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How Government Structure Encourages Criminal Violence: The causes of Mexico's Drug War

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How Government Structure Encourages Criminal Violence:

The Causes of Mexico's Drug War

A dissertation presented

by

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How Government Structure Encourages Criminal Violence:

The Causes of Mexico's Drug War

Abstract

This work advances a theory about corruption, criminal organizations, and violence to show how political institutions set incentives and constraints that lead criminal organizations behave, organize, compromise or fight one another. It is my argument that the propensity of criminal groups to deploy violence increases when formal or informal political institutions are decentralized because violent criminal organizations are less likely to be punished. Under decentralized institutional environments, understood here as those in which different levels of government fail to act cohesively as a single decision-making body, corruption agreements with one government inhibit law enforcement operations conducted by another. As a result, belligerent criminal organizations that would otherwise be punished remain untouched. My argument sheds light on why many criminal organizations are able to operate profitably without major episodes of violence, and illuminates the causes of Mexico's large increases in drug–related violence. A formal model (Chapter 2), an analytical narrative (Chapter 3), and an empirical test (Chapter 4 and 5) show that Mexican drug trafficking organizations increased their propensity to engage in injurious behavior only recently, responding to incentives set by political decentralization that inhibited Mexico's federal government from controlling the actions of its local governments, and thus from limiting trafficker's propensity to battle for turf.

Chapter Outline

Chapter 1: The puzzle of Mexico's drug war

Chapter 2: A theory of political decentralization and criminal violence

Chapter 3: Mexico's Drug War, 1950-2010

Chapter 4: Testing the role of decentralization in criminal behaviour

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Chapter 1

The Puzzle of Mexico's Drug War

"Don't mess with the government. The battle is between us, cowards."[1]

At an undetermined time, somewhere in Mexico, a violent war erupted among drug cartels. Drug lords, who had peacefully conducted operations to introduce cocaine, and other illegal substances, into the US since the early fifties, started battling for turf. These wars escalated rapidly. From 2006 to 2010, homicides related to drug trafficking increased an average of 80.47% every year, causing a total of 51,000 casualties by 2011, and accounting for about 47% of all intentional homicides in Mexico (SNSP, 2011; INEGI, 2011).

Drug–related violence soon became the talk of the town, the favorite puzzle of academics, and the defining feature of Mexico's President, Felipe Calderón. His govern-

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[1]Message left at Sonora State, December 2009, next to a cooler containing pieces of a dismembered body (Foro-Nayaritas, 2009). Preliminary investigations identified the victim as a member of Beltrán Leyva Cartel. The message had been signed by another criminal organization identified as "The Demons."

ment was the first to begin tabulating drug–related homicides in 2006 and the one that embraced a war against drug trafficking organizations as its top priority.

The count grew steadily. By 2011, 19 out of the 50 most violent cities in the world were in Mexico (Dávila, 2011). Ciudad Juarez, a city of about 1.4 million inhabitants, located south of Texas, had 2,738 drug–related homicides in 2010 alone (SNSP, 2011), a homicide rate similar to that of war zones. By 2009, Juarez had been the most violent city in the world for two consecutive years (Dávila, 2011).

Government data provided important and vexing information. There were days when up to 19 homicides could be linked to drug–related activities within a single city. Such was the case in Chihuahua, a city of 824,000 inhabitants, in June 2010 (Hernández, 2010). Sometimes traffickers took breaks from their violent activities. Nobody died in Chihuahua in June 2007. It seems that traffickers did not like to fight in January either, preferred to murder on weekdays, and sometimes they took days off. On Christmas Eve, they rested.Otherwise, December was always the cruelest month of the year. Summers were good for fighting. Sunday afternoons were mostly calm.

Most homicides took the form of targeted executions (SNSP, 2011). Bodies were normally discovered late at night, having been dumped into suburban areas or highways after being killed with high-caliber weapons. The executors were careful to provide evidence of their motives and of their cruelty. The victims were beheaded, dismembered, hung from bridges, and littered in public places. On occasion, written messages were strewn amidst the dump heap of bodies, such as: "Zetas [cartel] is here," "This is what happens to those that are with La Familia [cartel]," or "Mazatlan [city] has an owner" (Jimenez, 2010; Milenio-Diario, 2012, 2009). The messages claimed rights over territories,

sent specific signals to rival organizations, or blatantly declared that a confrontation was about to begin. Mexico's drug war had exploded, a war in which criminal organizations were killing each other. Implicitly, the federal government became a third actor. "Authorities: The battle is between La Familia and Zetas. Do not take part in it" read a message left at the state of Michoacán in 2009 (El-Universal, 2009).

Outcry arose. Mexican citizens discovered that their cities had turned into battle-fields. Their lives were constantly disrupted by criminal violence of every kind. Traffickers were not only killing one another. They were also assassinating journalists, executing mayors and police officers, extorting funds from local businesses, and kidnapping Central American immigrants. Piles of bodies were found decomposed, in massive graves, alongside the territories where Mexican drug cartels operated. Small border communities became ghost towns when people emigrated to other cites of Mexico or outside of Mexico altogether, for they feared the turf battles that raged among the traffickers. Twitter became a depositary of violent stories shared in real-time, many of which were not covered by the media. Newspaper editors were terrified.

Most pundits tracking homicide-related statistics quickly blamed the Mexican government for the escalation in drug–related violence. They agreed that this exponential increase in drug–related homicides began in 2006 when President Calderón initiated a war against drug trafficking. It was clear that the president had done so thinking that citizens would support "those who fight the bad guys". (Osorno, 2009) His critics charged that he launched the war because "he needed something to legitimize his administration". (Osorno, 2009) The legitimation of his administration had suffered, due to poor economic conditions. The President's hard-fought election, rejected by one party on grounds of

irregularities, had weakened his popular mandate. The government rejected these critiques. The offensive against trafficking organizations had started in 2006, they claimed, because organized crime had become increasingly violent, traffickers were selling drugs within Mexico, and criminal organizations were significantly impacting the rule of law in some areas. Criminal organizations were beginning to overpower local police and to corrupt local politics. They were taking *de facto* control of some regions. If the federal government had not done anything about this situation, the government claimed, the country would have collapsed.

This debate about the drug war continued endlessly. Blame was assigned. Fingers were pointed. Presidential approval ratings wavered.

Truth is, nobody knew when, why or how all of these problems started.

1.1   A Theory of Political Decentralization and Criminal Violence

As important as drug–related homicides have become for Mexico's policy agenda, we know very little of this type of violence, prior to 2006, in its temporal and geographical patterns. Nobody knows when, where or why drug–related violence first escalated. Moreover, nobody knows if this type of violence is a new trend in drug-trafficking operations or if traffickers have always killed each other in this way. Nobody knows because nobody was counting drug–related homicides before 2006.

This dissertation overcomes such omissions in research and seeks to explain patterns of violence. I utilize the tools of social science to nourish our understanding of the

Mexican drug war. The story begins as drug traffickers and politicians share tables at wedding parties. The story evolves as traffickers assassinate fifteen mayors, ten journalists, and a leading gubernatorial candidate all within the year 2010 alone.

Using Mexico's drug war as my main case study, I advance a theory about corruption, criminal organizations, and violence. I show how political institutions set incentives and constraints that influence how criminal organizations behave, organize, compromise or fight one other. I show how political institutions shape illegal activities by analyzing the way in which they subtly impact the informal rules followed by criminal organizations. I explore the way in which legal and illegal worlds coexist and interact, while submerged in a political environment that offers incentives for certain criminal activities and shapes the way in which criminals organize themselves. The political environment thus establishes conditions that are conducive to violence.

I argue that we can make sense of criminal violence, with a genuinely political theory of illegal activities, if we study the industrial organization of crime and how criminals interact, and bargain with each other, under an umbrella of informal rules dictated by the state. I show that we can understand the conditions that lead criminal groups to fight one another without assuming that the government can monitor the actions of its bureaucracy, that enforcing the law is always the right choice, that corruption is detrimental to state capacity, or that drug traffickers are wealthy. These assumptions are wrong and must be discarded even if they are largely upheld by academic research on the topic. In my narrative, the government is weak and incohesive. Yet, even while accounting for these weaknesses, discipline within the system is enforced. My traffickers are not always wealthy nor are they violent; in fact, they sometimes prefer to make less money if they can

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be liberated from a government that may extort their profits. Corruption can sometimes support the rule of law.

The key ingredient in my theory is decentralization. I define centralized political institutions as those that allow a top-layer of government to have a monopoly on authority; in other words, such institutions exhibit a monocentric system with a single decision-making body. (Ostrom et al., 1961; Boettke et al., 2010). A decentralized system, on the contrary, will be defined as one that has dispersed decision-making power. Decisions are made across multiple agencies and across different levels of government, each of which is able to exercise autonomy without regard for the authority of the top-layer. As such, decentralization connotes many centers of decision-making that may be formally independent of each other, or may constitute a loose inter-dependent system of relations[2].

Decentralization (1) impacts the rules of corruption, (2) impacts the propensity of competing groups violently to confront one other, and (3) increases their incentives to arm themselves in order to be protected from potential confrontations.

First, decentralization disperses decision-making power across multiple organizations and across different levels of government, changing the manner in which corruption occurs. Political centralization allows the top level of the state to have a monopoly on legal authority; it is a monocentric system with a single decision-making body, concentrated in the hands of the central executive. As a result, while corruption under centralization is a single-bribe game, decentralization turns corruption into a multiple-bribe game. If law enforcement can be conducted by many levels of government at the same time, criminal

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[2]Formal rules thus may have little to do with the degree of decentralization. A formal institutional change, a constitutional amendment or a new piece of legislation may increase or decrease the degree of decentralization *de jure* without *de facto* affecting decision-making power.

organizations need to bribe many agencies. Decentralization makes corruption relatively more expensive, when many levels of government are bribed simultaneously, a strategy that helps the briber to to avoid prosecution.[3]

Second, decentralized environments increase the propensity of criminal groups to use violence because the costs of bloodshed are not properly internalized by the central government. Under centralization, a single government with jurisdiction over the whole territory is accountable for controlling crime. This single-bribee wants criminal organizations to operate profitably, without episodes of violence, which could negatively affect its popularity within the electorate. As a result, any criminal organization that engages in violent behavior is punished. Under decentralization, governments are only responsible for maintaining crime controlled within their pre–defined jurisdiction. If a criminal organization protected by one bribee engages in violent behavior in the jurisdiction of another bribee, its behavior may go unpunished, because corruption agreements with one government will inhibit law enforcement operations conducted by another. In other words, decentralization does not allow a government fully to internalize the costs of violence in all its jurisdictions and thus reduces the likelihood of punishment[4].

Finally, criminal groups have also become prone to violence, as a result of changes

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[3]Common economic predictions, which would imply a reduction in the price of bribes when many governments compete to attract bribers (i.e. increased corruption demand drives consumer surplus down when suppliers are limited), only apply under the assumption that bribees are substitute goods, i.e., bribing one level of government is enough to avoid prosecution. If bribees are complementary goods, bribes need to be paid to every level of government, significantly increasing the total amount of bribes paid (Shleifer and Vishny, 1993)

[4]We can imagine a scenario in which a decentralized government still manages to operate as a centralized government, by instituting mechanisms of cooperation between governments that operate as distinct jurisdictions. For the purpose of my theory, such a situation will be considered an informally centralized scenario.

in their internal organization, changes indirectly driven by decentralization. In particular, decentralization generates incentives for criminal groups to arm themselves in order to be protected from predatory actions exerted by other criminal groups. Criminal markets lack a mechanism to enforce, contract, and deter predation (Reuter, 1983). To protect themselves from predators, and to punish those who violate trade agreements, criminal groups can commonly choose between two options. Either they may rely on the State, an external apparatus that will provide them protection as an "outsourcer," or they may create their own private army. A private army incurs a cost that criminal organizations will not pay unless they must. Criminal groups will prefer to outsource protection to the State in centralized, single-bribe environments because under such circumstances the government will certainly supply protection. This sanction may ensure that any criminal organization, that engages in violent or predatory behavior against the government's allies, will be punished regardless of the jurisdiction in which the predator operates. However, as levels of decentralization increase, the government loses its ability to punish in all jurisdictions and with it, its market advantage as a provider of protection. As a result, criminals need to create their own"protection departments." Criminal groups tend to rely on "protection outsourcing" in centralized environments and on private armies under decentralized ones.

Furthermore, if decentralization allows many governments to conduct law enforcement in the same jurisdiction, criminal organizations need to bribe many agencies simultaneously, making corruption more expensive. The added expense makes it more attractive to invest in their own private protection, rather paying costly bribes to inefficient protection providers (Snyder and Duran-Martinez, 2009). Self-protected criminal organizations

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are also more prone to violence. If protection is outsourced to the state, the use of violence is limited to defensive actions; however, if the capacity for violence is in the hands of criminals themselves, arms may be used also for offensive purposes, such as to initiate predatory behavior.[5]

1.2 Mexico's Puzzle

The traditional narrative to explain Mexico's rise in violence blames recent large increases in enforcement operations as the main ingredient behind this wave of violence (Aguilar and Castañeda, 2010; Guerrero Gutiérrez, 2009; Mauleón, 2010b; Osorio, 2011; Lessing, 2012; Dell, 2011). According to this line of thought, violence between criminal groups remained until Mexico increased the prosecution of traffickers in 2006. When Mr. Calderón took the troops out to fight traffickers, mayhem exploded. All of this is true.

Indeed, the traditional narrative is right to point out that it was through the application of law that Mexican authorities stimulated a breakdown of order. It was when President Calderón took the troops out to fight drug trafficking organizations, and when, due to these enforcement operations, the Mexican state started capturing important drug lords, that violence increased the most. By killing and imprisoning the heads of criminal groups, the Mexican state gave rise to criminal groups that lacked leadership. Violence increased when these criminal organizations, lacking a chief or leader, fractured into cells

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[5]Note that arming makes violence a self-fulfilling prophecy. Criminals arm themselves fearing that, without an effective third-party provider of protection, others may engage in predatory behavior against them. Predatory behavior, which would be impossible without fire power, becomes a possibility once criminals are armed.

that violently confronted one another (Rios, 2012).

Confrontations further attracted the attention of the government, increasing the number of enforcement operations that tried to capture those who were violent, and triggering even more criminal confrontations. Soon, Mexico found itself locked into a self-reinforcing violent equilibrium (Rios, 2012). Battles for turf raised the incentives of the government to prosecute traffickers, and prosecution promoted even more confrontations among criminals. A perfect storm raged and this cycle proved difficult to stop. Criminal groups had not stopped battling for turf, for they lacked leaders that could establish agreements with others and institute informal rules conducive to peace among criminals. Even if leaders emerged, who intended to put a stop to confrontation, they would soon be captured or killed by Mexican authorities. Mexican authorities continued their prosecutions, because they believed that confrontations between criminals were merely the short term effect of their enforcement strategy. In the long run,the strategy would fracture the criminal world, they believed, to the point that criminals would become too weak to persist.

Yet, the above narrative fails to address some facts that are too often, and too easily, forgotten: during the nineties, the Mexican state conducted enforcement operations against drug trafficking but, as a result, criminal cells did not violently confront each other. Instead, during this period, enforcement gave rise to a highly disciplined group of oligopolistic criminal organizations that operated without major episodes of violence (Carvajal-Dávila, 1998; Flores Pérez, 2009). Violence was virtually absent. Neither of the above narratives can explain the peaceful conduct, for example, of one notable drug cartel. When Felix Gallardo, the head of Mexico's most profitable and large drug cartel,

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was captured in 1989, his organization split peacefully, continuing to operate within their territories without fighting each other (Blancornelas, 2002; Zepeda, 2007; Cruz, 2009; Osorno, 2009; Pérez Varela, 2009). Nor can the existing theories explain why, in contrast, the 2008 capture of Beltrán Leyva, a leader of the Sinaloa cartel, led his organization to split violently, generating the most cruel and violent battles for turf that Mexico has ever experienced (Guerrero Gutiérrez, 2009; Reveles, 2011). Thus, violence has increased in recent years, by contrast to earlier, even when law enforcement strategy remains the same.

Academics who have ventured to provide an explanation as to why Mexican criminal organizations seem to be more prone to violent behavior now than before argue that it was the arrival of Mexico's opposition parties into power that outweighed incentives for peace. In particular, the opposition broke a long-standing collusion between two parties: the Institutional Revolutionary Party (Partido Revolucionario Institucional, PRI), the authoritarian and hegemonic ruling party, on the one hand, and drug traffickers, on the other hand, who had maintained peaceful cooperation among drug cartels (Astorga, 1996; Bailey and Godson, 2000; Davis, 2006; Flores Pérez, 2009; O'Neil, 2009; Astorga and Shirk, 2010). Corrupt PRI authorities had created a "Pax Mafiosa" by allowing criminal organizations to engage in illicit drug trafficking, in exchange for large bribes. They stipulated that criminal groups must not fight one another, and they should abstain from violent behavior and from selling drugs within Mexico (Patenostro, 1995; Valle, 1995; Andreas, 1998; Gómez and Fritz, 2005; Guerrero Gutiérrez, 2009). Corruption was well institutionalized. As such, this pact remained a relatively stabilizing force in the country. This all changed in 2000 when Vicente Fox, a charismatic leader of an opposition

party, the National Action Party (Partido Acción Nacional, PAN), was elected president in what many analysts believe to be the first truly democratic election in the country (Resa Nestares, 2001). The rise of opposition parties to power brought about several changes, among them a dramatic redefinition of the relationship between the government and criminal organizations. New politicians from opposition parties lacked the experience, networking and discretionary powers to maintain corrupt pacts. As a result, criminal organizations gradually broke the long-standing pact by engaging in violent confrontation against each other.

Important questions may be posed if we may attribute the escalation of drug–related violence in Mexico to the rise of opposition parties to power. This traditional narrative makes many problematic assumptions. By arguing that the arrival of PAN broke the pact, the narrative seems tacitly to imply that PAN authorities were not so very corrupt. Yet, well known cases of corruption exist within PAN's ranks, such as that of Nahum Acosta, the coordinator of the President Vicente Fox agenda, who was detained in 2005 for holding telephone conversations with drug lords (Hernández, 2012, p. 425). The assumption that opposition politicians were inexperienced is questionable and obscures the fact that many of the authorities, who worked within the PRI regime, adapted to political changes and remained within the system, working as members of PAN governments (Hernández, 2012). They either shifted party loyalties, to run as members of opposition parties, or continued in Mexico's bureaucracy as technocrats, advisers and professional public servers.

Furthermore, academics have not addressed some counter-examples that disprove their assumptions. States that had been ruled by the PRI uninterruptedly for more than

eighty years, such as Tamaulipas,for instance, have experienced much larger episodes of drug–related violence than states that have been ruled by the PAN since the nineties such as Guanajuato or Baja California. Current literature is silent as to why, if PAN took control of the federal government in 2000, violence exploded in certain areas but not everywhere. Furthermore, if a "Pax Mafiosa" was so well established during the eighties, when opposition parties had no control over any territory,it is unclear why recorded instances exist of important criminal disobedience from that period (Astorga, 1996). Existing accounts also cannot explain why in 1985, when the "Pax Mafiosa" was at its peak, members of the Guadalajara cartel assassinated DEA agent Kiki Camarena, triggering tensions between Mexico and the US. My theory can address these important issues.

It is my theory that we have been unable to understand Mexico's story of criminal violence because we have wrongly focused our attention on formal institutions and mechanisms, such as state capacity, judicial institutions and the instability of democratization processes. Instead, I argue, we must focus on understanding how decentralization impacted the informal rules under which the state and criminals interact. We have failed to realize that the core of this story resides in the subtle world of informal rules and mechanisms, and in the not so subtle ways that decentralization has shaped them.

In this regard, my work builds upon the argument of Snyder and Duran-Martinez (2009). This argument provides evidence that the decentralization of Mexico's Attorney General's Office (Procuraduría General de la República, PGR) changed patterns of violence in Mexico. In 1996 PGR was formally divided into three sections. Instead of operating as a single-headed institution, geographical variance in the levels of homicides increased. This result stems from a fracturing of protection rackets, within Mexico, due

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to formal institutional changes, particularly with respect to how security agencies were organized. I take this explanation one step forward. My theory shows how decentralization can affect criminal behavior, when institutions are transformed not only formally (as PGR did) but also informally, and by describing the mechanisms that cause violence to increase, not only to vary, when a state operates within a decentralized environment.

The effects of decentralization in the criminal world results in a radical and fascinating change in the behavior of criminal organizations, a change that speaks directly to Mexico's puzzle. In particular, decentralization determines how criminal organizations will react after they are hit by an external shock. Unexpected enforcement operations, such as the ones conducted by President Felipe Calderón and some of his predecessors, cause such a shock, I argue, that is followed by violent behavior with higher probability when criminal organizations operate in a decentralized environment.

Consider the impact of capturing a criminal leader, in deciding the likelihood that his criminal organization will become violent. Assume that when one organization is left without a leader, another may decide to take advantage of its weakness and invade it. Everything else being equal, centralized environments will deter criminal organizations from invading others and causing violence. As I have described in my theory, criminal organizations will tend to be unarmed, making belligerence less feasible. Furthermore, the government will punish violent behavior. A centralized government, predisposed (due to electoral incentives) towards keeping criminal violence as low as possible, will punish belligerent criminal organizations independent of the jurisdiction in which these operate. Those punished will not be able to conduct illegal business, because they will have lost the favor of a patron for corruption, a central government that cohesively decides who are

its friends and who are its enemies.

A very different situation prevails under decentralization. Criminal organizations become armed but most importantly, punishment may happen in one jurisdiction and not in another. Within decentralized environments, belligerent criminal factions will indeed lose the favor of the government, located in the area in which violent operations take place, but they may still remain in business under the protection of another government, responsible for another jurisdiction. The enemies of one section of government may still be the friends of another section of government. Decentralization makes criminal organizations prone to split, violently, by providing a diverse pool of potential allies to corruption. As a result, violent confrontation is less costly and happens with higher probability.

1.3 The Goal of this Work

The most immediate goal of my theory is to explain why Mexican traffickers turned violent, even as other factors would have predicted otherwise. The Mexican state had systematically improved its ability to prosecute criminals and also made its judicial system less corrupt and more efficient than ever before (Cornelius and Shirk, 2007; CIDAC, 2011). Additionally, the demand for drugs, particularly cocaine, had diminished since the late eighties, reducing the profitability of the drug business (UNODC, 2003, 2011). Some drugs, like marijuana, had even been legalized, reducing a source of cash flow for small independent traffickers in Mexico (Caulkins et al., 2012; Kilmer et al., 2010).

My overall goal is more ambitious: it is to show that the Mexican case sheds light on important puzzles within political science. Political science has much to learn

from Mexican traffickers and their reasons for transforming from being secret illegal entrepreneurs to becoming warlords. The criminal violence of traffickers can improve our understanding of the impact of political institutions on the creation of political order.

My analytical perspective debunks the idea that violence is the expected outcome of criminal operations. Violent criminal groups in Mexico are not different from other illegal groups that manage to operate with low levels of violence. Bolivia and Peru produce marijuana in larger quantities than many Latin American countries and still have among the lowest murder rates in the region. The Japanese Mafia controls the most profitable market of methamphetamines in Asia without major episodes of violence (Kaplan and Dubro, 2003; Friman, 2009). Rackets of human trafficking in Haiti and Cuba remain largely pacific even if highly profitable (Kyle and Scarcelli, 2009). Endangered species are smuggled through Singapore, Manila, Indonesia and Jakarta without confrontations with poachers (Tagliacozzo, 2009). Bosnia's sex trafficking industry has boomed without a parallel upsurge in violence (Andreas and Wallman, 2009). Even contemporary African pirates seem rarely to confront each other (Hebert-Burns, 2002), instead holding a strict control of the crew just as their eighteenth century fellows did (Thomson, 1996; Leeson, 2007).

My theory directly speaks to all those who study criminal operations and violence, providing a logic of the conditions under which drug lords may become violent. It is my claim that the legal and the illegal may coexist in ways that are, more or less, prone to generate violent conflict, depending on the political institutions in which they exist. My analysis provides tools for academics and policy makers to assess whether criminal organizations around the world may be heading down a similar path as that of Mexico.

I contribute to our understanding of violence by showing how decentralization affects the propensity of groups to confront one other. Academics have long studied the role that formal rules play in bringing competing groups to commit and to compromise, avoiding avoid conflict.[6] but very little is known about the specific institutions that promote peaceful agreement or violent confrontation between competing groups.[7] The intention of this work is to fill this gap of knowledge. This work goes into the entrails of state dynamics, explaining why sometimes institutions lead groups to fight while other times they do not.

My research delves into this unexplored terrain, anchored in the work of academics who have pointed to indirect ways in which the state may function as a mediator of conflict (Fearon and Laitin, 2003; Garfinkel, 2004; Powell, 2006; Besley and Persson, 2008). Following in this tradition, I identify a crucial institutional mechanism that affects the ability of the government to reduce conflict among competing criminal groups. Yet, rather than confining my analysis to formal institutional effects, I argue that completely to grasp how institutions affect the decisions of actors, we need seriously to consider the interaction between formal and informal rules and how these informal rules impact the incentives of groups to organize and interact with one other. My work stands on the shoulders of Helmke and Levitsky (2006), the academics who changed the scope of

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[6]Ever since Haavelmo (1954) modeled a trade-off between production and appropriation, a long and fruitful literature on the incentives for peace/conflict has emerged. See Garfinkel and Skaperdas (2007); Blattman and Miguel (2010) for a good summary of the nuances and evolution of this field.

[7]Blattman and Miguel (2010, p.19) discuss this omission, pointing to it as one of the most important gaps in the current literature on civil wars. A similar claim is endorsed by Bates (2008). Literature on international relations has accomplished important advances in understanding the propensity for violence within states (Vasquez, 2009), yet this literature has not permeated the theories of those who study civil conflict.

comparative research by bringing attention to informal rules. My work walks alongside that of other young scholars (Tajima, 2010) that underscore informal rules as an important missing point in conflict literature. Informal rules are crucial for my theory because of the inherent nature of the criminal world. Criminal organizations have little to do with formal institutions. They are affected by decentralization not in a direct, formal way but in a nuanced, unofficial fashion.

The theory developed here is not confined to the understanding of criminal violence. Criminal groups are just one of many forms of non-state actors that operate and organize under the area of influence of political institutions. All the dynamics explained in this theory could be applied to other non-state organized groups, such as multinational corporations, humanitarian associations, and advocacy organizations. My theory would predict that the behavior of non–state actors, independent of whether they are criminal or not, depends on their institutional context. Indeed, evidence shows that at least in the case of legal transnational organizations, non–state actors clearly adjust, invest and move according to incentives dictated by the states in which they operate (Lenway and Murtha, 1998; Spar and Yoffie, 1999).

1.4   Testing My Theory

Mexico is a particularly interesting case to which to apply my theory.

The country provides an excellent natural experiment about decentralization and possesses quite variable patterns of criminal activity. As Hernández Rodríguez (2008) has argued, over the course of the nineties, and the early part of this millennium, the country

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went from being a strongly centralized regime, in which the monopoly of decision-making lay in the hands of an authoritarian, hegemonic party, to a decentralized regime ruled by many parties with independent decision-making capacity. Interestingly, decentralization did not happen homogeneously throughout the country. While some states like Veracruz are still largely centralized, dominated by a single hegemonic party that controls top and lower levels of government (i.e. state and municipalities), states like Guerrero are ruled by different parties simultaneously, each one of which makes independent decisions at its own level of command.[8] Mexico's criminal behavior has also changed, significantly, and has done so with temporal and geographical variance. Criminal violence has increased largely since 2006, but not homogeneously. Violence has spread in capricious patterns; for example, there was a three-fold increase in homicide rates in Tijuana in 2008, while its neighbor state, Baja California Sur, had not a single episode of drug–related homicide (Rios and Shirk, 2011). Other crimes, such as domestic illicit drug dealing or illegal arms possession, have also varied broadly in timing and location.

My argument implies that violence will increase when different levels of government have different incentives, and thus cannot agree on cohesive punishments to defectors. The arrival of naive opposition parties is not what causes criminal behavior to change, as others have argued, but rather the decentralization of the government's command. My argument is tested for Mexico's drug trafficking organizations, proving the first qualitatively deep and quantitatively sound explanation of criminal behavior during Mexico's drug war.

My qualitative evidence of the effects of decentralization, in the behavior of Mex-

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[8]For the purpose of empirical testing, decentralization will be measured yearly at the municipal level over a period of nineteen years (see Chapter 4 for details), allowing municipalities to change from centralization to decentralization, or vice versa, every time a new government is elected.

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ico's drug trafficking organization, draws from material that has been patiently assembled during the last decade, by many ethnographic researchers, from brave journalists (Blancornelas, 2002; Gómez and Fritz, 2005; Suverza, 2006; Zepeda, 2007; Cruz, 2009; Osorno, 2009; Reveles, 2011; Pérez Varela, 2009), to social scientists (Astorga, 1996; Grayson, 2010) and consultants (Guerrero Gutiérrez, 2009). I deconstruct ethnographies and knit them together again, utilizing a rational framework guided by theory. Many events that have been traditionally regarded as breakthroughs, in the history of Mexico's drug trafficking industry, are not particularly important to understanding the behavior of criminals. Our focus on grand events has blurred our ability to recognize real critical junctures. The assassination of DEA agent Kiki Camarena in 1985, identified by many as a critical point in Mexico's criminal history, (Astorga, 1996; Carvajal-Dávila, 1998) for example, is less important to our understanding of criminal behavior than many other seemingly unrelated institutional changes. I argue that factors *de facto* contributing to decentralization in Mexico's government are much more important to understanding criminal violence than the capture of DEA agents and other micro events. Such factors include incremental victories of opposition parties, at the subnational level, and the approval of national electoral reforms in 1997.[9]

I divide Mexico's drug trafficking history into two periods, one characterized by high levels of centralization and the other characterized by high levels of decentralization. In my narrative begins in the fifties, the years in which the first meaningful operations of drug cartels in Mexico has been recorded (Cruz, 2009; Pérez Varela, 2009), and ends

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[9]In the case of Mexico, as I will explain in Chapter 3, democratization was the driving force behind decentralization; however, this factor may not hold for other cases. According to my theory, a centralized democracy will generate similar incentives as a centralized autocracy.

in 1997, the year in which Mexico approved a large electoral reform that allowed for an increase in opposition victories and thus a more decentralized government (Magaloni, 2006). Decentralization characterized all the years after 1997 until 2010.[10]

The electoral reforms of 1997 are considered the threshold because in Mexico, *de facto* decentralization occurred as a consequence of democratization (Hernández Rodríguez, 2008). Mexico had been a federal country since 1917, the year in which its current constitution was approved, but operated as a *de facto* centralized government due to mechanics of political advancement. Since 1929, Mexico had been an authoritarian regime without re-election, and was ruled by a single party lacking opposition. Politicians and bureaucrats were directly assigned by the central authority and could be removed at will (Centeno, 1994; Langston, 1995). A defiance or challenge to the central authority would cancel any possibility to advance a political career. As a result, local governments were quite disciplined, following incentives dictated by the center and complied with its will (Weldon, 1997). Although the country was a *de jure* decentralized regime, it was *de facto* centralized due to a lack of outside options for politicians and bureaucrats within the system. Mexico's top-layer of government had a monopoly on authority and was able to make decisions as a single body because all local governments depended for their survival upon the central authority. Outside options opened when, as a result of electoral reforms, opposition parties began to take office. Defiers could now keep a political career by joining the opposition parties. Lack of discipline, at lower levels of government, be-

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[10]This division is artificial. I use it for didactic purposes. It is well accepted among academics in Mexico that the reforms of 1997 were the beginning of a completely democratic Mexico, one in which the opposition had a leveraged institutional terrain that allowed it to win elections (Eisenstadt, 1999, 2004; Lujambio and Segl, 2000). My quantitative test allows for a more detailed distinction of decentralization.

came increasingly common (Hernández Rodríguez, 2008). Governors and local authorities acquired the possibility to make decisions unilaterally (including decisions that could hurt the interests of the center) because their careers did not depend on keeping the favor of the hegemonic party. Indeed, Mexico's *de facto* decentralization was driven by increased electoral competition and, in practice, looks like a multi-party system.

With my analytical narrative in hand, I show that under centralization, Mexico's drug trafficking organizations react to shocks without violence, while under decentralization, shocks increase the propensity of criminal organizations to split and fight one another for turf.

When President Calderón deployed the troops in Michocán State in December of 2006, with the goal of reducing criminal activities in the state, he expected that criminal groups would behave just as they had during the previous decade, when the country was centralized. He expected criminal groups to split non-violently into smaller cells, of reduced capacity, that would strictly follow the incentives dictated by the central authority. It took him by surprise to realize that such was not the case. The animal that Mexico was fighting had changed in nature and incentives. Criminals were not what they had been twenty years earlier, because Mexico had changed.

When the Mexican government launched "Operation Condor" in 1977, "an unprecedented war" to "completely eliminate opium poppy cultivation" [Mexican Federal Attorney General interviewed by Craig (1980, p. 351)], trafficking organizations responded to these shocks without confronting one another. Instead, they agreed to work in an oligopolistic fashion and kept conducting business in an organized, unarmed, and relatively peaceful fashion for many years to come. Under centralization shocks, prompted by

the capture or assassination of criminal leaders, caused internal divisions within criminal organizations but not violent confrontations. The reason is simple. Mexican traffickers preferred to settle their differences fast, because large scale violence would have been punished with disavowal from the government as a whole, inhibiting traffickers' ability to seal corruption deals, and taking them out of business for good. Because all governments operated as a single, cohesive entity with similar interests, to break the rules in one jurisdiction implied disavowal in all jurisdictions, a cost too high to pay.

The state of affairs was quite different in 2006. This time, when the army was deployed to fight an "unprecedented war against drug trafficking organizations" (Osorno, 2009) in a decentralized Mexico, enforcement shocks destabilized criminal organizations and generated large incentives to split. Splitting induced organizations to become virulently violent. Within decentralized environments, shocks are more likely to trigger splitting. In such environment, new criminal factions can retain the favor of other governments, even if their actions impact another government responsible for another jurisdiction. New and smaller criminal organizations began to emerge all around Mexico. In just a couple of years, at least four splits occurred (Mauleón, 2010b), and drug cartels fractured and battled for turf. Mexico's drug war had begun. In 2006, unlike in 1977, shocks driven by unexpected increases in prosecution caused homicide rates to escalate.

Current academics explaining Mexico's drug war are right to say that the propensity for violence increased when opposition parties took office. It did. Yet, it only did so in the cases where opposition parties created heterogeneity among different levels of government. Where the opposition took power extensively, as a solid coalition ruling over all levels of government, centralization remained in place, maintaining the capacity of

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the state to control criminal violence. Propensity for violence increased only with the rupture of a system of informal collaboration among different levels of government. The incentives weakened for politicians to collaborate at different levels of government due to their having different party labels.

My theory goes a step beyond our current understanding of Mexico's drug war, according to which the arrival of opposition parties increased propensities towards violence *per se*. What matters is not party affiliation but whether decision-makers, at different levels of government, are homogeneously-incentivized so that they may act as a cohesive, coherent force. Opposition governments can act as cohesively centralized governments,so long as they operate in jurisdictions where they entirely control law enforcement decisions. PRI governments can act as decentralized governments if they share jurisdiction with levels of government ruled by other parties. Indeed, I argue that democratization cannot explain variation in levels of violence within Mexico because all of Mexico democratized in unison in 1997. Decentralization can explain this variation. The coherence of enforcement decisions within a territory varied over time because different governments were elected and ousted at different levels also over time.[11]

This observable implication of my theory may be tested quantitatively, taking advantage of a particular feature of Mexico's criminal justice system: crime-dependent jurisdiction. Mexican federal and local governments share territorial jurisdiction but are constitutionally responsible for prosecuting different crimes. Particularly, only the federal

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[11]For example, a municipality could be centrally commanded when having PAN ruling at the state and municipal level simultaneously, and could decentralize when, as a result of state elections, a different party was brought into power.

government is responsible for prosecuting drug traffickers.[12] Jurisdiction is dictated by territory and crime rather than only by territory.

Utilizing this unique institutional design, which naturally creates differentiated incentive schemes for different levels of government, with respect to enforcing drug–related laws, I show that homogeneously–incentivized municipalities have lower levels of drug–related crimes. (Such municipalities are defined as those where different levels of government are ruled by the same party). Particularly, I present a duration model, with time-varying covariates to support my theory. Drug traffickers tend to supply local cocaine markets, more regularly in municipalities where state and local authorities are not homogeneously–incentivized. Party affiliation does not drive this result.

1.5 Outline of this Work

This work comprehends criminal behavior, illegal markets, corruption, and the effect of enforcement operations, using Mexico as a laboratory. I provide sound evidence that Mexico's decentralization changed the behavior of criminal organizations, especially behavior that affected the government, such as domestic drug trafficking, criminal violence, and territorial expansion. The logic can be briefly summarized in a few sentences. Under decentralization, local authorities make enforcement decisions independently of other local authorities and of the federal government. As a result, even criminal groups that defy the interests of one part of the government have the opportunity to find shelter in another

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[12]A reform changed this judicial feature in 2009 (CIDAC, 2011); my quantitative data is from before the reform.

part of the government, rather than being punished by the entire government through cohesive actions. Those defying the rules at one local jurisdiction may remain in business by setting corruption deals with another local jurisdiction. Decentralization offers opportunities for criminal factions to fight each other because belligerent factions, engaging in violent behavior in one jurisdiction, will be punished in that jurisdiction but not in those in which they remain pacific. Decentralization allows belligerent violent criminal organization a chance to survive.

In the following chapters, I will provide full evidence and further explanation for my theory using Mexico's drug war as my empirical foundation.

Chapter 2 presents a formal model, in detail, walking the reader through the effects of political decentralization on criminal violence, highlighting the propensity of criminal organizations to fight one another. I first demonstrate how decentralization influences corruption, impacting the utility of different levels of government, the quantity of corruption demanded by criminal organizations, and the value that they get out of corruption deals.

Then, I show the effects of decentralization on violence propensity, and on the industrial organization of crime. Finally, I summarize the effects of decentralization by discussing how it affects security policies, particularly those that generate internal divisions within criminal organizations.

A third chapter presents an analytical narrative, showing the factors that set the stage for Mexico's drug war. I identify the two different periods of Mexico's criminal history and exemplify how political decentralization influenced incentives of drug trafficking organizations to fight one another. My narrative is based on hundreds of interviews that I

personally conducted at the border, as well as on academic and journalistic literature. The level of detail with which corruption is described here is, to the extent of my knowledge, not matched by any other academic effort.

Chapter 4 provides empirical evidence to support my narrative, by testing the effects of decentralization on criminal behavior and the effect of shocks on the rate of violent confrontations. In this chapter I use an empirical design to get around the most pervasive problem faced by quantitative research of criminal organizations: lack of data. The methodology I adopt relies on stylistic facts about Mexico's corruption, as well as on particularities of its legal system, to show that decentralization is strongly correlated with a lack of control over criminal markets. Using a duration model, I present empirical evidence, to demonstrate the higher probability that criminal organizations will defy the government within decentralized municipalities. Evidence is also presented to show that trafficking organizations react differently to shocks, according to whether or not the government is decentralized. Within the context of decentralization, shocks increase the propensity of criminal organizations to be violent; by contrast, within centralization shocks do not result in violence.

Finally, chapter 5 explains unexpected consequences of Mexico's drug war: refugees from drug–related violence have emerged. Patterns of immigration within Mexico, and of emigration from Mexico to the US, have also changed. This overture to a new research agenda serves as a teaser for the next generation of researchers. The Conclusion elaborates further upon these themes.

1.6 A Takeaway Message

As a whole, the following chapters tell the story of Mexico's drug war–the real one. It is a story in which criminals are not "primitive (...) [individuals with] little capacity of self-analysis," (Hernández, 2012, p. 15) or ill-tempered persons that "exploded all of a sudden to deliver a command for one or ten assassinations" (Ravelo, 2012, p. 15). In this story, criminals are rational and subject to the expected mistakes that happen, when information is absent and uncertainty is high. Furthermore, the government makes mistakes too. Big mistakes. This story tells of a war that exploded right in the hands of those who mistakenly designed enforcement policies, believing that the result would be the same as in the old days, when Mexico was centralized. Instead, a group of policy makers one day woke up to realize they had incited chaos.

Yet above all, this effort must be understood as a cry for political scientists to address the imperative need in our discipline to improve our understanding, both for the sake of policy makers and for our own. Our failure to comprehend the incentives created by decentralization to increase criminal violence caused 51,000 casualties in Mexico. Once again, social scientists painfully realized the many unknown and dangerous paths that ensued from these policies, as well as the impotence of our current theories fully to comprehend the reality. We failed to note that criminal organizations respond differently to enforcement shocks in centralized and decentralized environments. We could not tell that corruption had changed in Mexico, and that incentives had changed with it. The missing piece of knowledge was small but dangerous: that the outcome of enforcement policies depends on the way in which targeted criminal groups are organized, which is

itself a function of the informal rules under which criminals and governments interact.

The insights in this work have much to offer to policy makers. They contribute to understanding why similar policies, in this case crackdowns against criminal organizations, may generate widely different outcomes, even if on the surface they have been implemented similarly.

Indeed, academics have made many advances in understanding the effects of policy. We used to define policies as a simple linear mechanism, but now as dynamic processes. Linear mechanisms can be applied, anywhere indiscriminately, to induce anybody, indefinitely, to change behavior in a predetermined way. We now know that once policies are implemented and unleashed, their effects are extremely difficult to predict or control. Little by little, we have realized that the outcomes of policies depend on their institutional frameworks. The consequences of our previous, less sophisticated understanding of policies have been dramatic. Textbook solutions, applied to balance of payment crises, submerged entire regions in economic crisis (Corbo et al., April 1986; Rodrik, 1998). It was the black decade of Latin America that taught us that policies could not be exported, without an assessment of market frictions (Easterly et al., 1993; Burki and Perry, 1998; Bank, 2005; Rodrik, 2006). It was our failure to bring economic growth into Africa, and the unexpected economic success of East Asia, that made us realize that similar policies could create different incentives, according to internal distributions of wealth and political power (Aghevli and Marquez-Ruarte, 1985; Rodrik and Alesina, 1994; Persson and Tabellini, 1994; Rodrik, April 1995). It was China's successful economic transition, and the failure of Russia's, that showed us that slight changes in the timing of reforms can define investment incentives (Sun and Tong, 2003; Lau et al., 2000).

Much still needs to be done to extract the effects of policies from a vacuum and to be able fully to understand their consequences. In this work, I will show that Mexico's drug war is the effect of policy outcomes, differing according to the type of organization that they target. Organization matters for policy outcomes. When security policies are implemented by authorities, which are organized in decentralized agencies or levels of government, criminal violence rises. In brief, criminal groups are as dangerous as institutions allow them to be.

Chapter 2

A Theory of Decentralization and Criminal Violence[1]

> *"It is impossible to move tons of cocaine, launder thousands of million dollars, and maintain a clandestine organization of several hundred armed persons without a system of political protection."*[2]

Criminal groups are what institutions allow them to be. In this chapter, I show why. Criminals interact and bargain with one another under an umbrella of incentives dictated by informal rules that are defined by state institutions. This work falls in line

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with other research in political science. Academic studies have shown that informal rules can provide governments with a mechanism to induce political order. In the case of the Ukraine, for example, authorities allow grafting as a prerogative for those who obey the directives of leaders. Criminal prosecution serves as a potent sanction for those who disobey and is used selectively to induce order (Darden, 2008). In this chapter, I claim political decentralization reduces the capacity of the state to promote order by means of corruption. As a result, criminal groups are less inclined to behave peacefully.

Political institutions set incentives and criminal organizations are not exempt from their influence. As any other agent, criminal organizations behave, organize, compromise, or fight one another according to the constraints that the state imposes on them. Political institutions shape illegal activities by subtly influencing the informal rules under which authorities and criminal organizations interact. These rules, the rules of corruption and the dynamics of bribing, change the ways in which criminal interact with each other. Indeed, the legal and the illegal worlds coexist, and have always coexisted; both worlds lie submerged within a political environment that ultimately exerts a persuasive influence upon criminals.

I define degree of decentralization, here, as the degree to which the government makes policy decisions as a cohesive, homogeneous decision-making body. Centralized institutions allow a top-layer of government to have a monopoly on authority (Ostrom et al., 1961; Boettke et al., 2010). A decentralized system, on the contrary, is characterized by dispersed decision-making. Multiple agencies, across different levels of government, make policy decisions, each of which operates with autonomy without regard to the authority of the top-layer. As such, decentralization connotes many centers of decision-making

which could either be formally independent of each other, or just constitute a loose interdependent system of relations.

Note that formal rules may have little to do with degree of decentralization. The factors that enable a single decision-making body to hold centralized authority vary, whether they be formal or informal mechanisms. These factors range from the effective use of force and terror to more nuanced tactics of seduction and persuasion. Iraq in the 1990's, Uganda under Idi Amin, and the apartheid South Africa are examples of regimes with centralized internal security apparatuses kept together by the competent and brutal use of force (Staniland, 2008). Communist Russia provides an example of how centralized authority can make effective use of selective inducements, like granting nomenklatura use rights over scarce resources (Nelson, 1997), or allowing access to the underground economy (Grossman, 1977). Indeed, structural variables may also influence the government's control mechanisms. A homogeneous society with a relatively small ruling elite, for example, makes it easier for an authority to operate as a centralized power. Indeed, as these cases show, centralized formal institutions may keep in place strong informal centralization. Even constitutional amendments or new legislation explicitly created to increase (or decrease) the degree of decentralization may only affect governments *de jure*, not *de facto*.

Security policies dictated under centralized or decentralized political environments affect criminal behavior in differentiated ways. It is my claim that when centralization is higher, competing criminal groups commit and compromise to avoid conflict, and avoid violently confronting one another.

In particular, decentralization shapes criminal behavior by (1) affecting how groups become corrupt, (2) impacting the propensity of competing groups to violently confront

one another, and (3) increasing their incentives to arm themselves in order to be protected from potential confrontations.

First, corrupt interactions among criminal organizations and the government change when centralized institutions replace decentralized institutions. Decentralization disperses decision-making power across multiple organizations and across different levels of government, changing the manner in which corruption occurs. Political centralization allows the state to have a monopoly on authority, to be a monocentric system with a single decision-making body concentrated in the hands of the central executive. As a result, while corruption under centralization is a single-bribe game, decentralization turns it into a multiple-bribe game. If law enforcement can be conducted by many levels of government at the same time, criminal organizations need to bribe many agencies. Decentralization makes corruption relatively more expensive when many levels of government need to be bribed simultaneously in order to avoid prosecution. Decentralization thus hurts criminal groups by increasing the number of agencies that they need to bribe in order to conduct illegal operations without uncertainty.

Common economic theories would predict that the price of bribes will be reduced when many governments compete to attract bribers (i.e. consumer surplus goes down when suppliers are limited). Such theories only apply under the assumption that bribees are substitute goods, meaning that bribing at one level of the government is sufficient to obtain the benefits of corruption (e.g. protection against enemies, reduced prosecution, and so on) (Shleifer and Vishny, 1993). If bribees are complementary goods, as my work assumes, criminals need to pay bribes to every level of government, significantly increasing the total number of bribes paid in order fully to benefit from corruption.

Two additional remarks are noteworthy. First, decentralization increases or decreases the utility of authorities depending on whether they are monopolizing the collection of bribes in centralized settings. Decentralization benefits authorities who operate at levels of government that do not take part in illegal profits in centralized environments (see remark 1.1 below). Under centralization, all bribes benefit the group of elite bureaucrats who direct the central government. Decentralization hurts authorities who previously monopolized corruption, because they now have to share bribe profits with other, newly empowered levels of government. Second, because of this scheme of incentives, elite authorities operating in centralized institutions will avoid decentralization, as much as possible, and will prevent other levels of government from bribing to the extent of their ability(see remark 1.2).

Decentralized environments also increase the propensity of criminal groups to deploy violence, because the costs of bloodshed are not properly internalized by the central government (see result 2 below). Under centralization, a single government with jurisdiction over the whole territory is accountable for controlling crime. This single-bribee intends for criminal organizations to operate profitably, without episodes of violence that could affect its popularity within the electorate. As a result, any criminal organization that engages in violent behavior is punished. Under decentralization, governments are only responsible for controlling crime within their pre-defined jurisdiction. If a criminal organization that is protected by one bribee engages in violent behavior in the jurisdiction of another bribee, its behavior will not be punished. Local government has no reason to prosecute crimes committed in other jurisdictions, even when such violence is perpetrated by a criminal organization operating in its own jurisdiction. Decentralization does not

allow a government fully internalize the costs of violence in all jurisdictions. Thus, decentralization reduces the likelihood of punishment in case criminal organizations engage in violent behavior against one another.[3]

Finally, criminal groups also become more prone to violence as a result of changes in their internal organization that are indirectly driven by decentralization (see result 3 below). In particular, decentralization generates incentives for criminal groups to arm themselves in order to protect their business from predatory actions exerted by other criminal groups. The logic is simple. Given that criminal markets lack a formal mechanism to enforce contracts and to deter predation (Reuter, 1983), criminal groups need to protect themselves if they want to remain in business. I assume that criminals can choose between relying on the state to protect them or protecting themselves by means of their own private armies. Note that the state can only provide protection to criminal organizations by operating coherently. As the logic above indicates, only in such a way can it punish defectors effectively. Thus, criminal groups will prefer to rely on the government only in centralized environments. The government then becomes a reliable protector, ensuring and sanctioning penalties for all violent or predatory behavior, committed by criminals, against allies of the government. The penalties will apply independently of the predator's jurisdiction. Under decentralization, the government lacks the ability to punish in all jurisdictions and criminals prefer to create their own "protection departments."

A final remark on the interaction between arming and conflict propensity is also

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[3]We can imagine a scenario in which a decentralized government still manages to operate as a centralized government by instituting mechanisms of cooperation between governments operating at distinct jurisdictions. For the purpose of this theory, I consider this is a centralized scenario, an informally centralized scenario.

noteworthy. Because decentralization makes corruption more expensive, it increases the incentives that criminals have to invest in developing their own private protection, rather than paying costly bribes to inefficient providers of protection. Self-protected criminal organizations are more prone to violence, because violence can be used not only defensively, but also offensively. If protection is outsourced to the state, the use of violence is limited to defensive actions. The state will defend its allies, reacting with the use of force only where strictly necessary, but will never engage in offensive operations (e.g. helping their allies invade the territories of other criminals) if such measures affect its electorate. However, criminals themselves, given the choice, can use violence for predatory and purely offensive purposes. As a result, interestingly, when criminals arm themselves, violence becomes more probable, like a self-fulfilling prophecy. Without an effective third-party protector, criminals arm themselves for fear that other criminal groups will engage in predatory behavior against them. Thus, predatory behavior, which would be impossible without firearms, becomes a real possibility once criminals are armed.

In the following sections, I walk the reader through my formal model. I portray a simple world with two levels of government, that is, a top-level that operates in all jurisdictions, and lower-level governments operating in one of two jurisdictions. The model also portrays two criminal organizations, each one profiting from illegal operations that can be conducted in one or two jurisdictions. All agents maximize utility.

Throughout this work, institutions are assumed to be exogenous, meaning that criminal groups cannot shape state institutions to their liking. An important extension of the present work would be a dynamic model in which institutions are endogenous and criminal groups can avoid decentralization in order to keep bribes affordable.

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The government's utility increases through obtaining bribes and by maintaining an intact political reputation. Bribes are given by criminal groups. The government's political reputation is damaged when citizens feel insecure in jurisdictions for which the government has responsibility. The government may imprison criminals to increase the security of citizens, or allow criminals to operate in exchange for bribes. All governments can operate in a centralized or decentralized manner. Centralized government works in such a way that the top-level makes all security policy decisions, while lower-levels follow the incentives dictated by the central authority. Decentralized government engages in corruption deals independently, making security decisions that impact only their own jurisdiction. I assume that bribes given to different levels of governments are partial complements, that is, criminals need to bribe all governments operating in a jurisdiction in order to operate in such an area without being prosecuted.

In this world, criminals only care about profits and freedom. The utility of criminals increases when illegal profits are large (i.e. revenue is large and bribes are small) and when they are not imprisoned due to the government's prosecution. A prosecuted criminal makes no profits. I assume that criminal organizations can operate without affecting citizens' perception of security if they do not violently fight for turf. Criminals may operate peacefully "under the radar," making illegal profits in their jurisdictions, or may they may operate violently, battling for turf in an effort to conquer the territories of other criminal organizations. I also assume that turf battles affect only citizens living in the disputed area.

In the following three sections, I describe the equilibrium that emerges when government and criminals interact in the world described above, and what this tells us about

corruption, violence and criminal behavior. A first section develops a model of how decentralization influences the demand for bribes and their price. A second section shows the effects of decentralization on the propensity of criminal groups violently to confront one another. A third section shows the effects of decentralization on the organization of crime, particularly the propensity of criminals to arm themselves. Finally, a concluding section summarizes the results of my model and provides examples of how this model can be used to explain outcomes outside the criminal world. Each section explains the contribution of my results to the literature and provides supporting empirical evidence from a variety of fields and geographical regions. Sections in italics can be skipped by readers not interested in formal modeling.

2.1 The Effects of the Decentralization of Corruption.

The degree to which the state can make policy decisions as a cohesive, homogeneous decision-making body significantly influences the incentives of agents. Extensive literature has shown that decentralized decision-making shapes state features, such as the relative bargaining power of bureaucrats versus the state (Huber and Shipan, 2002), the incentives of authorities to pursue economic growth (Prud'Homme, 1995; Persson and Tabellini, 2004; Rodrik, 1999; Ross, 2006; Mulligan et al., 2004), and patterns of political contestation (Gibson, 2004). Decentralization has been identified as the driver of a range of distinct reactions (Treisman, 2007), from the devolution of power from military authorities to civilian party politicians in Brazil, to the creation of particular electoral rules in

Venezuela and Mexico (Gibson, 2004; Díaz-Cayeros, 2004). It was centralized command that allowed informal rules of leader selection in Mexico to be sustainable (Langston, 2002). Underground financial institutions in Russia were kept functional partly due to centralized decision making (Helmke and Levitsky, 2006), and the same can be said of corruption protocols in China (Johnston, 2005).

Directly addressing this literature, and using models of competitive corruption (Shleifer and Vishny, 1993; Waller et al., 2002) as my base, I contribute to our understanding of criminal behavior by identifying how decentralization impacts the informal rules for interactions between governments and criminals. In this section I present a formal model to explain how political decentralization influences corruption.

Following seminal works on illegal actions within the state (Nye, 1967), I define corruption as any behavior that deviates from the normal duties of a public role in order to access private-regarding pecuniary gains[4]. Yet, I deviate from most current literature on corruption. Rather than examining the role of decentralization in promoting opportunities for corruption (Scott, 1969; Shefter, 1978; Rose-Ackerman, 1999; Persson and Tabellini, 1999; Kunicova and Rose-Ackerman, 2005; Persson et al., 2003; Pereira et al., 2009; Rehren, 2009),I address the ways that decentralization shapes the forms that corruption takes.

Let's begin by exploring the form that corruption takes in centralized versus decentralized environments. The model provides three insights:

Result 1: Decentralization increases the total demand for bribes, and the total money

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[4]For simplicity, we can think of a prototypical corruption activity as the sale of protection or permits to allow criminal organizations to operate monopolistically over a defined territory.

that criminal groups need to pay to avoid prosecution.

Remark 1.1: Decentralization reduces top-level government's utility by decreasing its capacity to collect bribes

Remark 1.2: The size of lower-level bribes is determined by the capacity of the top-level government to punish lower-level governments.

Consider a government of two levels: a single top level of government G with jurisdiction over the whole national territory, and many lower-level governments g_i, where i is one of $n \in \mathbb{N}$ jurisdictions. The two levels of government may interact in a centralized or decentralized political system. Under centralized institutions, the center has the monopoly of authority and can punish lower levels of government. Under a decentralized political system, authority is dispersed and lower levels of government can act independently without fearing punishment from the top layer.

Criminal groups buy permits from the government for personal gain in the form of illegal revenues. Accessing illegal revenues α depends on paying bribes $B \in [0, \infty)$ to obtain permits from the central government, or bribes $b_i \in [0, \infty)$.

Top and lower-level governments set B and b respectively, to maximize their utility considering the cost of not-enforcement $k > 0$. We can think of k as normative costs, such as reputation and honor, or as more tangible costs, such as reduction in votes due to public opinion scandals. For simplicity, I will refer to k as the value of votes. Utility

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for governments can be thought as:

$$U_G = (B - k_G)Q \tag{2.1}$$

$$U_{g_i} = (b_i - k_{g_i})q_i \tag{2.2}$$

where $Q \in [0, \infty)$ and $q \in [0, \infty)$ are twice differentiable functions showing the total amount of corruption that criminal groups will demand. Demand for corruption will be given by:

$$Q = \alpha - 2B - 2b$$

$$q_i = \alpha_i - 2b_i$$

Note that by definition lower-level bribes are complementary to top-level bribes. Because top and lower-levels of government operate in the same jurisdiction, I assume that criminals who want to operate at the top-level will need to bribe all levels of government. The demand for top-level bribes thus decreases as b increases. For simplicity, I assume that criminal groups who want to operate only at the lower-level do not have to bribe the top-level of government. The demand for bribes at the lower-level is not impacted by the prices of bribes at the top-level.

First, consider the case in which political institutions are centralized, such that only top-level government makes security decisions and thus charges bribes. The center has a monopoly of authority which gives it the capability of selecting B^c, where c indicates results for (c)centralized political institutions. Top level politicians decide the price of

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bribes solving a standard monopolist profit maximization problem:

$$max_B(B - k_G)Q$$

Solving the first order condition and assuming $k_i = k_B = k$ [5] yields, in equilibrium, a price and quantity of bribes as follows:

$$B^c = \frac{\alpha + 2k}{4}$$

$$Q^c = \alpha - 2\left(\frac{\alpha + 2k_B}{4}\right) = \frac{\alpha - 2k_B}{2}$$

$$b^c = 0$$

$$q^c = 0$$

In centralized settings, increases in the revenue of criminals (α), and in the value of votes (k) will increase the price of bribes. Bribes need to be larger when votes are valuable. The total utility that each level of government gets under centralization is given by:

$$U_G^c = (B^c - k)Q^c$$

$$= \left(\frac{\alpha - 2k}{2}\right)\left(\frac{\alpha - 2k}{4}\right)$$

$$U_{g_i}^c = 0$$

Second, consider now the case in which political institutions are decentralized. The

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[5]Modeling differentiated costs do not affect the results of the model significantly

two levels of government independently decide on B and b_i within their own jurisdictions. Because each level of government ignores the price of bribes that the other level of government imposes, they maximize a la Bertrand, according to the interception of their best response functions. The prices of bribes, and the demand for corruption will be given by:

$$B^d = \frac{\alpha + 6k}{8}$$

$$b^d = \frac{\alpha + 2k}{4}$$

$$Q^d = \alpha - 2\left(\frac{\alpha + 6k}{8}\right) - 2\left(\frac{\alpha + 2k}{4}\right)$$

$$= \frac{\alpha - 10k}{2}$$

$$q^d = \alpha - 2\left(\frac{\alpha + 2k}{4}\right)$$

$$= \frac{\alpha - 2k}{2}$$

where the subscript d refers to results under (d)centralized government.

The total utility that each level of government gets under decentralization is given by:

$$U_G^c = \left(\frac{\alpha - 2k}{8}\right)\left(\frac{\alpha - 10k}{2}\right)$$

$$U_{g_i}^c = \left(\frac{\alpha - 2k}{2}\right)\left(\frac{\alpha - 2k}{4}\right)$$

Result 1: *Decentralization increases the demand for bribes, and the total money that criminal groups need to pay to avoid prosecution.*

Yet, even if the total amount of money that criminals pay increases, that does

not mean that all levels of government increase their utility. Actually, while top-level governments are hurt by decentralization, lower-level governments benefit from it.

Remark 1.1: *Decentralization reduces the top-level government's utility by decreasing its capacity to collect bribes.*

Proof: *When going from centralization to decentralization, the utility of lower and top-level governments will change by:*

$$U_G^d - U_G^c = -\left(\frac{\alpha - 2k}{2}\right)\left(\frac{\alpha + 6k}{8}\right)$$
$$U_{g_i}^d - U_{g_i}^c = \left(\frac{\alpha - 2k}{2}\right)\left(\frac{\alpha - 2k}{4}\right)$$

Indeed, it is not surprising that top-level governments will try to avoid decentralization as much as possible.

Consider that decentralization may be avoided if top-level governments sanction lower-level governments, such that only if the monitoring capacity of the center is imperfect or the punishment is weak, lower-level governments will take bribes. Assume that the center has the capacity to invest in monitoring capacity such that with probability $p \in [0, 1]$ local politicians supplying local bribes will be caught and punished. If caught, lower-level politicians are punished with $\psi \geq 0$. Assume ψ is a twice differentiable function increasing in b. We can think of ψ as fines or as more intangible punishments such as decreased chances of career advancement.

Local politicians will select the price b according to maximizing expected profits. Expected profits are given by bribes profits $(b - k_b)$ with probability $(1 - p)$, and punishment

(ψ) *with probability p. In formal terms, lower-level governments maximize:*

$$max_b(1 - p)(b - k_b)q - p(\psi)$$

Independently of the value of ψ, the first order condition shows that the optimal bribe for lower-level governments to charge will be given by:

$$b^* = b^d - \frac{p\psi'}{(1 - p)}$$

where ψ' refers to the first derivative of ψ with respect to b. Note that the degree of punishment ψ determines whether lower-level corruption falls between one of the two possible above described scenarios $b^*(p, \psi) = [0, b^d]$.

Remark 1.2: *The size of lower-level bribes is determined by the capacity of the top-level government to punish lower-level governments.*

Proof: *The top-layer of government can set an incentive compatibility constraint that makes lower-level politicians indifferent about charging bribes, and that allows the top-layer to keep charging bribes as a monopoly. The incentive compatibility condition is given by:*

$$\frac{p\psi'}{(1 - p)} \geq \frac{\alpha + 2k}{4}$$

In equilibrium, the degree of centralization will be determined by the relationship between the left-hand side term and the benefits that top-level politicians get out of forcing centralization. As ψ diminishes, the investment in monitoring needs to be larger,

increasing the cost of centralizing. As p decreases, the results increasingly tend towards decentralized outcomes. Note that, given Remark 1.2 above, we know that the maximum that the central government will be willing to invest in enforcement will be given by $U_G^c - U_G^d$ the difference between the utility that the center was getting under centralization versus what it gets under decentralization.

Overall, the model above shows that decentralization influences corruption by (Result 1) increasing the total demand for bribes and total money that criminal groups need to pay to avoid prosecution, by (Remark 1.1) reducing the capacity of the central government to collect bribes, and by (Remark 1.2) determining the size of lower-level bribes.

Institutional centralization allows the state to have a monopoly on corruption decisions; in this context, it is a monocentric corrupted system with a single decision-making body concentrated in the hands of the central commander. Decentralization disperses decision-making power across multiple organizations and across different levels of government, altering the corruption game. Thus, while centralized systems develop corruption mechanisms that are centrally regulated, and that respond to the incentives dictated by a single-decision maker, corruption under decentralization is dictated by the incentives of many different decision-makers, many of whom have different preferences. Centralized corruption agreements are cohesive, and align with the incentives and rules dictated by a single-decision maker. It is the central authority, who, for example, decides the type and quantity of illegal services. [6] Decentralized corruption agreements have an

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[6]For simplicity, this model assumes that corruption agreements under centralization are explicitly done by a single and unique group of individuals operating at the center. Such types of corruption –as this model has also shown– may be unfeasible in circumstances in which it is costly to monitor the actions of

entirely different dynamic. Bribes are taken by multiple levels of governments, each of which acts independently, following its own incentives and motivations.

As a result, decentralization negatively impacts criminal organizations and central governments, and positively impacts lower-level governments. Criminals, who used to pay bribes for protection to a cohesively-incentivized government bureaucracy, now need to pay different agencies simultaneously and satisfy all bribees' preferences in order to get full protection. Corruption deals become more expensive in the sense that deals that previously ensured protection for criminals from the government as a whole, in all jurisdictions, now only secure them protection from a government ruling over a jurisdiction. If jurisdictions overlap, criminals need to pay more than one bribe simultaneously. Criminals may end up paying many more bribes just to achieve a similar level of impunity. The central government is also negatively impacted by decentralization, mostly because its role changes from "monopolistic bribee," to "Cournot-competitor bribee." Indeed, decentralization reduces profits for those who previously monopolized corruption and who now need to share profits with other levels of government. On the contrary, lower-levels of government benefit from decentralization. They change from being passive observers

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other individuals. Yet, centralized corruption can be enforced without monitoring, using more indirect or subtle mechanisms. Self-enforced incentives and informal rules can ensure that corruption agreements made by many individuals operating in different jurisdictions follow the preferences of individuals operating at the center. Consider, for example, corruption mechanisms in Russia's medical system (Johnston, 2005). Even if corruption agreements were made by doctors and patients operating in their own jurisdiction, and at the bottom of state's hierarchy, corruption deals respected the will and followed the incentives of Russia's centrally commanded government. For example, corruption agreements never disrupted the basic operation of the medical system, and a share of the bribes collected at the bottom was given to upper-level hierarchies. Centralized corruption did not need to be enforced via strong monitoring and punishment because medical practice was ultimately commanded by the center. It was the center that made decisions about medical careers. Defying the center's preferences would cause doctors to lose the favor of the Russian government and thus all possibilities for practicing medicine in the country

of corruption -who could be punished by the center if they engaged in corruption deals–
to active profit makers.

An empirical implication of my model on corruption mechanics is that as institutions become more decentralized, the ability of the central government to control lower-level authorities and keep them from engaging in independent corruption activities should decrease. Indeed, we should expect corruption to spread increasingly to infect other levels of government as the system decentralizes. Case studies of corruption around the world support this result.

China is perhaps the prototypical example of the effects of decentralization in corruption mechanics (Choi and Zhou, 2001; Fabre, 2001; Gong, 1994). Corruption in Mao's China was limited, following the preferences of the highly centralized communist party that could enforce discipline from above by the selective usage of *xiafang*, a practice of sending cadres down to lower levels "to remold bureaucrats' attitudes" whenever they contradicted the preferences of the party (Hao and Johnston, 2002). Following the predictions of the model outlined above, when political decentralization began to take place in China in 1978 under Deng Xiaoping, and decision making over corruption agreements was delegated to regional bureaucrats, corruption rapidly spread to lower levels of government (Johnston, 2005). Lower-level officials and regional authorities increasingly engaged in corruption deals more directly. Official profiteering, known as *guandao* spiked, taking many different forms, from moonlighting in enterprises to illegal stock dealing (Hao and Johnston, 2002).

The effects of political decentralization are apparent in other cases as well. It has been documented that decentralization in Korea (Koo, 2002; Steinberg, 2005; Cheng and

Chu, 2002), the Philippines (Carino and Alfiler, 1986; Klitgaard, 1988; Hutchcroft and Rocamora, 2003), Indonesia (Macintyre, 2003) and post-communist Russia (Leitzel, 1996) was equivalent to a *de facto* increase in the number of bribees and lead to a much greater localized supply of bribes. In all these cases, corruption reached local levels of government more often after decentralization. Other cases of multi-bribee environments, like the ones documented by Klitgaard (1990) show a less restricted supply of bribes as the number of government agencies charging bribes goes from one to many.

It is my claim that Mexico's drug war was partially driven by this mechanism of corrupt decentralization and in the following chapters, I will provide evidence to sustain my argument. Qualitative (Chapter 3) and quantitative (Chapter 4) evidence will be given to show that decentralization spread corruption by reducing the ability of the top-level government to limit criminal activities to certain areas. Particularly, drug trafficking, has increased as the center has lost its ability to control the careers of local bureaucrats. According to Mexico's judicial system, drug trafficking can only be prosecuted by top-level authorities. Without a top layer to control the decisions of local bureaucrats, and given that Mexico's lower governments are not constitutionally responsible for prosecuting drug traffickers (CIDAC, 2011), local authorities have incentives to allow drug trafficking groups to operate in their areas. Traffickers increase the revenue of local politicians who, living in a decentralized system and lacking the limitations imposed by the center, find it in their best interest to make corruption deals (CIDAC, 2011).

2.2 The Effects of Decentralization on Violence Propensity

In this section I claim that levels of criminal violence are determined by institutional factors. Institutions affect the propensity of criminal groups to violently confront one other, just as they impact the probability of conflict between other organized agents.

Extensive literature provides evidence of how institutions affect the propensity for violence. Studies have shown that institutions that promote markets and tax levying have a great impact on whether insurgency groups, faced by conflict, use violent or peaceful approaches (Besley and Persson, 2008; Welsh, 2008). Strong property rights reduce incentives for violence (Garfinkel, 2004); additionally, clear rules to promote stability after rapid shifts in power have the same effect (Powell, 2006; Acemoglu and Robinson, 2001, 2006). In the context of civil wars, different institutional designs determine whether effective mechanisms to reduce conflict –like contract enforcement rules– will emerge and will be effective (Herbst, 2000; Fearon and Laitin, 2003; La Ferrara and Bates, 2001; Skaperdas, 2008; Bates, 2001). Furthermore, many studies have pointed to more indirect ways in which the state may function as a mediator of violence propensity (Fearon and Laitin, 2003; Garfinkel, 2004; Powell, 2006; Besley and Persson, 2008; Tajima, 2010) by, for example, changing individual preferences to engage in violent behavior. The likelihood that group leaders will exert violence as their preferred conflict-solution strategy is endogenously driven by institutional features (Weingast, 1997; Bates, 2008; Bates et al., 2002) like the existence of checks and balances (Sawyer, 2004, 2005) and particular electoral rules (Wilkinson, 2006).

Contributing to this literature, I extend the formal model outlined in the previous section to identify a crucial institutional mechanism that influences the government's ability to discourage competing criminal groups from violent conflict: decentralization. The main insight behind the model is that he propensity of criminal organizations to violently confront each other increases in decentralized political regimes.

This section shows how the actions of different lower-level governments and criminals change when they operate in centralized versus decentralized regimes.[7]

Assume a one-period relationship of two neutral-risk agents, a government G and a criminal organization C, that rule or operate in either one or two jurisdictions $[i, j]$. A government ruling over jurisdiction i decides whether to prosecute a criminal organization to gain reputation k_i, or, in contrast, receive bribes b_i. Prosecuting creates good reputation ($k_i > 0$) when a government attacks a criminal organization that is affecting citizens living in i. A criminal organization decides whether to operate solely in its own territory i for expected profits π_i, without affecting citizens, or to violently invade the area of operation of another criminal organization j and profit in the two territories π_{ij}. Invasions are violent and affect citizens living in the invaded territory, in this case j. Assume also that a government ruling over i can only punish criminals operating in i, and that invasions require an upfront payment of A by invaders in order to arm themselves.

Criminals decide between operating peacefully in i, or violently confronting rival groups operating in j, creating a sense of insecurity in citizens operating in j according

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[7]Adding the operations of a top-layer government does not change the basic intuitions of the model.

to expected profits given by:

$$\pi_i = (\alpha_i - b_i)(1 - \lambda_i) \tag{2.3}$$

$$\pi_{ij} = (\alpha_i - b_i + \alpha_j - b_j)(1 - \lambda_i)(1 - \lambda_j) + (\alpha_i - b_i)(1 - \lambda_i)(\lambda_j) + (\alpha_j - b_j)(1 - \lambda_j)(\lambda_i) - A \tag{2.4}$$

where λ_i is the probability of being prosecuted by government g_i, and $(\alpha_i - b_i)$ is the monetary benefit from operating in territory i. Monetary benefits are given by revenue α_i minus bribes b_i. Note that, if criminals are prosecuted, profits are zero.[8] The probability of being prosecuted in territory i is λ_i, and is determined solely by the government ruling over such a jurisdiction (i.e. by g_i). Illegal profits from operating in i and j are more complex because a cost of arming A will be paid, and because prosecution may come from two governments (i.e. by g_i and g_j). As equation (3) above shows, there are four possibilities of prosecution: prosecution may not happen (first term in the right of π_{ij}), may only be conducted by g_j only (second term), by g_i (third), or by both (in which case, profits are zero).

Given profits, we can now define the probability of violent confrontation (i.e. invasion) as:

$$\gamma = \frac{\pi_{ij}}{\pi_{ij} + \pi_i}$$

which increases in π_{ij}.

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[8]Assuming negative payoffs for incarceration do not change the basic intuition of the model.

Note that the value of λ is crucial to define illegal profits and depends on government payoffs. For any government, prosecuting yields zero payoffs if criminals are operating under the radar, and not prosecuting brings benefits of b^* (bribes). When criminals are visible to citizens because they are violent, prosecuting brings governments benefits of k_j, where k_j is the good reputation that governments get from enforcing the law to save citizens who are being affected by violence in disputed territory j. Given the government's incentives, the probability of prosecution by g_i can be defined as:

$$\lambda_i = \frac{k_j}{b_i^*}$$

The two lower-level governments may be centralized or decentralized.

Let's first consider a world in which the government is centralized. All governments g_i and g_j are represented by G, a top-layer government that makes decisions as a single cohesive, monopolistic entity. Substituting b_i^* for the value of B^c obtained above, we know that the probability of prosecution in each of the two jurisdictions over which G operates will be given by

$$\lambda_i^c = \lambda_j^c = \frac{k_j}{\left(\frac{\alpha + 2k}{4}\right)} \tag{2.5}$$

The top level government will monopolize bribing, and decide whether to punish violence happening in j. Note that in a centralized environment a single government is responsible for all enforcement decisions, $k_j > 0$ whenever criminal group i invades j. In other words, citizens living in j will favor the reputation of the top-layer government for prosecuting violent criminals. Lower-level governments are subordinated by top-layer decisions and thus will act according to the mandates dictated at the top.

Let's now consider a world in which the government is decentralized, meaning two governments g_i and g_j make independent prosecution decisions over their own jurisdictions. In this case:

$$\lambda_i^d = \frac{0}{\left(\frac{\alpha+2k_i}{4}\right)} \tag{2.6}$$

$$\lambda_j^d = \frac{k_j}{\left(\frac{\alpha+2k_j}{4}\right)} \tag{2.7}$$

The numerator of λ_i^d is zero because violence only affects citizens in j, a reputation from which the government g_i cannot benefit. The government in jurisdiction i gets bribes from criminals operating in i. If criminals operating in i invade j, citizens in j will increase the reputation of the politician that helps them. This may create incentives in g_j to prosecute, but will not do the same for g_i, a local government that gets nothing from citizens who live outside its jurisdiction.

Result 2: *The propensity of criminal organizations to violently confront each other increases in decentralized political regimes.*

Proof: *Violence propensity will be given by the value of γ or*

$$\gamma = \frac{(\pi_i + \alpha_j - b_j)(1-\lambda_i)(1-\lambda_j) + (\pi_i)(1-\lambda_i)(\lambda_j) + (\alpha_j - b_j)(1-\lambda_j)(\lambda_i) - A}{\pi_i + (\pi_i + \alpha_j - b_j)(1-\lambda_i)(1-\lambda_j) + (\pi_i)(1-\lambda_i)(\lambda_j) + (\alpha_j - b_j)(1-\lambda_j)(\lambda_i) - A}$$

where λ_i and λ_j are given by equations (5-7) above. Note that because $\lambda_i^c > \lambda_i^d$, then $\gamma^c < \gamma^c$. In words, under centralization invaders will be prosecuted with some probability in j and i, while under decentralization invaders will be prosecuted with some probability

only in j, but never in i.

The above model shows that decentralized environments increase the propensity of criminal groups to deploy violence. The logic behind this result is straightforward. When the government cannot make security policy decisions as a unified monopoly, the costs of violence are not properly appropriated internalized, incentives to punish criminal organizations for violent confrontations are reduced, and thus the probability of violence increases.

Under centralization, the costs of bloodshed are appropriated by a single government that has jurisdiction over the whole territory and that is accountable to all the electorate for controlling violent crime. If criminal violence —or any other criminal behavior that affects citizens— escalates, the electorate will punish the unique decision-maker, the central government, for poor security. A government that is cohesively-incentivized in this manner wants criminal organizations to operate without episodes of violence. As a result, any criminal organization that engages in violent behavior is punished, independently of where violence takes place. All jurisdictions are taken care of by a single government because a single government is responsible for all of them.

Under decentralization, this mechanism of cost internalization is lost. Governments are only responsible for maintaining crime controlled within their pre-defined jurisdiction. If a criminal organization protected by one government affects the electorate of another jurisdiction, its behavior will not be punished by the entire state in a cohesive crackdown. A local government has no incentives to invest in cracking down on criminals that commit crimes in neighboring jurisdictions. Criminals will be punished only by the government

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that is directly affected –the one ruling in the jurisdiction of the pertinent electorate. As a result, criminals may behave strategically, keeping profitable bases of operation in some jurisdictions to fund offensive measures in others. With a steady source of income to fund violent operations, hiding and avoiding prosecution is also more feasible for criminals. A low intensity warfare, for example, becomes possible. Criminals may engage in targeted violence against a rival group by selectively tormenting a jurisdiction in which they do not generate profits. They escape prosecution by hiding in another jurisdiction, where they can profit while operating peacefully and safely.

The key is that whenever a jurisdiction is salient for security policy decisions, criminals can strategically avoid punishment. Criminal organizations will be able to survive by relying on pacts and resources from jurisdictions where they do not practice violence, while being violent in other jurisdictions, because decentralization prevents the government from fully internalizing the costs of violence. Centralization allows such appropriation. Empirical evidence of the relationship between conflict and decentralization abounds. The decentralization of decision-making in Indonesia drove large increases in violence (Peluso, 2002; Bertrand, 2004; van Klinken, 2007). When laws to empower local governments with much larger administrative, fiscal and political power took effect in 2001,the spending capacity of Indonesia's districts got a boost. By 2007, the country had already been identified by the World Bank as the second most fiscally decentralized country of East Asia, surpassed only by China, and one of the most decentralized countries of the Organization for Economic Co-operation and Development (Murshed et al., 2009). The resulting fragmentation of its patronage networks prompted an increase in the number of organized groups employing violence and intimidation as a political, social,

and economic strategy (Wilson, 2006). Temporal variation under decentralization at the national level significantly matches the outbreak of violence in Indonesia[9].

Violent conflict in Colombia also rises when local governments are empowered by a larger, independent decision making capacity (Llorente et al., 2002; Sánchez and del Mar Palau, 2006). Decentralization largely increased local disputes between conflicting organized groups who fought to appropriate public goods and resources, to interfere with the political process and to consolidate territorial control. Actually, the geographical expansion of conflict in Colombia follows decentralization reforms that took place in Colombia from 1974 to 2004 (Sánchez and del Mar Palau, 2006).[10]

The link between decentralization and conflict has been proven more broadly in different contexts. Just as my narrative argues, a growing number of scholars suggest that political decentralization intensifies conflict and secession by supplying local individuals or groups with resources to engage in conflict (Kymlicka, 1998; Snyder, 2000). The radical decentralization project of Uganda's President Yoweri Museveni and his National Resistance Movement (NRM) government in 1986, for example, increased the propensity for violence between local competing factions (Green, 2008). Seminal cross-country studies like Brancati (2006) showed that the combination of decentralized-decision making in the form of federalism and existing regional parties is conflict-producing. Lake and Rothchild

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[9]As Murshed et al. (2009) note, this result was surprising, since a large literature had assumed that giving groups more control over their own affairs would allow them to implement their own policies , which could better target and reduce violence (Brancati, 2006; Tranchant, 2007, 2008; Saideman et al., 2002; Bakke and Wibbels, 2006).

[10]This is not to say that decentralization is the only and unique driver behind violence in Colombia. Actually, in many cases violence preceded the reforms. Instead, and in accord with the results of my formal model, this case provides evidence that decentralization increases the propensity of violent behavior, even if other factors still constitute underlying causes of violence itself.

(2005) [as cited by (Roeder and Rothchild, 2005)] also found that secessional battles are fought and won with larger probability in decentralized states. The creation of local areas of decision power in Nigeria since the 1970s has not only failed to halt ethnic and religious violence but has contributed to it (Green, 2008).

In chapter 3, I will present a narrative showing how Mexico's drug violence has increased as a result of decentralization. I argue that criminal organizations could be controlled by a centralized, authoritarian government that would be accountable for inhibiting violence in all jurisdictions, and that would make decisions as a unified agent. Yet, when democratization dispersed Mexico's security policy decisions among many local decision makers, many of whom did not share incentives, accountability also spread. Unlike a centralized government, decentralized local governments cared only about keeping violence low in their own jurisdictions. As a result, criminals found themselves suddenly able to behave strategically with violence. Mexican drug cartels could now engage in violent fights in some jurisdictions while profiting in others. Unlike a centralized system, a decentralized environment allowed violent criminal organizations to escape punishment, reducing the expected cost of violent behavior. Thus, criminal violence increased.

2.3 The Effects of Decentralization on Arming

In this section I show that criminal groups organize according to incentives dictated by the state. Particularly, I show that criminal organizations arm only under decentralization.

A simple extension of the model described above is employed to assess the conditions

under which paying A is a preferred strategy.

Assume the decision to pay A will be made by criminal organizations according to the following strategic consideration:

$$Arm? \begin{cases} \text{Yes: } \gamma(\pi_{ij}) + (1 - \gamma)(\pi_i - A) \\ \text{No: } \pi_i \end{cases}$$

If criminal organization C pays A, there is a probability γ that they will invade j and obtain $\pi_i j$ expected profits, and a probability $(1 - \gamma)$ that they will not invade, obtaining π_i and still having paid the private army. If criminal organizations do not pay A, they won't be able to invade.

Result 3: *Criminal organizations arm only under decentralization.*

Proof: *If $\gamma = 0$, then $\pi_i - A < \pi_i$. Following from result 2 above, we know $\gamma^d > \gamma^c$, thus making arming more appealing.*

When criminal groups make decisions over the best mechanism for protecting their businesses from predators, they weigh the cost of creating a private army against the value that they will get out of using this army to invade the territory of other criminals (or to avoid invasion). Following Result 2 above, we know that invasions become highly probable only in decentralized environments because punishment of invaders is less probable. Thus, only in decentralized environments will criminal groups be motivated to pay the cost of arming themselves.

Indeed, criminal groups prefer to remain unarmed in centralized, single-bribe envi-

ronments because under such circumstances the government is a certain protector ensuring low violence propensity. Criminal organizations that invade will be punished. Thus, to maintain private armies is too costly given that the probability of invasion is very low. Private armies are not needed because the state is able to contain violence.

Internalizing violence may be further motivated by the increased costs of bribing in decentralized environments. If decentralization allows many governments to conduct law enforcement operations in the same jurisdiction, criminal organizations need to bribe many agencies simultaneously to be protected. With higher costs of protection, investing in creating a private army seems increasingly appealing given that the alternative is to pay costly bribes to inefficient decentralized protectors. The internalization of violence in the criminal world can be understood a form of "vertical integration" in which criminal groups "produce" their own protection rather than "outsourcing" it from the state.[11]

Note that, if criminal groups decide to arm themselves because the government is unable to deter invasions, violence becomes even more probable. When protection is provided by the state, the use of violence is limited to defensive actions because the government has an incentive to keep its reputation of being law abiding in the eyes of citizens. Yet if the capacity for violence is in the hands of criminals themselves, arms may

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[11]Academics are far from a consensus on the empirical determinants of vertical integration versus outsourcing (Acemoglu et al., 2009). The debate has identified the importance of some factors like ex post opportunistic behavior (i.e. hold up) (Williamson et al., 1975; Williamson, 1983, 1985), the size of ex ante relationship-specific investments (Grossman and Hart, 1986; Hart and Moore, 1990; Foss, 1999), and information asymmetries and knowledge non-excludability (Casson, 1996; Rugman, 1981; Ethier, 1986; Ethier and Markusen, 1996). Some empirical studies have identified changes in regulation that play a role in determining organizational structure. The pioneering work of Joskow (1985) for example, shows that reforms in environmental laws in the US incentivized California's coal-burning electric generating plants to vertically integrate. Unfortunately, most of this literature views regulation as an external shock rather than as a response to changes in political institutions.

be used also for offensive purposes, such as to initiate predatory behavior.

For the case of Mexico, in the following chapters I will provide qualitative evidence of how changes in the organizational structure of criminal groups have followed political decentralization. In Chapter 3, I show an increasing tendency of Mexican drug cartels to internalize protection —by creating their own security departments and armed branches— as decentralization was taking place. I develop an analytical narrative about this process, explaining the ways in which Mexico's drug–related industry evolved and changed from the sixties through 2010.

2.4   My Model In Brief

In this chapter, I advanced a theory of corruption, criminal organizations and violence, showing that when governmental decision-making capacity is decentralized (a) corruption becomes more expensive for criminal groups, (b) violence propensity between criminal groups increases, and (c) incentives for criminal groups to create their own private armies to protect themselves also increase.

My argument can be summarized as follows. Political centralization allows the top level of the state to have a monopoly of authority and to be a monocentric system, with a single decision-making body concentrated in the hands of the central comman- der. Decentralization disperses decision-making power across multiple organizations and across different levels of government, altering the way in which the corruption game is played. Under decentralization, corruption deals are more expensive because criminal organizations need to bribe many agents to get the same benefits as a single bribe under

centralization.[12] Furthermore, under decentralization, governments only have the responsibility to keep violence low in their own jurisdictions, which allows criminals to engage in strategic violent behavior. Criminal groups may violently prey on the territories of other criminal organizations just in a selected number of jurisdictions, while still hiding and profiting in other jurisdictions, areas in which they are not being punished or prosecuted because they take care to keep violence low. Thus, under decentralization we expect a larger propensity for violence. Finally, decentralization also motivates criminal groups to arm themselves. Because the state can no longer punish criminal organizations that engage in predatory behavior, criminal groups know that invasions are more probable and thus, it is in their best interest to create armies to protect themselves.

Overall, my theory has depicted the implications of decentralization for the state, in its efforts to control and command criminal behavior. My theory resonates with the unsettled debate about whether decentralization is positive or negative for governance (Treisman, 2007). Decentralization has been championed by some as a source of better policy-making and reduced corruption (Agrawal and Ribot, 1999). International institutions have vigorously supported decentralization, according to the idea that decentralization promotes better governance (Bardhan, 2002) by increasing accountability and responsiveness (Khemani, 2001), by allowing citizens greater control over local issues (Crook and Manor, 1998; Manor, 1999), and by providing minorities with a voice (Stepan, 1999; Gurr, 2000). Yet, others have endorsed a much less favorable view of decentralization. Detractors of decentralization have pointed out that local elites may capture benefits more easily (Keefer et al., 2003), or just have less human capital to deal with issues that

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[12]Assuming bribes given to different levels of government are complementary goods.

a centralized government would find easier to control (Bardhan and Mookherjee, 2000; McCarthy, 2004). Additionally, other scholars argue that local power may be obsolete without proper funding, and that poor coordination may offset many of the benefits of decentralization (Larson, 2005; Treisman, 2007).

My theory shows that in the presence of large criminal organizations, decentralization may be detrimental for citizens' security by reducing the capacity and willingness of governments to control criminal activities. It shows that large efforts to decentralize countries like Thailand (Arghiros, 2001), Philippines (Bird and Rodriguez, 1999; Alonzo, 2003), and Cambodia (Blunt and Turner, 2005), or entire regions like Africa (Green, 2001; Olowu, 2001) may promote increases in criminal violence. With this in mind, policy makers need to act with care. Indeed, decentralization may create the conditions to diminish political violence by, for example, promoting accountability and providing a voice to minorities. Yet, it may also set the stage for other forms of violence to emerge, like criminal violence, if the state cannot properly internalize the costs of violence in its new decentralized form. Policies that ensure that local governments can implement security policies cooperatively —such that order and governance is promoted in the country as a whole, rather than in particular jurisdictions— are necessary to avoid the spread of criminal violence in decentralizing states.

Chapter 3

Mexico's Drug War (1950-2010)

> *"Mr. President, (...) let us help you to eradicate the cancer of this country. Poison is fought with poison. Once we finish with them [Zetas cartel], you can continue doing your work. Withdraw the troops and the army. [Signed:] Mexican Cartels Against Zetas."*[1]

Mexico's drug war was a war between criminal organizations, ignited by a state that enforced the law in a decentralized political environment. The state had failed to realize that over several decades, while Mexico was being largely redefined by process of decentralization process, different levels of government had lost their ability to act as a cohesive, single-decision body; thus, the state could no longer discourage criminals from violent confrontations or from arming themselves. Within a decentralized Mexico, criminal organizations were not what they had been twenty years before. The Mexican government had changed too.

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[1]Message left by a criminal organization in Durango State, October 2010

Drawing upon the insights of the formal model in Chapter 2, in this chapter I explain why Mexico's drug–related violence escalated in the 2000's and not before. I provide an analytical narrative about how decentralization changed has altered the shape that corruption takes in Mexico, adding incentives for criminals to confront each other and to arm themselves. When decentralization gave rise to armed, violence-prone criminals, the equilibrium of peaceful interactions between rival criminal organizations became precarious. This equilibrium broke when Mexican authorities destabilized criminal organizations by enforcing the law and capturing drug lords. A war followed.

This chapter is organized in three sections. A first section applies the insights of my formal model to explain how Mexico's decentralization set the conditions for a drug war and explains the role of crackdowns in triggering violence. I explain the implications of Results 2 and 3 for the Mexican case.

A second section provides evidence that centralization set the conditions for the government to act as a coherent law enforcer, discouraging violence within criminal organizations. As a result, its crackdowns did not generate violence. I describe extensively how corruption was conducted under centralization, an environment in which all levels of government acted as a single, coherent enforcer against criminal organizations that affected the interests of the federal government. I also show how this process of centralized corruption created incentives for criminal organizations to mitigate violence and their tendencies to arm themselves. Finally, I explore how crackdowns affected the criminal world. To do so, I present three case studies of crackdowns that did not cause violence. First, I show that when the Mexican government launched Operation Condor in 1977, "an unprecedented war" to "completely eliminate opium poppy cultivation" [Mexican

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Federal Attorney General interviewed by Craig (1980, p.351)], trafficking organizations responded not by violent confrontations. Next, I show that a series of crackdowns organized by Mexican federal police during the eighties, against different drug lords in the state of Chihuahua resulted, contrary to expectation, only in increased discipline within the drug trafficking industry, and in the consolidation of the Juárez cartel, a highly powerful and cohesive criminal organization. Finally, I present the case of the Guadalajara cartel. After the capture of its leader in 1989, the cartel fractured into many pieces, yet none of them fought each other in large-scale violence. Instead, newly formed criminal factions agreed to work in an oligopolistic fashion and continued their business in an organized and relatively peaceful way.

A third section provides evidence of the effects of crackdowns under decentralization. I begin by exploring the dynamics of corruption, as they changed with decentralization. The rupture of Mexico's hegemonic party system triggered the demise of centralized control. I describe how corruption changed with decentralization, creating incentives for local governments to act as independent agents in accord with their own interests. This change impacted criminal organizations. Particularly, I indicate that criminal organizations not only grew in size but also increased their propensity to be violent and to arm themselves. Additionally, I discuss the role of profits in setting the stage for Mexico's drug war, focusing specifically on the impact of Colombia's security policies and NAFTA, in providing Mexican criminal organizations with sufficient profits for arming themselves. Mirroring the previous section, I show how crackdowns affect the criminal world, by means of two case studies of crackdowns that triggered violence. First, I explore the capture of the leader of the Gulf cartel in 2003, which sparked turf battles between members of the

private army of the Gulf cartel and the Familia cartel. Finally, I show how the capture of leaders of the Sinaloa cartel in 2008 and 2009 caused criminal cells to fight each other.

3.1   Political Decentralization Explains Mexico's Drug War

The traditional narrative explains the increasing violence of criminal groups in Mexico by pointing to recent large increases in enforcement operations. (Aguilar and Castañeda, 2010; Guerrero Gutiérrez, 2010b; Osorio, 2011; Lessing, 2012; Dell, 2011). According to this line of thought, violence between criminal groups remained contained until Mexico increased the prosecution of traffickers in 2006. In short, it was when President Calderón sent troops to fight traffickers that mayhem exploded.

Aguilar and Castañeda (2010), perhaps the earliest critics of Calderón's offensive, argue that general homicides had decreased 2.2 percentage points every year from 1997 until 2006, the year in which homicides began to increase. Their book provides the first empirical evidence of an important change in homicide trends in Mexico and attributes it to a "bloody war against traffickers" (Aguilar and Castañeda, 2010) on the part of the Mexican government. Aguilar and Castañeda (2010) however, provide no insight into the mechanism behind the trend. Guerrero Gutiérrez (2010b) began to fill this gap by arguing that homicides began to increase after Alfredo Beltrán Leyva, a lieutenant of the Sinaloa cartel, was captured in 2008. His capture was "the most important shock done, up until then, by the government as part of the war against drugs that Felipe Calderón had commanded." Homicides spiked after this shock because the Sinaloa cartel divided

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into two factions that battled for turf (Guerrero Gutiérrez, 2010b).

Since then, academics have focused more attention on crackdowns upon criminal violence. In his doctoral dissertation, Lessing (2012) presents a formal model to show that crackdowns exacerbated violence because they were "unconditional," meaning they affected all criminal organizations independently of their violence propensity. The doctoral work of Osorio (2012) makes a similar argument, identifying the strategy of Calderón as the main cause behind violence due to its "non-selective punishment strategy." Dell (2011) provides the first quantitative tests within this literature, arguing that the causes of violence are found in electoral dynamics. According to her study, following a close election, the probability that a drug–related homicide has occurred is higher after a PAN mayor takes office because "the municipal environment becomes less conducive to drug trafficking in the short-run."

All this is true. Crackdowns destabilized Mexico's criminal organizations and promoted violent confrontations between them. The incremental capture of drug lords that started in 2006 caused large scale instability within criminal organizations, leading to their fracture into smaller factions that violently confronted each other (Rios, 2012). While in 2005 there were six major drug cartels (Mauleón, 2010a), by 2010, after three years in which eighteen drug bosses had been arrested and two more had died while combating federal enforcement forces (Guerrero Gutiérrez, 2010a), there were at least twelve cartels (Guerrero Gutiérrez, 2010b). The number of smaller criminal organizations also spiked, going from five in 2007 to sixty-two in 2010 (Guerrero Gutiérrez, 2010b); with it, the number of homicides related to criminal confrontation largely increased, going from 2,825 in 2005 to 15,273 in 2010 (Rios and Shirk, 2011).

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The real question, however, is not whether crackdowns motivated violence, but why previous crackdowns did not. During the nineties, the Mexican state conducted unconditional crackdowns against drug trafficking organizations, and yet Mexico's criminal world kept functioning as a highly disciplined group of oligopolistic criminal organizations that operated without confronting each other (Carvajal-Dávila, 1998; Flores Pérez, 2009).

Neither of the above narratives can explain why crackdowns ignite drug wars in some cases while in other cases they do not. There isn't a compelling explanation of the case concerning the drug lord Mr. Felix Gallardo, the head of Mexico's most profitable and large drug cartel. When he was captured in 1989, his organization split peacefully, and each faction kept operating within its own territory without fighting each other (Blancornelas, 2002; Zepeda, 2007; Cruz, 2009; Osorno, 2009). There isn't an explanation as to why this peaceful outcome had not occurred earlier in 2008, when the drug lord Beltrán Leyva was captured and his organization broke into pieces that fought each other for turf (Guerrero Gutiérrez, 2009).

I argue that the missing variable for understanding the propensity for criminal violence, described above, is political decentralization. Table 3.1 summarizes my theory.

The conditions favorable for criminal organizations to survive are quite different, depending on whether the setting is centralized or decentralized. Under centralization, criminal groups are not armed and are less prone to violence. Under decentralization, criminal groups are armed and more prone to violence. My formal model has shed light on two effects of decentralization upon criminal behavior. Criminals are more prone to violence in decentralized settings (Result 2). Decentralization changes the incentives of local governments, motivating them to prosecute only criminal organizations that directly

affect their jurisdictions rather than, as they would do in a centralized environment, prosecuting any criminal organization that engages in violent behavior (independently of the jurisdiction in which violence takes place). Furthermore, criminals arm themselves in decentralized environments (Result 3). Only in such contexts, in which violent confrontations occur with higher probability, do criminal organizations find it in their best interest to arm themselves in order to react to potential confrontations.

Table 3.1: A Theory of Decentralization and Criminal Violence

	Centralization	Decentralization
Pre-crackdown conditions of criminal groups:	Not armed Less violence-prone	Armed More violence-prone
Criminals' reaction to crackdowns:	Short-term violence, long-term order	Violence

Given the status of the pre-crackdown environment, we can explore the different reactions of criminals to crackdowns according to their violence-propensity and level of arms. Consider the impact of a crackdown, like the capture or assassination of a criminal leader, upon the propensity of criminal organizations violently to confront each other. Assume a case in which the lack of a crackdown severely weakens one criminal group. A competing criminal group may decide to invade the territory of the weakened organization, creating violent confrontation for turf. Alternatively, in contrast, the group can continue to operate peacefully within its own territory and without invasion.

While centralized environments deter criminal organizations from violent conflict, decentralized environments do not. Under decentralization, criminal organizations are more violent-prone because, as my model shows, only governments whose reputations are

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directly affected by violent behavior will punish such behavior. As a result, criminal organizations may engage in strategic behavior, assassinating the members of the weakened organization in the weakened territory, while still operating peacefully (i.e. without visible violence) in their own, original territory. If this violence is only visible in the weakened territory, punishment will only come from the government ruling over the visibly violent territory. Criminals may thus be able to avoid punishment by operating mainly in their base territory, while conducting raids in the weakened territory. In turn, while punishments may affect raiding criminals, the possibility will always remain for them to escape back to their base territory without punishment. In contrast, a centralized government does not allow criminal organizations to escape. Because centralization leads all governments to operate as a single, cohesive body, even governments whose territory is not directly affected by violence will react in solidarity with those governments that are affected. As a result, raiders will be attacked by all governments, in their base territory and in the raided one. With punishment coming from all fronts, criminals will be less able to escape. In short, because the expected benefits of violent behavior are much more negative in centralized environments than in decentralized ones, criminal groups are more prone to violence under decentralization.

Considering levels of decentralization allows for a better understanding of patterns of criminal violence. In the nineties, criminal organizations operated under a centralized Mexico, one that set the conditions for criminals to be less prone to violence, and less armed; in the 2000's, criminal organizations operated under a decentralized Mexico, one that set the conditions for a violent drug war among well-armed organizations.

If in the 2000's criminal organizations like that of Beltrán Leyva split in factions

that fought each other for turf, it was because they now had the ability to do so. The capture of Beltrán Leyva lead one side of the organization to believe that another one had betrayed it (Ravelo, 2012). It declared war. Raids, assassinations and large-scale violence followed. Criminals were more prone to engage in violent behavior in the 2000's because they lived in a decentralized environment, one in which the Mexican state had a harder time punishing them in different jurisdictions, one in which different levels of government dictated security policies independently of each other, one in which a lack of coordination pervaded security operations, and one in which corruption deals could be established with one level of government to avoid prosecution from another.

If in the nineties criminal organization remained peaceful after the capture of their leader, it was not because they wanted to, but because they had to. Actually, conditions favorable to killing each other were present. The capture of Felix Gallardo left a fractured criminal environment, led by many new leaders who were just consolidating their power (Gómez and Fritz, 2005). However, they did not kill each other because a centralized Mexico was an efficient prosecutor of criminals. All levels of government acted cohesively and could cohesively punish any criminal organization that engaged in violent behavior and that affected the reputation of the federation as a whole. Independently of whether corruption deals had been established with lower levels of government, and independently of where violence took place, under centralization punishment would happen, and criminals knew it.

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3.2   The Times of Criminal Order (1950-1997)

There is a time that seemingly nobody remembers now. At one time, Mexican authorities conducted crackdowns against drug lords without igniting large-scale confrontation between trafficking groups that were left without leaders. This was a time in which criminal groups operated profitably, transporting drugs into the US, and typically avoiding behavior that could hurt Mexican citizens or the image of the Mexican government.

This was a time of criminal order. There were decades in which drug cartels performed their illegal activities without fighting each other often and thus without affecting the government's reputation. To maintain the reputation of the government intact required that criminals adhered to a set of simple rules, a so-called code of conduct (Guerrero Gutiérrez, 2009). The code, explicitly described by former governors like Ricardo Monreal (Zacatecas State), had ten "mandates": (1) No dead people in the streets, (2) no drugs in the schools, (3) no media scandals, (4) periodic seizure of illegal drugs and imprisonment of lower level traffickers, (5) generation of economic revenues for small, poor communities, (6) no gangs, (7) no deals with other branches of government or bureaucracy, (8) mistakes are to be punished with imprisonment, not death, (9) order and respect for territories, and (10) revenues must return to Mexico in the form of investments (Guerrero Gutiérrez, 2009). The narrative argues the criminals who respected this code were the ones who would be allowed to remain in business (Resa Nestares, 2001). The rest would be prosecuted, assassinated or simply banned from prerogatives that would allow them to keep trafficking drugs.

In light of my theory, in this section I argue that the criminals adhered to these

rules because the Mexican government operated as a *de facto* centralized entity, with an authoritarian party centrally commanding all decisions made in the state. I define this period as the years from 1950, the date of the first meaningful drug-trafficking operations in Mexico, (Cruz, 2009) to 1997, the date when for the rupture of centralization.

3.2.1 Corruption Under Centralization

From 1950 to 1997, Mexico was a *de jure* federal country operating as a *de facto* centralized country (Gibson, 2004). Constitutionally, Mexico is a federal country with three levels of government (federal, state and local), each one with the legal capacity to dictate policy autonomously over its territories as long as they respect Mexico's federal constitution. However, Mexico could act as a centralized, unified government, commanded by the federal level, because of informal political incentives (Gibson, 2004). Local governments followed the decisions made at the federal level mainly because of Mexico's electoral rules, particularly the prohibition of re-election, and the existence of a hegemonic party.

Mexico was ruled by a single hegemonic party, the PRI, that had been in power since the Mexican Revolution. Without re-election and without opposition parties, politicians, authorities, and bureaucrats were all directly assigned (and removed) by the PRI (Centeno, 1994; Langston, 1995). The PRI ruled over all levels of government, distributing positions of power among its loyal followers and supporters, and making decisions over every branch of the state, from federal judicial authorities to small local polices. As a result of political dominance, the federal government (the level at which the PRI party elite was concentrated), was able to play a clever game of "self-enforced discipline" that (a) kept all lower-level authorities obedient to top-dictated decisions, and (b) discouraged

criminal organizations from violent behavior or other behavior that broke the code of conduct.

All members of the political system had strong incentives to be loyal to the PRI because their careers depended on it. The strong degree of control by the federal government over the careers of authorities, during the period of authoritarianism, has been well documented (Centeno, 1994; Langston, 1997, 2001; Weldon, 1997; Davis, 2006). It was the President, or his close staff, who directly selected the Minister of the Interior, the Chief of the Federal Police, and almost all the mayors of important municipalities within Mexico (Flores Pérez, 2010). It was also the president who unilaterally decided the next candidate to the presidency, and thus, his mostly likely successor (Weldon, 1997). Within law enforcement institutions, professional careers were assigned only through party connections (Carvajal-Dávila, 1998). Jobs within the police corporations like the Federal Direction of Security (Dirección Federal de Seguridad, DFS) for example, were only given to individuals who had been explicitly recommended by DFS officials with links to the party. Actually, DFS's recommenders had to present a formal, written letter endorsing their candidates and accepting full responsibility for their behavior within the corporation (Aguayo Quezada, 2001).

The power that the federal government maintained, due to a lack of re-election, kept lower-level authorities obedient, even with respect to corruption deals. Local authorities were corrupt but were careful to be so while enforcing the code of conduct in their own territories (Gómez and Fritz, 2005). If local authorities did not enforce the code of conduct among the criminal organizations that they protected, local authorities would be prosecuted (Flores Pérez, 2009). In the confidential words of an official interviewed over

corruption dynamics during the nineties, "[those] doing business with a criminal organizations that lacked the blessing of the federal government would be told to stop. If they persisted, they would be imprisoned or killed" (Flores Pérez, 2009, p. 204). Actually, officials prosecuted under charges of corruption, during the authoritarian days in Mexico, recurrently argued that they had been imprisoned only after losing the blessings of the PRI (Astorga, 2001). Many prosecuted authorities claimed that top-level politicians were aware of the corruption deals well before they had decided to take action against them. When captured in 1993, Guillero G. Calderoni, the famous chief of the Mexican federal police who was accused of "unexplainable enrichment", argued that his imprisonment had been a "political manoeuvre" planned by a federal elite that suddenly, "for no apparent reason," had turned against him (Astorga, 2001).

Whether the federal government had direct knowledge of all corruption agreements at the local level is ultimately irrelevant. It probably did not. The required monitoring capacity for such information would have been enormous. To sanction and endorse every one of the corruption deals within Mexico, the federal government would have needed to be quite powerful. Directly monitoring every corruption transaction and having complete control over the criminal world would have required, among many other activities, the enforcement of agreements between different competing criminals groups, the punishment of cheating and betrayals within the illegal world, the control of rule-breaking criminals operating in secrecy, and the reward of favorite criminal organizations, to name a few challenges. Mexico's federal government may well have lacked the capability for such monitoring.

What is relevant is that centralization allowed Mexico's federal government to

induce discipline in other levels of government without having necessarily to monitor or to command. Career incentives for lower-level governments were a strong enough tool to induce them to follow the preference of the federal government. Actually, the best accounts of the relationship between Mexican governments and traffickers show that the federal government had a quite *lassez-faire* policy with respect to corruption agreements done at other levels of government (Ordoñez, 1991; Flores Pérez, 2009). Different corrupted agencies did not explicitly coordinate the details of corruption deals, nor did they know whether other agencies were engaged in corruption too (Ordoñez, 1991). As a Mexican authority clearly revealed, corruption deals tended to be done in government pockets that were quite independent: "The army controlled certain groups (...); the Office of the Attorney General or the Federal Judicial Police controlled others (...); and local police chiefs controlled smaller criminal groups" (Flores Pérez, 2010, p. 197).

Such slack control over lower-level authorities not only allowed the federal government to function without heavy monitoring costs but also created an informal mechanism for the government to reward the loyalty of its members. By permitting authorities to secure bribes on their own, the federal government was informally increasing the salaries of enforcers at the lower-level and securing their loyalty to the system. Many benefited from these non-standard forms of compensation. Federal policemen, for example, were informally assisted in the day to day business of making corruption agreements by informal enforcers known as *madrinas*, police officers who received no formal salary besides bribes (Ordoñez, 1991). *Madrinas* profited by taxing the illegal activities like drug trafficking, horse races, or cock fights (Hernández, 2012, p. 118-124).

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3.2.2 Criminal Violence-Propensity and Arming under Centralization

The self-enforced discipline that characterized Mexico's government shaped criminal incentives. In accord my model, Mexico's federal government generated incentives for criminal organizations to restrain their violence and to enforce their compliance with the code of proper conduct. The government did so by controlling all levels of government. The intuition behind this policy is simple: only "well-behaved" criminal organizations would receive government support to conduct illegal activities. Without government support, criminals cannot conduct large-scale criminal operations. All levels of government would cohesively disavow criminal organizations that violated the code of conduct because otherwise members would risk their political careers. Because the authoritarian regime of Mexico was centralized –with the federal government holding a monopoly of authority– criminal organizations (a) were discouraged from fighting each other, and (b) lacked the incentives to create their own private armies.

At first, traffickers had few incentives to fight each other because by doing so, they would break the rules dictated by the federal government, significantly reducing their chances to conduct illegal operations. If two different criminal organizations intended to operate in a similar area, local authorities would always favor the one that had the approval of the federation (Flores Pérez, 2009). To have the approval of the federation, traffickers needed to conduct operations peacefully without visibly affecting the image of Mexico's government. Interestingly, a common phrase among traffickers, "gringos make and unmake you" (Hernández, 2012, p. 101) shows how well aware traffickers were of the

large consequences that the approval of the Mexican federal government would bring to them. "Mexico only stopped protecting traffickers when the US put a price tag on them" [trafficker interviewed by Hernández (2012, p. 235)]. Affecting the USA in significant ways by, for example, killing an American officer or journalist would unchain punishment and "unmake" the culpable organization.

Furthermore, because Mexican authorities acted as a single, coherent decision-maker, traffickers had an interest to "outsource" protection from them, rather than creating their own private armies of protection. Outsourcing was efficient because the state was a capable punisher. The same logic extracted from Result 2 in my formal model applies here. Any criminal organization that destabilized the criminal world, by affecting another organization, would immediately lose the protection of the state and would be left out of business. A coherent centralized state made the federal government a market leader in providing punishment, discouraging traffickers from solving disputes themselves. Criminals needed only to inform the government of rule violations and the government would act. In fact, informing the government about the improper conduct of other criminal groups was quite common (Flores Pérez, 2010). Traffickers provided information to the government about the actions of criminal, and the government responded solidly. Important traffickers had police officers as their bodyguards and informants (Blancornelas, 2002). They also informed the government if other criminal organizations wanted to operate in a territory without paying bribes (Ordoñez, 1991). After all, as a secret informant mentioned "[traffickers] were paying their taxes [bribes]. Why would others not do it?" [Secret informant quoted by Hernández (2012, p. 118-124)].

Arming was further discouraged by its high relative cost. A necessary condition for

a drug war to emerge is that criminal organizations have enough resources to fund their armies. Until the mid-nineties most illegal drug profits were taken by Colombian cartels; when these profits shifted to Mexican organizations, it left them with free resources to arm themselves.

3.2.3 Crackdowns Without Violence

Considering the dynamics of my formal model, it is easy to understand why the government could conduct crackdowns against drug trafficking organizations —capturing and imprisoning important criminal leaders— without igniting large-scale confrontation between trafficking groups. The government could do so, as long as it operated in a centralized fashion. A centralized environment deterred criminal organizations from violently confronting each other because violent confrontations between factions would affect the image of the state, invariably resulting in punishment. Violent criminal factions would lose the favor of the only corrupt institution, a centralized government that could cohesively decide who its enemies were, and to whom criminals outsourced their protection. Criminals were not armed and were not prone to be violent.

As long as criminals adhered to the code of conduct, large-scale enforcement operations would not be a dominant strategy for the Mexican government. Operations like increased seizures, troop deployments, or eradication of illegal crops discouraged illegal business that ultimately provided profits to the government. If crackdowns could put all traffickers out of business, bribes would disappear. Without bribes, the federal government lacked the extra income either to increase personal benefits or reward state members for loyalty to the regime. The sporadic use of force constituted a clearly winning strategy

for enforcing the law. The strategy served to do not so much as to dissolve the illegal business, but not so little as to induce criminals to misbehave.[2]

Sporadic crackdowns were still necessary to encourage order because such force kept criminals aware of the very negative consequences of violating the code of conduct. Crackdowns kept expectations of punishment high among criminals, reinforcing their willingness to respect the preferences of the state. If crackdowns were completely absent, as an extension of my model would be able to show, criminals would have updated their expectations to believe that punishment was too improbable. As a result, indiscipline and violence would have emerged. For example, after many years as a trafficker in Juárez, Gilberto Ontiveros, known as "El Grenas," began to believe that he could operate with complete impunity (Cruz, 2009). Little by little he started becoming visible, attending horse races to gamble millions of pesos. In 1986, he even tortured and killed an American photographer. This incident was the tipping point. As soon as his actions were publicized in the U.S., pressure was exerted upon the Mexican government (Poppa, 2010). El Grenas lost the favor of his local protectors and was imprisoned just two months after the journalist's assassination (Ordoñez, 1991; Cruz, 2009).

Empirical evidence demonstrates that crackdowns during the years of authoritarian, centralized control did not generate violent confrontation between criminal organizations. Violence did not result from (a) the crackdown conducted in 1977 known as

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[2]This same logic explains why authorities did not frequently extort traffickers or cheat on corruption agreements. Mexican officials were partial proprietaries of trafficking profits, so that any malfeasance on the part of officials would have resulted in decreased rent paid to them. As Estill, Powell, and Stringham (2006) have shown in their analysis of taxes and fees, when officials are "profit–motivated residual claimants," as Mexican authorities were, their incentives are aligned with their customers, in this case traffickers.

"Operation Condor," (b) the crackdowns against trafficking organizations operating in Chihuahua in 1989, or (c) the capture of the leader of the Guadalajara Cartel. Instead, all these cases indicate that crackdowns induced Mexican trafficking organizations to create a disciplined and peaceful oligopolistic industry.

(a) Operation Condor: A Crackdown that Creates Order

By 1976, drug trafficking in Mexico was thriving. A larger demand for illegal products, coming mostly from the hippie movement in the US, had increased the size of the market served by Mexican traffickers (Astorga, 1996, p. 107). More Mexican towns had rapidly started to engage in drug production (Astorga, 1996; Hernández, 2012). In just a couple of years, Mexico had become the most important purveyor of heroin into the US, an activity that up until then had been concentrated in Turkey (Craig, 1980, p. 360). Actually, by the beginning of 1977, it is estimated that 21,161 square kilometers, or 49.8% of the Sinaloa state, and 200,000 campesinos, were involved in drug trafficking operations (Craig, 1980, p. 352). In small Mexican towns like Cosala, about 100 miles north of Culiacan City, opium gum soon became "for many, if not most campesinos (...), the first and only source of cash income they had ever known [Christian Science Monitor, 1976; cited by (Craig, 1980, p. 353)]."

When this largely profitable trafficking business created fears that drug money would fuel communists guerrillas movements in Mexico's rural areas, the Mexican government reacted (McConahay, 1976; Wright, 1976, as cited by Craig (1980)). A crackdown against trafficking organizations became increasingly attractive. It would not only benefit Mexican authorities by providing them with an ally, the US, but it would reduce ille-

gal profits that were not going into officials' pockets, but rather into the hands of local guerrilla movements (McConahay, 1976; Wright, 1976, as cited by Craig (1980)).

The crackdown came in 1977. Mexico's federal government launched Operation Condor, an unprecedented war to achieve "the total elimination of opium poppy cultivation" and to respond to a problem that, in the eyes of Mexican authorities, "had gone out of control" [Mexican Federal Attorney General interviewed by Craig (1980, p. 351)]. Force was used. Cooperation between the US and Mexico was at a new high.[3] Nearly 2,500 soldiers and 250 federal police were deployed, destroying 43,915 plots of opium and 14,801 hectares of marijuana fields (Craig, 1980). The Mexican army confiscated 192 kilograms of opium, 81 kilograms of heroin, and 6 kilograms of morphine and dismantled 20 heroin/morphine laboratories (Craig, 1980, p. 357). Concurrently, "Houses were ransacked, men were beaten, women violated, and belongings confiscated" (Craig, 1980).

The results were soon felt in the drug market. DEA sources in Mexico City reported that the percentage of the American heroin market supplied by Mexicans declined from 85% in 1974 to 50% in 1978 and the marijuana from 90% to just 20% (Craig, 1980). While in 1976 8 tons of heroin were introduced into the US by Mexicans, only 4.5 tons were exported in 1979. Retail prices and the purity of illegal drugs in the US also changed. Pure heroin became scarce. One milligram of pure heroin increased from $1.26 to $2.25 in the same period (Craig, 1980).

Drug trafficking organizations quickly reacted. Violence diminished. Drug–related

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[3]US officials noted that the working relationship between Mexican and American anti-narcotic authorities became better than ever before. In their eyes, Operation Condor was the "finest aerial crop eradication program (...) [with a] size, professionalism, competence, performance, and experience that made it the best of the world " (Scott and Marshall, 1998, p. 37)

homicides in Mexican cities like Culiacán diminished between 88% and 66% in just one year (Craig, 1980), and large areas where drugs were produced almost depopulated (Astorga, 1996). The state of Sinaloa, a large drug producer, still remained the "opium epicenter" but production processes changed. Criminal organizations became more discreet (Craig, 1980). Illegal drug plots became smaller and traffickers relocated to new areas. Criminal leaders re-established themselves in Guadalajara, the second largest city of Mexico (Astorga, 1996). After the crackdown, traffickers continued to conduct business, but less violently and more quietly.

The Operation Condor crackdown was a clear and bold statement. It showed that any criminal organization that affected the interests of the state, by funding local guerrilla movements, would be taken out of business once and for all. As the chief of Mexico's Federal police, Mr. Guillermo Calderoni, and head of the most important drug–related crackdowns during the PRI-regime, pointed out, "without protection, no organization (...) could survive." In his opinion, "this was very simple. To say that nobody can find them [traffickers] is very different than saying that nobody wants to catch them, or that nobody wants to find them. To be able is very different than to be willing. Maybe nobody was willing to find them. If somebody would have wanted to find them, I think, they would have been able to" [interviewed by González Ruiz et al. (1994)]. The declarations of Mr. Calderoni match those made by many other individuals directly linked to the drug trafficking industry. "Drug trafficking without the protection of the state" said Tostado Felix, a criminal captured in 2000 for conducting large scale cocaine operations in Mexico, (Diego, 2002) "would be nothing, it could not work (...). Cooperation [between traffickers and the state] is a requirement" (Hernández, 2012, p. 234).

After the crackdown, drug trafficking organizations not only became less violent but also became better organized because authorities created incentives for them.[4] Having organized crime, rather disorganized crime, supposes clear benefits for Mexican authorities. Criminal organization promotes criminal discipline because criminal leaders can be held accountable for the actions of members of their respective organizations [see (Demsetz, 1967; Anderson et al., 2006; Anderson and McChesney, 2003; Umbeck, 1981) cited by Leeson (2011)]. Organization could also increase profits via economies of scale, making bribes potentially larger.

It was right after 1977 that Mexico began creating large so called "drug cartels" (Cruz, 2009). Secret informants agree that during this period, "policemen created their own narcos," supporting them in exchange for bribes (Hernández, 2012, p. 129). The most important drug cartel of the eighties, the Guadalajara cartel, consolidated under the protection of Mexican authorities after Operation Condor. Nazar Haro, the chief of Mexico's Federal Direction of Security (DFS), an agency to enforce the law against drug traffickers, had a lot to do with this. CIA records show that Mr. Haro gave Felix Gallardo, the leader of the cartel, police badges to use as a "license to traffic" (Dale Scott, 2000). The badges allowed traffickers to carry machine guns and to "interview" suspects at will. Furthermore, the police protected the cartel's trucks, granted traffickers access to encoded radio systems to check border crossings for signs of American police surveillance, and facilitated the transportation of contraband by boat (Scott and Marshall, 1998). The

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[4]Literature on the economics of organized crime agrees that it is unfeasible that large criminal organizations emerge spontaneously, without the sponsorship of the state, because for criminals, large scale organization is a liability. Criminals have few incentives to organize in large cells because in doing so they attract the attention of authorities and incur large monitoring costs and agency problems (Reuter, 1985).

brother-in-law of the leader of the Guadalajara Cartel (Aria-King 2012), Antonio Toledo, became governor of Sinaloa (Ordoñez, 1991, p. 342) in 1981. Guadalajara's links with politicians are well-recorded and well-known. Photographs in which traffickers are being entertained at wedding and social events in houses of local politicians litter Mexican and American newspapers (Aguilar Camín, 2008; Sheridan, 2000).

Evidence collected by journalists in the field shows that most of the renowned capos emerged under the direct sponsorship of the state (Blancornelas, 2002, p. 73). It was, "commander Salvador Peralta (law enforcement officer), who taught Arellano Felix (Tijuana drug lord) how to work [as drug trafficker] when he [and his brothers] were only car thieves." It was the chief of police of Tamaulipas, "who formed 'The Texas' [drug trafficking organization] when they were only *polleros* (i.e. helped Mexicans to illegally cross the US border)" [Secret informant quoted by Hernández (2012, p. 129)]. Similar incentives applied to other traffickers, which led some analysts to conclude that after Operation Condor and by 1993, about 70% of all the drugs being trafficked into the US were controlled by only three large criminal organizations in Mexico: The Juárez cartel under the leadership of Amado Carrillo, the Tijuana cartel under Arellano Felix, and the Gulf cartel under Garcia Abrego (Ordoñez, 1991).

(b) The Juárez Cartel: A Crackdown that Promotes order

The Juárez cartel, a drug trafficking organization that operates in the Mexican state of Chihuahua, is another important example of crackdowns that do not cause violence. By the mid-eighties, drug trafficking in Chihuahua was being conducted by many traffickers, each of whom operated in small, independent criminal cells. Pablo Acosta

trafficked in the town of Ojinaga, and the border city of Juárez had at least four criminal cells directed by traffickers Ontivero Lucero, Rafael Aguilar, Rafael Munoz, and Carrillo Fuentes (Gómez and Fritz, 2005; Cruz, 2009).

A series of crackdowns conducted by Guillermo Calderoni, the chief of Mexican police, started in Ojinaga and Juárez in 1987. Traffickers started to be prosecuted and hunted with a force that Chihuahua had not seen before (Hernández, 2012). One of the first was Ruben Jaramillo, an important trafficker who transported drugs between Chihuahua and Sinaloa and who was captured in 1987 (Cruz, 2009). After two years, many more had been prosecuted. Rafael Munoz was captured after 21.1 tons of cocaine and $12.6 million had been seized from his properties in Los Angeles, CA (Cruz, 2009). Ontivero Lucero was arrested and Pablo Acosta was assassinated. Calderoni himself killed him (Cruz, 2009; Hernández, 2012). The areas of operation of the captured traffickers did not see significant increases in criminal violence or battles for turf; instead all the remnants of criminal cells were united and controlled by Carrillo Fuentes. Trafficking operations conducted in Ojinaga and Juárez consolidated under his leadership and the Juárez cartel emerged (Cruz, 2009).

By 1993, Carrillo Fuentes had become the uncontested head of a powerful criminal organization that controlled the profitable business of introducing cocaine into the US via El Paso, Texas. Rafael Aguilar, the only trafficker who continued to operate in the area, shared the territory (Cruz, 2009). Few traffickers would have ever had as consolidated an organization as that of Carrillo Fuentes (Gómez and Fritz, 2005; Ravelo, 2007; Hernández, 2012). Actually, Carrillo was the first capo to venture into technological innovation (Blancornelas, 2002). Carrillo changed trafficking in Mexico by creating a large fleet of airplanes

to transport illegal substances, a major technological change for cocaine trans-shipment that allowed him largely to increase profits. This trafficking strategy gained him the alias "The Lord of the Skies" (Gómez and Fritz, 2005).

(c) The capture of Felix Gallardo: A Crackdown Without Criminal violence

The story of the leader of the Guadalajara cartel, Felix Gallardo, tells about crackdowns while Mexico was centralized. Even if criminal organizations fractured as a result of crackdowns, the newly created factions would not battle for turf.

The story starts in 1985, when a drug lord of the Guadalajara cartel, Caro Quintero, killed DEA agent Enrique Camarena. Mr. Camarena was investigating Quintero's illegal operations in Mexico (Patenostro, 1995). Camarena had caused Quintero big profit losses just a year before, when Quintero's ranch known as "El Bufalo" was raided. The ranch had more than 1,344 acres of marijuana and was, until 2011, considered the largest illegal plantation ever seized in Mexico. Quintero lost the equivalent of $3.5 billion in 2011 prices (Friedman, 2011). For all we know, Quintero did not intend to kill Camarena; "he just wanted to beat him up but things went out of control" (Felix Gallardo 2010). However, the damage was done.

The Mexican federal government soon reacted to the assassination of Camarena. The Guadalajara cartel had crossed the line. Mexico launched the most important raid against traffickers since Operation Condor. Federal policemen hunted and imprisoned the most important Mexican drug lords one by one. Just two months after the assassination of Camarena, Caro Quintero was arrested in Costa Rica while he was trying to flee (Gómez and Fritz, 2005). Another important trafficker, Ernesto Fonseca, was captured four days

prior to the capture of Quintero (Cruz, 2009; Shenon, 1988) and ultimately in 1989 Felix Gallardo, the "No.1 narcotics trafficker in Mexico", was captured in Culiacan city, the capital of Sinaloa state (Rohter, 1989).

All those who protected Gallardo felt the punishment of the federal state. Army troops rounded up the entire police force of the city, pointing to potential corruption agreements made between them and Gallardo. Out of the 300 city policemen, 90 resigned voluntarily. The Public Security Director of Sinaloa was fired and his house was seized. The chiefs of the municipal and state police were imprisoned and 15 state policemen resigned their positions (Rohter, 1989).[5]

Following the raid, the Guadalajara cartel split into various smaller drug cartels, each one under the command of a criminal leader operating in an independent area (Valle, 1995; Blancornelas, 2002). Journalistic accounts argue that all criminal factions made a pact to respect each other's territories in a conference held in Acapulco. According to the story, all leaders agreed to operate as oligopolies and to conduct business in peace. Fees would be charged if somebody wanted temporarily to use territories controlled by other leaders. However, violence was prohibited (Blancornelas, 2002).[6]

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[5]Informants say that when the chief of Mexico's police arrested Gallardo, the trafficker referred to him by his nickname. "Memo." He said, "what is happening?" The fact that Felix Gallardo knew his nickname has been taken as evidence of the corruption agreements that Gallardo had also established with the federation (Ravelo, 2007).

[6]Much speculation exists about why the federal government decided to follow an enforcement strategy that lead the Guadalajara cartel to split rather than to operate cohesively under the leadership of another capo. Some have argued that it was Felix Gallardo himself who decided to divide his cartel (Ravelo, 2007). Yet, it is not entirely unrealistic to assume that Felix Gallardo was not lying when, in the maximum security prison in Mexico, he declared that it had been Mexican authorities who had decided to divide the cartel. "It was Calderoni who divided the plaza" Felix Gallardo declared, "he did it to show off in front of his bosses and then, he never captured anyone else anymore" (Osorno, 2009, p. 241). Logically, it seems that by causing the Guadalajara cartel to fracture into smaller cells, a healthy balance could

Authorities "needed to keep an equilibrium because if other [criminal] groups (...) saw that [an agent] was working only with one group, they would try to "brush" him" [interviewed by Flores Pérez (2009, p. 205)] Oligopolies allowed corruption to remain functional. Indeed, over the following years, drug–related violence was absent. Factions did not battle among themselves for turf. Actually, homicides in Sinaloa decreased significantly. In 1986, Sinaloa had seen more than 1,400 homicides; by 1988 the figure had decreased to just 506, and by 1990 the figure had gone as low as 449 (Rohter, 1989; INEGI, 2011).

Whether cartels explicitly made a pact or unilaterally decided to avoid confrontation is ultimately irrelevant. What matters is that, after a crackdown, traffickers actually behaved in non-violent ways. Peace came either because they were motivated formally to agree on a pact —paying the costs of collective action— or because they wanted to act peacefully for their own sake. Drawing from my theory, I argue that it was the centralization of Mexican institutions that allowed the Mexican state to act coherently against its enemies and thus ultimately to keep traffickers aligned.

3.3   The Times of Criminal Violence (1998-2010)

What happened in the 2000's is well known. A wave of drug–related violence hit Mexico. Drug cartels started fighting each other in a cruel battle for turf that spread into many

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be maintained between the government and the criminal industry. The government needed to be careful not to favor an organization that could become sufficiently empowered as to be insensitive to federal crackdowns. As interviews with Mexican authorities of that time show, keeping an oligopolistic illegal drug market was the best way to achieve a balance of power (Flores Pérez, 2009).

areas throughout Mexico causing 51,000 victims. Traffickers' homicide techniques became increasingly cruel and sadistic, spreading fear among the population. Bodies started to appear in the streets with messages aimed at other citizens, politicians or fellow criminals. Heinous acts such as decapitation and torture suddenly became the rule rather that the exception. Heads were thrown into the doors of primary schools, and massive executions replaced targeted murders of a single person. Government authorities were increasingly targeted by traffickers (Freeman, 2006; de los Derechos Humanos, 2008). In border cities like Tijuana, at least 100 policemen died on duty just in 2008 (Guerrero Gutiérrez, 2009). To put this in perspective, in the entire United States 133 police officers were killed in the line of duty during the same year. The chief of police in Nuevo Laredo lasted eight hours in the position (Garza, 2009) before being assassinated by traffickers.

In light of the results provided by my model, I argue that violence was possible only because criminal organizations had changed and adapted to a decentralized political environment. When the Mexican government could not continue to make decisions as a single-headed decision-making body, as my theory has predicted, (a) lower-level governments became capable of independent decision-making and of disobeying decisions made at the top-level of government, and (b) larger criminal organizations increased their propensity to violently confront each other and to create their own armies of private protection.

3.3.1 Corruption Under decentralization

Mexico became a *de facto* (i.e. not only *de jure*) decentralized country when federal authorities lost their capacity to induce discipline at other levels of government. Discipline

was induced because a hegemonic party, the PRI, controlled all levels of government. Thus, decentralization came when different parties started ruling in different levels of government.

Starting in 1989, opposition parties increasingly won state elections, reducing the leverage that the hegemonic party had over the careers and actions of members within the government (Weldon, 1997; Eisenstadt, 1999, 2004; Snyder, 1999; Lujambio and Segl, 2000). While in 1990, 2,162 of a total of 2,475 municipalities had always been ruled by the PRI, by 1998 and 2010 the number had diminished to 1,670 and 554, respectively.[7] Every year between 1990 and 2010, the PRI lost the monopoly of authority in an average of 80 municipalities, meaning that every electoral cycle the PRI lost about 9.7% of the total local government available in Mexico.

As Figure 3.1 shows, the weakening of PRI's hegemony had a large impact in the centralization of command in different municipalities. While during the nineties, 77% of Mexico's municipalities were ruled by the same party at all levels of government, in the 2000's the figure was only 14%. Considering municipalities that were ruled by the same party at the local and state level, 79% of the municipalities in the nineties were centralized, while only 65% were in the 2000's. With many parties controlling access to the benefits of the state, including decisions regarding the employment pool, the federal government gradually lost its capacity to use the self-enforced discipline described in the previous section. Lower-levels of government lost their incentive to comply with the decisions made by the top-level government because their careers no longer depended on it. Unlike

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[7]Extracting the state of Oaxaca, to leave a total 1,887 municipalities, the figures are 1,681, 1,123 and 182 for years 1990, 1998 and 2010 respectively.

Figure 3.1: Municipalities with Coordinated Governments by Party
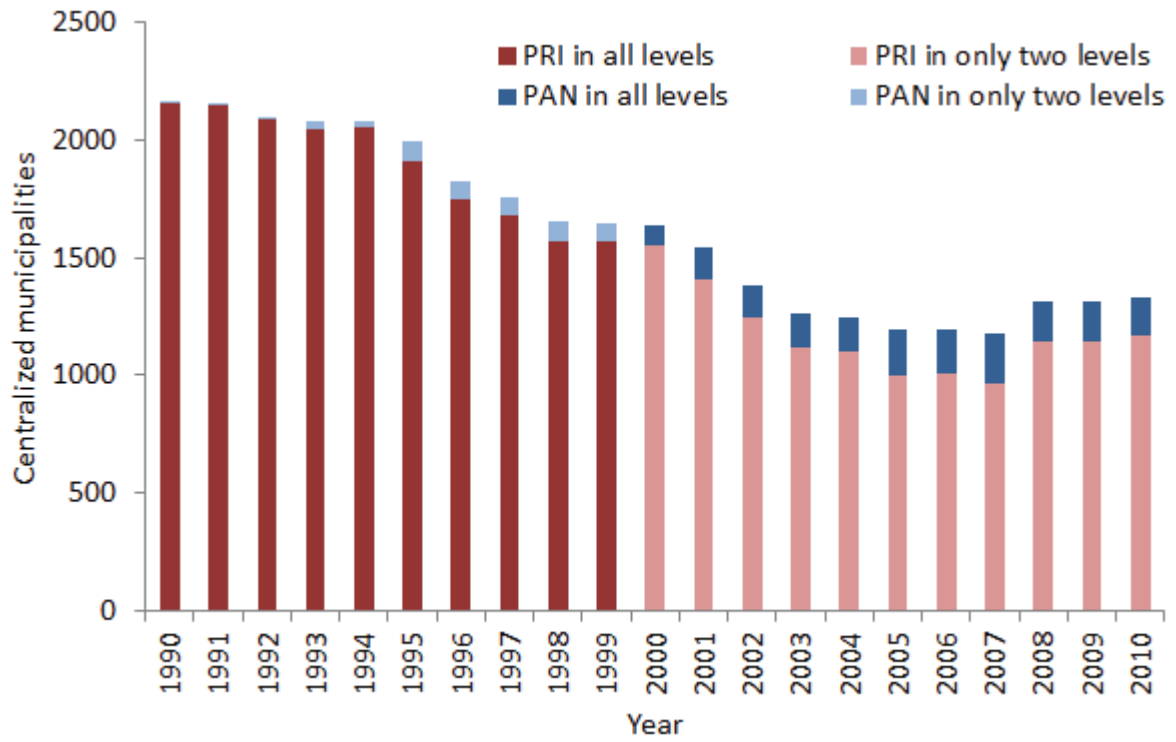
previously, authorities could now maintain a career by joining opposition parties. When alternative career paths opened, loyalty to the preferences of the federal elite lost its value and indiscipline followed (Weldon, 1997; Eisenstadt, 1999, 2004; Snyder, 1999; Lujambio and Segl, 2000; Magaloni, 2006).

Inducing lower-level authorities to comply with federal mandates became increasingly difficult. As opposition victories advanced, lack of discipline spread and became corrosive. Local authorities, like state governors, increasingly defected from the sanctions dictated by the federal government, and thus, were increasingly removed from their positions by the federal government (Hernández Rodríguez, 2008). Side corruption agreements, which did not necessarily favor the preferences of the federal government, started emerging. With decentralization, state governors saw their autonomy increase, and "they could create their own clienteles, form groups and punish others without anybody to stop them (...). Far from the image of governors acquiescing to presidential control, local executives could now demand attention, and above all, rule and make political decisions freely" (Hernández Rodríguez, 2008, p. 143-145).

At the beginning of democratization, the federal government managed to retain a certain degree of control but only at a high cost. It first reacted by trying to control corruption agreements in a more personalized way. Corruption agreements from 1989 to 1994 were managed directly by the brother of the president, who personally monitored compliance at the drug markets. According to interviews with local authorities, who agreed to talk off-record (Flores Pérez, 2009), and according to judicial records from the trial of the president's brother, Raul Salinas, it was Raul who personally conducted auctions to allocate "reliable" authorities in highly profitable locations for the illegal

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drug industry. This mechanism allowed the federation to sort authorities deployed in drug trafficking areas by loyalty, a mechanism that had become necessary only because the previous self-enforced dynamic had started to crumble. The system was simple and profitable. By paying a fee to Raul, enforcement authorities were allowed to engage in corruption deals with traffickers. Police commanders had to pay between 200 and 500 thousand dollars to "buy spots at the border" (Carla del Ponte, Attorney General, Switzerland; consulted by Flores Pérez (2009)). The money was given directly to the brother who soon started to be called "the 10% man" because of his mechanisms of price setting (Osorno, 2009, p. 25). The federal government was micro-managing corruption like never before because as decentralization took place, it increasingly needed to monitor lower-level officials.

Yet, by the mid-nineties, keeping corruption centralized had become increasingly more costly than profitable. This is evidenced by the fact that the federal government increasingly fired attorney generals in an effort to induce compliance with its mandates (Hernández Rodríguez, 2008). In sharp contrast with the years of solid authoritarianism (1976-1988), where only two individuals had been removed as attorney generals, during the early democratization process (1988-1994), there were five. The average tenure went from an average of six years to a bit more than a year.

With the arrival of a new federal administration in 1994, headed by President Ernesto Zedillo, decentralization was further pushed. Zedillo did not monitor or control corruption agreements at the state level, as his predecessors had (Hernández Rodríguez, 2008, p. 191). Actually, he took a series of security policy decisions that clearly showed his willingness to decentralize security-policy decision-making. He selected Lozano Gracia,

a member of an opposition party, as attorney general, a position that had always been given to a member of the PRI. He dictated apprehension orders against Rodolfo Leon and Adrian Carrera, two of the previous directors of the judicial police and PRI loyalists. Quite importantly, he initiated a judicial process against Gutierrez Rebollo, another federal official who had been granted high discretionary power by later PRI presidents, sentencing him to thirty-one years in prison on multiple charges, among them protecting the Juárez Cartel.

In 1997, decentralization accelerated. The electoral reforms of 1997, following the creation of the Federal Institute in 1994, significantly affected the electoral rules, leveraging the terrain for opposition parties (Magaloni, 2006). The rate at which the PRI lost its monopoly further accelerated. From 1991 and until 1997, the PRI had lost an average of 3.6% of its controlled municipalities. From 1998 and until 2004, the rate more than doubled, peaking at an average of 7.4%. The rupture of the PRI's monopoly destroyed the capacity of the PRI to control the careers of politicians (Eisenstadt, 1999, 2004; Snyder, 1999; Lujambio and Segl, 2000).

Note that the arrival of opposition parties matters for my argument because it triggered decentralization, not because of the emergence of opposition parties *per se*. If the opposition parties had arrived and kept in place a system in which different levels of government were loyal to each other independently of their party affiliation, decentralization would not have happened and criminal behavior wouldn't have changed. In practical terms, a democratic state where law enforcement decisions are dictated at the top with no interference from lower-level authorities would be as centralized as an autocracy. Democratization and decentralization do not always go hand-in-hand.

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3.3.2 Criminal Violence-Propensity and Arming Under Decentralization

As my formal model showed, decentralization promoted changes in the criminal world. In particular, when pockets of independent political power began to emerge at different levels of government, so did incentives for organized crime to (a) increase in size, (b) create their own armies of private protection, and (c) become more prone to violent confrontation.

First, criminal groups had incentives to increase in size because Mexican lower-level governments did not have the same preferences as the federal government with respect to the optimal size of criminal groups. The Mexican Constitution grants top-level governments the sole responsibility to prosecute organized crime (CIDAC, 2011). Lower-level authorities are neither accountable nor responsible for whether drug trafficking organizations thrive or weaken.[8] As a result, while Mexico's federal government has clear preferences for keeping organized crime limited to a level in which it is not visible, lower-level authorities have no incentive to contain the growth of organized crime.

If anything, lower-level authorities would logically prefer criminal groups to grow so that bribes can be larger. Lower-level governments do not care about the general equilibrium of the Mexican state. Decentralization created a perverse environment in which lower-level authorities generated low dispersed-benefits from enforcing the law and high concentrated-benefits from being corrupt. Once the federal government failed to provide concentrated-benefits in the form of career advancements to lower-level authori-

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[8]Mexico's judicial system divides crimes in local and federal according to whether local or federal authorities are in charge of prosecution. Both spheres have separate judicial institutions and in most cases, remain largely independent.

ties that adhere to federal preferences, criminal organizations immediately acquired more opportunities to grow.[9]

The growth of criminal groups during the nineties is clear. While in 1997 the Sinaloa Cartel only had presence in 10 municipalities, in 2006, it was present in 75 municipalities and in 2010 in 176 (Coscia and Rios, 2012). The same pattern is true for many other criminal organizations. Figure 3.2 shows the number of municipalities in which different cartels operated in Mexico from 1990 and until 2010. Drug cartels started spreading in the early 2000's just after the PRI had lost its monopoly of power at the federal level. By 2010, four cartels operated in more than a hundred municipalities: Zetas, Sinaloa, Familia and Gulf.

Second, decentralization produced incentives for traffickers to arm themselves. Creating private protection armies became more attractive to traffickers because decentralization diminished the value of authorities' protection. Different government levels could now act in contradictory ways. For example, some agencies could crackdown on traffickers that were paying protection fees to other agencies. A telephone conversation recovered from the confiscated cell phone of the trafficker "El Rey" Zambada (Hernández, 2012) shows that minutes before he was captured by federal authorities, he was calling his allies at another government agency. Actually, while federal agents were surrounding El Rey's house and trying to capture him from the rooftop, another group of policemen opened fire

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[9]This is a classic common pool access dilemma largely discussed in the literature on criminal justice (Benson, 1994; Ekelund and Dorton, 2003) but largely disregarded by academics studying the dynamics of organized crime. By cooperating with the federal government, local authorities were benefiting all citizens, creating a free, common pool good: security. By not cooperating, local authorities amassed bribes, a private good. It is well-known that individuals tend to under-invest in the maintenance of common pool goods and over-invest in private ones. This translates into more organized crime than optimal in decentralized environments.

Figure 3.2: Number of Municipalities where Different Drug-trafficking Organizations Operate (1991 — 2010)
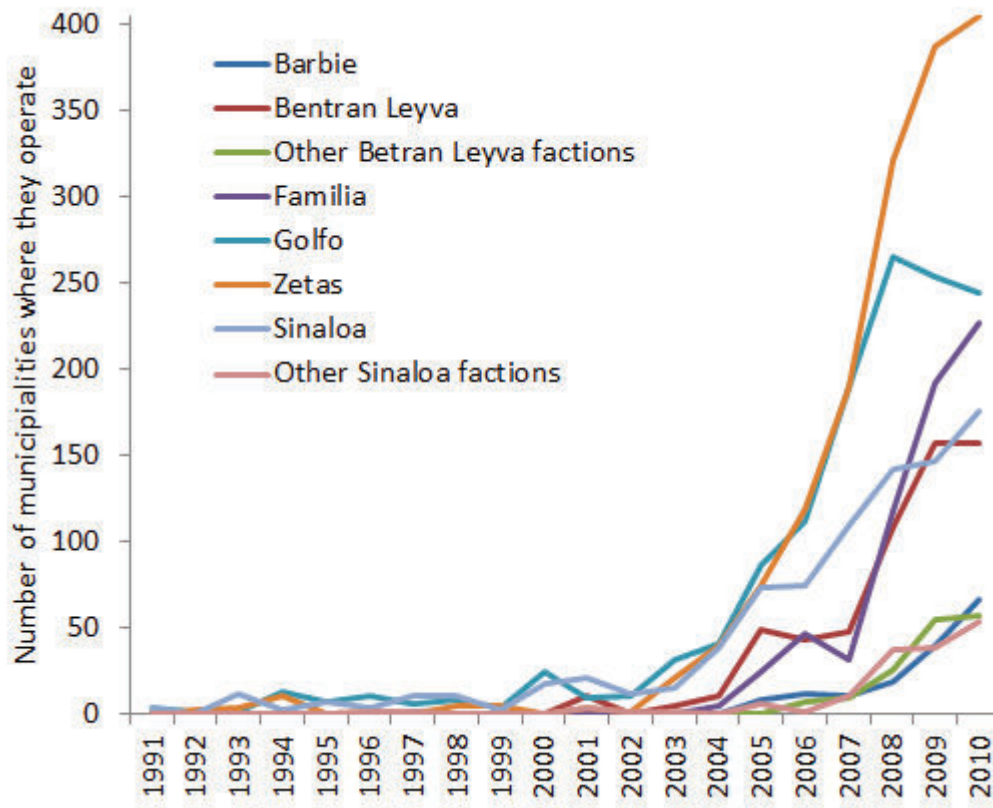
Source: (Coscia and Rios, 2012)

against the federal agents (Hernández, 2012, p. 511). Similar circumstances surrounded the capture of Beltrán Leyva in 2008. The trafficker was paying monthly bribes to authorities in different levels of government when he was captured by the army (Reveles, 2011). After his capture, the state secretary of public security and many other state authorities were arrested, captured under charges of protecting criminal organizations (Reveles, 2011).

The days in which the government could prevent a criminal organization from getting attacked by another rival organization had also come to an end. The government had diminished its capacity to punish violent behavior in a cohesive fashion, reducing its ability to enforce peace in the criminal industry, and thus, generating a demand for protection among criminal organizations that they could not satisfy.

As my theory would predict, following the decentralization of Mexico's government, traffickers began to arm themselves. They went from organizing in single-sector firms specialized in trafficking operations and "outsourcing" protection from to the state, to being multi–layered organizations, both trafficking and protecting themselves with their own private armies. Rather than outsourcing expensive, uncertain protection from the federal government, traffickers integrated protection within their production functions. They created their own groups of armed members, their *sicarios*, and private armies.

Arming was further facilitated by increases in cocaine profits. Mexican criminal organizations increased their profitability as a result of (a) increased law enforcement operations in Colombia, and (b) the endorsement of NAFTA, a cooperative trade agreement between the US, Mexico and Canada, in 1994.

First, profits increased when, during the nineties, law enforcement operations in

Colombia and along the Caribbean increased the leverage of Mexican traffickers in the drug production chain. Until then, the preferred route for trafficking drugs into the US had been to trans-ship them from Colombia, via the Caribbean islands, to Miami (UNODC 2010). Yet, the increased use of radars and crackdowns in Colombia made traffickers rethink their strategy. Weakened Colombian cartels increasingly relied on Mexicans to introduce their merchandise into the U.S. (Andreas, 1998). As early as 1991, some analysts already pointed to Peru and Bolivia as more important areas of drug production than Colombia (Gómez and Fritz, 2005, p. 287). The first mention of Mexico as the main port of entry of drugs into the US came in 1993. By the mid-nineties, it was clear that Mexico had taken over. About 80% of all the cocaine consumed in the US was introduced via Mexico, while the Caribbean became just an alternative route.

A second variable that increased the profitability of Mexico's drug trafficking industry was the signing of the North American Free Trade Agreement (NAFTA). The agreement significantly improved the comparative advantage of Mexican traffickers to introduce illegal drugs into the US. Following what economic theory would predict (Fox et al., 2003; Haralambides and Londono-Kent, 2004), the agreement reduced transactional costs, stimulating trade between Mexico and the US, particularly at border crossings [OFMO (2002) cited by (Matisziw, 2005, p. 2)]. From 1995 to 2003, the overall value of US-Mexico and Mexico-Canada trade more than doubled, while truck activity between the US and Mexico increased almost 31% (Matisziw, 2005). Because most drugs introduced into the US are hidden in legal containers, NAFTA immediately translated into better conditions for the drug business. Mexican traffickers moved fast. They even hired trade consultants to identify the cargos that were least likely to be inspected at the

border.[10] Some perishable goods, for example, are inspected the least to avoid delays at the border that may cause the products to spoil.

NAFTA further incentivized war because it changed the balance of power between criminal organizations. Rather than improving wealth homogeneously within Mexico, NAFTA changed the allocation of comparative advantage among trafficking organizations. As figure 3.2 shows, when new trade regulations were enacted, the city of Nuevo Laredo, an eastern border town located south of Laredo, Texas, became quite useful for trade. NAFTA signified the empowerment of the Gulf cartel, the criminal organization that controlled the city of Nuevo Laredo. By 2000, 32.69% of all cargo crossed into the US via Nuevo Laredo, while only around 16% crossed via Tijuana or Juárez, respectively. In practical terms this means that about 35.58% of all the revenues coming from US-Mexico trade was done in Nuevo Laredo, while only 21.49% was done in Juárez, and 11.16% in Tijuana (Matisziw, 2005).

The first private armies started emerging in Mexico right after 1997. The Gulf Cartel coopted soldiers deployed by the Mexican federal government to fight drug trafficking and used them to form its private army, known as Zetas. In 1998, between 31 and 67 members of the GAFE, a specialized military, resigned from their positions and became Zetas (Ravelo, 2012). Recruitment methods were quite bold and included among many other techniques, the interception of military radio frequencies to broadcast messages to soldiers and inform them of the many economic benefits that they would obtain if they "shifted bands." Military human capital was extremely valuable for traffickers; they "not only knew about weapons, operations, and communications [but] in many cases

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[10]Anonymousauthority interviewed off-record by author.

Table 3.2: Number of Trucks Crossing U.S.–Mexico border (2000)

U.S. — Mexico Crossing	2000	
	Total	% Empty
Nuevo Laredo	1,351,771	43.93
Tijuana	681,413	45.60
Ciudad Juárez	688,224	47.49
Reynosa	332,367	40.01
Calexico	191,797	47.24
Nogales	254,744	24.87
Matamoros	299,671	56.02
Piedras Negras	106,895	43.96
Acuna	61,226	35.99
Mexicalli	63,254	48.95
San Luis Rio Colorado	30,303	37.55
Camargo	21,849	24.11
Agua Prieta	29,376	40.67
Miguel Aleman	12,957	43.24
Ojinaga	8,742	33.50
Total	4,134,598	1,823,258
% of all border crossings	98.43	98.52

Source: Matisziw (2005). Note that not all points of entry are reported.

maintained friendships with active-duty officers" (Bailey and Taylor, 2009) which allowed them to remain close with valuable informants. Private armies were also developed by the Sinaloa Cartel, known as "Los Negros" and "Los Pelones" (Menéndez et al., 2008), and the Juárez Cartel, under the name of "La Linea" (Paez Varela, 2009). By 2008, the Mexican secretary of defense estimated that one-third of all Mexican traffickers had once served in the military [Gómez and Ramos (2008) cited by (Bailey and Taylor, 2009, p. 20)].

Federal and state police officers, local gang members and even Central American illegal immigrants were also recruited to become the armed branches of drug cartels (Rios, 2010; Ravelo, 2007; Mauleón, 2010a). Recruitment for gangs was quite prominent, particularly in poor urban areas like border towns. The Mexican transformation industry had been taken over by China generating a large pool of unemployed young men eager to find some income (Guerrero Gutiérrez, 2010a). The Juárez cartel hired between 300 and 500 local gangs, out of which 30 had at least 500 members. The Mexicles, one of the largest ones, may have even surpassed 2,000 members (Guerrero Gutiérrez, 2010b). The Sinaloa cartel recruited members from the Mara Salvatrucha, and the Tijuana Cartel hired US-Mexican gangs like "La M" and "Barrio Logan" (Mauleón, 2010a). The Gulf cartel even constructed boot camps to train civilians such that by 2005, Zetas had between 300 and 350 members (Hernández, 2012, p. 403-405).

By 2005, the declarations of Mexico's Attorney General clearly showed that Mexican authorities were well aware of the important changes that had taken place within the criminal industry. "It is evident" he said "that the people who manage the economic aspects of these groups are very different from those who manage the assassinations (...)

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we need to be conscious that [criminal] groups function as true corporations (Osorno, 2009, p. 146)."

Interestingly, in the case of Mexico, decentralization not only set incentives for traffickers to arm themselves but also indirectly facilitated the acquisition of the human capital for them to do it. When federal authorities could not trust lower-level authorities, federal drug–related crackdowns militarized. For criminal organizations this was an *de facto* increase in the quality of human resources available for them to co-opt.

The army was the logical choice for federal authorities looking for a loyal and professional enforcement agency. The Mexican army had long been a partner of Mexico's hegemonic party, supporting the regime in exchange for large military budgets, and autonomy in the selection of their leaders (Stepan, 1988; Ai Camp, 1992; Davis et al., 2004; Piñeyro et al., 2005; Moloeznik, 2008). The army was the only enforcement agency that even after decentralization remained completely loyal to the federal government (Valadés and Massieu, 1989). Soldiers were increasingly used to oversee drug-trafficking operations along Mexico's territory. Actually, the militarization of drug–related operations took a major step in 1994, precisely the year in which President Zedillo took power. Previously, the military had been engaged in crop eradication but never in the direct capture of traffickers (El-Universal, 2003; Sierra Guzmán, 2003; Flores Pérez, 2009). It was in the mid-nineties that the role of the military forces changed.

The increasing use of highly professionalized military forces to oversee drug trafficking operations was an asset to traffickers. By allowing traffickers and the army to interact, traffickers were able to access a pool of potential employees that were better trained in the use of violence than any local or federal police department. The Mexi-

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can government inadvertently provided criminal organizations with the very best of their "violence capital" right when traffickers were thinking of expanding their capacity for violence.

Finally, a third consequence of decentralization is that it made criminal organizations more prone to violence. Following the intuition of my formal model, under decentralization, the costs of bloodshed are not internalized because governments are responsible for maintaining crime controlled only within its pre-defined jurisdiction. One government has no reason to prosecute crimes committed in another government's jurisdiction, even when such violence is perpetrated by a criminal organization that also operates in the jurisdiction of the former. Criminals may then behave strategically, keeping bases of operation in some jurisdictions, to fund offensive violent measures in others. A low intensity warfare, for example, becomes possible. Criminals may engage in targeted violence against a rival group by selectively tormenting a jurisdiction in which they do not generate profits and escaping prosecution, by hiding in another jurisdiction where they profit and operate peacefully and safely.

3.3.3 Crackdowns With Violence

Drawing from my theory, decentralization resulted in a radical and fascinating change in the behavior of criminal organizations that speaks directly to the causes behind Mexico's escalation in drug–related violence. In particular, decentralization determined how criminal organizations would react after they were hit by an external shock, such as an unexpected crackdown.

Crackdowns under decentralization are conducive to turf battles because criminal

groups become increasingly prone to violent behavior and because crackdowns create opportunities to fight. First, criminal groups are more prone to be violent because they are armed and can use jurisdiction strategically. They can simply avoid prosecution by fighting for turf in some areas while hiding in others. Second, a crackdown generates opportunities to fight because it changes the balance of power within the criminal industry, presenting criminal groups with the choice of either peacefully restoring a balance by compromising or violently confronting each other until rival factions are weakened. Everything else being equal, criminal groups will be inclined to pick the latter in decentralized environments because punishment for violent behavior is less probable.

Yet, criminals will not become immediately violent after decentralization takes place. Criminal groups may find it in their best interest to conduct operations in peace. Violence is costly and attracts the attention of the federal government, which increases prosecution and hurts long-cultivated corruption relations between authorities and criminals. It is well-known that "when traffickers exists and function, they don't need to show themselves"[11] (Hernández, 2012). Organized crime does not necessarily become more violent as its relative power with respect to the state increases, as some have proposed (Godson, 2003; Pimentel, 2001).

Actually, in the case of Mexico, traffickers created informal mechanisms peaceful equilibrium even under decentralization. During the early years of decentralization, criminal groups increasingly formed pacts to ally and diminish the probability of large scale conflict (Carrizales, 2001; Ramirez, 2002; Mauleón, 2010a; Corchado, 2009; Hernández,

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[11]Interview with Carrillo Olea, first director of Mexican Intelligence Services (CISEN), and governor of the state of Morelos who in 1998 was forced to resign. He was prohibited by law from taking any political position, after being accused of protecting criminal gangs (Alvarado, 2011).

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2012; Ravelo, 2010). The first pact came as early as 1993, when traffickers from ten cartels met under the invitation of a drug trafficker known as "El Azul" to sign "The Northern Peace" agreement (Ravelo, 2004). Apparently, the agreement was designed to promote cooperation between Juárez, Gulf and Sinaloa cartels, an alliance to temper the power of Tijuana cartel, which during the nineties controlled the highly profitable entry to California. Another similar pact was signed in 2001, this time without the consent of Gulf cartel, between Juárez and Sinaloa. This later alliance, known as "The Federation" (Mauleón, 2010a) brought together criminal organizations that were increasingly distrustful of the power that armed Gulf cartel had been acquiring since NAFTA. Other similar agreements, reinforcing alliances to temper power within the drug industry have been documented by Carrizales (2001); Ramirez (2002); Corchado (2009); Hernández (2012) among others. Testimonial evidence collected from prosecuted traffickers supports the existence of agreements and alliances, most of them conducted in the form of minor, less structured gatherings, such as parties, social events, and business meetings. With astonishing regularity, traffickers or their representatives seem to meet personally, or digitally, to discuss agreements (Valdez Villareal, 2010).

In the absence of centralized control, as political scientists and economists have long documented,[12] when only informal mechanisms are used to sustain agreements, peace is possible but fragile (Leeson, 2011). Any shock impacting the utility of members within

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[12]For example, Benson (1988, 1989); Leeson and Stringham (2005); Leeson (2011) document the operation of conflict-inhibiting norms in some primitive societies. Landa (1981, 1994) considers the emergence of norms to govern commercial transactions in contemporary Southeast Asia. Similarly, Greif (1989, 1993) analyzes the importance of norms for 11th-century Mediterranean traders, and Bernstein (1992) examines extra-legal mechanisms of contract enforcement in the contemporary diamond industry. Finally, Ellickson (1991) considers the emergence of conflict-inhibiting norms in modern-day Shasta County, California.

the alliance may lead to the rupture of the agreement, depending on how it changes the expected benefits of membership. Keeping alliances is even more difficult if members are armed.

Paradoxically, it was the Mexican federal government itself who broke the equilibrium that traffickers had struggled to keep alive. The destabilizing shock would be a series of crackdowns. These crackdowns happened under decentralization; for example, (a) the capture of Osiel Cardenas, the leader of the Gulf cartel in 2003, and (b) the capture of Alfredo Beltrán Leyva in 2008, a leader of Sinaloa Cartel, who promoted indiscipline, fracture and confrontation in Mexico's drug trafficking industry. All these cases show how crackdowns were behind Mexico's large escalation in violence during the first decade of the second millennium.

(a) A War Starts: The Capture of Osiel Cardenas

At the beginning of the 2000's, a drug cartel named La Familia operated in Michoacán under the name of "La Empresa" in an alliance with the Gulf Cartel and its private army, the Zetas. La Familia controlled Lázaro Cárdenas, the main naval port of Michoacán and one of the main entries for illegal substances coming from South America. An informal cooperative agreement between La Familia and Gulf was in place, according to which Gulf was able to use the port in exchange for providing private protection for La Familia and training them in the use of violence (Grayson, 2010).

A drug war between La Familia and Zetas was detonated by a crackdown coming in the form of the 2003 capture of the leader of the Gulf cartel, Osiel Cardenas. The federal government had resolved to use force against his criminal organization after a

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slight increase in the number of homicides in Nuevo Laredo (Ravelo, 2012; Osorno, 2009; Hernández, 2012). The capture of Osiel was quite a destabilizing shock for the criminal industry, not only because it affected the criminal organization that controlled the most profitable port of entry into the US, the city of Nuevo Laredo, but because of the Gulf's security wing, Zetas.

After the crackdown, the two factions of the Gulf cartel had difficulties agreeing on a single leader, which led Zetas to try to become financially independent by taking over the territory of La Familia. Zetas started confronting La Familia. By 2005, violence started to increase in alarming numbers in many cities along Michoacán, including Lázaro Cárdenas.

Furthermore, the crackdown was a profound shock to the fragile peace that had been kept between Gulf and other cartels. The incentives crumbled, which Juárez and Sinaloa cartels had made in order to keep their alliance with the Gulf cartel (Hernández, 2012). It was quite appealing for both cartels to try to take over the valuable territory of the weakened Gulf cartel, which they proceeded to do.

Juárez and Sinaloa reinforced their alliance and instructed their private army, under the command of a trafficker known as Barbie, to start the war (Mauleón, 2010a). Just 15 days after the capture of Osiel, Barbie gave an ultimatum to the remnants of the Golf cartel: "You have 15 days to give us your territory or we will come to take it" (Ravelo, 2012). The war had begun.

When confrontations between the Juárez-Sinaloa alliance vs. Gulf, and Familia vs. Zetas caused violence to escalate, the federal government responded. In 2006, President Calderón started an offensive against drug trafficking organizations. La Familia's main

territory, Michoacán, was the first state to experience the intervention of the army to fight drug trafficking. Just ten days after taking office, President Calderón deployed 6,784 soldiers, 1,054 marines, 1,420 federal policemen, and 50 detectives in Michoacán (Grayson, 2010).President Calderón declared "a war on drugs" which continued through his administration and extended from Michoacán to at least seven other states and regions: Chihuahua, the Isthmus region (Mexico's southern border), Guerrero, Baja California, Sinaloa, Nuevo León-Tamaulipas, and the Golden Triangle (parts of Chihuahua, Sinaloa, and Durango). As a result of prosecution operations within La Familia areas of operation, a total of 295 individuals were assassinated from 2006 to 2010. The state with the highest number of drug–related homicides in the period was Guerrero with 159 cases, followed by Michoacán with 98, and Guanajuato with 38 (SNSP, 2011).

By May of 2008 the battle between Zetas and Familia was in place. The confrontation had spread to other states, like Guanajuato, Guerrero and Mexico State. In fact, about 18.8% of all the 34,611 drug–related homicides occurring in Mexico from December 2006 until 2010 happened in states where La Familia and Zetas were fighting (SNSP, 2011). The average number of drug–related homicides in confronting states (1,635) was about 63.1% higher than the same figure in other states (1,003) (SNSP, 2011). Overall, a total of 6,536 homicides can be traced directly or indirectly to battles between Zetas and Familia (SNSP, 2011). Both groups engaged in violent targeted executions of rival members, dropping decapitated and tortured bodies in the cities where their enemies operated. A billboard saying "this is a message for those working with the Zetas of Laredo" appeared next to the body of an individual assassinated in the port of Lázaro Cárdenas in 2008. The same message was found also in Pátzcuaro, Michoacán, another important

area for La Familia.

The schism between Zetas and La Familia became publicly evident in October 2008 when Zetas executed an ex-policemen, allegedly a member of La Familia, and left a signed narco-message reading "This will happen to all those who work for La Familia." In just a few months, competition between La Familia and Zetas to control Michoacán intensified, and violence followed. Signed billboards appeared in many of the most important cities of Michoacán, for example: "this goes to those working for Z, and for all Zetas. Here we are and we won't leave." Sometimes these were directly addressed to policemen, providing information on the names, locations, and operations of leaders and traffickers belonging to the opposing organization.

As Figure 3.3 shows, there is a strong association between the number of areas where Familia and Zetas were competing and drug–related homicides. During the peak of violence, La Familia and Zetas were intensively competing and communicating with each other. In months where confrontation could be identified, the average number of drug–related homicides per month was 53.2, almost 90% higher than the 27.6 drug–related homicides in months without confrontation. Moreover, since Zetas first emerged as a La Familia competitor in October 2008, violence escalated from an average of 24.6 drug–related homicides per month to 43.1, an increase of 80%.

The fracture of Zetas from the Gulf and their invasion of Familia territories could also be felt in other Mexican states, particularly Guanajuato. Until late-2008, trafficking within the state was controlled by a stable alliance between the Sinaloa Cartel and La Familia. At that time, the average number of drug–related executions in the state was about 4.5 per month. In 2007 the state only suffered 51 cases of drug-violence and in 2008

Figure 3.3: Familia vs. Zetas, Confrontation in Michoacán
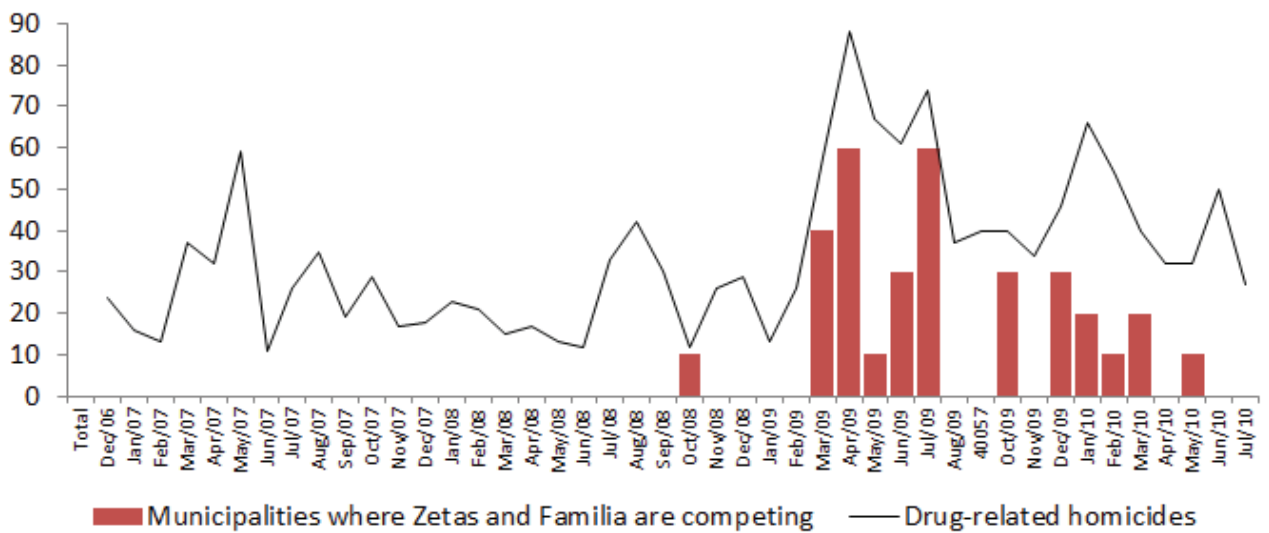
Source: SNSP (2011); Rios (2012) Note: Competition is proxied by tracking traffickers'
public communications. A municipality is considered competitive when Zetas and
Familia communicated one with another via public billboards. Trafficking organizations
in Mexico commonly use public billboards to threaten their enemies (Coscia and Rios,
2012).

only 79. Without any source of confrontation between La Familia and the Sinaloa Cartel, or between other drug trafficking organizations, Guanajuato was literally as peaceful as Honolulu. Guanajuato's general homicide rate was about 2.39 per 100,000 inhabitants, quite impressive for one of the most urban states in the country.

The peace was shattered when the hostilities between La Familia and Zetas spread into the state. The first record of Zetas operating in the state happened in November 2008 when a message blaming an ex-federal policeman for supporting them was left in Irapuato, Guanajuato. Messages soon inundated the state, some of them explicitly linking drug–related violence to the conflict between La Familia and Zetas. In Celaya, for example, a message signed by Zetas was left next to a body declaring "These are people of La Familia, kidnappers, extorters, and terrorist apprentices." Others just warned the population about what Zetas claimed to be the ultimate reasons for the confrontation: "[We] condemn the crystal and ice poisoners [i.e. drug dealers] belonging to La Familia. We are just taking out the trash." By January 2009, the open confrontation between La Familia and Zetas had turned Guanajuato upside down. In 2009, there were 234 drug–related homicides, an increase of 196% compared to 2008. Violence spiked during the first half of 2009, when drug–related homicides averaged of 19.75 per month.

As Figure 3.4 shows, drug–related violence in Guanajuato tends to be higher when many trafficking organizations operate and compete in a single municipality. A competitive month has an average of 17.4 drug–related homicides, while a month without competition has only 7.3. As a matter of fact, when Zetas confronted La Familia, Guanajuato was unrecognizable in terms of drug violence. In 2009 it joined the list of the top-ten most violent states for the first time ever. As Mrs. Berta, a food vendor of Cuerámaro,

a border town between Michoacán and Guanajuato, confessed to Verónica Espinoza, a journalist of Proceso magazine, "We have no peace. Now, with all the homicides. God! You realize people suddenly start having money and cars, and a little after that they are killed; you never imagined they were doing the narco thing."

Figure 3.4: Familia vs. Zetas, Confrontation in Guanajuato

Source: SNSP (2011); Rios (2012) Note: Competition is proxied by tracking traffickers' public communications. A municipality is considered competitive when Zetas and Familia communicated one with another via public billboards. Trafficking organizations in Mexico commonly use public billboards to threaten their enemies (Coscia and Rios, 2012).
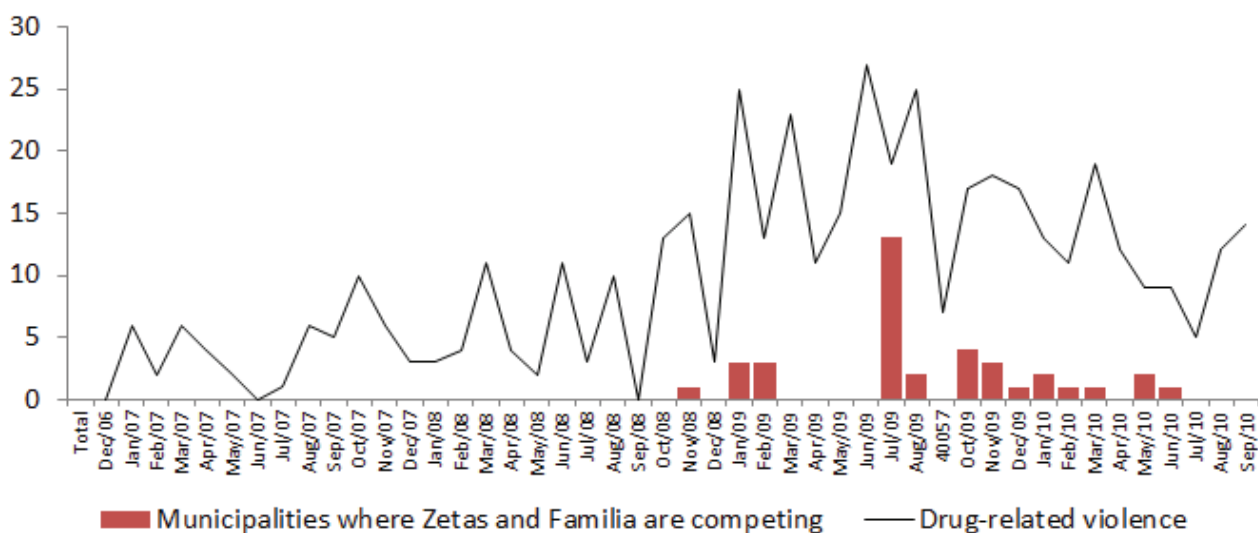
(b) A war Spreads: The Capture of Beltrán Leyva in Guanajuato

Following military operations conducted by Mexico's federal government since 2006, in 2008 a lieutenant of the Sinaloa Cartel named Alfredo Beltrán Leyva was cap-

tured. Beltrán Leyva's capture caused a split within the Sinaloa Cartel that spread violence to Guerrero (Guerrero 2009). The brothers of Beltrán Leyva, Héctor and Arturo, also lieutenants of the Sinaloa Cartel, blamed the top leader of the criminal organization, Joaquin Guzmán (alias "El Chapo") for Beltrán Leyva's arrest (Ravelo, 2012). They suspected El Chapo had given the Mexican army information to capture Beltrán Leyva in exchange for releasing El Chapo's son, Iván Guzmán, from prison. When Iván was released, Beltrán Leyva's brothers started an open war against El Chapo (Ravelo, 2010).

This enforcement-driven schism within Sinaloa soon affected the state of Guerrero. Up until then, the state had been more or less stable since an alliance between La Familia and Sinaloa Cartel controlled the region. The Sinaloa Cartel's main operator in the field was a well-known local trafficker named Rogaciano. Yet, when Beltrán Leyva was captured, his brothers forced Rogaciano to decide between joining them and continuing to work with the old Sinaloa Cartel (Proceso, 2010). When Rogaciano took sides with the Sinaloa Cartel, the massacre started. In May 2008, a group of armed men working for Beltrán Leyva's brothers' local lieutenant "El Nene" arrived at Rogaciano's home with orders to kill him, but they could not find him. Instead, they kidnapped Rogaciano's 19-year old daughter. Rogaciano took revenge by killing two of El Nene's daughters, his wife, and his sister-in-law.[13] El Nene was furious and a war erupted. A massive number of Rogaciano's collaborators were executed in the resulting onslaught.

The relationship between drug–related homicides and conflicts between traffickers caused by enforcement operations in Guerrero is captured quite explicitly by messages that traffickers left in their areas of operation. Just after the assassination of Nene's

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[13]Anonymous authority interviewed off-record by author.

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family, a message reading "This is a message for Rogaciano (...) Kids and women should not be killed. We will only kill men (...) This will happen to all of you who help him [Rogaciano]" appeared in Guerrero.

As Figure 3.5 shows, once battles for turf between Beltrán Leyva's brothers and the Sinaloa Cartel started, violence increased gradually in Guerrero. Violence in Guerrero had remained mostly contained with an average of 22.1 drug–related homicides per month and a general homicide rate of about 18.71 per 100,000 inhabitants. From April 2008 to May 2008, the month in which Rogaciano's daughter was kidnapped, violence went from eleven drug–related homicides to 41, an increase of 264%. Just a year before the first messages between Beltrán Leyva and the Sinaloa Cartel appeared in August 2008, the state of Guerrero had about 24.8 drug–related homicides per month, with an average change rate of minus 1.92. A year later, there were on average 51.3 homicides, at an increasing rate of 6.33 per month.

At these rates, Guerrero soon became one of the three most violent states in Mexico, calling the attention of enforcement operations and locking the state into a self-reinforcing violent equilibrium.

When federal troops were deployed in Guerrero, confrontations between authorities and traffickers caused casualties and captures that further destabilized criminal organizations. Drug–related homicides almost doubled, from 299 in 2007, to 419 in 2008, and to 879 in 2009. As Figure 3.6 shows, the number of enforcement operations (confrontations between drug trafficking organizations and government) and drug–related violence are well correlated. For instance, March 2009, one of the two most violent months in the sample with 106 drug–related homicides, is also the month with the highest number of

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Figure 3.5: Bentral Leyva vs. Sinaloa, Confrontation in Guerrero
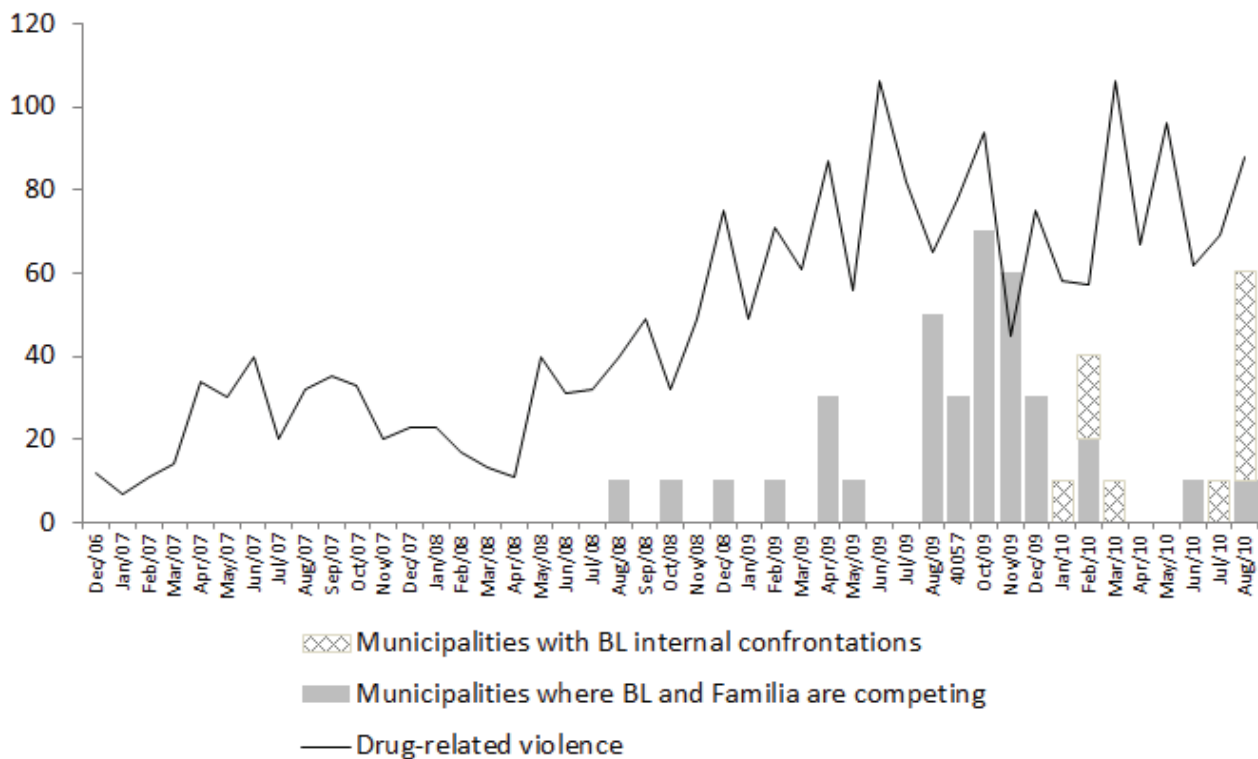
Source: SNSP (2011); Rios (2012) Note: Competition (or internal confrontation) is proxied by tracking traffickers' public communications. A municipality is considered competitive (or internally confronted) when Beltrán Leyva and Sinaloa (or Beltrán Leyva internal factions) communicated one with another via public billboards. Trafficking organizations in Mexico commonly use public billboards to threaten their enemies (Coscia and Rios, 2012).

enforcement operations.

Figure 3.6: Drug–related Violence and Crackdowns in Guerrero
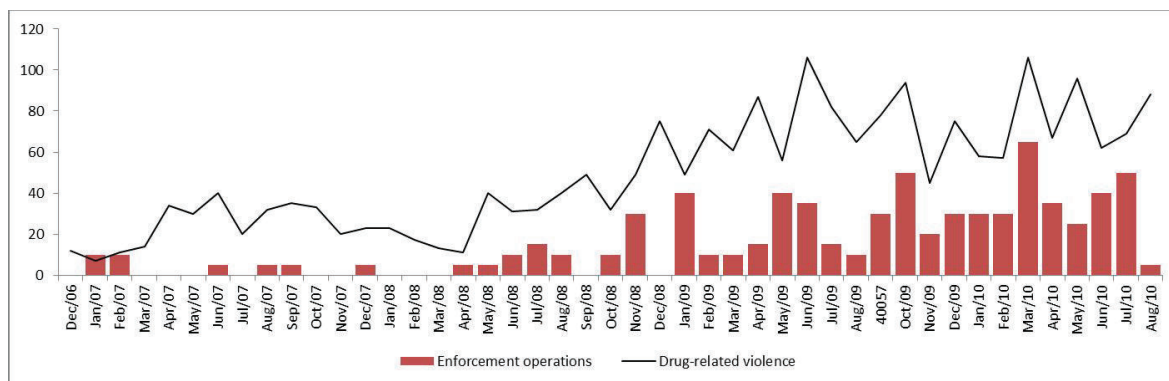
Perhaps one of the most influential effects of law enforcement on violence happened in December 2009, when one of Beltrán Leyva's brothers, Arturo, was killed by the Mexican Navy. His assassination left Héctor as the only remaining brother confronting the Sinaloa Cartel.

The previous story repeated itself. Héctor could not keep the loyalty of all of his followers, which caused the emergence of a competing trafficking organization led by a trafficker named Edgar Valdés Villarreal (alias "Barbie"). Barbie's followers became independent in January 2010 and started a direct confrontation against Héctor that could also be felt in Guerrero. This conflict overlapped with the preexisting conflict between Héctor and the Sinaloa Cartel and further increased the violence. Again, messages between drug cartels track this confrontation with close precision. Just thirty-four days after Arturo was killed, the bodies of four men were found next to a long explanation that read "This goes for all who are with Héctor Beltrán Leyva (...) You gave Mr. Arturo Beltrán Leyva to the

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authorities (...) Keep sending people and we will keep giving them back to you like these (...)." After this message was displayed, Acapulco, Petatlán, and other municipalities in Guerrero transformed into battlefields.[14]

As Figure 3.5 showed, once Barbie came into the picture, Héctor battled both the Sinaloa Cartel and Barbie. Violence kept increasing and never returned to the levels before the Sinaloa Cartel-Beltrán Leyva dispute. The average number of drug–related executions in months where some competition could be found is about 83.9% higher than those when drug markets seem to be monopolistic. While a month with competition has an average of 68.12 drug–related homicides, a month without it has only 37.03.

This story repeated itself. When Barbie was captured, his organization divided into further confronting cells. Battles for turf continued and homicide rates in Mexico escalated. This was Mexico's drug war.

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[14]By 2010, Acapulco was the second most violent city in Mexico and one of the top-50 most violent cities in the world (SNSP, 2011). The confrontation between Barbie and Beltrán Leyva's brothers caused at least 5,596 casualties from December 2006 to August 2010. It was the third most violent confrontation between trafficking organizations in Mexico during the same period, after the conflict between the Sinaloa Cartel and Beltrán Leyva's brothers (7,813 casualties) and between the Sinaloa Cartel and the Juárez Cartel (12,174) (Valdéz Villareal, 2011).

Chapter 4

Testing the Role of Decentralization in Shaping Criminal Behavior

Within a decentralized system, different levels of government dictate policies independently of one another. Such a system makes criminal organizations prone to violent behavior. In this chapter, I present empirical evidence supporting this theory.

But first, I will make the following disclaimer: To reason empirically about the relationship between government and criminals is not easy. On top of the ordinary challenges of social science research, in this case the subjects of my study, and their actions, are inherently secretive. Very little is known about the size, magnitude and frequency of bribing, and there exists no significant tracking of drug trafficking operations or of the relationship between traffickers and government officials. Our knowledge about corruption agreements, as academics, comes from journalistic accounts that describe political scandals. These accounts do not emerge by a random distribution and they are not covered

systematically. Furthermore, Mexican authorities have reported data of criminal violence, at the sub-national level, only from December 2006 to September 2011 (SNSP 2012), a period in which criminal organizations were already significantly violent (Rios and Shirk 2009). Even if data on criminal violence were complete, a proper empirical test of my theory would require an assessment of how criminals react to destabilizing forces in the form of a crackdown. Such an assessment could explain how a propensity towards violence transforms to become actual violence. Unfortunately, no systematic records exist, chronicling the reaction of drug lords to crackdowns throughout Mexico's history.

I design here an empirical test that circumvents these problems and, in some measure, validates my theory.

This chapter is divided into four sections. I begin by explaining the basic logic behind my empirical design. A second section shows my methodology and walks the reader through how each piece of my empirical test was operationalized and its three main specifications: logit, survival analysis, and matching. A third section presents results, robustness and placebo tests. A final section briefly summarizes the lessons learned within this empirical exercise.

4.1   Designing a Test

My strategy relies on a simple stylized fact about Mexico's drug–related corruption, the existence of a "code of criminal conduct" (Guerrero Gutiérrez, 2009), and on constitutional features that structurally inhibit coordination among different levels of government in Mexico.

Ethnographic studies point to the existence of a "code of criminal conduct" that rules corrupt interactions between criminals and Mexican authorities (Guerrero Gutiérrez, 2009). According to this code, traffickers can conduct illegal operations as long as they injure the reputation of the Mexican government in the eyes of its citizens (Resa Nestares, 2001). Two main rules govern the agreement: traffickers cannot kill each other in the streets, and they cannot sell drugs within Mexico. The logic of this agreement is simple. Mexican citizens are not directly affected by drug trafficking organizations, when drugs are exclusively directed towards US consumers. Mexicans are only affected by trafficking operations if criminal organizations engage in violent behavior by, for example, shooting one another in the streets, or when they sell drugs domestically. Shootings make it more probable that citizens will become bystanders to violence. Domestic sales increase drug addiction and consumption within Mexico.

Building upon this stylized fact about Mexico's corruption, I empirically observe injurious criminal behavior in two ways: drug–related homicides and domestic drug trafficking operations. It is not possible to tell, over a sufficiently long time period, when traffickers are killing one other. Statistics of drug–related violence come from a biased sample, only available during periods of high violence. Yet, I can tell when drugs are being sold in Mexico. Statistics of domestic drug consumption are available at the subnational level, for a period of two decades. This piece of information that makes my empirical test possible. I will examine whether criminal groups will be more prone to selling drugs within Mexico when the government is decentralized.

Mexico is a fascinating natural experiment, for testing decentralization in domestic drug sales, because its different levels of government are constitutionally responsible

for prosecuting different crimes. The Mexican constitution creates a system of incentives in which state and municipal governments lack common interests in terms of law enforcement, even if they operate in common territories. Governments share territorial jurisdiction but are responsible for prosecuting different crimes. Local governments, for example, are not constitutionally responsible for prosecuting domestic drug sales. In other words, selling drugs domestically is a criminal activity that hurts the reputation of non-local governments only.[1]

The empirical implications of my theory of decentralization and criminal behavior are straightforward. Decentralization will increase the propensity of criminal organizations to engage in activities that "hurt" non-local governments, because in decentralized political environments local governments will not share the same incentives as other layers of government. In decentralized environments, local governments will only punish criminal activities that hurt local-governments directly, and selling drugs in Mexico is not one of those activities. In centralized environments, incentives among all layers of government will be aligned. As a result, local governments will have solidarity with non-local governments, acting as a *de facto* single-level government. In centralized environments, criminal groups that engage in activities that hurt the upper-level government will be punished by lower-level governments as if the latter were being directly hurt.

If my theory is correct, we should expect that in centralized environments, all governments will act as cohesive enforcers with the common interest of inhibiting criminal organizations from selling cocaine within their common territory. In contrast, in

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[1]A judicial reform, passed in 2009 (CIDAC, 2011), changed this feature of Mexico's judicial system assigning responsibility to lower-level governments under certain circumstances. This reform does not impact my results because my data set is limited to the years between 1990 and 2009.

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decentralized territories, levels will act independently, allowing criminal organizations to operate under the umbrella of protection of some governments even if they are "hurting" others. I would expect cocaine to be sold with higher probability in areas where the government has lost its ability to operate with coordination among its different layers. In the following sections, I will test this theory using logits, survival analysis models, and matching.

4.2 Methodology

My key explanatory variable, government centralization, is operationalized as a dichotomous variable measuring whether different levels of government were ruled by the same party (1=coordinated) or not (0=not coordinated) in a year. I assume local authorities will have better incentives to coordinate with other layers of government, whenever they share party membership, because political incentives are present. Local governments wanting to please party elites, to climb the party hierarchy, will have incentives to coordinate their efforts with top-level governments.

Government centralization measured in this way varies greatly because in Mexico, municipal governments remain in power for three years, and state and federal governments for six years. Reelection is prohibited at every level of government and most of the time, each level has non-concurrent elections. I considered three parties [PRI, PAN and Party of the Democratic Revolution (Partido de la Revolución Democrótica, PRD)] and a residual category (others).[2]

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[2]In case a coalition is formed (i.e. PAN-PRD), a government is considered coordinated if either PAN

Table 4.1 shows the number of municipalities that have a coordinated government by party. Any municipality in which the same party rules at both the top and lower levels of government is considered centralized. Most coordination comes from municipalities ruled by the PRI. PAN governments were increasingly coordinated until 2007 and slightly less coordinated after. PRD's coordinated governments are increasingly common, and during the last five years of the sample PAN and PRD coordination are almost equally common. Maps showing coordinated municipalities from 1990 to 2010 are available in Map 4.1.

My dependent variable measures whether cocaine is sold within a municipality. Following standardized procedures of criminology literature (Evans et al., 2012), I measure the existence of a domestic market of cocaine by measuring cases of cocaine consumption. To determine whether criminal organizations sell cocaine in a municipality i, I identify the first year in which a case of cocaine consumption was recorded in i –either because a citizen had a cocaine overdose or because he or she was hospitalized due to cocaine consumption[3]. I assume that after this first case, markets will remain open in following years. The measure was obtained by surveying Mexican mortality certificates and hospitalization records, (SINAIS, 2009; INEGI, 2009) a task that, to the extent of my knowledge, had never been performed before.[4]

Table 4.2 shows the cases of cocaine overdoses and hospitalizations that were

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or PRD rule in the other level of government. If PRI, PAN or PRD rule in coalition with another smaller party, the government is considered coordinated if PRI, PAN or PRD rule in other levels of government.

[3]Overdoses are much less common than hospitalization but statistics are available for a twenty year period. Hospitalizations are available only for the last ten years.

[4]There is no other data set that contains information on cocaine markets at this level of disaggregation and with such a large temporal scale.

Table 4.1: Number of Centralized Municipalities by Party and Year (1990-2010)

Year	Centralized	PAN	PRI	PRD
1990	2,162	2	2,160	-
1991	2,153	2	2,151	-
1992	2,102	15	2,087	-
1993	2,078	29	2,049	-
1994	2,084	29	2,055	-
1995	1,999	85	1,914	-
1996	1,830	80	1,750	-
1997	1,760	80	1,680	-
1998	1,654	82	1,572	-
1999	1,659	80	1,569	10
2000	1,646	80	1,556	10
2001	1,556	133	1,410	13
2002	1,402	139	1,244	19
2003	1,311	143	1,119	49
2004	1,312	153	1,097	62
2005	1,321	190	1,001	130
2006	1,335	186	1,008	141
2007	1,356	214	968	174
2008	1,466	173	1,141	152
2009	1,448	173	1,140	135
2010	1,433	164	1,167	102

Source: Author with data from CIDAC (2011)

Figure 4.1: The Geography of Centralized Governments in Mexico
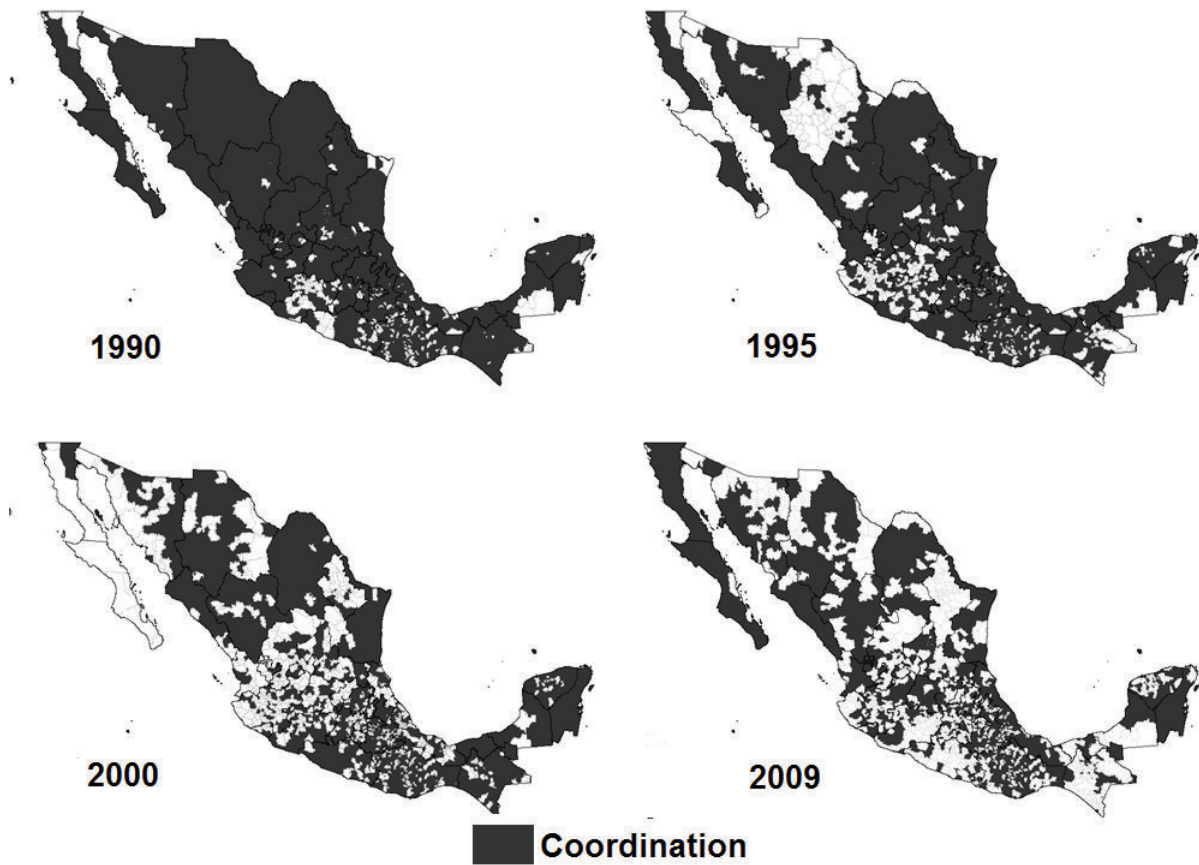
Source: Author with data from CIDAC (2011)

recorded in Mexico each year. Maps showing open markets of cocaine consumption from 1990 to 2010 are available in Map 4.2.

Table 4.2: Municipalities with Cases of Cocaine Overdoses or Hospitalizations (1990 - 2010)

Year	Hospitalizations	Overdoses
1990	-	1
1991	-	-
1992	-	2
1993	-	2
1994	-	1
1995	-	2
1996	-	3
1997	-	1
1998	-	12
1999	-	6
2000	831	19
2001	874	15
2002	938	16
2003	1,001	19
2004	937	19
2005	909	17
2006	918	9
2007	916	4
2008	860	7
2009	405	4

Source: SINAIS (2009); INEGI (2009)

Given that the operationalization of my dependent variable does not allow me to identify the particular point in time, at which cocaine began to be sold, but only the year during which a case of cocaine consumption was recorded by a health institution,

Figure 4.2: The Geography of Cocaine Overdoses or Hospitalizations in Mexico

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my sample only considers municipalities that have a hospital infrastructure. In every specification, I also control for the number of hospitals and for their recording capacity. To proxy recording capacity, I measured the regularity with which other forms of overdoses were coded. Particularly, I collected information about cases of hospitalizations due to caffeine consumption. Hospital's personnel follow a similar procedure to record all types of overdoses (INEGI, 2009). The assumption is that hospitals that have a better capacity to record caffeine overdoses are also more capable of identifying cocaine overdoses. The availability of hospitals is only recorded for the last 10 years of the sample.

To ensure that other conditions are the same (independent of whether a municipality is centralized or not), conditions that may increase the probability of a cocaine market being opened, I include control variables that predict cocaine demand in a year. Wealthy urban areas are the places where cocaine is in highest demand; thus, I control for population size, income inequality (Gini), and a measure of poverty, a variable created by the Mexican government to measure wealth and life quality within a municipality called the "Disadvantage Index" (i.e. Índice de Marginación).

Descriptive statistics of all the control variables included in the model are available in Table 4.3. I use three specifications to assess whether decentralization triggers the opening of a local cocaine market in each of the 2,206 municipalities that have hospitals in Mexico (89.8% of total). First, I use a binomial regression model (logit). The dependent variable is given by whether a municipality has an open (1) or closed (0) market for cocaine at year y, where $y \exists \{1990, 1991, ..., 2009\}$. All covariates in logit models are lagged by one year, such that coordination in year $(y - 1)$ predicts the status of cocaine markets in year y. A control for the status of cocaine markets in year $(y - 1)$ is also in-

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Table 4.3: Descriptive Statistics

Descriptive Statistics, Total						
Variable	**Min**	**1st quartile**	**Median**	**Mean**	**3rd quartile**	**Max**
Gini	0.22	0.40	0.426	0.431	0.461	0.690
Hospitals	1	2	3	5.856	7	101
Poverty	-2.459	-0.835	-0.16	-0.082	0.574	4.363
Population	0.002	0.057	0.144	0.476	0.339	18.57

Note: Hospitals are the number of hospitals in a municipality (SINAIS, 2009), Poverty was operationalized as the "Indice de Marginacion" given by CONAPO (2010), Population per 100,000 inhabitants (INEGI, 2010), Gini Index (CONAPO 2010).

cluded. Second, in the Cox proportional-hazards regression with time-variant covariates, the dependent variable counts the number of years from 1990 to 2009 before a market opens in a municipality. Finally, I use nearest neighbor matching to create a data set of pre-treatment balanced covariates and run logits. Placebo and robustness tests are conducted for each specification.

4.3 Results

Table 4.4 below presents the results of the logit model.

Models 1 and 2 present the most basic results. Model 1 shows how coordination has a negative and significant coefficient, meaning that when municipalities are centralized, the probability of having an opened cocaine market in the next time period diminishes. As expected, larger populations, larger income inequality, lower poverty, more hospitals and better medical recording capacity, are positively correlated with having more cocaine

cases. Model 2 is a placebo test. It presents a similar specification to Model 1 but changes hospitalizations and overdoses of cocaine with caffeine. As we would expect, unlike with cocaine markets, government coordination does not predict placebo cases. In other words, caffeine consumption is not discouraged by government decentralization, while cocaine consumption is.

Model 3 introduces year fixed effects, reducing the magnitude of the centralization coefficient but keeping its negative sign and its significance. Gini is not significant in this specification. State fixed effects are added in Model 4 without significant changes. Medical recording capacity is not significant in this specification. Finally, both state and year fixed effects are added in Model 5. Centralization is significant and negative, as expected. Gini and medical recording capacity are not.

Model 6 introduces dummies for parties ruling at the municipal and state levels. Party labels are not significant and centralization remains a solid result. Out of the controls, only poverty and number of hospitals are significant. A placebo test, using caffeine instead of cocaine, is introduced in Model 7 to show that centralization is not significant for legal drugs.

Table 4.4: Logit Models, Results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Dependent	Cocaine	Caffeine	Cocaine	Cocaine	Cocaine	Cocaine	Caffeine
Centralization	-0.295**	0.193	-0.333**	-0.276*	-0.302*	-0.276*	-0.123
	(0.114)	(0.186)	(0.114)	(0.120)	(0.121)	(0.132)	(0.085)
Population	0.756***	0.134**	0.673***	0.868***	0.801***	0.788***	0.479***
	(0.105)	(0.050)	(0.104)	(0.129)	(0.129)	(0.130)	(0.042)
Gini	4.838***	3.078	1.790	4.123***	1.514	1.487	0.026
	(1.039)	(1.881)	(1.167)	(1.176)	(1.304)	(1.311)	(0.909)
Poverty	-0.751***	-1.094***	-0.713***	-0.947***	-0.914***	-0.905***	-1.188***
	(0.077)	(0.135)	(0.077)	(0.106)	(0.106)	(0.106)	(0.073)
Hospitals	0.055***	0.035***	0.061***	0.070***	0.075***	0.075***	0.050***
	(0.009)	(0.008)	(0.009)	(0.012)	(0.012)	(0.012)	(0.007)
Recording Capacity	0.846*		0.761*	0.624	0.529	0.520	
	(0.379)		(0.384)	(0.401)	(0.406)	(0.409)	
PRI-State						0.175	-0.178
						(0.302)	(0.305)
PRD-State						-0.070	-0.073
						(0.459)	(0.354)
PRI-Local						-0.136	0.239*
						(0.150)	(0.099)
PRD-Local						0.143	0.137
						(0.193)	(0.126)
Other-Local						-0.349	-0.090
						(0.321)	(0.196)
Year FE	NO	NO	YES	NO	YES	YES	YES
State FE	NO	NO	NO	YES	YES	YES	YES
Constant	-6.320***	-7.152***	-4.542***	-2.638**	-1.581+	-1.420	-3.694***
	(0.475)	(0.855)	(0.576)	(0.828)	(0.867)	(0.878)	(0.495)

For significance measures: $+\ p \leq 0.1$, $*\ p \leq 0.5$, $**\ p \leq 0.01$, $***\ p \leq 0.001$.

Overall, the logit models provide strong support to my theory, yet to further confirm the results of the above model, a second specification was created. I fit a Cox proportional-hazards regression with time-dependent covariates[5]. The sample is largely censored, meaning some municipalities (81%) never experienced the opening of a cocaine market, at least not until 2009. To reduce censorship, and following common assumptions of criminology literature (Evans et al., 2012), I only use municipalities with urban areas, particularly those that had at least one city of 15,000 or more inhabitants. This reduced censorship to 58%. Table 4.5 presents the results of the duration models.

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[5]I utilized Cox because it allows me to express a single survival time value for each municipality without making parametric assumptions about the hazard rate (Wooldridge, 2001).

Table 4.5: Survival

| | Model 8 | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 |
	Cocaine	Caffeine	Market opens 5 years earlier	Eliminate Large Cities	Opposition parties	Opposition Caffeine
Centralization	-0.270*	-0.077	-0.203	-0.281+	-0.237+	-0.029
	(0.137)	(0.200)	(0.313)	(0.165)	(0.138)	(0.238)
Population	0.379***	0.136***	-0.199	1.322**	0.364***	0.133***
	(0.534)	(0.031)	(0.146)	(0.418)	(0.057)	(0.032)
Gini	3.179+	5.270*	-1.326	1.181	3.120+	4.857*
	(1.778)	(2.230)	(4.775)	(1.953)	(1.780)	(2.323)
Poverty	-0.317*	-0.848***	-0.328	-0.132	-0.296*	-0.798***
	(0.135)	(0.197)	(0.287)	(0.157)	(0.136)	(0.198)
Recording capacity	0.259*		-0.200	0.684+	0.269*	
	(0.110)		(0.582)	(0.359)	(0.112)	
Hospitals	0.011+	0.019**	0.046*	0	0.013*	0.018**
	(0.006)	(0.006)	(0.020)	(0.016)	(0.006)	(0.007)
PRI-State					0.029	0.130
					(0.144)	(0.239)
PRD-State					-0.204	0.649*
					(0.286)	(0.308)
PRI-Local					-0.177	-0.140
					(0.161)	(0.280)
PRD-State					-0.153	-0.414
					(0.212)	(0.357)
Other-State					0.173	-0.392
					(0.310)	(0.425)
Concordance	0.667	0.702	0.601	0.592	0.675	0.717
R^2	0.035	0.021	0.002	0.01	0.036	0.022
max R^2	0.684	0.285	0.219	0.559	0.684	0.285

For significance measures: $+\ p \leq 0.1$, $^*\ p \leq 0.5$, $^{**}\ p \leq 0.01$, $^{***}\ p \leq 0.001$.

Model 8 is the preferred identification. As expected, a centralized municipality has a lower chance of experiencing the opening of a cocaine market. The effect is significant at the 0.01 level. A larger population, more hospitals, more medical recording capacity, more inequality and less poverty increase the probability of market opening. Model 9 presents a robustness test. It is the same specification as Model 7 but using caffeine cases as the dependent variable. As expected, centralization is not significant. The controls follow the same tendencies as the previous model. Medical recording capacity is not measured for caffeine cases.

I present some additional tests to discard alternative explanations.

In Model 10, I test whether my results are just the effect of other unmeasured variables that were impacting municipalities even before the opening of the cocaine market. To test this, I artificially change the time in which a cocaine market opened, setting a *"false opening"* (five years before it actually happened). Supporting my theory, the results show that centralization is not significant once I do this. Other false openings were tested with similar results.

Model 11 tests whether the results are being driven by large cities. I extracted from the sample all municipalities with more than one million inhabitants, which resulted in the exclusion of almost all municipalities within Mexico City and other major urban areas in the country. Results did not change.

Finally, in Model 12, I test whether the effect was caused by having members from inexperienced opposition parties ruling either at the state or municipal level. I add two categorical variables to the baseline specification: one shows the party that was ruling at the state (PRI, PAN or PRD), and a second shows the party that was ruling at the lower-

level (PRI, PAN, PRD, PAN-PRD, or other). I use the PAN as the baseline category because it is the only party that is composed by real members of the inexperienced opposition. PRD and other smaller parties were created by ex-PRI members (Magaloni, 2009) and thus, we can assume, have inherited the experience of PRI. The results of my model hold. Party labels are not significant. A placebo test, using caffeine cases, shows, as expected, a non-significant coefficient under centralization. Model 13 is a placebo test specified as Model 12 but for caffeine as dependent variable.

A final specification comes from matching (closest neighbor approach) municipalities that had cases of cocaine consumption with municipalities that had not but that otherwise share similar conditions with respect to medical recording capacity, hospital infrastructure and cocaine demand. Using the matched dataset (830 cases), I run logits. The results in Table 4.6 show that centralization still plays a crucial role explaining the opening of cocaine markets. In Model 14, the basic specification, centralization, reduces the probability of having an opened domestic market. Model 15 shows a placebo test with caffeine. In both models, centralization is here significant and positive. Model 16 introduces party dummies, leaving PAN as the baseline category. Centralization is negative and significant. Municipal governments from PRI and PRD tend to have fewer markets of cocaine than the PAN. Model 17 introduces a placebo test to show that centralization does not predict markets of caffeine.

Overall, the statistical and empirical evidence here provided solidly supports my argument. Decentralization is strongly correlated with criminal behavior. When criminals face a government that cannot act as a coordinated enforcer, their propensity to engage in

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Table 4.6: Matched Logit Models, Results

Dependent	Model 14 Cocaine	Model 15 Caffeine	Model 16 Cocaine	Model 17 Caffeine
	-0.266+	0.408+	-0.279+	0.382
Centralization	(0.147)	(0.236)	(0.165)	(0.270)
PRI-State			0.212	0.471
			(0.171)	(0.290)
PRD-State			0.115	0.124
			(0.291)	(0.518)
PRI-Local			-0.557**	-0.271
			(0.187)	(0.299)
PRD-Local			-0.640*	0.112
			(0.258)	(0.387)
Other-Local			-0.545	-1.428
			(0.366)	(1.043)
	0.767***	-2.418***	1.063***	-2.550***
Constant	(0.109)	(0.185)	(0.185)	(0.297)

For significance measures: $+$ $p \leq 0.1$, * $p \leq 0.5$, ** $p \leq 0.01$, *** $p \leq 0.001$.

injurious activities, such as local domestic sale of cocaine, increases. In the case of Mexico, the above empirical specifications have shown that cocaine began to be sold in domestic markets with a higher probability in years in which different levels of government were not coordinated, independently of the size of the drug market and the party that was in power.

4.4   Lessons learned

Empirical evidence supports the hypothesis that decentralization is strongly correlated with lack of discipline among criminals. When criminals face a government that cannot act as a cohesive enforcer, their propensity to break the rules increases. In the case of Mexico, the above empirical specifications have proven that cocaine began to be sold in domestic markets with higher probability in years when different levels of government were not centralized, independently of the party that was in power. The results are robust to many other factors including government spending, as well as controls for drug demand. When a similar empirical specification is used to understand the opening of other markets of legal drugs, results are not significant.

Chapter 5

Unexpected consequences of criminal violence

"This is for the people of Veracruz. Do not be afraid.
We came to clean your state."[1]

Mexico's drug war was a bloody battle between criminal organizations in which citizens were a third party. Citizens were not the direct target of violence, yet they witnessed the uncontrolled violence generated by criminals' conflicts at their doorsteps, schools, and public plazas. In this chapter, I show how citizens reacted to a drug war.

In order adequately to examine citizen reactions to the drug war, it is necessary to explore some of the most immediate and tangible consequences of violence in the day to day life of Mexicans; thus, in this chapter I present the first quantitative analysis of a

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[1] Message signed by the criminal group "Mata-Zetas" and left on July of 2009 in the city of Veracruz. It was found next to the body of man who had been tortured, and whose face was bound with tape (Peralta, 2009).

social consequence of Mexico's drug war: forced migration. In here, I provide evidence of the ways in which drug trafficking organizations are affecting population dynamics by causing citizens to migrate out of violent communities.

By measuring and understanding this phenomenon, I contribute to migration studies that have largely pointed to factors such as economic hardship, network analysis, or labor dynamics as the main drivers of Mexican migration patterns (Massey and Arango, 1998; Massey and Espinosa, 1997; Massey and Taylor, 2004). I argue that such approaches can only provide a partial explanation of migration patterns. While academics have studied the effect of violence on migration in the context of civil war in African countries (Zolberg et al., 1989; Morrison, 1993), we have yet to examine the impact of violence on migration outside the context of officially declared armed conflict. Especially given the ubiquity of violent crime in many parts of the developing world, we are thus left with a gap in our understanding of migration patterns in places like Mexico. This chapter seeks to fill this gap. As cumulative causation theory improved our understanding of migration by pointing to how social ties shaped individual's decisions to relocate[2] (Massey, 1990), here I point to security environments as a missing variable to better understand relocation decisions.

This chapter is organized in six sections. The first section explores how civilians were affected by Mexico's drug war. The second section shows qualitative evidence of changes in migration dynamics within Mexico and in the US. The third and fourth sections show my statistical specification and results. The fifth section interprets the

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[2]Indeed, social ties had been overlooked by scholars from new economics, neo-classical economics and labor market theories (Todaro and Maruszko, 1987; Harris and Todaro, 1970; Piore, 1979). I thank Prof. Filiz Garip for this insightful framing on migration literature.

results, contextualizing them by drawing upon qualitative evidence and describing some particularly interesting cases to complement my quantitative findings. Finally, the chapter concludes with a brief discussion of the implications of these findings in terms of the approach in the U.S. to migration policy.

5.1 Civilians in a drug war

> *"Fear has become part of our lives (...) There's panic. We don't know when the shooting is going to break out"*
> *—Tijuana citizen.*[3]

Civilians were rarely killed in Mexico's drug war. Out of the 51,000 casualties officially recorded by the Mexican government from December 2006 to 2010 as part of criminal battles for turf, 83% were targeted executions, carried out by criminals against members of rival criminal organizations, or against individuals directly linked to them (SNSP, 2011). The rest were homicides that had happened during group confrontations between Mexican authorities and criminals, or between criminals themselves, where civilian bystanders may have been caught in the crossfire. According to the president of Mexico's Human Rights Commission, these comprised less than 1% of the total toll (Sosa, 2010).[4]

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[3]Lacey (2000); during 2008 Tijuana saw 614 drug–related homicides(SNSP, 2011), a rate of about 43.72 per 100,000 inhabitants — quite a bit higher than non–drug–related homicides, which cause only 20.46 casualties per 100,000(INEGI, 2011).

[4]During 2010 and the first half of 2009, the Commission reported 100 civilian deaths out of a total toll of 19,894 (13,174 in 2010 and 6,720 in the first half of 2009)(Sosa, 2010).

Yet, civilians were affected by the drug war in many less direct ways. Extortion, kidnapping and other forms of violence dramatically increased when criminal groups sought alternative sources of income to fund their battles. By 2011, 25.7% of all Mexican citizens declared that they had become prey to extortion. Furthermore, 2.3% of kidnapping victims and as many as 3.1% of the population claimed that at some point they had witnessed a crossfire (Díaz-Cayeros and A., Magaloni, B. and Matanock, A. and Romero, V.). The war had lead to a general spread of crime and fear. Criminals regularly left the bodies of their enemies in the streets, hanging from bridges, mutilated and tortured, with messages directed towards their territories, or towards citizens themselves. For example, in Monterrey criminals left dozens of messages alongside the head of a local criminal, proclaiming, "These are the homosexual hitmen of Arturo Beltrán Leyva and the one in the pot is the kid-killer "Caimán" himself. You should learn to respect" (Noroeste, 2008) and "Businessman don't be weepers. Nothing will happen to you" (Notimex, 2008).

Citizens reacted. Some engaged in protests, asking the government to stop exacerbating violence by prosecuting criminals. Others asked criminal groups for protection (Díaz-Cayeros and A., Magaloni, B. and Matanock, A. and Romero, V.). Many more just gave up; more specifically, they gave up on the idea of continuing to live in Mexico. They covered their sofas and tables with white sheets, loaded their suitcases, closed their doors, and left for the U.S. Mexican businesses that had served tequila to American tourists in Tijuana, or for decades had sold fresh produce to Texans who crossed the border to go to the farmer's market in Juárez, closed their doors and were abandoned.

5.2   Changes in Immigration Flows

When drug–related violence first started escalating, few people noticed that migration was taking place. After all, there were many reasons for those leaving Mexico to keep secret their relocation. Some wished to avoid public judgment. What politician would want their constituents to know that their city was governed by a mayor who was not living in town anymore? What would the public think of an attorney general who relocated his family to the U.S. out of fear that the state couldn't protect their safety? Who would want to read a newspaper written by journalists who lived far away from the place they wrote about? Those who relocated also departed silently because many were running away from kidnappers and extorters. They had left their homes quickly, leaving neighbors wondering where the family next door had gone.

It soon became clear that something strange was going on, particularly in border states.

Even if the U.S. as a whole had witnessed a decrease in the number of Mexican immigrants[5], the opposite seemed to be happening in U.S. cities located at the border. Mexican immigration to El Paso, McAllen, Brownsville and other cities in Texas has actually increased, increasing the price of housing and promoting the development of brand new housing complexes that target Mexican consumers. Preliminary reports estimate

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[5]Mexican immigration to the U.S. has diminished steadily since 2000 (MPP, 2009). With figures dropping from an estimated 525,000 Mexicans leaving their country each year, to live in the U.S., to fewer than 100,000, current migration figures are the lowest on record (Sheridan, 2011; Cave, 2011). Among the main reasons behind this diminishing trend are changes in Mexico's demographic profile (Terrazas et al., 2011), an increase in the number of Mexicans earning college degrees (Ibarraran and Lubotsky, 2007; Orrenius and Zavodny, 2005), a constant increase in the costs associated with crossing the border (Massey et al., 2003; Orrenius, 2004; Cornelius and Lewis, 2007; MPP, 2009), and the recession that the U.S. economy has been facing since late 2007 (Papademetriou et al., 2011).

that about 115,000 Mexicans have arrived in U.S. border cities since 2006 (IDMC, 2010; Rice, 2011). El Paso, for example, has grown by 50,000 inhabitants from 2009 to 2011; at least 30,000 of these new inhabitants are Mexicans moving from Ciudad Juárez [Rubio Salas interviewed by Alvarado (2011)].

Ethnographic evidence also showed that newer Mexican immigrants had little in common with the traditional Mexican immigrant. In border cities, it became increasingly common to see Mexicans wearing Prada and driving Mercedes-Benz cars. Mexicans increasingly crossed into Mexico to work and came back to the U.S. to sleep and spend their weekends in their newly constructed gated communities.[6] The new migrants were investors and relatively wealthy businessman who used to live in Mexican border cities and had recently changed their residency to the U.S. They entered the U.S. legally, bought property and opened businesses (Martinez and Torres, 2011).

Changes could also be felt in Mexico. According to census figures (INEGI, 2010), some Mexican cities had unexpectedly depopulated from 2005 to 2010. The usual general predictors of population trends, which had previously been quite successful in predicting the yearly population in Mexican counties (Partida Bush, 2008) were now producing higher than normal prediction errors.

These unexpected migration outflows were particularly prominent in Mexican border cities, probably because migration to the U.S. was relatively less costly there.[7] Im-

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[6]Citizen, interviews by author, 2008

[7]The integration of U.S. and Mexican cities located at the border is quite strong and rooted in historically important but informal agreements. Many border cities were divided artificially when the Rio Bravo was determined to be the natural frontier between Mexico and the U.S. during the late 19th century.[8] The border divided families and communities, leading Mexican and American authorities to create informal mechanisms to facilitate transportation among border-city inhabitants. Many of these

portant Mexican border cities were among those experiencing the largest unexpected population outflows from 2005 to 2010. While Mexican border counties lost an average of 35,255 inhabitants unexpectedly from 2005 to 2010, non-border counties tended to gain an average of 1,297.86 inhabitants. On average about 8,103.63 people left unexpectedly in border counties. Juárez had lost 150.36 thousand inhabitants–about 11% of its population. Other cities like Tijuana, Reynosa, and Matamoros had lost between 6%, 9% and 4% of their population during the same period (Partida Bush, 2008; INEGI, 2010). Small towns like Praxedis de Guerrero, Mier and Guadalupe have faced unexpected outflows of more than 25% of their entire population (Partida Bush, 2008; INEGI, 2010).

Some accounts have claimed that about 230,000 Mexicans moved out of violent cities, 115,000 of them to relocate to the U.S. during this period (IDMC, 2010). Other more radical predictions have claimed that 120,000 was the figure only for Juárez City (Martinez, 2010).[9]

Yet, the truth is nobody knew the extent of this movement.

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mechanisms have lasted over the years, generating a much more porous border than Washington and Mexico City seem to acknowledge. Students in Juárez, for example, pay local tuition at the University of Texas at El Paso. Furthermore, border cities have instituted "day border passes," a form of one-day-visa given to Mexican border inhabitants that allow them to cross into the U.S. without a formal visa or passport.

[9]The accuracy of all these figures remains doubtful as none of these sources explain their methodology. Some claim this number may be an underestimation as it does not account for Mexicans who left on a temporary basis, checking in at U.S. hotels for short periods of time, "to rest from the constant violence (Corchado, 2009)."

5.3 Empirical Specification

Criminal violence indeed propelled these changes in immigration dynamics, as I argue in what follows, by presenting empirical evidence linking drug violence and organized crime activities to Mexican migration outflows.

My main specification is a linear regression model whose dependent variable is the number of Mexicans unexpectedly leaving their county of residence from 2005 to 2010. All figures were scaled to represent rates per 100,000 inhabitants. To measure unexpected migration outflows I compare population predictions (Partida Bush, 2008) to real population figures (INEGI, 2010) at each of the 2,475 thousand Mexican counties.

This specification was made possible because of a mistake made by Mexico's National Population Council (Consejo Nacional de Población y Vivienda, CONAPO). Every year, CONAPO predicts county-level population figures, considering demographic changes and expected immigration outflows. Given how important migration outflows to the U.S. are as predictors of population figures, CONAPO uses very sophisticated methods to predict the total number of Mexicans that will change their residency to the U.S.[10] The predictions take into account economic conditions both in Mexico and the U.S., surveys, polls, previous census figures, and panel studies. Every five years, when a census is conducted in Mexico, CONAPO predictions can then be checked for accuracy. Their predictions are normally quite good. As Figure 5.1 shows, official predictions in 2010 were particularly off. The graph shows each of the 2,450 Mexican municipalities according to

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[10]Predictions are based in the algorithms developed by Bean et al. (2001) and Corona and Tuirán (2006) using Mexican and US Census figures (1950 — 2005), the Current Population Survey (1990 – 2005) and the American Community Survey (2002 — 2005). For more details on the specification see Partida Bush (2008).

the size of the population that was incorrectly predicted for 2005 and 2010. Positive [negative] numbers refer to municipalities where predictions calculated more [less] population than actual. In 2005 most of the observations were close to zero, meaning predictions were accurate; the dispersion of 2010 is much larger. In 2005, official statistics failed to predict the migration of 866,000 Mexicans, in 2010 they failed by 2,394,000, an error that is 176% higher.

Figure 5.1: CONAPO's Mistaken Predictions
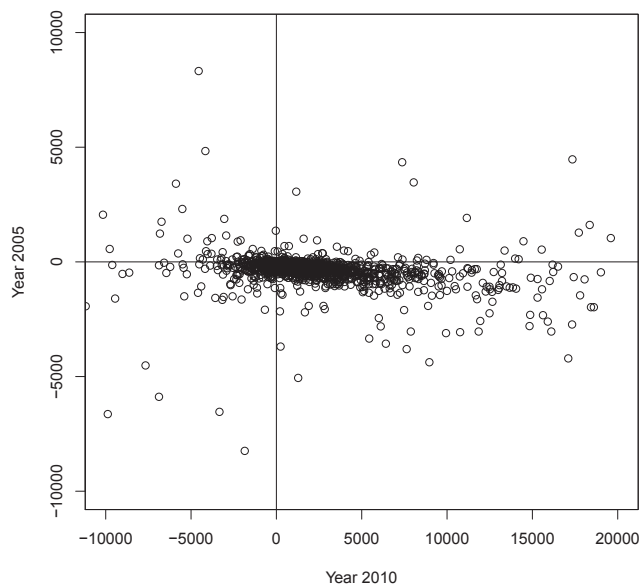
Source: Partida Bush (2008); INEGI (2005)

In my main specification, I compare CONAPO predictions for 2010 to census figures in 2010 to capture population outflows that could not be predicted even while

accounting for changes in economic or demographic conditions in Mexico and the U.S. The level of analysis is the municipality. I called my dependent variable "Unexpected outflows" and defined it as the number of individuals (per 100,000 inhabitants) in a municipality that CONAPO predicted would live there and, according to the census figures, were not. Unexpected outflows are larger when CONAPO predicted more people would be living in a county than the census captured.

In every specification, I have added a control to account for other factors that cannot be measured, which cause possible errors in CONAPO's prediction. I proxied for "expected CONAPO's errors" by measuring the error that CONAPO had in its previous predictions. I used the estimation errors that CONAPO had in the second to last census year (Partida Bush, 2008; INEGI, 2005) because time-wise, I expect the 2010 municipalities to be more similar to what they were in 2005 than to any other earlier census year. The logic behind this proxy is to control for counties that have proven to be difficult to estimate for CONAPO. Some counties may have inherent characteristics that make their population figures more variable and thus, highly susceptible to incorrect estimation.

As my independent variables, I used measures of three of the most common types of organized crime violence in Mexico: homicides linked to drug trafficking, extortion, and kidnapping. These variables quantified the total number of incidences of these crimes per county, per 100,000 inhabitants for years in between census (i.e. 2006 to 2009). Drug–related homicide figures come from Mexico's National Security Council (SNSP, 2011), an institution that counts the number of homicides related to activities of criminal organizations and provides monthly figures per county from December 2006 to December

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2010.[11] Kidnapping and extortion figures were obtained from Mexico's state-level offices of the attorney general (SNSP, 2011).

I have also controlled for social and economic factors, which may have generated unexpected economic conditions within Mexico and which could have changed migration patterns more than the predictions of CONAPO have allowed. Thus, I have added two sets of controls: employment and education figures. Academic research indicates that these two variables are among the most important drivers of migration (Massey and Arango, 1998). Particularly, research shows that the number of college graduates is an important deterrent of migration to the U.S. and enhances migration within Mexico, from rural to urban areas (MPP, 2009). Higher levels of employment normally translate into less migration (Tuirán et al., 2000a,b).

A dummy was added for each of the 39 Mexican counties located right at the border. The intention is to capture, in a very indirect way, the ease of migration decisions. The assumption is that any factor increasing the willingness to migrate among Mexicans will have an increased effect on border counties, where migration costs are lower as compared to the rest of the country. An alternative specification also added a dummy for each of the five border states.

Finally, as part of robustness tests, extra controls and specifications were tested. An alternative specification adds figures of general homicides not related to organized crime as assessed by INEGI (2011), to account for the effects that other forms of violence may have had in driving migration. State fixed effects (32 clusters, one per Mexican state)

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[11]Mexican authorities follow strict procedures to identify whether a homicide is related to organized crime according to the characteristics of the event as well as intelligence reports. For more information, refer to SNSP (2011).

were also added.[12]

General descriptive statistics of the dependent and independent variables are presented in Table 5.1.

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[12]I tested for weighted coefficients based on the inverse of their squared residuals. The use of weights did not change coefficients or standard errors meaningfully. These results are available upon request.

Table 5.1: Descriptive Statistics

| | Dependent Variable | | Independent Variables | | | | | |
	Unexpected Ouflows	drug−related homicides	Extortion	Kidnapping	Employment	College Degrees	General Homicides	Previous Estimation Error
Min	0	0	0	0	1,604	0	102	-20,760
Stand. Dev.	3,543	95	1.23	1.65	23,415	3,725	12,6578	1,526
Mean	1,217	29	0.11	0.17	67,030	3,581	42,079	-1,560
Max	62,149	1,552	36.64	34.18	658,998	36,643	1820,888	4,928

Note: All figures were standardized as rates per 100,000 inhabitants at the municipal level. The level of analysis is the municipality. Unexpected outflows are the number residents (per 100,000 inhabitants) of a municipality that Mexican population offices predicted would live in a community and yet, census authorities failed to capture.

5.4 Results

The results of my specification are given in Table 5.2, and they strongly support my hypothesis. Migration outflows are higher in places with higher drug–related violence and crime, even accounting for factors such as employment and human capital. Several models were specified.

Model 1 presents results without controlling for non–drug–related homicides while the rest of the specifications (Model 2 and 3) control for them. Controlling for non–drug–related homicides does not change the results but improves the model's fit. Drug–related violence is strongly linked to migration flows, independent of the general homicide rate in a county. Furthermore, in every specification the coefficients of drug–related homicides are larger than those of general homicides, which confirm my hypothesis that Mexicans are making migration decisions based on organized crime activities rather than general security concerns. The reason why drug–related homicides are better predictors of migration flows than general homicides may be that drug–related homicides are a newer phenomenon that was not an important cause of homicides before 2004 (Rios and Shirk, 2011). These murders may leave a longer lasting impression in their communities because of their particularly violent features. Unlike general homicides, the victims of drug–related homicides are tortured and beheaded, and their bodies are dumped on the streets, hanged from pedestrian bridges, or displayed publicly next to messages directed at rival trafficking organizations.

Model 3 adds fixed effects per states to capture changes at the state level that may have influenced migration dynamics —for example, we should expect citizens living

Table 5.2: Empirical Results: Drug–related Crime and Immigration Outflows

	Model 1	Model 2	Model 3
drug–related Homicides	5.424*	5.386*	6.349*
	(2.325)	(2.331)	(2.64)
Extortion	12.416*	12.21*	13.031*
	(5.771)	(6.445)	(6.091)
Kidnapping	-1.636	-1.533	-2.188
	(1.75)	(1.677)	(3.519)
Employment	-0.022**	-0.021**	-0.018*
	(0.008)	(0.008)	(0.008)
College Degrees	-0.086***	-0.119***	-0.116***
	(0.024)	(0.025)	(0.025)
Border county	2395.069*	1480.127	1188.711
	(1123.91)	(1057.78)	(1087.69)
Non–drug–related Homicides		0.002***	0.002***
		(0.001)	(0.001)
Fixed Effects?	No	No	Yes
Error Correction	0.709***	0.704***	0.771***
	(0.105)	(0.104)	(0.116)
Constant	3929.086***	3905.937***	2445.998**
	(614.76)	(613.901)	(788.03)

Note: OLS coefficients (top) with White-Huber corrected standard errors (below). For significance measures: $+$ $p \leq 0.1$, * $p \leq 0.5$, ** $p \leq 0.01$, *** $p \leq 0.001$. I identified with $++$ the preferred specification. The dependent variable is the number of Mexicans unexpectedly leaving their county (outflows) (INEGI, 2010; Partida Bush, 2008). Independent variables intend to capture (a) the effects of organized crime activities (drug–related homicides, extortion and kidnapping) (INEGI, 2010; SNSP, 2011), and of (b) economic variables (number of college graduates, and employment rates) (INEGI, 2010) in migration decisions. Controls were added to account for potential measure errors in the dependent variable (Partida Bush (2008); INEGI (2010) —see text for further explanation), and the effect of non–drug–related homicides. Fixed state effects and a dummy for Mexican counties located at the US border were also added to some specifications.

in states with justice systems that are highly regarded by the public to be less affected by drug–related violence, even if the number of homicides are the same as those in states where citizens are less confident of their governments. The goal of the empirical specification is to show that outflows are correlated with organized crime activities, which is why Model 3 is considered the preferred specification.

In all specifications, drug–related homicides are an important factor in Mexican migration outflows. In my preferred specification (Model 3), drug–related homicides increased the number of Mexicans unexpectedly migrating out of their residency counties by 220,291. Every one-point increase in the rate drug–related homicides per 100,000 inhabitants is correlated with a 6.34% increase in the number of Mexicans fleeing their county of residency. As an example, consider the case of Tijuana; in the period from 2007 to 2008, its drug–related homicide rate changed by 31.04 points (going from 176 to 614 drug–related homicides in just one year). If the results of the model hold, an average of 5,367 Mexicans left Tijuana, just during 2008, while fleeing from drug–related homicides.

drug–related homicides are less robust predictors of unexpected immigration inflows; actually, when fixed effects per state are added, the variable becomes insignificant. That is to say, even if drug–related homicides are correlated with people leaving their counties, this does not mean that, when deciding where to relocate, people will feel more attracted to counties with fewer drug–related homicides. Counties with higher drug–related homicides expel people but counties with lower drug–related homicides do not attract people.

Other organized crime activities, particularly extortion, also have had important effects on migration flows. Extortion is correlated with unexpected migration outflows

—and less robustly with unexpected migration inflows. In the preferred specification, every additional case of extortion per 100,000 inhabitants increases unexpected migration outflows in 13.03 per 100,000 inhabitants. That accounts for a total of 44,401 Mexicans relocating due to higher levels of extortion. From 2007 and until 2010, Tijuana has lost about 926 citizens because of extortion; other border cities like Nuevo Laredo, Reynosa and Juárez lost 286, 334 and 221, respectively. Kidnappings were not significantly correlated with migration outflows or inflows. This result is quite robust among all models and is consistent with what we would expect given the particularities of the victims of this crime. Kidnappers pick their victims according to their wealth not by location. Because kidnapping victims are hunted, migration does not change their attractiveness as targets.

Traditional economic explanations of migration flows take the expected signs and are significant in all outflows specifications. An increase of one point in employment rates or in the number of college degrees per 100,000 inhabitants reduces migration outflows in 0.01 and 0.11 per 100,000 inhabitants, respectively. Neither employment nor education are significantly correlated with migration inflows. In other words, when deciding where to relocate, Mexicans do not go to cities with higher levels of education or lower unemployment.

Finally, all variables introduced to correct for CONAPO's error were strongly significant. Indeed, it seems like CONAPO faces inherent problems in measuring population flows with respect to some places more than others. In general, places where CONAPO's 2005 predictions were upward biased (i.e. CONAPO predicted more people than the 2005 census indicated) had the same upper bias in 2010. The relationship is 1 to 0.77 in the preferred specification, meaning an error of 1 in 2005 figures is correlated with an error

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of 0.77 in 2010 figures.[13]

5.5 Mexican Migration Caused by Criminal violence

"Those who can, leave, those who can't, hide."
—Reynosa citizen.[14]

Based on the above specification, drug–related violence yielded a total displacement figure of about $220,291$ individuals from 2006 to 2010, and extortion caused an additional displacement of $44,401$, for a total of $264,693$ Mexican drug-driven immigrants. This figure accounts for all relocations either within Mexico or to the U.S. Some cities though, particularly the most violent ones, seem to create most of the migrants. According to my estimates, Juárez alone has created 40,993 drug-driven migrants, meaning about 15.48% of all displacements in Mexico happened in a city that has just 1.26% of total Mexico's population.

Table 5.3 presents estimates of the number of drug-driven immigrants by their source municipality.[15] It shows the top-ten municipalities with the largest outflows. When

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[13]The fact that drug–related violence is a predictor of unexpected migration outflows is an even more robust finding if we consider that CONAPO's 2010 population predictions assumed migration flows to the US would remain at least as high as those measured in 2000, which was actually the highest point of Mexico-U.S. migration to date (MPP, 2009). Given unexpectedly harsh economic conditions in the U.S., particularly in 2007 and 2008, CONAPO's estimates should result in an upper bias. In other words, CONAPO assumed U.S. labor markets would remain as appealing for Mexicans as they were in 2000, which clearly was not been the case. The fact that, even with CONAPO's upper estimation bias, migration figures were underestimated in border towns strongly reinforces my hypothesis that other non-=economical factors are driving migration decisions.

[14]Interviewed by Author, 2008; Reynosa is a Mexican border city located south of Texas with drug–related homicide rates of about 26.18 per 100,000 inhabitants in 2010(SNSP, 2011).

[15]With my results we cannot know where these people relocated, but preliminary figures indicate that

considering total number of citizens, Juárez, Culiacan and Tijuana, with 40.99, 12.4 and 11.37 thousand inhabitants leaving unexpectedly respectively, are the cities that present the largest figures. In relative size, the cities with the largest drug-driven migration outflows are Guadalupe, Mier and General Trevino, all with about 0.09 inhabitants per 100,000 leaving unexpectedly because of security concerns. The complete list of results per municipality can be accessed in Appendix 1

My estimate of 264,693 Mexican migrants due to violence matches what ethnographic, journalistic, and public opinion accounts described as a massive Mexican exodus both within Mexico and from Mexico to the U.S. In the U.S., Henry Cisneros, former mayor of San Antonio, Texas, classified Mexican migration flows as the "largest since the 1920s" and acknowledged that "whole areas of San Antonio (...) [were] being transformed (Sheridan, 2011)." Within Mexico, opinion polls showed that out of all people interviewed, 17% had changed their residency because of drug violence or to run away from criminal activities (Parametría, 2011). This statistic represents about 2% of the total migration flows in the country, slightly above my own estimates. The impacts of Mexican outflows were felt with such strength in El Paso that some claimed that "a sort of 'Little Juárez,'

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at least half of them moved to the U.S. (IDMC, 2010; Rice, 2011). Particularly, for middle and upper class Mexicans living on the border, migration to the U.S. feels like the natural choice when planning a change in residency. For many of them, it is just like moving from one neighborhood to another within the same city, or as they describe it, "moving to the American side of the city. [16]" Inhabitants commonly refer to border cities using their Mexican or American name almost interchangeably. As the mayor of Laredo said "we are inhabitants of Laredos" –referring to Laredo, Texas (USA) and Nuevo Laredo, Tamaulipas (Mexico)– "the border does not divide our policies or families (Ramón Garza Barrios, Summer 2009, Nuevo Laredo, Tamaulipas)." Yet, Mexican citizens have surely relocated within Mexico also. Indeed, some cities, particularly Acapulco, Chimalhuacan and Tlajomulco have experienced unexpected migration inflows. Tlajomulco for example, grew about 30% more than population predictions had accounted for, Juárez (Nuevo Leon) and Bahia de Banderas also grew in more than 18%.

Table 5.3: Number of Drug-violence Refugees (Selected Municipalities)

Municipality	Refugees	Refugees per million inhabitants
Juárez	40,994	0.31
Culiacán	12,407	0.16
Tijuana	11,372	0.08
Chihuahua	9,024	0.12
Acapulco	4,785	0.07
Torreón	3,798	0.07
Guadalajara	3,720	0.02
Gomez Palacio	3,533	0.12
Mazatlán	3,477	0.09
Nogales	3,001	0.16
Guadalupe	924	0.99
Mier	622	0.93
Gral. Treviño	137	0.9
Saric	211	0.84
Guerrero	301	0.76
Matamoros	258	0.59
Dr. Coss	101	0.58
Arizpe	171	0.56
Guelatao de Juárez	29	0.55
Praxedis G. Guerrero	459	0.53

Note: Top-10 municipalities with the largest number of drug–related homicides in real and relative (per 100,000 inhabitants) terms. The number of drug-realted refugees for all municipalities is available upon request.

akin to Miami's Little Havana, was emerging" (Martinez and Torres, 2011). Housing, schooling, business associations and many other spheres changed significantly to adapt to new migration patterns.

As Figure 5.2 shows, most violence-driven migrants originated in border cities because Mexico's security issues are particularly acute there. Drug–related homicides concentrate in border cities because US-Mexico crossing points are the most profitable part of the drug trafficking business chain (See Figure 1). When a kilogram of cocaine crosses into the US, its value increases from $6,000—$10,000 to up to $19,000 [DEA cited by (Brouwer et al., 2006)]. Mexican border towns are the centers of operation for most Mexican drug cartels. In fact, two of the most important criminal organizations in Mexico are named after border cities: the Tijuana Cartel and the Juárez Cartel.

The six Mexican states located at the border accounted for 47.81% of all drug–related murders despite containing just 17.62% of all Mexico's population. Chihuahua, south of Texas, was the most violent border state during 2006-2010, with 10,126 murders, followed by Baja California and Tamaulipas with 2,016 and 1,477 drug–related homicides respectively. Municipalities located near the US-Mexico border, particularly those containing large border cities, were also among the most violent. Approximately 30.04% of all drug–related homicides occurred in 39 border municipalities, which represent less than one percent of the roughly 2,457 municipalities in Mexico, and just 6.06% of the country's population.

Empirical evidence shows that the influx of immigrants generated by drug–related violence actually had a positive effect on real estate markets in Texas. Housing prices, particularly at El Paso, remained steady even in the face of the recession largely because

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Figure 5.2: The Geography of Violence–driven Migration
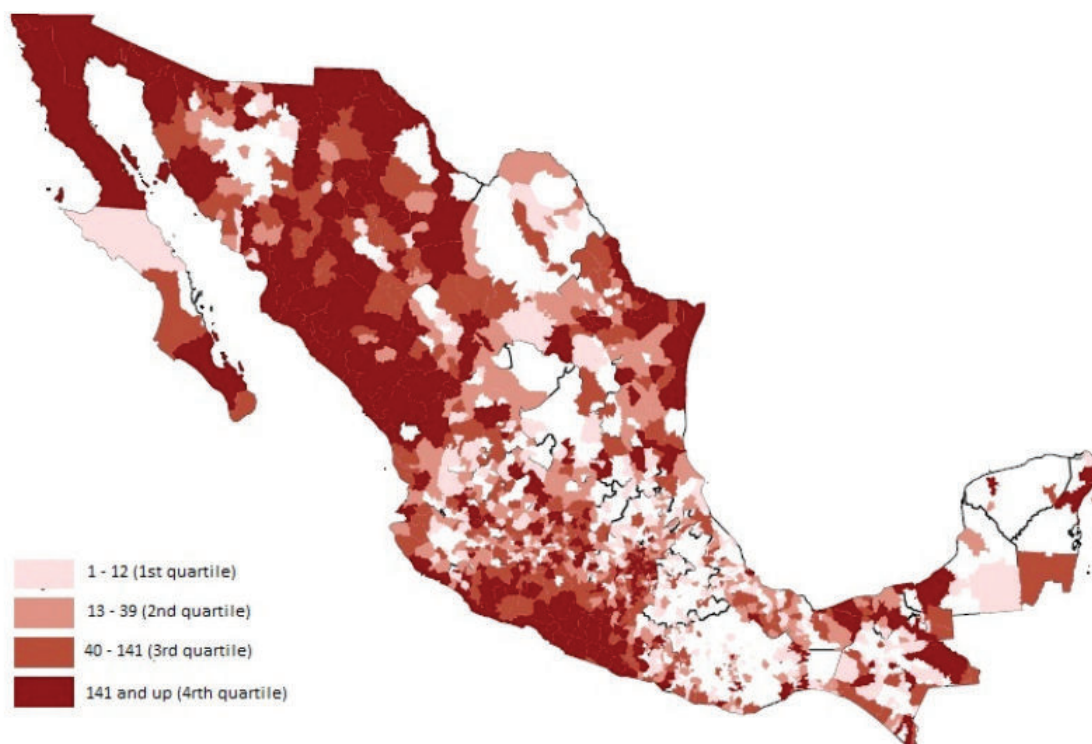
Note: Number of drug–related refugees by quartile; estimations based in preferred
specification.

of the influx of Mexicans buying properties (Rice, 2011). Completely new housing developments were constructed in Texas border cities like McAllen and Brownsville, many of them specifically targeting Mexican markets, tastes, and needs. As a real estate developer in McAllen acknowledged, "the tendency is towards developing gated communities, close to border bridges, with larger kitchens, and more rooms because our customers have larger families and need to cross every day to Mexico to work."[17]

Mexicans oftentimes moved with their businesses, especially when these businesses were already targeted towards American consumers. Mexican restaurants, bars and hair salons closed their doors in Mexico and re-opened in the U.S. Relocating allowed American clients who were increasingly fearful of crossing into Mexico because of criminal turf battles to maintain their regular spending habits, and most importantly, allowed Mexican businessmen to avoid paying extortion fees.

Extortion was among the most economically damaging activities of Mexican criminal organizations. Criminals initially used extortion to target illegal business such as prostitution rings and casinos, industries in which the probability of being reported to the police by the owner was exceedingly low. However, the extortion of businesses soon extended into the legal sphere and became the most accessible means of quickly acquiring cash for criminals. This crime deeply affected business dynamics. High protection fees and intimidation forced businesses to go into bankruptcy. Some have estimated that as many as 700 businesses closed in Nuevo Laredo, Tamaulipas, in 2006 (Garza, 2009).[18]

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[17]Interviewed by author, 2008

[18]However, business relocation is not an easy task and fails most of the time. Businesses cannot remain profitable paying U.S. salaries and following U.S. regulations. The move itself is costly, and even worse, the attractiveness of business may be reduced by the change in location itself. What is considered a

Estimates for Juárez point to about 10,000 business closings from 2007 to 2010 (Torres, 2011b). Furthermore, extortion pushed some businessmen to take radical actions such as creating organizations that resorted to violence for self-defense. In fact, some businessmen in northern Mexico claim to be part of an association called "The Zeta Killers"—referring to Zetas, a drug cartel well known for their participation in extortion and kidnapping. The Zeta Killers have taken credit for the assassination of hundreds of Zetas.[19] The bodies of tortured traffickers regularly appeared in cities around Mexico like Boca del Rio, Benito Juárez, and Celaya next to messages signed by this group such as, "We are the new group of the Zeta Killers and we are against kidnapping and extortion, and we will fight against them in all the states for a cleaner Mexico (sic) " (SIPSE, 2009).

Besides ethnographic accounts, the exodus of businesses can be tracked to some extent by the number of U.S. "Investors visas" (E1-E2) given to Mexican citizens. While from 2001 to 2005 only 7,603 visas were granted, from 2006 to 2010 the number increased to 31,066. Mexican businessmen have even started to organize themselves into self-support clubs around the border. In El Paso, for example, a club named "La Red" ("The Network") provides new-comers with advice on how to relocate their business successfully in the U.S. As of 2011, "La Red" has almost 500 members, most of them enrolled just recently (Martinez and Torres, 2011).

The school system also changed in important ways. Officially, there is not way to count the exact numbers of students who transferred from Mexican schools to El Paso

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charming, local restaurant in Juárez is often perceived as a low-quality venue by El Paso residents, who are generally used to higher quality standards (Garza, 2009). Fulfilling legal requisites such as getting a SSN and passing the fire inspection is also difficult for relocated business.

[19]Citizen, Interviewed by author, 2008

School District, but some numbers provide evidence of Mexicans increasingly studying in the U.S. The number of students enrolled in bilingual or Limited English Proficiency programs increased by 1,330 students from 2007 to 2010, even as the total number of students enrolled at the school district dropped from 45,049 in 2007 to 44,778 in 2010 (Martinez and Torres, 2011; Torres, 2011a).

Immigrants who moved due to violence also changed Mexican towns. The number of unoccupied dwellings in Mexican border cities became quite high and correlates strongly with the rates of drug–related homicides. According to census figures, in 2010, 26% of all dwellings in Juárez were unoccupied, 20% in Tijuana, and 19% in Mexicalli. Other non-border cities facing drug-violence also had significantly low levels of occupancy: Chihuahua was 15% empty, and Monterrey faced the same situation at an 11% rate (Martinez and Torres, 2011).[20] Some claim that forced migration impacted smaller, rural towns to the point of creating *de facto* ghost towns. Instances in which teachers, doctors, policemen, and public servants left their communities without previous notice fearing violent episodes were recorded in the states of Tamaulipas, Michoacán, and Chihuahua (Zermeño, 2011).

Ciudad Mier, a border county located south of Texas, is a quite impressive case in this regard. My estimates account for a total displacement of about 430 individuals, something considerable given that the city reports only 6,662 inhabitants. Most of Mier migration happened in mid-2010 when Tony Tormenta, a Mexican drug-trafficker, was

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[20]A poll conducted in Juárez showed that only 6.95% of all dwellings were empty, totaling about 32,858 residencies (CIS, 2011). Figures are debatable.

assassinated.[21] Mier inhabitants, fearing violence and retaliation from Tony Tormenta allies, left the city immediately, creating a true state of emergency. The exodus of at least one-hundred families was so abrupt that Mexican authorities had to install a refugee camp in a neighboring community (Guzmán, 2010). Other cases of refugee camps, in response to traffickers' turf battles, have also been created in Michoacán. In this Southern Mexican state, forced and unexpected migration has displaced at least 2.5 thousand Mexicans into refugee camps.[22]

Immigrants within Mexico favored cities with larger markets and employment opportunities for relocation. Mexico City, for example, became a quite attractive place (MEPI and ITESM, 2011). In the past, few businessmen desired to move to Mexico City because of its bureaucracy, the high cost of real estate, and lack of bank financing. Nonetheless, in 2010, about 6,500 businesses relocated into Mexico City coming from other states (MEPI and ITESM, 2011). This relocation is not surprising given that Mexico City has not experienced high levels of drug–related violence and, in fact, was safer in 2010 than at any point since 1994.

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[21]Alfredo Corchado, interviewed by author, August, 4th, 2010

[22]Indeed, migration is not restricted to border communities but has also impacted other highly violent counties within the country. Journalistic accounts have identified at least seventy counties where drug-violence has had important consequences for migration flows, particularly in the Mexican states of Chihuahua, Guerrero, Durango, Michoacán, Nuevo León, San Luis Potosí, Sinaloa, Sonora y Tamaulipas (Zermeño, 2011).

5.6 Final thoughts

"I know that we came here illegally, but at least we can sleep in peace now"
–Citizen of Juárez relocated at El Paso (Torres, 2011b)

Much of the discussion, with respect to the consequences of Mexico's drug violence for the U.S., focuses on whether violence may be spill-over from the border and may soon injure American border towns. Little attention has been paid to other consequences like increments in illegal Mexican immigration. This chapter has provided a broad understanding of the consequences of Mexico's drug war for citizens and the U.S. in this regard. Illegal migration has become increasingly appealing for Mexican citizens, who are submerged in a war as third–party observers. In fact, a recent study measuring Juárez citizens' opinion, with respect to moving out for security reasons, found that 55% of the population would leave the city if they had the opportunity to do so (Torres, 2011a). The policy implications are important: if we previously have thought migration flows could be stopped by increasing Mexico's economic development, now we know that the task will be more challenging. We will need first to reduce violence.

In this chapter, I have portrayed a fascinating change in Mexican immigration patterns. Immigration figures have reached their lowest point since 2000. Better socio-economic conditions in Mexico and economic hardship in the U.S. are among the main causes behind this trend. Yet even if the U.S. as a whole is receiving fewer Mexican migrants, the opposite is true for cities located on the border. Cities in Texas and other U.S. border states are not only receiving more Mexicans but also a different type of

migrant. New Mexican migrants belong to the upper and middle class and cross into the U.S. legally, some even bringing their own businesses with them and buying property. As a result, the face of some border towns has changed significantly. Housing prices have increased, many Mexican businesses have opened, and enrollment in English as a second language school programs has gone up.

I have presented the first quantitative evidence available, showing that the reason behind these *sui generis* Mexican migration patterns cannot be found in traditional explanations of migration dynamics. Mexicans are not crossing into the U.S. to get better-paying jobs or to run away from economic hardship, –or at least economic factors are not primary. Instead, I argue that Mexicans are migrating out of fear of drug–related violence and extortion which has spiked since 2008. This fear is particularly strong in border counties where Mexican drug-trafficking organizations have caused large increases in homicides rates, and where migration to the U.S. entails relatively low costs.

My estimates showed that, even controlling for normal conditions fostering migration, like employment and education, drug–related violence and extortion explain a significant part of migration flows both within Mexico and from Mexico to the US. In my preferred specification (model 3), every one-point increase in the rate of drug–related homicides per 100,000 inhabitants is correlated with 6.34 Mexicans fleeing their county of residency. A total of 264,693 Mexicans have moved their residency in direct response to drug–related homicides.

My methodology prevents me from disentangling some complexities in migration patterns, e.g. the proportion of Mexicans who left violent cities to relocate to other less-violent cities within Mexico versus those who did so in order to relocate to the U.S.

Even so, it is clear from case studies of border communities, such as Mier and Juárez, that quite a significant share of immigrants are actually crossing the border to live in the U.S, particularly in Texas. Further research would be necessary to disentangle these two different migration destinations. The goal of this piece has been to show that traditional economic factors, determining migration patterns from Mexico to the U.S. cannot account for large, recent migration flows.

For social sciences as a whole, my results provide empirical evidence that can improve our understanding of migration studies. I demonstrate the benefits, in this regard, of considering variables related both to crime and to the behavior of non-state actors. The decisions to relocate cannot be grasped entirely by our focus on cost-benefit monetary analysis and social capital. As I have shown, even the best estimates predicting migration outflows are subject to important errors, unless we introduce as part of our independent variables information about the dynamics of crime and violence within territories. CONAPO's estimates were flawed in 2010 because Mexican demographers understated the contributions that these variables have to migration dynamics.

I have also contributed to our understanding of puzzles long researched by conflict scholars. In particular, the Mexican case provides tangible evidence of the precise ways in which non-state actors affect the decisions made by citizens and other agents within the state. I have presented robust quantitative evidence to show that violence generated by criminal organizations affects the location of human capital within a polity. My numbers show that academics researching the civilian burden of conflict (Wilson, 1997; Cullen and Levitt, 1999; Oliver and Shapiro, 2006) were right to assert that violence has many and

quite nuanced effects that still need to be studied.

Conclusion

This work has advanced a theory of corruption, criminal organizations, and violence to show how political institutions set incentives and constraints that influence how criminal organizations behave, organize, compromise or fight one other. My argument has shed light on the reasons why many criminal organizations are able to operate profitably without major episodes of violence. The argument also illuminates the causes of Mexico's large increases in drug–related violence. As I have argued, the propensity of criminal groups to deploy violence increases when formal or informal political institutions are decentralized because criminal organizations are less likely to be punished. Centralization allows the government to internalize the costs of injurious criminal behavior; decentralization does not. As a result, criminal organizations that use violence as their strategy of problem-solving are punished with larger probability in decentralization.

In Short

My theory was been drawn out with a formal model, exemplified with an analytical narrative about Mexico's drug trafficking industry, tested with an empirical study of

Mexico's cocaine markets, and taken one step further by explaining its consequences for migration flows.

I began by defining decentralization. Decentralization indicates the degree to which the government can make policy decisions as a cohesive, homogeneous decision-making body. Centralized environments allow a top-layer of government to have a monopoly of authority and to be a monocentric system with a single decision-making body. Decentralized environments, on the contrary, are characterized by dispersed decision-making. Under decentralization, multiple agencies make policy decisions across different levels of government, each of which exercises autonomy without regard for the authority of the top-layer. As such, decentralization connotes many centers of decision-making that can either be formally independent of each other or simply constitute a loose inter-dependent system of relations.

I next presented a formal model. The formal model provided me with an apparatus to show the ways in which decentralization could shape criminal behavior. I showed that decentralization (1) impacts the rules of corruption, (2) impacts the propensity of competing groups to violently confront one another, and (3) increases their incentives to arm themselves in order to be protected from potential confrontations. The insights provided by the model can be summarized by three results and two remarks:

Result 1: Decentralization increases the total demand for bribes, and the total amount of money that criminal groups need to pay to avoid prosecution.

Remark 1.1: Decentralization reduces top-level government's utility by decreasing its capacity to collect bribes

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Remark 1.2: The size of lower-level bribes is determined by the capacity of the top-level government to punish lower-level governments.

Result 2: The propensity of criminal organizations violently to confront one another increases in decentralized political regimes.

Result 3: Criminal organizations arm themselves only under decentralization.

These results provide a straight-forward intuition. First, decentralization makes corruption relatively more expensive, because many levels of government need to be bribed simultaneously in order to avoid prosecution (assuming that bribes are partial complements). Yet, even if corruption is more expensive, criminal groups still demand more of it because by bribing levels of government that were previously not bribable, criminals get access to new sources of illegal profit (assuming that bribes at different levels of government yield differentiated benefits).

Second, criminals become more prone to violent behavior in decentralized institutions, because security policy decisions cannot be made in a coordinated fashion among different levels of government. This dispersion of decision making power reduces the probability that criminals will be punished because corruption agreements made with one level of government may inhibit law enforcement operations conducted by another. It also reduces punishment because different governments may distrust each other, reducing their willingness to share intelligence information. Furthermore, different levels of government may not be motivated to collaborate to enforce the law, which may leave criminal organizations unpunished in certain jurisdictions.

Finally, because a decentralized government is one that cannot act with coordi-

nation, government cannot efficiently protect criminal organizations from their enemies; thus, in decentralized environments criminals are more likely to arm themselves. Without a centralized command, different governments may protect different competing criminals, creating unregulated confrontation for survival between groups that are enemies. When corrupting one government does not entail the elimination (or control) of rival groups, criminal organizations need to take their protection into their own hands and thus arm themselves.

Next, I applied the model to my case study, Mexico. I aimed to understand why drug trafficking organizations became increasingly violent after crackdowns conducted since 2004, and particularly since 2007, and not after crackdowns conducted in the nineties. The key, I argue, lies in the decentralization that Mexico faced during the late-1990's and 2000's, which inhibited different levels of government from deterring injurious crimes. A centralized Mexican government, during the 1990's, could punish belligerent criminal organizations cohesively, along all its territory, independently of the jurisdiction in which criminals operate. Those punished could not continue to conduct illegal business because they would have lost the favor of the only potential source that might be corrupted: a central government. The story was different in the 2000's when a decentralized Mexican government was fractured and thus dysfunctional. Under such circumstances, belligerent criminal organizations lost the favor of the government in which violence was taking place, but they could still remain in business by appealing to the government of another jurisdiction. The enemies of one government could still be the friends of another government, making violent confrontation less costly and more probable.

Patterns of criminal violence are understandable once decentralization is consid-

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ered. If in the nineties, criminal organization remained peaceful after the capture of their leader, it was because they needed to be. Centralization had created such a necessity. In contrast, in the 2000's criminal organizations like that of Beltrán Leyva split into factions that fought each other for turf because now they could. Decentralization had allowed them to do so.

My theory was tested empirically. I showed that decentralized municipalities[23] have lower levels of control over criminal behavior than centralized ones. As a result, drug traffickers defy the government by supplying cocaine in Mexico's domestic markets in municipalities where different levels of government are ruled by different political elites. I presented logits, proportional hazard models with time-varying covariates, and matching exercises to support this theory. Indeed, my empirical tests showed a negative significant and robust relationship between centralization and lack of domestic drug markets. I interpret this result as evidence of a higher control of criminal activities by governments that can act coordinately.

Finally, I concluded this dissertation with a chapter on the role of drug violence in patterns of migration. The chapter presented an empirical specification to assess the correlation between high levels of drug–related violence and migration outflows. Additionally, the chapter also estimated the total number of Mexicans who had migrated out of their home communities fearing drug violence and extortion.

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[23]Centralized municipalities were empirically operationalized as those in which the same party rules different levels of government.

The Contribution

As a whole, this work has been an effort to show the role that decentralization has in shaping corruption and criminal violence, and an attempt to rationalize the behavior of criminal groups and their interactions with government officials within the context of political science. Three main contributions, for political science and policy research, may be highlighted. First, in response to Blattman and Miguel (2010)'s seminal work on civil wars literature, my work proposes a tangible institutional design which encourages confronting groups to compromise rather than to fight. I have shown that decentralization is an institutional design which sets the condition for criminal groups to behave more or less violently by impacting the probability of punishment. Second, following Helmke and Levitsky (2006), I have shown how the state can change informally, in its structure, even while remaining formally intact. My argument stresses an urgent task for political scientists: to analyze the role of informal rules in shaping decisions taken by non-state actors. Finally, and more broadly, this work has shown that social sciences would greatly benefit from questioning the common assumption that insurgency groups always antagonize the state. I encourage the discipline to consider cases in which insurgency groups cooperate with it.

My first contribution is to describe an institutional design that can diminish violence. This design (i.e. centralization combined with different levels of government) induces potentially violent groups to compromise, agreeing peacefully to resolve conflicts, rather than to confront one other. Indeed, my argument indicates how institutional designs, even if they are not directly involved in controlling violence, nevertheless may do

so. Indeed, even if the relationship between centralized political control in Mexico and criminal violence was not immediately evident, my work brought the importance of this relationship to the forefront. Yet, this is only one of the many indirect ways in which institutional design may impact the capacity of the state to induce peace. Many more will be found in future research.

A second contribution comes from arguing Helmke and Levitsky (2006) in favor of introducing informal institutions into a debate that has largely been centered on understanding formal mechanisms that induce groups to fight (Tajima, 2010). I have shown that not only formal rules, but also informal rules, dictate the motivations and actions of insurgency groups. If we ignore the role of informal rules, we will be unable properly to understand the relationship between non-state actors and the state, even more so in cases in which non-state actors, as criminal enterprises, operate in illegal markets. My case study has demonstrated that criminal incentives in Mexico changed radically when different levels of government lost their informal means for collaborating with one another. In a federal country like Mexico, one that does not allow reelection at any level of government, cooperation between different levels of government is mostly driven by party loyalties. Even if Mexico had always been a federal government, in a formal sense, *de jure*, it only became a federal government *de facto* when informal centralization ended. There may be many more instances, like Mexico, in which the behavior of state and non-state actors remain unexplained if one disregards the role of the informal mechanisms.

Finally, by framing my puzzle within the civil wars literature, I contribute to elucidate the limitations of this literature, particularly those that come from the broadly accepted but quite strong assumption that non-state violent groups want to overthrow the

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ruling elite (Blattman and Miguel, 2010). Unlike the non-state violent groups that this literature identifies, criminal organizations are not always interested in overthrowing a government or ruling over a territory. Actually, as the case of Mexico has shown, criminal groups may prefer to collude with a government that is strong, strong and corrupt, and that can provide them with the protection that they need to keep conducting business without having to invest in arming themselves. The civil wars literature will greatly benefit from eliminating its assumptions about the motivations of insurgency groups (i.e. taking over the state). Many of the conclusions to which this literature has arrived belong to the same side of a coin: understanding insurgency groups that antagonize the state. A whole side of the coin remains unexplored. Much and fruitful research will come from understanding non-state violent groups that under certain circumstances mat prefer to collude with the state rather than to antagonize it. What the civil war literature has analyzed so far is a special case of what could be a broader understanding of non-state violent actors.

Policy implications

A most important policy implication stems from my study. Institutional environments matter for policy outcomes, particularly because they change the way groups react to policies. Indeed, much has been said about the necessity to assess contextual variables when predicting the outcomes of policies (Rodrik, 2006). Yet, there has been no systematic discussion, to my knowledge, of how contexts are to be evaluated, nor of the variables to be considered as part of this context. I have shown how organizational structure matters for

policy evaluations and outcomes. As the case of Mexico indicates, when security policies were implemented in the form of crackdowns in decentralized settings, criminal violence rose. When the same crackdowns were implemented in centralized settings, violence was contained.

Understanding the role that organizational structure plays in inducing outcomes has proven crucial in many more instances. Borrowing and lending policies have different outcomes depending on how the banking structure is organized (Evrensel, 2008). Actually, because of its extremely complex and interdependent banking structure, housing policies in the U.S. gave rise to a credit bubble, resulting in the financial crisis of 2008. If banks had been organized as independent actors, it would have been easier to identify highly risky debt, and thus, housing policies might not have led to the same credit bubble. More examples are to be found in the emerging literature about varieties of capitalism (Hall et al., 2001). This literature demonstrates that different forms of capital organization favor investments, in different areas, and thus make some economies more resilient to shocks than others. Indeed, similar growth-inducing policies may generate different effects according to how firms are organized.

For the case of Mexico, the main policy implication is that drug-violence will not diminish until the country finds formal and informal ways to coordinate its different levels of government, increasing the probability of punishing criminals.

Reducing drug-violence must be a priority for Mexico because its costs are quite significant. The negative social effect of 51,000 drug–related homicides is quite consider-able. The figure represents doubled homicide rates in Mexico within the last five years. Economically, the cumulative burden of five years of drug–related homicides (2007- 2011)

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can be estimated as 26.6 billion dollars, 2.3% of Mexico's GDP. [24]

First, to reduce criminal violence, Mexican institutions must formally change to make punishment more probable. The Mexican state needs to be able to properly enforce the law against criminals. This will require the creation of a better and more efficient judicial system, one in which offenders are actually sentenced.

Few criminals are punished in Mexico, making crime a really low-risk endeavor. Only 31% of all Mexicans believe that after committing a crime they will be punished, much less than the 65% (average) of Latin America (University, 2010). Yet, even that number is an overestimation. In fact, only 6.2% of all the crimes committed in Mexico are sentenced.[25]

This criminal justice problem begins with underreporting. It is estimated that about 87.7% of all the crimes committed in Mexico in 2011 were never reported[26] (INEGI,

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[24]Following standard practices (Stiglitz and Bilmes, 2008), and assuming each individual is responsible for an equal contribution to the country's GDP, it can be estimated that the value of life for the average Mexican citizen is close to 777 thousand dollars. Mexico's GDP in 2011 was 1.155 trillion dollars (INEGI, 2012b). With a (rounded) population of 114 million in that same year (INEGI, 2010), each Mexican contributes to the economy with $10,132 dollars. Assuming a life expectancy of 76.7 years (INEGI, 2010), the total added value over a life time would be $777,092 dollars per Mexican. Following a similar criteria, the value of the life of an American citizen would be $3,794,334 (GDP of 15.09 trillion, 331 million inhabitants, 78.2 expected years of life (Agency, 2011)). These are rough estimates that do not take account of multiplicative effects, and that have not been weighted by the productive capacity of victims (influenced by variables like education, age, location and work experience, to name a few). An alternative way to quantify the costs of homicide is by measuring the Disability Adjusted Life Years (Murray, 1994), a measure of years lost due to violent premature death. Assuming that the average age of a homicide victim is 25, the war against drugs in Mexico has caused a loss of 23 years of life for each of 100,000 inhabitants from 2007 to 2011.

[25]This is a conservative estimate done explicitly for this report, by relying on information from Mexican census offices and victimization surveys (INEGI, 2012b). Other estimates like (Zepeda Lecuona, 2004) have argued that only 1.2% of all criminals are sentenced.

[26]In 2010, the same source recorded 87% (INEGI, 2012a). Older surveys that followed a different methodology argue that the figure is only 78% [27].

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2012a). In rural states like Guerrero and Michoacán, more than 93.6% of the crimes are never reported (INEGI, 2012a). States like Baja California (South and North) and Queretaro have the highest record of reporting with 76.6% or more (INEGI, 2012a). When citizens are asked why they don t report crime, most argue (34.5%) that it is a waste of time, or that they distrust the authority (16.5%) (INEGI, 2012a). Indeed, reporting is difficult and time consuming. Actually, in 47% of the cases, reporting a crime takes three hours or more (INEGI, 2012a). If a crime is reported, prosecutors take an average of 226 days to prepare a case and bring it to a judge (Presidencia, 2012). Even after a case is ready, official records show that legal actions are only taken in 87% of the cases(Presidencia, 2012).

Actually, out of the total number of cases processed, only 55% are sentenced[28] (INEGI, 2012a). The capacity to sentence varies by state. This variation may be explained by differentials in the resources of prosecutors and their work load. The federation manages to sentence 61%, while local authorities only sentence 53% (INEGI, 2011). Local governments ruling over poor and rural areas like Oaxaca or Guerrero only sentence between 18% and 22% of the cases; urban areas like Mexico City or states like Baja California or Guanajuato, sentence more than 74% of the cases (INEGI, 2011).

Until Mexico formally fixes its judicial system so as properly to enforce the law, violence will remain as a distinct option for criminal groups.

Second, to reduce criminal violence, Mexico will also need to coordinate its different levels of government, even if they belong to different parties. Incentives most be set for

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[28]About 27% of citizens claim that after reporting a crime "absolutely nothing" happened (INEGI, 2012a)

politicians to react more directly to the needs of their constituency than to their party labels. The most important institutional feature, to this end, is reelection. It is because Mexico lacks reelection that politicians are strongly driven by party incentives. Under Mexico's electoral rules, it is the party, and not Mexican citizens which allows politicians to maintain successful careers as public servants. To modify electoral rules in Mexico, so as to allow for reelection, would motivate different parties to cooperate and agree, thereby pleasing their common electorate. By contrast, without such electoral changes, parties will continue to disagree, as they do now, based on political loyalties.

It is important to note that, just recently, drug–related violence has started to diminish in Mexico. In 2012 drug–related homicides may have reached a plateau (Institute, 2012)[29]. This type of homicide appears to have started diminishing, at least within cities that were considered the most problematic. In 2011, drug–related homicides only increased 11% nationally, and violence in Ciudad Juarez, the most violent city in Mexico, was 40% lower than in 2010. The first six months of 2012 have seen only 75% of the homicides observed in the same period of the previous year. Northern states like Chihuahua, Durango, Tamaulipas and Nuevo Leon have experienced between 494 and 362 fewer cases each. It will take some time to assess whether this tendency will remain and extend to all of Mexico, mostly because some other states have witnessed opposite tendencies.[30]

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[29]The Trans-Border Institute has systematically recorded cases of drug–related homicides as reported by the Mexican newspaper Reforma. Reforma is the only source that has had a weekly count of drug–related homicides since 2006 until today. Official figures (SNSP 2011) are available only since December 2006 and until September 2011. For years in which both sources are available, TBI underestimates official figures by 30% but follows similar trends (Yearly correlation = 0.995)

[30]The state of Coahuila, for example, had a 52% increase in drug–related homicides in 2012 as compared to 2011

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At least two reasons can be given for this decline in violence. The first is that indeed, after six years of battling organized crime and reforming its judicial system, security policies in Mexico are finally increasing the probability of punishment enough as to reduce violence propensity among criminals. A second reason has to do with the role of civil society to promote informal collaboration among different levels of governments. Six years of criminal factions battling for turf have generated a large number of smaller criminal organizations that rely on different criminal activities to survive, besides drug trafficking. As a result, the problem of criminal violence has become a first priority on the agenda at every level of government. Incentives for cooperation among different levels of government have improved as civil society has begun to pressure all levels of government to provide solutions.

The Road Ahead

Future research in three areas is particularly promising: (a) criminal peace, (b) measuring drug violence at the sub-national level, (c) identifying the geographic dynamics of violence contagion.

First, criminal peace may be enforced by criminal organizations themselves, independently of institutional design. Indeed, decentralization increases criminal violence, but it does not necessarily cause immediate violent eruptions. As this work has shown, in Mexico violence only emerged when crackdowns gave incentives for criminal cells to fracture and engage in turf battles. An equilibrium may exist in which criminal groups operate peacefully even while facing institutional designs that are not favorable to peace.

Even in the face of crackdowns, we can imagine a scenario in which violence is too costly for criminal groups. It remains to be asked where the cost threshold is, for bringing about such a beneficial result, and what is the most cost-effective policy that the government may undertake to this end.

Second, the empirical test provided in this work relied on a proxy measure of criminal behavior: domestic cocaine sale. Future research will need to address my theory using violence as a dependent variable. To do so, measures of drug–related violence must be provided for the years before 2006 and at the sub-national level. The key lies in being able to identify drug–related homicides and differentiate them with respect to general homicides.

Third, the logic of criminal violence may not necessarily follow the same territorial lines as states or sub-national units. Criminal territories may be more complex than interstate boundaries. In order to properly analyze how the structure of the state affects violence, further research will be needed about the areas of operation of criminal groups. This research may inquire as to how violence spreads and moves geographically, identifying whether criminal areas of operation overlap (or not) with interstate boundaries. Network analysis and geographical correlations using mapping programs are methodological tools that will be useful to accomplish this task.

As part of my broader research agenda, I have created two data sets to address areas of research here discussed. In one data set, I identified where and when drug–related homicides started in Mexico. Using an algorithm of multiple imputation and Bayesian statistics (Honaker et al., 2012) to infer the levels of violence that trafficking organizations exerted from 2000 to 2010, I create the first available historical measure of

drug–related violence in Mexico. Drawing from this data-set, I can now present evidence of large increases in criminal violence previous to the administration of Mr. Calderón. I further undermine those who argue that the escalation of drug–related homicides was solely the result of security strategies, implemented during his administration (Osorno, 2009; Aguilar and Castañeda, 2010).

In another exercise, I have mapped the areas of operation of trafficking organizations, in an unprecedented effort to track the activities of criminal groups using automatized search algorithms, Google news, and network analysis (Coscia and Rios, 2012). The maps provide crucial information on behavior and mobility patterns of criminal organizations. This previously unknown and novel methodology is useful for researchers, in a number of different disciplines, and will generate accurate intelligence information at low cost. The information supports my theory by showing differentiated patterns of criminal expansion in centralized and decentralized environments. Criminals tend to expand and split more when they are armed, and when they operate under decentralized environments.

Overall, studying how government structure influences the behavior of non-state actors is a large and fruitful research agenda. This work is only one building block of the many puzzles awaiting answers.

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