^*$, D would reduce b^* to 1.9, but the cost of arming makes D worse off overall. However, if leaders crack down, raising s to 1 as in scenario (b), D is better off playing $a = a_f^*$, and fighting 30% of the time.²³ To gain intuition for this result, compare how much fighting reduces D ’s effective loss factor in (a), from .24 to .18, vs. (b), from .44 to .28. Though of similar proportions, the latter reduction is ‘worth’ more in absolute terms: roughly $\mu(.44 - .28) = 2.3$.

Much of the parameter space is susceptible to such violent blowback. Figure 9 extends the simulation above, allowing s and c to vary along the axes, and plotting the region for which $U_f^D > U_b^D$. Within this region, the equilibrium probability of fighting (Pr_F) is indicated by shading, and is increasing in s as per Proposition 2. Scenarios (a) and (b) from Figure 8 appear as points in this space.

FIGURE 9. Fighting and Hiding Regions



²³Note the inefficiency of fighting vs. hiding: $U_f^D + U_f^P < U_b^D + U_b^P$.

The ‘hump’ shape captures countervailing pressures: the value of the additional leverage gained by fighting is proportional to s , but so is the cost of arms needed to achieve leverage. Thus at low s , intimidation is cheap but not worth much; at high s , intimidation is valuable, but prohibitively costly. For areas within the hump, leverage is cheap enough to make fighting optimal.

One interpretation is that cartels fight when the state doesn’t crack down hard enough. From point (b) , the state could expand repression out to point (x) , inducing D to eschew violence. There is always some degree of repression s^* above which D hides, even when repression is perfectly unconditional ($c = 0$):

Proposition 3. *For any set of parameter values, $\exists s^* \in \mathbb{R}^+$ such that $s > s^* \Rightarrow U_b^D > U_f^D$.*

Substantively, though, high levels of s may be infeasible or undesirable: states face resource and capacity constraints, opportunity and political costs, and at least some democratic limits on repressive tactics. If some upper bound exists, say \bar{s} , then moving from (b) to (x) is infeasible, and hiding can only be induced by raising c . In fact, the state could pacify the cartel without raising s at all by increasing conditionality, say to point (z) ; at this level of conditionality, D hides for *any* s . This too generalizes: increases in conditionality raise D ’s expected payoff from hiding relative to fighting, thus reducing s^* . Beyond some point (short of decriminalization), s^* reaches zero, and D never fights:

Proposition 4. *For any set of parameter values, $\exists \tilde{c} \in (0, 1)$ such that if $c > \tilde{c}$, D plays $a^* = 0$, P plays $b \geq b_h^M$, and D always hides.*

The proposition goes further: with sufficient conditionality, the state can guarantee a non-violent corner solution with no bribing in equilibrium. This contradicts the notion that drug trafficking is inherently violent, and underlines the coercive aims of cartel-state conflict: cartels fight (and bribe) enforcers to retain illicit rents, so when leaders allow non-violent cartels to retain enough of those rents, there is no reason to fight (or bribe).

The analysis illuminates the tradeoffs facing the state. Conditionality (assuming it is symmetric) is an effective violence-reduction policy lever, and can be critical to breaking out of a fighting equilibrium where constitutional and capacity constraints restrict the state’s choice of s . Moreover, reducing

enforcers' discretion to prosecute non-violent traffickers can drastically reduce bribery, even in lieu of traditional anti-corruption efforts (i.e. trying to raise λ).

However, D 's utility is strictly decreasing in s and, when hiding, increasing in c . For P , the opposite holds: except at critical points where D flips from fighting to hiding, P would always prefer a higher s and a lower c . This points to the *political* costs to leaders of increasing conditionality: it can generate hostility or insubordination among enforcers,²⁴ while leaving cartels better off, exposing leaders to the venomous epithet of 'accommodating the drug trade'.

Changes in the profitability of the drug trade constitute an alternative (or complementary) explanation for variation in drug violence, though predictions run in both directions: violence in Mexico has been attributed to both an increase in profits after Caribbean routes were shut down in the 1990s, and shrinking profits due to tighter border patrols after 2001. This parallels the debate over whether increases in GDP increase or decrease the likelihood of civil war onset (Blattman and Miguel 2010, 10-12). The ambiguity results from countervailing logics: a larger 'pie' means more to fight over and more to buy arms with, but also more surplus to buy off contending groups.

The model offers some leverage by distinguishing between short-term fluctuations in profits (the realization of y) and long-term changes in the expected size of the market (μ). For a fight-and-bribe equilibrium, the larger the realized value of y , the less fighting, echoing Mejía et al.'s (2013) finding that short-term supply restrictions drive drug violence.²⁵ But changes in μ are more ambiguous. Within a fight-and-bribe equilibrium, increases in μ reduce the probability of fighting for low values, but increase it at higher values. Similarly, in terms of equilibrium selection, both U_b^D and U_f^D are increasing in μ , and at lower values of μ it is not clear which increases more. However, a sufficiently large μ always produces fighting:

Proposition 5. *For any parameter values, $\exists \mu^* \in \mathbb{R}^+$ such that $\mu > \mu^* \Rightarrow U_f^D > U_b^D$.*

This result bodes poorly for settings like Central America where total state resources (with which

²⁴If enforcers do not realize or believe that cartels will switch to hiding strategies under conditionality, they will always oppose it; convincing enforcers that conditional repression can reduce cartel-state conflict can thus alter their political stance. In Rio, police leaders were initially skeptical and divided over the conditional aspects of Pacification, but now explicitly embrace them.

²⁵They, however, assume that negative supply shocks *increase* profits due to supposedly inelastic demand.

to buy s) are dwarfed by drug profits. It also suggests that increases in profitability, not policy shifts, could be responsible for cartel-state conflict. That said, large increases in μ are needed to drive a switch from hiding to fighting; small increases can actually make hiding more preferable. And since μ represents a shared expectation about drug-market size, it is likely to move slowly. Thus changes in μ alone probably do not explain rapid shifts in cartel-state conflict, though they can clearly complement other explanations. Substantively, the large expansion of Mexico's drug market in the 1990s may have contributed to the slow escalation of conflict there, but it is less plausible that an abrupt increase in profits explains the rapid growth in violence from 2006 onward.

Corner Solutions

In the hiding case, corner solutions depend only on exogenous factors. Low-ball outcomes are ruled out by the specification of γ ; the high-ball case, where $\text{Pr}_H = 1$, occurs when s is very low or, as per Proposition 4, when c is high: enforcement is so weak that P cannot extract an acceptable bribe.

In the fighting case, there are critical values of a above which low-ball or high-ball solutions prevail, respectively. At most one of these is possible:

Lemma 5. *There exist a^m (and a^M) such that if a^m (or a^M) is positive and D plays $a \geq a^m$ (or $a \geq a^M$), P demands b_f^m (b_f^M), and $\text{Pr}_F = 0$ ($\text{Pr}_F = 1$). a^m and a^M have opposite signs, and a^m is positive whenever $\varphi > \lambda$.*

This says that low-ball outcomes are only an issue when corruption is rampant, high-ball outcomes when corruption is rare. Corner solutions occur when $\tilde{a}_f^* > \max[a^m, a^M]$; as per Lemma 4, this only holds for $s \in [0, s_I]$, where repressive capacity is small relative to P 's 'bigger worry', cartel punishment (φ) in the low-ball case, official punishment for bribe-taking (λ) in the high-ball case.

Substantively, low-ball outcomes represent 'coerced peace', a fight-and-bribe equilibrium with threats off the equilibrium path that are never acted on. This evokes Colombian officials' situation in the early 1980s, simply too afraid of Pablo Escobar to risk prosecuting him. A threatening note to a judge in a 1985 extradition case, for example, strongly suggests Escobar held enforcers to negative reservation values:

“We will DEMAND a favorable decision... We will not accept that you go sick. We will not accept that you go on holiday; and we will not accept that you resign.” (Bowden 2001, 70)

Coerced peace may also obtain in smaller Mexican municipalities, where overmatched local police forces are not so much bribed as ordered not to interfere with cartel business, on pain of death.

Under coerced peace, increases in repressive capacity (from $s < s_I$ to $s > s_I$) can trigger cartel-state conflict by pushing a^m above \tilde{a}_f^* ; D then plays an interior solution and there is fighting with probability $\Pr_f > 0$.²⁶ In late 1980s Colombia, protective measures including anonymous (*sin rostro*) status encouraged some officials to go after Escobar;²⁷ ironically, this may have contributed to the wave of cartel assassinations of judges during the period (CIJL 1990).

The high-ball outcome represents ‘violent enforcement’: both sides prefer a fight to any available bargain. This only occurs in low-corruption settings ($\lambda > \varphi$). At the same time, D must prefer violent enforcement to any available hide-and-bribe equilibrium, more likely when territoriality is high (low η) and repression is unconditional (low c). Substantively, a cartel facing relatively uncorrupt special forces may fight purely to minimize interdiction losses, especially if police are licensed to use deadly force irrespective of cartel action. In pre-Pacification Rio, traffickers often fought elite BOPE²⁸ forces despite being overmatched; Pacification’s pre-announced invasions raised the relative payoff to hiding, and traffickers have largely eschewed confrontation.

Extension: Effects of Turf War on Violent Corruption

The model focuses on cartel-state interaction, abstracting from inter-cartel dynamics, which, I’ve argued, are wars of conquest and require an analysis apart. Ultimately, we would like to know how cartel-state conflict and turf war interact.

Fully capturing such dynamics are well beyond the scope of this model; as a first cut, I treat turf war as exogenous, and consider its impact on violent corruption. Say that turf war leads D to acquire an

²⁶In terms of Figure 9, when regions of coerced peace exist, they occupy the far left swathe of the fighting region; increases in s represent moves right-ward into darker territory.

²⁷Interview, former *fiscal sin rostro*, Medellín, December 24, 2010; interview, former attorney general, Bogotá, December 13, 2010.

²⁸*Batalhão de Operações Policiais Especiais* (Special Police Operations Battalion).

arsenal, a_ω , which is a sunk cost vis-à-vis his interaction with P . D can still purchase additional arms, a_v , in anticipation of the bribe negotiation with P . If D fights, he uses his total arsenal, $a = a_v + a_\omega$, but the relevant cost is only $-a_v$. If more intense inter-cartel fighting produces larger arsenals, comparative statics on a_ω offer a highly reduced-form test of the effects of turf war.²⁹

First, assuming that $a_\omega < a_f^*$, note that since D still faces a constant marginal cost for arms, his optimal level of armament (a_f^*) does not change, so he only purchases enough arms to make up any difference between that optimum and his endowment: $a_v^* = a_f^* - a_\omega$. This means that \Pr_F also remains unchanged. However, D 's payoff to fighting increases by a_ω : $\widetilde{U}_f^D = U_f^D + a_\omega$.

This suggests one key channel by which turf war could trigger cartel-state conflict. Say that $U_b^D > U_f^D$ with no turf war; as turf war intensifies, cartels increase their armament levels in order to fight it. When a_ω crosses the critical point $a_\omega^* \equiv U_b^D - U_f^D$, D switches from a hiding strategy ($a_v = 0$) to a fighting strategy ($a_v = a_f^* - a_\omega$). Via this channel, turf wars do not affect the dynamics of cartel-state conflict once underway, but they make the switch from hiding to fighting more likely.

Empirically, this mechanism probably contributed to the onset of cartel-state conflict in Mexico. Below, I argue that the disintegration of single-party rule reduced conditionality; besides the direct effect of lowering cartels' hiding option, this may have indirectly driven cartel-state violence by exacerbating inter-cartel turf war, leading to an inter-cartel arms race that left them with ready firepower to use in bribe negotiations.

EVIDENCE FROM CASE STUDIES

The model predicts a range of outcomes depending on parameter conditions; this section locates the cases of Mexico and Rio de Janeiro within that parameter space. These are, by necessity, condensed generalizations of complicated histories, but broad patterns do emerge. In both cases, corruption is rampant, resilient, and routinized—as popular expressions like '*la plaza*' ("the concession [from state authorities] to run the narcotics racket" (Poppa 2010, 42)) and *arrego* (traffickers' regular bribe payment

²⁹This ignores any reciprocal effects of violent corruption on inter-cartel turf war. If 'punching-the-ref' exacerbates turf war, however, these effects are reinforcing.

to police) attest—suggesting a low and stable λ .³⁰ The drug market (μ) expanded significantly in Mexico in the 1990s, as cocaine flows into the US were diverted from the Caribbean (Andreas 1998, 160-161), but has probably been relatively stable since.

What has changed dramatically is the degree (s) and conditionality (c) of repression. In both cases, degree of repression has varied but trended upward. However, whereas in Rio conditionality sharply increased with the roll-out of the 'Pacification' strategy in 2008, in Mexico conditionality was high under single-party rule, but fell, first as unintended consequence of democratization in the 1990s and 2000s, then sharply and deliberately with Calderón's "impartial" crackdown. The model's predictions fit the observed outcomes: in Rio, a surprisingly abrupt switch by cartels from fighting to hiding in response to Pacification; in Mexico, slow escalation through 2006, then sharp 'blowback' in response to a massive, unconditional crackdown. While hardly dispositive, this supports my central claim: changes in conditionality have stark effects on cartel-state conflict.

RIO DE JANEIRO: PACIFICATION AS CONDITIONAL CRACKDOWN

Rio's favelas have been, for thirty years, the site of armed confrontations between violent police corps that are institutional relics of authoritarianism and 'cartels' whose origins as prison gangs make them atypically resilient and powerful. Here I abstract from this intriguing history to make two broad claims.

Claim #1: Pre-Pacification, crackdowns were unconditional; cartels played 'fight-and-bribe'.

For decades, repressive policy followed the swings of Rio's political pendulum between hard-liners, who gave police ever-increasing leeway, military capacity, and even financial incentives to use deadly force, and progressive reformers, who attempted to restrict violent police practice (Soares and Sento-Sé 2000). With a few important exceptions, however, what varied was the degree of repression, not its conditionality. Traffickers rarely received a clear signal from the state that eschewing violence would lessen the brunt of repression.

On the contrary, police actions in favelas were lethal and indiscriminate, with little effort made to

³⁰Notwithstanding low-corruption elite units, discussed above.

distinguish traffickers from non-participants much less condition the use of lethal force on the behavior of traffickers. A stark anecdote illustrates this:

Two young boys, 11 and 12, were killed by Rio Military Police during an operation in the Estado favela.... Another two minors and a youth also died. The police claim the victims were drug dealers, including the two children.

“History shows that children do participate in the drug trade....” said the commanding officer (Figueiredo 2005).

Note that for this police commander, simply being a trafficker, even a pre-adolescent one, is sufficient to warrant summary execution. The official investigation vindicated him:

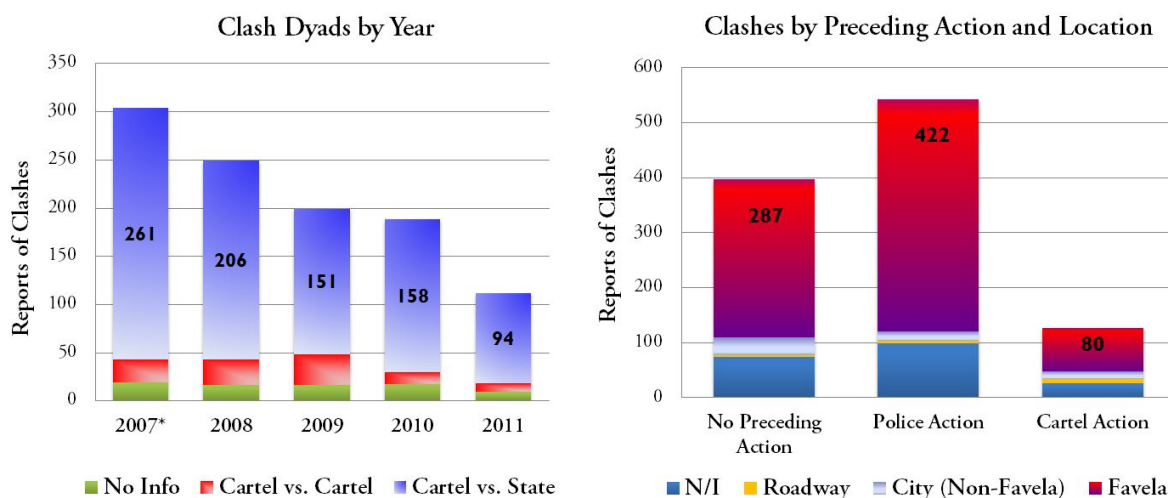
The bodies of the five dead were released from the Legal Medical Institute without having been examined for gunpowder traces on their hands, which would have shown if in fact they participated in a shootout, as the police allege (*O Globo* 2005).

In such a setting, traffickers have every incentive to fight back when police enter the favela.

This incident attracted attention because of the victims’ age, but systematic evidence confirms that repressive force was not conditional on traffickers’ use of violence. Cano (1997; 2010), analyzes the universe of incidents in which police shot ‘opposers’ (i.e. not innocent bystanders) over a 30 month period. Were police truly acting in self defense, he argues, the ratio of fatal to non-fatal shootings would be less than one, as in US cities (1997, 31). In Rio, even for whites in non-favela areas, the ratio was about two; for non-whites in favelas, it was more than eight (2010, 40). Forensic examinations were conducted in only a quarter of these cases; even then, tests for gunpowder on alleged aggressors’ hands were rare (1997, 57).

Consistent with a ‘fight-and-bribe’ equilibrium, a longitudinal study of 230 drug traffickers (Silva 2006, 35-37) found that contact with the police is more likely to result in abuse, confrontation, or bribery than effective enforcement. 73.5% reported having suffered police violence, while only 53% had ever been arrested and 28.5% imprisoned. Meanwhile, 54% had suffered police extortion, while 68% had been in at least one armed confrontation with police (compared to only 53% in confrontation

FIGURE 10. Clashes, June 2007 - December 2011



Source: Author's coding of newspaper reports; see Appendix B for details.
 *Includes only June-December 2007.

with rival groups). In an earlier survey, 35% of traffickers under 18 said their worst work-related fear was death, followed by police extortion (30%), while among those over 18 fear of extortion ranked first; in both cases, fear of arrest was third.

Novel violent-event data confirm traffickers' fighting stance toward enforcers. By far, the most common violent actions are clashes,³¹ accounting for 46% of all reports of drug violence in Rio (compared with 10% in Mexico). The vast majority of clash reports concerned clashes between police and cartels, not among traffickers (Figure 10). Roughly half of all clash reports indicate that some police-initiated action preceded the outbreak of gunfire, almost always an incursion into a favela,³² where at least 80% of clashes occurred.

While frequent enough at the city-wide level, such clashes are hardly constant. On any given day, hundreds of favelas patrolled by openly armed traffickers were *not* the scene of shootouts, even though police certainly knew where to find the traffickers. The logic of violent corruption—an ongoing, repeated interaction in which violence is the result of bargaining breakdown—fits this pattern of intermittent fighting.

³¹Violent actions are coded by type (e.g. bombing or assassination). A single category, 'clash', covers *any* situation in which two or more actors exchange lethal force.

³²Police incursions that were themselves in response to a violent action are counted as cartel-initiated.

One exception to this long history of unconditional repression was the GPAE³³ project, a predecessor of Pacification. In a handful of favelas in 2001 (Ungar and Arias 2009, 418-421), GPAEs maintained a preventive presence that did not actively target traffickers, as long as they followed a few simple rules: “Don’t walk around openly armed, don’t sell drugs near school, and don’t employ children.”³⁴ Homicides fell to zero the first year, and residents overwhelmingly approved of the program. Unfortunately, the formulator and original commander of GPAE was replaced in 2003 with a hard-liner who took a traditional repressive approach (Fernandes 2003, 98). Police violence rose, and cartels reverted to confrontational strategies in these communities. Nonetheless, GPAE showed that conditionality can induce traffickers to eschew fighting, and inspired the development of a conditional approach on a city-wide scale.³⁵

Claim #2: Pacification increased conditionality, pushing cartels into hiding strategies.

Governor Sérgio Cabral began his term with a traditional crackdown, culminating in the lethal but failed 2007 invasion of the Alemão favela complex, for decades the principal redoubt of Rio’s largest cartel. The year ended with a record 1,330 civilians killed by police in armed confrontations (Figure 2). In 2008, his administration tacked, introducing the Pacification strategy.

Two aspects of the Pacification strategy make it clearly conditional. First, the state government pre-announces occupations, focusing on reclaiming territory rather than the capture or killing of traffickers. This improves traffickers’ ‘hiding option,’ giving them a chance to flee or, for those unlikely to be identified, disarm and ‘melt’ into favela society. Second, once established, community-policing units known as UPPs³⁶ explicitly prioritize violence-minimization over the interdiction and arrest of traffickers.

Both of these aspects of the policy represent strong breaks with previous practice, and, as with GPAE before it, Pacification initially came under criticism for turning a blind eye. But whereas GPAE’s backers were often on the defensive, Public Security Secretary José Beltrame, principal formulator and public

³³Grupamento de Policiamento em Áreas Especiais (Policing in Special Areas Units).

³⁴Interview, GPAE founder and ex-commander, June 2003.

³⁵Interview, Sub-secretary of Public Security, Rio de Janeiro, February 22, 2013.

³⁶Unidades de Polícia Pacificadora (‘Pacifying Police Units’); Cano (2012) provides detailed descriptions. ‘UPP’ has become a synecdoche for the larger Pacification strategy, and, due to its success, a ‘brand name’ for favela-based social programs.

face of Pacification, forthrightly defended the approach.

“We cannot guarantee that we will put an end to drug trafficking nor do we have the pretension of doing so. [The idea is] to break the paradigm of territories that are controlled by traffickers with weapons of war” (Phillips 2010).

Challenged on the policy of allowing kingpins to escape, he said:

“What difference does the arrest of a drug lord make to the life of people who live in a given community? [...] Will it reduce crime rates? Arresting drug lords is important, but it isn't the most important thing” (Bastos 2011).

Confronted with footage of drug sales in a UPP-occupied favela, Beltrame did not apologize for what is perhaps the most difficult-to-swallow aspect of conditional repression, the need to apply less than maximum repression against non-violent traffickers:

“The basic mission was to disarm the drug dealers and bring peace to the residents. The footage doesn't appear to show anyone armed. [...] That positive outcome is worth infinitely more than the sale of a half dozen packets [of cocaine]” (Araújo 2010).

The 2008-09 rollout of the Pacification strategy in highly visible but smaller favelas was successful but inconclusive: cartel-state violence declined but remained significant (Figure 10), as traffickers had fled pacified areas for stronghold favelas, especially Alemão. Reflecting the conventional wisdom that traffickers were entrenched in a fighting strategy, Beltrame told US officials his planned invasion of Alemão in 2010 would be one of “traumatic violence” (Fraga 2010). When 2,700 police and soldiers entered Alemão to confront what had been estimated at 500 to more than 1,000 armed traffickers, the result surprised the media, analysts, and even force commanders. The operation lasted only a few hours, producing but three fatal casualties and less than two dozen arrests. The local kingpin fled, while lower ranks simply dissolved into the local population.³⁷

³⁷Interview, resident activist and mother of trafficker, Complexo do Alemão, March 29, 2011.

The successful ‘pacification’ of Alemão seems to have marked a turning point. In November 2011 a joint police, army, and navy operation captured Rocinha—the largest favela in Rio, and widely considered its most lucrative local drug market—in a matter of hours without firing a shot. In 2012, the state retook the extensive Manguinhos-Jacarezinho complex of favelas, again with little or no resistance. Traffickers do not seem to have been eliminated from pacified communities; rather, they have turned to hiding strategies.³⁸ Ethnographic evidence (e.g. Resende and Ansari 2012, 114; Siqueira et al. 2012, 85), especially Cano’s (2012) systematic study of several pacified communities, confirms this: “There’s drugs, there are traffickers, but there are no more guns” (114) is a typical sentiment among residents.

A prominent alternative explanation for this abrupt switch in cartel strategy is the UPP units themselves, composed of new, uncorrupted recruits trained in human rights and proximity-policing techniques. Such efforts are to be lauded, and carefully monitored to guard against reversion to authoritarian practices. But the ‘counterinsurgency’ argument—that the UPPs won locals’ hearts and minds, so undercutting traffickers’ power that fighting became hopeless—is not convincing. The shift in cartel strategy was simply too abrupt, and occurred too soon in the Pacification process (when many pacified communities were still occupied by elite police and army forces) for the counterinsurgency effect to have been decisive. To be sure, winning the confidence of residents remains critical to the long-term success of Pacification, by dissuading cartels from re-establishing armed control. After decades of police brutality, however, that is a very slow process (Cano 2012).

MEXICO: FROM “PLAY BY THE RULES” TO “NO TRUCE AND NO QUARTER”

Neither drug trafficking nor militarized anti-narcotics efforts in Mexico are new, but until the 1990s, a stable enforcement regime was in place. The ordering of Mexican social and economic life by the hegemonic Institutional Revolutionary Party (PRI)—the *pax priista*—extended to the drug trade as well. Again I make two core claims.

³⁸Visit and interview with former trafficker, Complexo do Alemão, December 18, 2011. Visits and interviews with residents: Rocinha, December 15, 2011; Providência, March 27, 2011; Santa Marta, July 11, 2010; Chapéu-Mangueira, June 20, 2010.

Claim #1: Democratization weakened conditionality, pushing cartels toward fighting strategies.

The PRI regime was highly corrupt, but, due to the conditional deployment of repression, generated little violence. The critical institution was the Federal Security Directorate (DFS), established in 1947 as the president's political police. Luis Astorga argues that DFS's mission

was to be twofold: on the one hand, it ensured that part of the [drug traffickers'] profits was levied in exchange for protection; on the other, it served as a mechanism for containing the violence and any political temptations on the part of the traffickers. (2001, 428).

The DFS, and the PRI behind it, laid down rules of the game; traffickers either played by them or faced swift and certain punishment (Lupsha 1991; Poppa 2010). The result of this clearly conditional approach was, for decades, a hide-and-bribe equilibrium with no fighting, relatively large bribes, and little actual enforcement (Andreas 1998). The model suggests this requires both high repressive capacity (*s*) and conditionality (*c*): the state must wield enough force to extract large bribes, while maintaining enough in reserve to dissuade traffickers from bribe-reducing violence.

Such accumulation and control over repressive capacity was made possible by the PRI's political hegemony. One-party rule rendered moot the fragmentation of Mexico's federalist security institutions—as traffickers' turf grew, the locus of state control moved fluidly from local to state to the national level (Lupsha 1991, 44). Conversely, the DFS's extinction in the wake of corruption scandals in 1985 (Grayson 2010, 138) presaged the end of the *pax priista*: in the 1990s, the once hegemonic PRI began to lose local and state elections, then control of Congress, and, finally, in 2000, the presidency (Magaloni 2005). As the PRI collapsed, institutional fragmentation came to the fore (Astorga 2001); with different parties controlling municipal, state, and federal enforcers, conditionality became less feasible. This is a potentially critical mechanism underlying empirical findings of an association between democratization—increased political competition—and violence in Mexico (Dube et al. 2013; Durán-Martínez 2012; Osorio 2012)..

This fragmentation and reduction in conditionality likely undermined violence-mitigating informal arrangements among cartels (Snyder and Durán-Martínez 2009). This may have indirectly contributed

to cartel-state conflict via the accumulation of arms to fight turf wars, culminating with the Gulf cartel's recruitment of rogue special-forces soldiers, later christened 'Los Zetas.' The rival Sinaloa cartel responded by building its own private militia. When the two cartels clashed in Nuevo Laredo between 2004 and 2005, some of the first *sustained* cartel-state violence occurred (Grillo 2011, 103-105).

Claim 2: Calderón's crackdown intentionally reduced conditionality further.

It was not until Calderón's militarized crackdown in 2006 that cartel-state conflict in Mexico truly erupted. Any crackdown would have been somewhat unconditional for the reasons discussed above. But Calderón's approach was unconditional by design, in two key senses. First, Calderón conducted a highly public 'war' that he insisted would be impartial, with repression falling on all cartels equally. Second, he pursued a questionable strategy of eliminating kingpins and fragmenting cartels that gave competing security agencies little incentive to mete out repression in proportion to cartel violence.

Both decisions flowed from the political conditions Calderón faced upon besting leftist mayor of Mexico City Andres Manuel López Obrador by the slimmest of margins (0.58%, just 240,000 votes) in the 2006 presidential election. López Obrador, invoking the infamous 1988 election-night fraud that had robbed his party of the presidency, declared the 2006 result invalid and mobilized an occupation of Mexico City's *zocalo* that lasted for months. At a rally days before Calderón's inauguration, López Obrador was proclaimed "Legitimate President", laid out a shadow agenda, and called for a parallel cabinet to serve in protest. Calderón's inauguration was marred by a brawl on the floor of Congress and a hasty exit.

The details are colorful, but Calderón's position was truly precarious. Taking on the cartels was, in part, a response to increasing drug violence and calls from beleaguered governors for reinforcements.³⁹ But it was also a political bet, influenced by the example of Colombia's conservative president Álvaro Uribe. By garnering overwhelming support after improving security through an intense crackdown on Colombia's guerillas, Uribe showed that reducing violence was a, if not the, path to mass popularity for the right in Latin America. Within days of taking office, Calderón sent his top security officials

³⁹Interview, former Calderón spokesman, February 23, 2013.

to Colombia, to meet with Uribe and his cabinet “to learn from the Colombian experience” in the attorney general’s words (Bailey 2009; Pérez-Plá 2007).

The Colombian experience influenced both Calderón’s grand strategy and his tactical decision to target kingpins and fracture the cartels—an approach that further reduced conditionality. The conventional wisdom was that cartel-state conflict in Colombia ended in 1993 because the heads of the large cartels had been killed or captured, and the remaining splinter organizations lacked the firepower to challenge state authority; Mexico could learn from and reproduce such a “victory” (Bonner 2010). Meanwhile, top Colombian anti-narcotics officials advised Calderón to net some ‘big fish’ quickly, to demonstrate capacity and win public support.⁴⁰ Targets were thus distributed among agencies—army, navy, federal police, etc.—producing competition for high-profile busts rather than coordinated, responsive state action.⁴¹ Fallen kingpins became trophies for rivalrous agencies; operational decisions were often taken autonomously from the presidency;⁴² and intelligence was often acted on immediately for fear of leaks or even inter-agency poaching (Felbab-Brown 2009).

This unconditional operational approach was consistent with Calderón’s martial rhetoric—such as the oft-repeated phrase “no truce and no quarter”—which both tied his own hands⁴³ and sent the message that he would fight all cartels equally and maximally (Guerrero 2011, 89). Impartiality was critical to the legitimacy of Calderón’s war: his predecessor Vicente Fox’s deployment of troops to Nuevo Laredo in 2004 was widely rumored to have been a deliberate boon to the Sinaloa. Calderón faced similar accusations, not only on countless cartel ‘narco-banners’, but in journalistic investigations whose conclusions the administration vehemently denied, insisting (again) that cartels were being “attacked in a manner proportional to their size” (Burnett et al. 2010). Thus, in the government’s actions and its rhetoric, conditionality was the baby thrown out with the bath-water of corruption: trafficker should not expect to reduce their exposure to repression by eschewing violence.

This appears to have changed somewhat toward the end of Calderón’s presidency. As early as 2010, intelligence officers advocated for a targeted approach, though they initially made little headway with

⁴⁰Interview, DEA Bogotá station chief, February 23, 2013.

⁴¹Interview, CISEN intelligence officer, September 28, 2010.

⁴²Interview, Director, National Security Council Technical Secretariat, October 22, 2010.

⁴³This may have reduced violent lobbying: cartels knew that audience costs would prevent Calderón from backing down.

military leaders.⁴⁴ In 2011, several sources reported an explicit government decision to target the Zetas for being the most brazen and violent cartel (Corchado 2011; Guerrero 2011, 89-90), while a special operation dealt serious blows to the group (Gómora 2011). The presidency, nonetheless, continued to deny and condemn any departure from an unconditional approach:

The federal government does not favor any criminal organization; it weakens them all systematically without distinction (Poiré Romero 2011).

After a gruesome August 2011 massacre by the Zetas that personally infuriated Calderón, the government increased pressure on the group (while still refusing to admit as much),⁴⁵ leading to major captures, including its top leader. Conditionality in-deed-if-not-in-word may have contributed to an important shift in Zeta strategy in 2012: where Zeta narco-banners previously sought to intimidate, they now downplayed Zeta antagonism toward the state, *denied* responsibility for major acts of violence, and expressed sympathy for victims (Corcoran 2013). One captured Zeta leader, at his May 2012 deposition, described ordering his operatives in Veracruz to lay low during a federal intervention to avoid confrontations (Reforma 2013), a hallmark of a hiding approach.

As his administration ended, Calderón sought to “lock in” his approach (Archibold 2011), though we still lack a complete account of how exactly that strategy evolved through 2012. Meanwhile, his successor, Enrique Peña Nieto of the PRI, has promised to change course, prioritizing violence-reduction over arrests and interdictions—in essence, a conditional approach.—but taken few concrete steps. As the presidential term progresses and new information comes to light, it will provide an interesting test of the theory presented herein.

CONCLUSION

Cartel-state conflict is both an intellectual puzzle and an extremely pressing policy concern. Our theories of conflict do not fit its basic outlines, and real-world leaders have been surprised when interventions designed for insurgencies have failed to curb, and sometimes worsened, drug violence. This paper

⁴⁴Interview, former CISEN senior official (2008-2011), May 17, 2013.

⁴⁵Interview, former CISEN senior official (2008-2011), May 17, 2013.

makes four main contributions. First, it develops a conceptual framework that is both more workable and revealing than the ‘criminal insurgency’ approach. Second, it begins to delineate the logics that drive cartels to attack the state. Third, it models the most central of these logics, violent corruption, providing a rigorous framework for analyzing the effects of policy interventions. Finally, it applies this framework to two prominent cases, accounting for extremely divergent responses to militarized crackdowns.

I have thus far avoided normative conclusions about how states or societies should weight the outcomes of different drug policy regimes. Ultimately, we face hard tradeoffs between three bad outcomes—drug flows, bribery, and violence—in addition to the costs of repression and incarceration. The analysis here suggests that violence, at least, could be drastically reduced, albeit at the cost of going relatively easier on non-violent traffickers. Rio de Janeiro’s leaders took such a bargain; one hopes that other leaders—observing Pacification’s overwhelming success in curtailing a bloody and seemingly endless conflict—would take it too.

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Appendix A: PROOFS OF FORMAL PROPOSITIONS

Lemma 1. *In equilibrium, D never plays $a \in (0, \bar{a})$; his strategy takes one of the following forms:*

$$a_h^* = 0; \begin{cases} H & \text{if } y \in [\underline{y}, \frac{b}{b(\cdot)}) \\ B & \text{if } y \in [\frac{b}{b(\cdot)}, \bar{y}] \end{cases} \quad (\text{'Hide-and-bribe'})$$

$$a_f^* \geq \bar{a}; \begin{cases} F & \text{if } y \in [\underline{y}, \frac{b}{f(\cdot)}) \\ B & \text{if } y \in [\frac{b}{f(\cdot)}, \bar{y}] \end{cases} \quad (\text{'Fight-and-bribe'})$$

P 's strategy takes the form

$$b^*(a, \cdot) = \begin{cases} b_h^* & \text{if } a < \bar{a} \\ b_f^* & \text{if } a \geq \bar{a} \end{cases}$$

Proof. D **never plays** $a \in (0, \bar{a})$: Assume, toward contradiction, that in some equilibrium, D plays $a^o \in (0, \bar{a})$. Since $a < \bar{a}$, D cannot fight in the last round. Since a only affects P 's payoffs if D fights, P 's best response b_o^* is the same for all $a \in [0, \bar{a})$. But D 's equilibrium payoffs are strictly decreasing in a over this range, so that D could profitably deviate from any such a^o by playing $a = 0$.

Strategies: a^* : For $a < \bar{a}$: in the last round, D prefers hiding if $b(\cdot)y > y - b$, and fights otherwise. This yields the cutpoint $\hat{y} = \frac{b}{b(\cdot)}$. A similar logic holds for $a > \bar{a}$. b^* : P 's payoff when b is rejected depends on whether D 's outside option is F or H , which depends on a . \square

Lemma 2. For $o \in \{h, f\}$, if $\widehat{b}_o^* > b_o^M$, P weakly prefers playing b_o^M to any other b , strictly so for any $b < b_o^M$. If $\widehat{b}_o^* < b_o^m$, P strictly prefers b_o^m to any other b .

Proof.

$\widehat{b}_o^* > b_o^M$: D is sure never to pay any bribe $b \geq b_o^M$, so P is indifferent among all such b . The unconstrained objective functions are differentiable everywhere; the constrained functions are identical for $b \leq b_o^M$, and therefore left-differentiable at b_o^M . Taking the fighting case, $\partial_- E [U_f^P(b_f^M)] = \frac{\lambda - \phi(\cdot) - f(\cdot)\bar{y}}{f(\cdot)(\bar{y} - \underline{y})}$, which is positive since $\lambda - \phi(\cdot) > f(\cdot)\bar{y}$ by assumption. Thus P is strictly worse off demanding $b < b_f^M$.

A similar argument applies to the hiding case.

$b_o^* < b_o^m$: A similar argument shows that P is strictly worse off demanding $b > b_o^m$. Because D will pay any $b \leq b_o^m$, P is strictly worse off demanding $b < b_o^m$. \square

Proposition 1. Assuming an interior solution and $a < \bar{a}$, the equilibrium bribe price b_h^* is increasing in λ and s , and decreasing in c . The probability of bribery occurring is decreasing in λ , increasing in s , and decreasing in c .

Proof. Given an interior solution, $b_h^* = \frac{\lambda + h(\cdot)\bar{y}}{2}$. This is obviously increasing in λ . Recalling that $h(\cdot)$ is increasing in s and decreasing in c , the other comparative statics follow.

The probability of bribery occurring is $1 - \Pr_H = 1 - \frac{\lambda + h(\cdot)(\bar{y} - 2\underline{y})}{2h(\cdot)(\bar{y} - \underline{y})}$. This is clearly decreasing in λ .

Differentiation yields:

$$0 - \frac{\partial \Pr_H}{\partial h(\cdot)} = \frac{\lambda}{2(\bar{y} - \underline{y})h(\cdot)^2} > 0$$

Recalling that $h(\cdot)$ is increasing in s and decreasing in c , the other comparative statics follow. \square

Corollary 2. For any set of parameter values, $\exists c^{NB} \in (0, 1) : c > c^{NB} \implies \widehat{b}_h^* \geq b_h^M$, such that if $a = 0$, no bribes are paid.

Proof. Recalling that $h(\cdot)|_{s_H=0} = 0$ and $s_H = s(1 - c)$, $\lim_{c \rightarrow 1} \widehat{b}_h^* = \frac{\lambda}{2} > \lim_{c \rightarrow 1} b_h^M = 0$. \square

Lemma 3. There is a positive range such that $s \in (\underline{s}, \bar{s})$ implies $\widehat{a}_f^* > 0$. For $s > \bar{s}$, $\widehat{a}_f^* < 0$; for $s \leq \underline{s}$, \widehat{a}_f^* is undefined.

Proof. Having specified functional forms, Equation 2 becomes: $\widehat{b}_f^*(a) = \frac{s(\frac{3}{2}\mu+\lambda)-a(\varphi-\lambda)}{2(a+s)}$. Substituting into Equation 3 and temporarily assuming an interior solution yields D 's 'unconstrained' maximization problem:

$$\widehat{a}_f^* = \arg \max_a \left[\int_{\frac{\mu}{2}}^{\frac{s(\frac{3}{2}\mu+\lambda)-a(\varphi-\lambda)}{2s}} \left(y \frac{a}{a+s} \right) \frac{1}{\mu} dy + \int_{\frac{s(\frac{3}{2}\mu+\lambda)-a(\varphi-\lambda)}{2s}}^{\frac{3\mu}{2}} \left(y - \frac{s(\frac{3}{2}\mu+\lambda)+a(\lambda-\varphi)}{2(a+s)} \right) \frac{1}{\mu} dy - a \right]$$

This yields:

$$\widehat{a}_f^* = s \left(\frac{\sqrt{(8s\mu - (\lambda - \varphi)^2)(23\mu^2 + 12\mu\varphi - 4\varphi^2)}}{2(8s\mu - (\lambda - \varphi)^2)} - 1 \right)$$

To ease the notation, write $\Omega \equiv 8s\mu - (\lambda - \varphi)^2$ and $\Upsilon \equiv 23\mu^2 + 12\mu\varphi - 4\varphi^2$ throughout. The assumption that $\mu > \frac{\varphi}{4}$ guarantees $\Upsilon > 0$. Ω is positive whenever $s > \underline{s} \equiv \frac{(\lambda - \varphi)^2}{8\mu}$; Ω equals zero at \underline{s} ; and Ω is negative for $s \in [0, \underline{s})$. Thus $\widehat{a}_f^* \in \mathbb{R}$ if and only if $s > \underline{s}$, and \widehat{a}_f^* is continuous in s for $s > \underline{s}$. Now, $\lim_{s \rightarrow \underline{s}^+} \widehat{a}_f^* = +\infty$; $\lim_{s \rightarrow \infty} \widehat{a}_f^* = -\infty$, and algebra reveals that $\widehat{a}_f^* = 0$ if and only if $s = 0$ or $s = \bar{s} \equiv \frac{\Upsilon}{32\mu} + \underline{s}$, which is clearly greater than \underline{s} . Thus $\widehat{a}_f^* > 0$ for (\underline{s}, \bar{s}) , and negative for $s > \bar{s}$. \square

Lemma 4. $\exists s_I > 0$ such that $s > s_I$ implies an interior solution.

See proof of Lemma 5

Comparative statics on \widehat{b}_f^* :

Case 1 ($\widehat{a}_f^* > \bar{a}$): Substitution and algebra reveals that $\widehat{b}_f^*(\widehat{a}_f^*) = \frac{\lambda - \varphi}{2} + \left(\frac{3}{2}\mu + \varphi\right) \frac{\sqrt{\Omega \cdot \Upsilon}}{\Upsilon}$. $\frac{\partial \widehat{b}_f^*}{\partial s} = \frac{2\mu(3\mu + 2\varphi)}{\sqrt{\Omega \cdot \Upsilon}}$, which is clearly positive.

Case 2 ($\widehat{a}_f^* < \bar{a}$): $\widehat{b}_f^*(\bar{a}) = -\frac{2\eta(\varphi - \lambda) - s(1 - c)(2\lambda + 3\mu)}{4(s(1 - c) + \eta)}$. $\frac{\partial \widehat{b}_f^*}{\partial s} = \frac{\eta(3\mu + 2\varphi)(1 - c)}{4(s(1 - c) + \eta)^2}$ which is clearly positive.

Proposition 2. Increases in s raise the probability of fighting whenever $\varphi > \lambda$, and decrease it if $\varphi < \lambda$.

Proof. **Case 1 ($\widehat{a}_f^* > \bar{a}$):** $\Pr_F(\widehat{a}_f^*) = \frac{1}{4} + \frac{\varphi}{2\mu} + \frac{(\lambda - \varphi)\sqrt{\Omega \cdot \Upsilon}}{4\mu \Omega}$. Thus $\frac{\partial \Pr_F}{\partial s} = (\varphi - \lambda) \frac{\sqrt{\Omega \cdot \Upsilon}}{\Omega^2}$. By assumption, \widehat{a}_f^* is positive, so $\frac{\sqrt{\Omega \cdot \Upsilon}}{\Omega} > 1$. Algebra reveals that $\frac{\partial \Pr_F}{\partial s}$ has the same sign as $(\varphi - \lambda)$.

Case 2 ($\widehat{a}_f^* < \bar{a}$): $\Pr_F(\bar{a}) = \frac{1}{4} + \frac{\lambda}{2\mu} + \frac{(\lambda - \varphi)\eta}{2\mu s(1 - c)}$. Algebra reveals that $\frac{\partial \Pr_F}{\partial s} = (\varphi - \lambda) \frac{\eta}{2\mu s(1 - c)}$, which has the same sign as $(\varphi - \lambda)$. \square

Proposition 3. For any set of parameter values, $\exists s^* \in \mathbb{R}^+$ such that $s > s^* \Rightarrow U_h^D > U_f^D$.

Proof. It suffices to show that $s \geq \bar{s} \Rightarrow U_b^D > U_f^D$; the critical value s^* must then be less than or equal to \bar{s} . D cannot play $a = \widehat{a}_f^*(\bar{s}) = 0$ and fight, because $\widehat{a}_f^* < \bar{a}$, but if he could, he would be strictly worse off than hiding, since $\eta > 0 \Rightarrow b_f^*|_{a=0} > b_b^*$. To fight, D would have to play $a = \bar{a}$; by a parallel argument to the proof of Lemma 2, this leaves D even worse off than if he could play his unconstrained optimum $a = \widehat{a}_F^* = 0$ and fight. Thus at $s = \bar{s}$, $U_b^D > U_f^D$. A similar argument applies if $s > \bar{s}$. \square

Proposition 4. *For any set of parameter values, $\exists \bar{c} \in (0, 1)$ such that if $c > \bar{c}$, D plays $a^* = 0$, P plays $b \geq b_b^M$, and D always hides.*

Proof. First I prove the following:

$$\lim_{c \rightarrow 1} U_b^D = \mu$$

From Corollary 2, we know that for $c > c^{NB}$, there is no bribe that P would accept that D would be willing to pay, so $U_b^D|_{c \in (c^{NB}, 1)} = \mu \frac{\eta}{\eta + (1-c)}$; the limit as $c \rightarrow 1$ is μ .

Now, $U_f^D = \Pr_F(\mu \frac{a}{a+s}) + (1 - \Pr_F)(\mu - b) - a$ which is strictly less than μ for $a > 0$. Since U_f^D is not a function of c , by continuity there exists $\bar{c} : c > \bar{c} \Rightarrow U_b^D > U_f^D$.

Proposition 5. *For any parameter values, $\exists \mu^* \in \mathbb{R}^+$ such that $\mu > \mu^* \Rightarrow U_f^D > U_b^D$.*

Proof. As $\mu \rightarrow +\infty$, interior solutions prevail. In the hiding case, this is guaranteed by $\mu > \frac{2\lambda}{3} \frac{s(1-c)+\eta}{s(1-c)}$. In the fighting case, \widehat{a}_f^* is concave in μ ; in the proof of Lemma 5, below, I show that the critical values for corner solutions increase linearly in μ . Thus in the limit a_f^* always equals \widehat{a}_f^* . We can thus compare ‘unconstrained’ utility functions and ignore corner solutions.

$$U_f^D(\widehat{a}_f^*) = s + \mu + \frac{3(\varphi - \lambda)}{8} - \frac{\varphi(\varphi - \lambda)}{4\mu} - \frac{\sqrt{\Omega \cdot \Upsilon}}{8\mu}$$

$$U_b^D = \frac{1}{8\mu} \cdot \frac{\lambda^2(s(1-c) + \eta)}{s(1-c)} + \mu \frac{\frac{2}{32}s(1-c) + \eta}{s(1-c) + \eta} - \frac{3\lambda}{8}$$

Algebra then reveals that $\lim_{\mu \rightarrow \infty} [U_f^D(\widehat{a}_f^*) - U_b^D] = +\infty$. \square

Lemma 5. *There exists a^m (and a^M) such that if a^m (or a^M) is positive and D plays $a \geq a^m$ (or $a \geq a^M$), P demands b_f^m (b_f^M), and $\Pr_F = 0$ ($\Pr_F = 1$). a^m and a^M have opposite signs, and a^m is positive whenever $\varphi > \lambda$.*

Proof. Setting \widehat{b}_f^* equal to b_f^m and b_f^M respectively and solving for a yields:

$$a^m \equiv \frac{s \left(\lambda + \frac{1}{2} \mu \right)}{\varphi - \lambda}; \quad a^M \equiv \frac{s \left(\lambda - \frac{3}{2} \mu \right)}{\varphi - \lambda}.$$

By assumption, $\lambda < \bar{y} = \frac{3}{2} \mu$, so a^M has the opposite sign of a^m , which is positive if $\varphi > \lambda$.

The positive difference between \widehat{b}_f^* and b_f^m is decreasing in a : $\frac{d}{da}(\widehat{b}_f^* - b_f^m) < 0$. So as long as a^m is positive, $a \geq a^m \Rightarrow \widehat{b}_f^* \leq b_f^m$ and $b_f^* = b_f^m$, and that for $a < a^m$, $\widehat{b}_f^* > b_f^m$. If a^m is negative, $\widehat{b}_f^* > b_f^m$ for all a . Similarly, $\frac{d}{da}(\widehat{b}_f^* - b_f^M) > 0$, so $a > a^M \Rightarrow b_f^* = b_f^M$, while $a^M < 0 \Rightarrow \widehat{b}_f^* < b_f^M$ for all a .

Lemma 4 follows from the above:

$$s_I \equiv s \text{ such that } \widehat{a}_f^* \leq \max[a^m, a^M] = \begin{cases} \frac{(\varphi - \lambda)^2(3\mu + 2\varphi)}{(\mu + 2\varphi)^2} & \text{if } \varphi > \lambda \\ \frac{4\mu(\lambda - \varphi)^2}{(3\mu - 2\varphi)^2} & \text{if } \varphi < \lambda \end{cases}$$

and s_I is clearly positive. □

Appendix B: VIOLENT-EVENT DATASETS

Figures 6 and 10 present descriptive statistics from a novel three-country dataset of coded newspaper reports of cartel-related violent events, produced by the author as part of the larger study on which this paper draws.⁴⁶ This appendix offers a brief summary of the datasets and the coding methodology employed, as well as details for the figures presented in the paper.

For each country, the universe of cartel-related violent events was collected from newspaper reports over the relevant period, manually in Colombia (1984-1993), and using digital search algorithms in Mexico and Brazil (2002-2012). Relevant reports were then manually coded by native-speaker research assistants working at partner NGOs in each country. Reports were collected from multiple newspapers, but coding was only completed for the leading national newspaper in each case: *El Tiempo* in Colombia, *Reforma* in Mexico, and *O Globo* in Brazil.

A single coding methodology was adopted for all three countries: the unit of analysis is the violent event, which in turn is composed of one or more actions contiguous in time and place. Actions are coded by type, protagonists, affected groups, outcomes (death tolls, drug and arms seizures, arrests, etc.); the event as a whole is coded for date and location. Some actions are not considered violent: police patrols, seizures, arrests, etc., but are coded as part of events that contained other violent actions.

A long list of action types and corresponding criteria was developed to accommodate the particularities of the three cases,⁴⁷ yet allow aggregating action types up to larger categories. Thus ‘targeted killings’ includes ‘assassinations’, ‘executions’, and ‘bodies found’ when there were indications of organized crime involvement. Another key category is “clash”, which represents *any* situation in which two or more groups exchange lethal force. All other violent actions represent unilateral actions. All clashes have at least two protagonists, though one or more may be unidentified.

The data reported here represent individual *reports of events*. Since some events are reported on multiple times, this is a measure of the *public impact*, not a precise count of events. While this surely

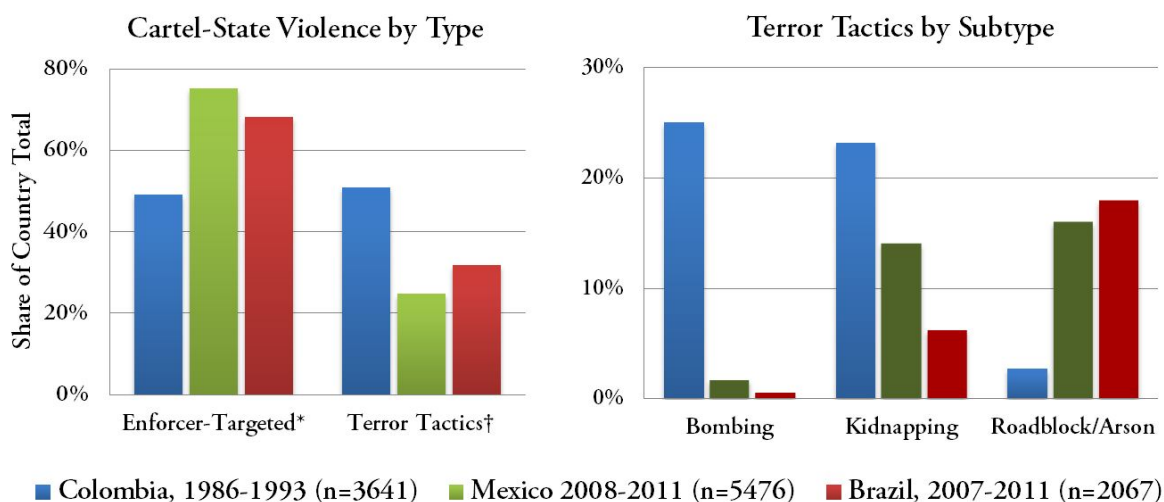
⁴⁶The dataset-coding project received critical financial support from outside sources, especially Open Society Institute and Centro Andino de Fomento.

⁴⁷Available (in Spanish and Portuguese) from the author upon request.

biases the results toward high-impact types of violence like bombings, this bias should be similar across countries. Moreover, since the point of much cartel violence is to create costs for leaders and enforcers, we should be at least as interested measuring impact as raw number of actions.

Below I discuss details of how each figure was produced.

FIGURE 6. Cartel-State Violent Actions



*All non-terror violent actions identifiable as cartel-state. †All terror actions regardless of victims.

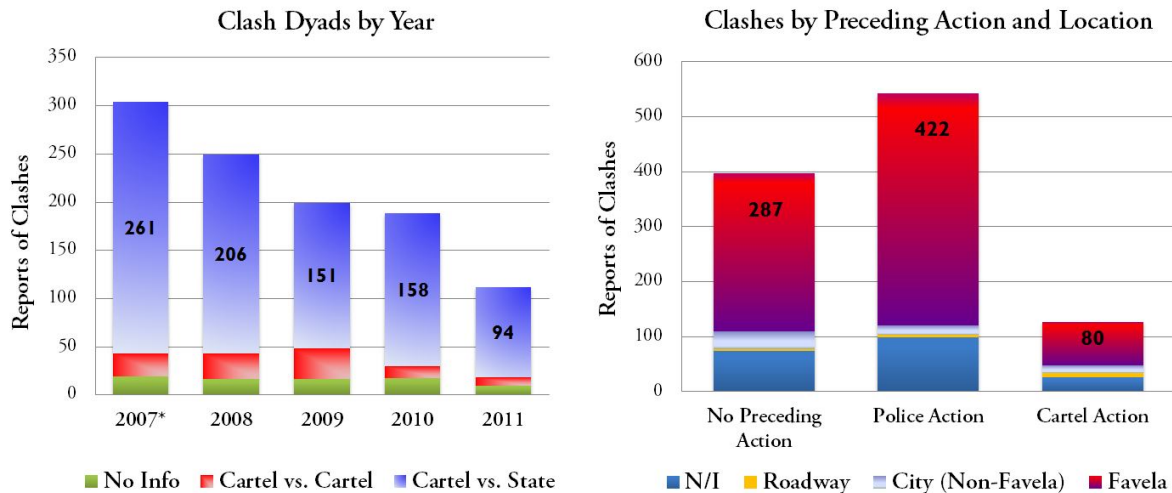
Source: Author's coding of newspaper reports; see Appendix B for details.

Figure 6 examines, for each country, the sub-universe of *actions*, not events, that can be identified as cartel-state violence and/or terror tactics. The category 'Enforcer-Targeted' includes all unilateral actions (targeted killings, ambushes, etc.) by cartels with identifiable state victims, all police killings of supposed traffickers, and all clashes between cartels and state forces.⁴⁸ Excluded from this category is all terror-tactics and all other violence that cannot be identified as cartel-state (such as turf-war violence). 'Terror tactics' are bombings, kidnappings, arson, roadblocks and forced protest situations; these are included regardless of victims, as such tactics often intentionally target civilians to create political costs for leaders. Because these events are by their nature high-impact, this figure almost certainly overstates

⁴⁸In Mexico there is a large number *ejecucion* (execution) reports that contain no information at all on victim or protagonist. Rather than exclude these, I calculated a ratio of state- to non-state victims of executions where information was available, and imputed it to these unidentified killings. Mexico also had a large number of 'mutilation' and 'propaganda' actions (especially the use of narco-banners and notes). These actions were not included here because it is not conceptually clear whether they constitute enforcer-directed or terroristic violence. Such actions are quite rare in Colombia and Brazil.

their numerical prominence. For both figures, column height represents that category's share of the *subset of actions identified as cartel-state violence*, thus the columns sum to 100%.

FIGURE 10. Clashes, June 2007 - December 2011



Source: Author's coding of newspaper reports; see Appendix B for details.

*Includes only June-December 2007.

Figure 10 examines the universe of *event reports* including one or more clashes for Rio de Janeiro, regardless of protagonists. In the left-hand figure, all clashes between organized criminal groups (individuals were excluded) and state forces are categorized as 'Cartel vs. State'. Only clashes in which both protagonist could be identified as organized criminal groups was categorized as 'Cartel vs. Cartel'.

The right-hand figure exploits two unique features of the dataset. First, all events are coded for 'type of locality'; in Rio, this distinguishes between *favela* (slum) areas and formal, non-favela city areas (known as *asfalto* in Portuguese). At the same time, by breaking violent events into sequential component actions, the dataset sheds light on what types of (often non-violent) actions immediately precede armed clashes. While many clashes were the first or only component action of their respective events, more than half were preceded by some type of police action, usually an incursion into a favela.