

Criminal Dynamics and Violence Against Government Officials in Mexico

Marco Alcocer*
Megan Erickson†

Abstract

Mexican cartels have attacked or assassinated hundreds of government officials. The literature contends that electoral incentives, political vulnerability, and government crackdowns account for these killings. We argue that the radical transformation of Mexican cartels and their dynamics starting in the mid-2000s play a fundamental role in explaining where and when criminal organizations use violence against government officials. We test our hypotheses by triangulating evidence from novel national and subnational datasets on criminal dynamics and violence against government officials and a series of two-way fixed effects models. Results show that criminal wars are a key driver of violence against government officials, that cartel geographic expansion sometimes leads to violence, larger cartels initially used this type of violence more but fragmentation led to smaller cartels also using this violence, and these attacks are most prevalent in territories with lucrative geographically-fixed illicit markets, particularly when cartels are well-established.

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*The Harvard Academy for International and Area Studies.

†Department of Political Science, University of Washington.

In 2001, a group of men dressed in black approached María de los Ángeles Tamés Pérez, councilmember of the Atizapán de Zaragoza municipal government in the State of Mexico, in her car and opened fire (*Redacción* 2002). Authorities declared her dead by the impact of at least four bullets fired at no more than a meter distance. Investigations soon revealed that Tamés Pérez was planning on providing evidence to government authorities about bribes accepted by the mayor from drug traffickers. While violence against state officials by criminal organizations (COs), also known as “cartels” in Mexico,¹ was practically unheard of in 2001, it has become surprisingly common – during the 2018 electoral cycle, cartels murdered over 150 mayors, mayoral candidates, and former mayors, making the homicide rate for this position greater than that of the general population (Calderón 2018). This alarming rise in a uniquely brazen form of political violence by cartels poses significant challenges to Mexico’s democracy and rule of law.

This phenomenon is both distressing and underexplained. COs are economic actors that do not covet political power, and therefore do not seek to overthrow the government or establish monopoly or *de facto* control over territories vis-à-vis the state (Lessing 2017, 2021). Yet, recent scholarship highlights that COs cannot survive or operate without some degree of state protection, cooperation, or collusion (Arias 2017; Trejo and Ley 2021; Durán-Martínez 2017), and thus obtaining protection from politicians is necessary. Under certain conditions, the pursuit to gain this protection can turn violent. Existing studies have identified three primary political factors that create the conditions for COs to violently target government officials – election cycles (Trejo and Ley 2021; Blume 2017; Daniele and Dipoppa 2017; Alesina et al. 2018), intergovernmental party politics (Trejo and Ley 2021), and government crackdowns (Lessing 2017). However, these explanations fall short in explaining the prevalence of violence against government officials in Mexico. First, despite powerful cartels operating in the country for decades and subnational democratic elections and intergovernmental party politics existing since the 1990s, violence against government officials did not escalate until

¹We use the term “cartel” to denote criminal organizations in Mexico.

2008. Second, if cartels were killing those politicians responsible for government crackdowns they would be targeting the state officials in charge of the crackdown. Thus, while the surge in killings in Mexico coincides with the start of the 2007 *federal* crackdown against cartels, 88% of political assassinations since 2000 have been of *local* politicians.²

We argue that the literature has overlooked a key factor as a potential explanation for this violence – the transformation of Mexico’s criminal underworld over the past two decades. Mexico went from being ruled by a handful of large and powerful cartels that specialized in drug trafficking and operated in regions key to the drug trade, to a highly contested environment where dozens of cartels operate across the country and are involved in a diverse set of illicit activities. Although this evolution in criminal dynamics coincides with the increase in violence against government officials, this relationship has been largely overlooked by existing research. We thus pose the following question: what role do criminal dynamics have in explaining when and where COs assassinate government officials?

By criminal dynamics, we mean how the presence, structure, evolution, and relationships of groups may influence cartels’ propensity to target government officials. We claim that four local criminal dynamics play a fundamental role in explaining when and where COs use violence against government officials – criminal wars, geographic expansion, fragmentation, and the structure of illicit markets. However, a key barrier to testing the effects of criminal dynamics has been the lack of data to capture this phenomenon. We overcome this shortcoming by constructing original datasets on the assassination of government officials and combine them with a series of existing datasets on criminal dynamics. For our dependent variables measuring violence against government officials, we create original datasets on all assassinated *politicians* in Mexico from 2000 to 2018 and all assassinated *government officials*³ in the state of Guanajuato from 2000 to 2021. For robustness, we also use the data from Trejo and Ley (2021) (we herein use “TL” when referring to this dataset) measuring

²See Data section for details.

³“Government officials” includes elected politicians, party members, and public servants. It excludes law enforcement personnel.

lethal and non-lethal attacks against government officials, political candidates, and party activists between 2007 and 2011. For our independent variables measuring local criminal dynamics, we use municipal-level data on the geographic presence of cartels between 2000 to 2018 from the Mapping Criminal Organizations in Mexico (MCO) project (Signoret et al. 2021; Sobrino 2023) and fine-grained datasets on cartels in the state of Guanajuato from Alcocer (2023) that measures local criminal dynamics in much greater detail.

To test our hypotheses, we triangulate evidence from our novel national and Guanajuato datasets, and complement them with the TL data. Results from a series of two-way fixed effects regressions find that criminal wars *at the local level* drive violence against government officials, particularly when at least one of the cartels is well-established in the territory they are fighting over. We find some evidence that cartels entering new territories is associated with more violence against government officials in the short term. Moreover, while this type of violence was primarily a strategy used by larger cartels soon after the 2007 government crackdown, smaller fragmented cartels seem to have adopted the strategy after 2010 when they began proliferating. It is also a strategy used in territories where cartels are well established rather than where they have a weak presence. Finally, violence against government officials is more prevalent in territories with lucrative and geographically-fixed illicit markets.

The main contribution of this article is twofold – theoretical and empirical. First, we explicitly theorize the role of criminal dynamics in the use of violence against government officials. While existing studies highlight that criminal wars can impact the use of violence against state officials, we present new dynamics, including criminal expansion, fragmentation, and the structure of illicit markets, and theorize how they matter for political violence. Second, we contribute empirically by using novel data on criminal dynamics and political assassinations that both extends the time periods explored in existing studies and quantifies previously unmeasured concepts. Ultimately, these data innovations provide rigorous empirical evidence analyzing the effects of organized crime dynamics on violence against government officials.

Existing Explanations

The increase in violence against government officials by COs over the last two decades in Mexico is both alarming and puzzling given existing explanations. Not only do COs not seek political power (Lessing 2017), but the use of violence against government officials in Mexico is a relatively new phenomenon despite powerful cartels operating in the country for decades. Why, then, would cartels begin perpetrating violent attacks against government officials and why has the prevalence of these attacks increased? Existing literature identifies three political factors that create incentives for COs to use violence against government officials: electoral cycles, political vulnerability, and government crackdowns.

Election Cycles

Election cycles can present key periods of political opportunity where COs can use coercion to their benefit. For example, studies on the mafia in Italy find that COs can either use coercion before elections to influence electoral outcomes in favor of their preferred candidate (Alesina et al. 2018) or following elections to influence the behavior of elected politicians (Daniele and Dipoppa 2017). In Mexico, anecdotal accounts suggest that both of these motives may be present as well. For example, during the 2021 pre-electoral campaign period, unidentified attackers shot Abel Murrieta, an opposition candidate for mayor of Ciudad Obregon in the state of Sonora, allegedly for pledging to “clean up” the municipality of drug crimes (Blust 2021). Alternatively, in a campaign to control town halls and local resources in the town of Temixco in the state of Guerrero, members of Los Rojos killed mayor Gisela Mota the day after she was elected in 2016 (Lakhani 2016).

However, distinguishing between the pre- and post-electoral explanations is not straightforward. We may observe COs use violence against a recently elected politician, though this may be a result of unsuccessful attempts at influencing political selection before the elections, for example, through failed pre-election assassination attempts. Empirically, it is difficult

untangling the two motivations, and they are likely both present. More generally, whether it is pre- or post-election, Trejo and Ley (2021) find that cartel attacks in Mexico intensify around subnational election cycles and argue that it is a result of COs seeking state capture. That is, cartels exploit election periods to establish criminal governance and entrench their power.

Political Vulnerability

A leading explanation for the proliferation of violence against government officials by COs in Mexico is that the decentralization and political polarization prompted by democratization during the 1990s drove party alternation, making security coordination across levels of government increasingly difficult and politicized. These factors ultimately left certain municipalities vulnerable to organized crime when there were no co-partisans in higher levels of government to protect them (Rios 2015; Shirk and Wallman 2015; Trejo and Ley 2020; Blume 2017; Durán-Martínez 2017).

Specifically, Trejo and Ley (2016, 2020) argue that under the rule of the conservative PAN party during Calderón’s presidency from 2006 to 2012, attacks against politicians by criminal groups were more likely when local politicians were members of a rival party, particularly the leftist PRD party. The authors contend that the ruling PAN party had political incentives to provide effective protection to municipalities ruled by co-partisans while allowing violence to flare up in municipalities with mayors from rival parties. Thus, federal forces left local politicians unprotected when they were from rival political parties, thereby making them vulnerable to attacks as COs sought to take over local resources and establish criminal governance. Blume (2017) similarly argues that political vulnerability explains CO violence, though instead contends that party polarization between state governments and municipal governments – as opposed to federal and municipal polarization – may have left municipalities from opposition parties vulnerable to attacks.

These arguments suggest that municipalities controlled by mayors that are co-partisans

with their governor or the president are better protected than municipalities ruled by rival party members. Therefore, protected mayors may prove more difficult to attack, while municipalities left vulnerable by higher levels of government could prove easier to attack.

Government Crackdowns

In December 2006, President Calderón declared war against drug cartels and began deploying the military to combat these organizations. As Trejo and Ley (2020) show, federal and state forces, not municipal police, spearheaded this effort. Using evidence from Mexico, Brazil, and Colombia, Lessing (2017) argues that unconditional government crackdowns may cause COs to use violence against the state in order to fight back and reduce the intensity of the crackdown. Given this theory, we should expect to see Mexican cartels targeting primarily federal- and state-level politicians. Yet, the vast majority of assassinated politicians in Mexico are *local* officials with no say in the creation or implementation of the top-down crackdown. Thus, while the crackdown in Mexico may have been a factor in driving or accelerating macro-level changes in cartels and their use of violence, it falls short in explaining both *local* dynamics and the systematic killing of *local* politicians.

Criminal Dynamics and Violence Against Politicians

In this study, we highlight a factor that has been overlooked in existing studies – the drastic transformation of Mexico’s criminal underworld, which coincided temporally with the increase in cartel violence against government officials. Mexico went from having a handful of powerful drug trafficking organizations that mainly operated in regions key to the drug trade in the early 2000s, to a highly fragmented and contested environment where dozens of COs involved in various illicit markets operate across the country.

While the literature has commonly argued that wars between COs help explain the use of violence against the state, we claim that criminal dynamics more broadly play a fundamental

role in explaining why cartels target government officials. Specifically, we argue that four key developments – criminal wars, expansion, fragmentation, and market structure – shape the incentives for COs to use violence against the state.

Criminal Wars

The criminal dynamic that scholars *have* highlighted as playing an important role in explaining violence against the state is criminal wars (Rios 2012; Blume 2017; Huerta 2020; Calderón 2018). Rios (2012), for example, notes the correlation between CO-related homicides and the murder of 33 mayors between 2007 and 2011, though provides no theory to explain this empirical observation. Blume (2017), on the other hand, argues that a primary reason for politicians falling victim to CO-perpetrated violence is when they cooperate with one cartel, thus making them vulnerable to being targeted by its rivals. Huerta (2020) finds some evidence that this is likely the case in the states of Puebla and Guerrero. However, existing studies cannot explain why Mexican cartels did not use systematic violence against government officials until the mid-2000s when criminal wars between the major drug cartels in Mexico began in the 1990s (Trejo and Ley 2020).

We build on existing theories by proposing that three other factors changed the incentives of criminal wars and resulted in COs increasingly targeting government officials, especially local politicians. First, democratization through the 1990s and 2000s made protection pacts that COs forged with federal and state authorities uncertain, especially when there was party turnover. To counteract this uncertainty over high-level state protection, cartels may have increasingly turned to local authorities for protection. Criminal wars therefore meant cartels began fighting over local state protection by local government officials. Second, cartels began to fragment increasingly around 2010, leading to a growing number of cartels. Fragmentation not only resulted in an increasing number of wars between cartels, but also between smaller, more localized yet powerful cartels that relied on local government protection. The incentives of criminal wars that drive them to use violence against the state may have been especially

acute for these smaller cartels that depend heavily on protection from local state officials. Third, cartels began diversifying beyond drug trafficking in 2007 (Alcocer 2022; Herrera and Martinez-Alvarez 2022), and many of the activities they began to undertake were more local in nature such as extorting local businesses, drug dealing to local consumers, property theft, and stealing oil from pipelines. Criminal wars over activities regulated by local government officials as opposed to state or federal authorities likely made local officials more important targets.

The expectation is thus that we should observe more violence in territories where two or more cartels are actively contesting a territory.

Hypothesis 1 (H1): *Territories actively contested by two or more COs will experience more violence against politicians.*

Criminal Expansion

Another major transformation in Mexico’s underworld over the past 15 years is that Mexican cartels went from operating in about 7% of the country’s municipalities prior to 2007 to over 34% of municipalities by 2018.⁴ This dramatic geographic expansion has been shown to have been partially driven by diversification (Alcocer 2022), increased demand for opioids in the United States (Sobrinho 2023), and criminal wars (Trejo and Ley 2020).

The expansion of organized crime meant that cartels began entering states and municipalities where they had not previously operated and thus did not have pre-existing protection pacts with government officials. Entering new territories, especially when expanding to across state lines beyond a captured governor’s protection, likely made capturing local governments especially valuable. State-level agreements are likely more costly, harder to negotiate, and require more resources and time than capturing local politicians. Moreover, the political class in territories where cartels had never operated were likely unaccustomed to dealing with these groups. In these territories, some government officials likely refuse to work for

⁴See Data section for details.

cartels, or they might agree and later back out, betray them, or fall out of favor. Thus, cartel expansion into new territories where they were not well established likely made local politicians especially vulnerable to attacks.

Additionally, COs also began to expand to territories controlled by rival organizations. Expanding into territories where a rival CO had a protection pact with state level politicians likely made local level protection valuable to the invading CO. Alternatively, COs likely also enter territories where a rival CO has protection from local state officials. In these cases, local state officials may become key targets for incumbent and invading COs, pushing cartels to kill state officials in territories that experience new CO presence.

Hypothesis 2 (H2): *COs are more likely to kill government officials in territories where they have recently expanded.*

Criminal Fragmentation

Although a handful of large drug cartels dominated the Mexican underworld through the 1990s and early 2000s, starting in late 2006 and increasingly after 2009, they began to fragment into an ever-increasing number of COs. Driven largely by the government's kingpin strategy that intensified following the 2007 crackdown on cartels (Calderón et al. 2015; Phillips 2015; Atuesta and Ponce 2017), cartel fragmentation resulted in the proliferation of at least 70 powerful organizations by 2018 of all different sizes (Signoret et al. 2021).

Blume (2017) finds that assassinations are more likely in Mexican states where there is criminal fragmentation. However, the author attributes the effects to territories being contested by an increasing number of cartels; that is, to the logic of criminal wars. We instead propose that criminal fragmentation may help explain political violence independently of criminal wars because it created different *types* of cartels: large cartels with significant power and smaller, more localized cartels with fewer financial and coercive capabilities.⁵

⁵There exist other dimensions along which Mexican cartels differ, which we do not analyze here. For example, Blume (2017) classifies them depending on whether they experienced *narco-corporatism* under the PRI. Farfán-Méndez (2019) considers whether their structure is hierarchical or network-based.

We follow Sánchez Valdés (2014) in arguing that differences in the sizes of COs may shape their strategic behavior by constraining their possible actions, and consequently, influence their propensity to use violence against government officials. However, our theoretical priors about the relation between cartel size and their use of violence are uncertain. For one, small cartels may not have the financial means to capture government officials through bribes, especially state and federal officials, and may thus have to rely on local politicians and firepower when seeking political protection. This would make smaller cartels more prone to violence. At the same time, large cartels can likely rely on state and federal protection more frequently and have more coercive capabilities and financial resources, meaning that larger COs can more credibly threaten agents of the state, reducing their need to use violence.⁶ Yet, it could also be the case that large cartels with greater coercive capacity could more easily kill politicians with impunity due to their capabilities to evade, bribe, or intimidate law enforcement or judicial agencies. Smaller cartels could also be more cautious when contemplating the use of violence because they have fewer capabilities to deal with the reaction that such violence may cause from state forces or the military.

Hypothesis 3 (H3): *Small, more localized COs are more likely to kill politicians than larger COs.*

Criminal Markets

A final dynamic that may shed light on where we see political assassinations is the type of market that cartels are involved in. While Mexico's underworld was historically composed of specialized drug trafficking organizations, over the past two decades they have diversified and entered new markets such as extortion, kidnapping, drug dealing, oil theft, migrant smuggling and trafficking, looting mines, natural gas theft, and illegal logging, among others

⁶Blume (2017) offers a different interpretation by arguing that older COs relied on the corporatist model for protection from the PRI party, making them less prone to violence than newer COs. Yet, this explanation does not explain the turn to the local, and overlooks that new COs were often a result of fragmentation where members of "older" cartels defected and organized their own cartels.

(Alcocer 2022).

Prominent research in conflict studies explore how lootable versus non-lootable resources influences civil war violence (Collier and Hoeffler 1998; Ross 2004; Fearon 2004). Albarracin (2018) extends the logic of how lootable versus non-lootable resources impacts violence by arguing that the type of illicit activities COs are involved in shape their relationship with the state. While this author differentiates how CO involvement in extractive or non-extractive activities shapes strategies to influence voter behavior, we extend the logic to argue that valuable and geographically-fixed markets shape incentives to use violence against politicians.

More specifically, we argue that some of the very lucrative activities cartels are involved in are more geographically restricted and entail needing to control and hold very specific territories – including U.S. border crossings, ports, municipalities with oil pipelines, and drug cultivating regions. This creates incentives for cartels to defend them at all costs. Alternatively, less geographically-restrictive activities, such as drug trafficking routes, extortion, theft, kidnapping, and drug dealing, can be perpetrated nearly anywhere and thus do not create incentives for cartels to control territories and obtain and maintain state protection to the same degree. That is, if cartels lose state protection or face intense competition from a rival cartel in a territory without geographically-fixed lucrative markets, they can simply move and perpetrate these activities in other territories. However, if the lucrative market necessitates the control of a specific territory, cartels may face incentives to utilize violence to gain and retain state protection in that specific territory.

Hypothesis 4 (H4): *Territories with valuable and geographically-fixed markets are likely to experience more violence against politicians than territories with geographically-flexible markets.*

Data

A key limitation of existing studies is the lack of data on COs and criminal dynamics, which has led scholars to rely on proxy or aggregated measures of criminal dynamics. For example, Calderón (2018) relies on state-level measures when defining cartel pluralization; similarly, Blume (2017) relies on highly aggregated data on cartel presence at the state level that does not capture local dynamics. Other studies do not use data on cartel presence or dynamics and instead rely on proxy measures, such as approximating criminal competition with drug-related homicides (Huerta 2020; Trejo and Ley 2021). Finally, others have analyzed political assassinations in 2017 to 2018 using municipal-level data on cartel presence from 2010 (Huerta 2020).

While these measures are justifiable given data constraints, they do not directly measure various criminal dynamics and, for those that do use CO data, do not measure them at the local level or in the appropriate time period. Thus, beyond proposing that criminal dynamics matter for understanding political violence, this article makes an empirical contribution to the study of political violence by using local-level data on cartel dynamics in Mexican municipalities.

Given the novelty of the topic and the data, we triangulate evidence from multiple datasets to gain leverage over the concepts and measures of interest. For our dependent variable, violence against government officials, we use two separate datasets on political violence: (1) original data on assassinated politicians between 2000 and 2018; and (2) novel data on all assassinated government officials from the state of Guanajuato between 2000 and 2021. To preview, plots in row (A) of Figure 1 use our original data to show the temporal distribution of murders by level of government (municipal, state, and federal) in all Mexico from 2000 to 2018 and in Guanajuato from 2000 to 2021, and plots in row (B) show the geographic distribution of these assassinations.

For criminal dynamics, our independent variable, we use two different datasets: (1) data on cartel presence at the municipal level for all of Mexico from the MCO project (Signoret

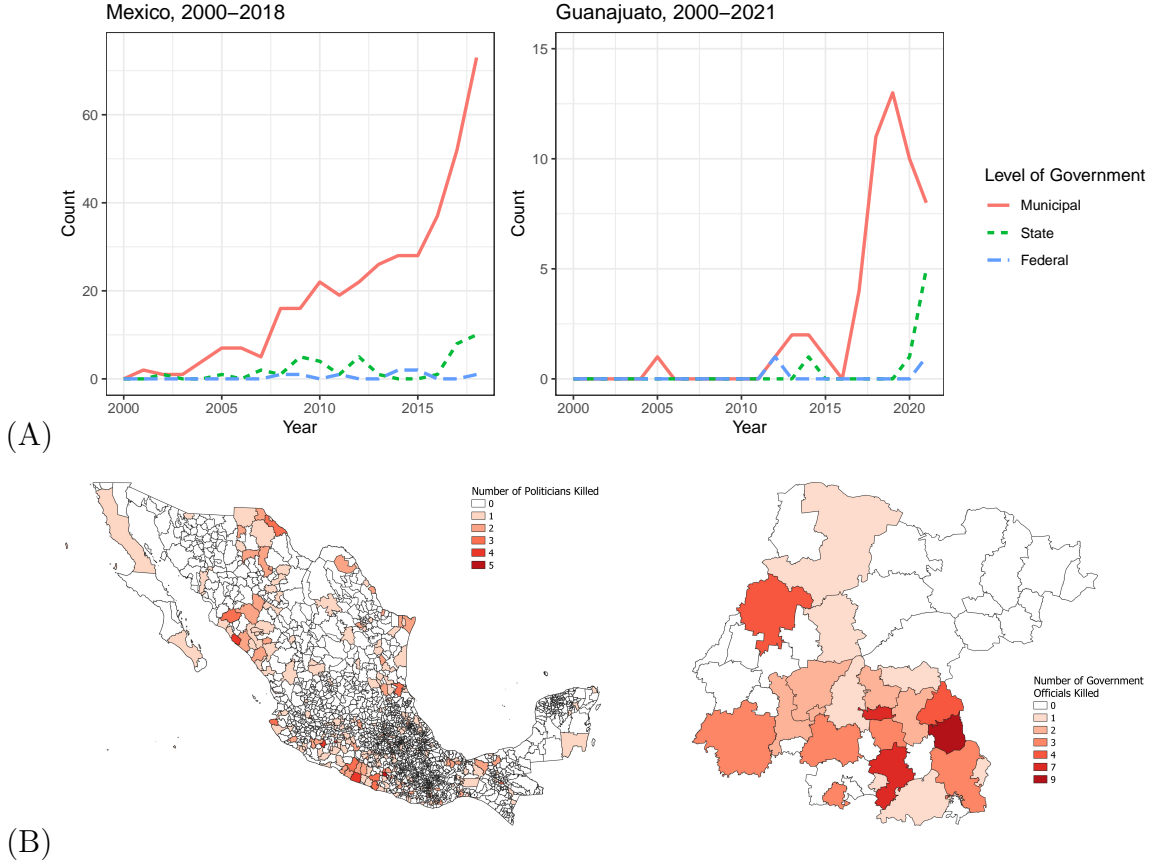


Figure 1: (A) Number of political assassinations by level of government. Assassination of politicians in all Mexico, 2000–2018 (left) and government officials in Guanajuato, 2000–2021 (right). (B) Geographic distribution of political assassinations. Assassination of politicians in Mexico, 2000–2018 (left) and government officials in Guanajuato, 2000–2021 (right).

et al. 2021; Sobrino 2023); and (2) a detailed hand-coded data on cartel dynamics in the state of Guanajuato (Alcocer 2023). We select this approach because each dataset has its strengths and limitations, and therefore results complement each other and provide more rigorous and robust results. Figure 2 shows the extent of evolving criminal dynamics in Mexico and Guanajuato by mapping the geographic distribution of cartels across time.

We chose to focus our subnational analysis on Guanajuato because we believe it provides a good case to examine criminal dynamics. First, historically the state had minimal cartel presence, but since 2008 has become a highly contested territory between both large and more localized COs, some that have entered from neighboring states. It also used to have practically no violence against state officials but has recently experienced a substantial in-

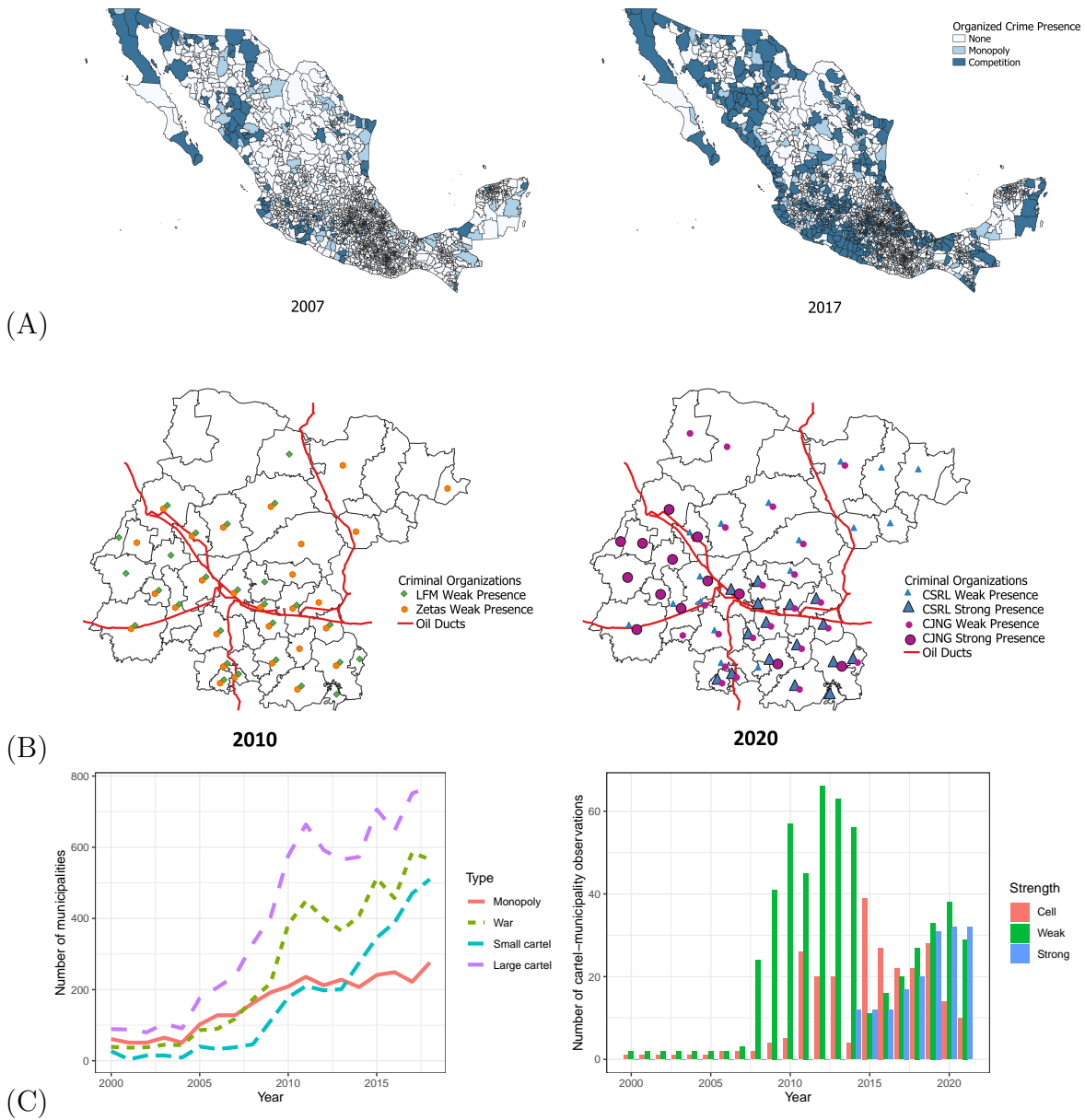


Figure 2: Geographic and temporal distribution of cartel presence. (A) Geographic distribution of cartel monopoly and competition in Mexico in 2007 and 2017. (B) Location of valuable territories and the geographic presence and strength of presence of cartels in Guanajuato in 2000 and 2020. LFM = La Familia Michoacana; CSRL = Cartel Santa Rosa de Lima; CJNG = Cartel Jalisco Nueva Generacion. (C) Number of municipalities with different types of cartel presence across time.

crease. Moreover, the most coveted illicit market in Guanajuato is oil theft from pipelines, a very lucrative but geographically-fixed market. We believe that these characteristics make Guanajuato an ideal place to study criminal dynamics and violence against politicians.

Politician Assassinations in Mexico, 2000–2018

First, we use original national-level data on assassinated politicians between 2000 to 2018.⁷ Specifically, this dataset includes all murdered politicians that have run for or held elected office at any level of government in Mexico from 2000 to 2018, including federal legislators, state legislators, governors, mayors, and municipal councilmembers. The dataset includes 466 documented assassinations and information on: name of politician, position held or running for, party affiliation, date of assassination, municipality where the assassination occurred, municipality where they worked,⁸ and a brief description of the assassination. Like Trejo and Ley (2021), we only include assassinations that had indications that cartels may have been involved. These indications include the use of high caliber weapons, dozens of bullets being used, ambushes, multiple armed men, and had previously been linked to, threatened or attacked by cartels, among others. Due to a lack of information on many of the assassinations, we created two measures: a regular measure and a more conservative measure that required a higher degree of certainty that an assassination was linked to cartels. Main results use the more conservative measure ($n = 414$), while results using the regular measure ($n = 436$) are included in the Online Appendix. All results hold and are consistent. Figure 3 presents the distribution of assassinated officials based on party affiliation and position.

This data has three main strengths – it significantly extends the time periods existing research explore by covering 19 years in total,⁹ it accounts for all Mexican municipalities, and it only measures assassinations to avoid the potential measurement bias that may be present in data that includes attacks and threats. However, it does have an important limitation – it only includes murders and not other forms of violence. Nevertheless, using only assassinations is standard in the literature on the assassinations of politicians (Rios 2012; Blume 2017; Daniele and Dipoppa 2017; Alesina et al. 2018), law enforcement officials

⁷See Online Appendix for details the data collection process.

⁸Some local politicians are assassinated in a municipality where they did not run for or held office. In the main results we assume politicians were killed due to where they worked. In the Online Appendix we include results using the place where they were killed instead. All results hold and are consistent.

⁹Blume (2017) uses data from 2005 to 2015 and Trejo and Ley (2021) use data from 2007-2011.

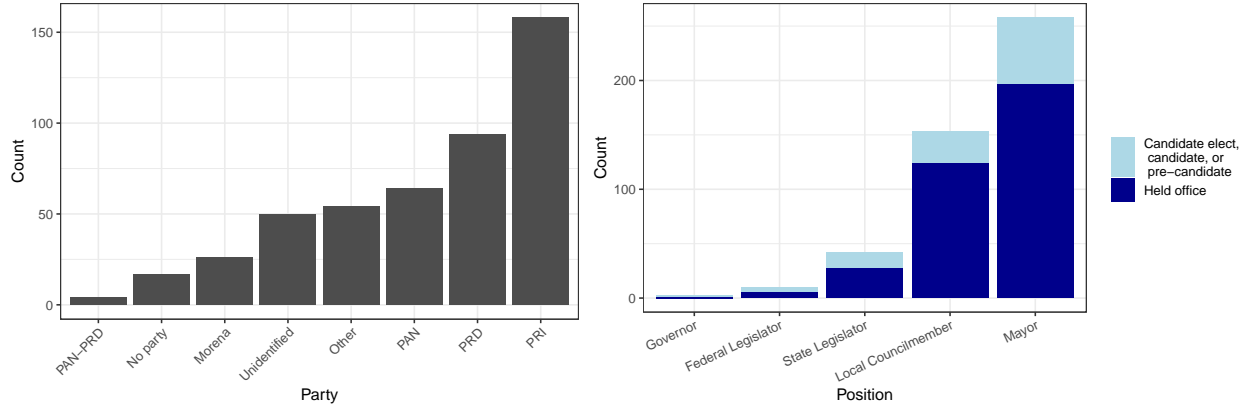


Figure 3: Political assassinations of elected officials in Mexico between 2000-2018, by party (left) and position (left). For presentational simplicity, we include the four primary national parties (PAN, PRD, PRI, and Morena) and group other parties. Some parties were not identified. Original data by authors.

(Lessing 2017), and journalists (Holland and Rios 2017; Bartman 2018; Carey and Gohdes 2021). Additionally, it only measures the assassinations of politicians in or running for elected office and excludes party activists or other government officials.

High-Profile Assassinations in Guanajuato, 2000–2021

In addition to the national data, we also examine Guanajuato by collecting novel data on all assassinated government officials between 2000 to 2021, including elected politicians, party members, and public servants¹⁰ The dataset includes 64 assassinations with information on: victim name, date of killing, political party, position (e.g., mayor, councilmember, state legislator, governor, or federal legislator), whether they were candidates or in office, past political positions, the municipality in which they were killed, and whether a CO committed the murder.

This data offers one primary strengths vis-à-vis the other national data: it includes the assassinations of all government officials, not only those in elected positions. However, it is geographically restricted to the 46 municipalities in the state of Guanajuato.

¹⁰This data does not include law enforcement officers. See Online Appendix for details on the data collection process.

Criminal Dynamics in Mexico

First, we use the data from the MCO project (Signoret et al. 2021; Sobrino 2023) on the geolocation of over 40 COs in Mexico between 2000 and 2018. This panel dataset tracks each cartel and identifies which municipalities they operated in each year. The dataset was created by scraping Google and Google News for articles mentioning each CO and using natural language processing to identify where these articles report each cartel to have operated in a given year.

For H1, we operationalize criminal wars by identifying which municipalities are under monopoly control and those that are under contested control. Monopoly-controlled municipalities are those with only one cartel operating in it in a given year, and contested municipalities are those with two or more cartels operating in them each year. We recognize that this measure is imperfect, as more than one group operating in a territory does not necessarily imply that they are actively contesting it—an issue we address with the more fine-grained Guanajuato dataset.

For H2, we operationalize criminal expansion as a dummy variable that takes a value of 1 for municipalities that experienced new cartel presence in a given year.

For H3, we operationalize cartel types that resulted from criminal fragmentation by classifying each cartel as “large” or “small” and identifying which type each municipality had each year. We broadly define large cartels as those that operated before fragmentation began and their continuations, which typically operate in large sections of the country; we define small cartels as those that fragmented from large cartels, which usually operate in more limited regions.¹¹

For H4, we operationalize criminal markets by using data from Mexico’s Statistical Agency (*INEGI*) and Army (*SEDENA*) to find municipalities with geographically-fixed lucrative markets. Since drug trafficking is the most lucrative illicit market in Mexico, we consider municipalities that are geographically key to the drug trade as those that may pro-

¹¹See Online Appendix for a list of small and large cartels in the data.

duce strong incentives for COs to use violence to defend. Following existing research, we define these as those municipalities that have a port, are on the U.S.–Mexico border, or are key for poppy cultivation.¹² The resulting municipality-year national dataset has 46,664 observations.

Criminal Dynamics in Guanajuato

In addition to the national dataset based on machine learning, we also use fine-grained hand-coded data on criminal dynamics in the state of Guanajuato, which was collected through extensive qualitative research by Alcocer (2023). The data is composed of three separate datasets that provide information about the population of COs that operated in Guanajuato between January 2000 and December 2021: CO geographic presence and strength of presence, CO histories, and CO relations.

We use these datasets to complement the national dataset because they have at least three clear measurement advantages: (1) much more precise measurement of the geographic presence of cartels; (2) dyadic data measuring the relationships between all cartels (e.g., neutral, allied, rivals) in the state across time; and (3) how well-established each cartel was in each municipality they operated in each year. These advantages allow us to more precisely measure criminal dynamics at the local level when compared to datasets constructed by computers.

First, for H1 examining the effects of criminal wars, the Guanajuato dataset allows us to determine which municipalities have cartels operating in them without active conflict – such as those with only one cartel, with two or more cartels that were neutral, or with two or more cartels in an alliance – and which are actively contested by two or more rival

¹²We use data on hectares of poppy eradication between 2000 and 2018 from the Mexican military, and define municipalities as key for poppy cultivation as those with above average poppy eradication. While poppy cultivation is not geographically fixed, it does require certain geographic characteristics that make it very sticky. Moreover, these are municipalities that have historically cultivated poppy and is part of the communities. During this period, 913 municipalities experienced poppy eradication, with the mean being 221.8 hectares, and 79 municipalities having above average poppy eradication. We consider these as those fundamental for poppy cultivation.

cartels. We operationalize monopoly-controlled municipalities as those where there is either one cartel in operation or more than one cartel though they are not at war with one another. We operationalize contested municipalities as those whether two or more cartels are actively fighting in a municipality. This nuance allows us to overcome measurement challenges from our national dataset for criminal wars.

Second, for H2 examining the effects of criminal expansion, we create an indicator measuring whether a municipality experienced a cartel enter its territory that had not operated there the year prior. Third, for H3 examining how different types of cartels use violence, we use data on how well-established cartels are in a given municipality. Indeed, the size of cartels is not the only relevant consequence of fragmentation, but the strength of these cartels in municipalities is also a key outcome of fragmentation. In other words, small or large cartels can both be well entrenched or have minimal but still important presence in a territory. At the local level, whether a cartel is well established or not is more important for local dynamics than whether the cartel is “large” or “small” in general. A strength of the hand-coded Guanajuato dataset is that for each municipality, it measures the type of cartel presence: no presence, cell presence, weak presence, and strong presence.¹³ This measure is superior at measuring cartel types because it relies on local measures rather than assuming all cartels are of equal strength, as we do with the national data.

Finally, for H4 examining the effects of criminal market structure, we leverage data on the georeferenced location of oil pipelines. As Alcocer (2022) shows, following the government crackdown declared on December 2006, cartels diversified to oil theft, which entails stealing refined oil products such as gasoline and diesel from oil pipelines. While oil theft is not as lucrative as drug trafficking, certain states have become central for oil theft. Guanajuato does not have any territories that are key for drug trafficking, but cartels entering the oil theft market suddenly made the 14 of its 46 municipalities with oil pipelines incredibly valuable

¹³Alcocer (2023) defines them as follows. “**Cell presence**”: presence of smaller, more local criminal organizations, not the large cartels. “**Weak presence**”: a CO has continuous operations in a given municipality but it is not strongly established in the municipality. “**Strong presence**”: a CO has established its operations in a given municipality, and the municipality serves as a local stronghold for that CO.

for cartels (Alcocer 2022). The resulting municipality-year dataset for Guanajuato has 1,012 observations.

Covariates

To control for existing alternative explanations, we collect data on elections, political vulnerability, and government crackdowns, as well as other important covariates.

To capture the incentives to use violence created by election cycles, we use election data from Magar (2018) to create a dummy variable that takes a value of 1 for years that a municipality has a local election. Municipalities have elections every three years and are staggered in time across states. Some existing studies also include measures of electoral competition, but if killing a candidate or politician influences electoral outcomes, then these are endogenous to the use of violence. This endogeneity likely biases the results, so we choose to omit them from this analysis.

Trejo and Ley (2020) use a set of nine dummies to consider the political vulnerability hypothesis, with each dummy corresponding to a different federal-state-municipality configuration between the three major parties. However, since 2011, the last year in the sample of Trejo and Ley (2020), the party landscape has become far more complex with the proliferation of four major national parties and dozens of state and local parties. To extend the concept of local political vulnerability, we use election data from Magar (2018) to classify municipalities into four categories: (1) a mayor does not share party affiliation with either the governor or the president; (2) a mayor shares party affiliation with the governor but not the president; (3) a mayor shares party affiliation with the president but not the governor; and (4) a mayor shares party affiliation with both the governor and the president. However, care should be taken when interpreting the regression coefficients of these variables because they may be endogenous. If, as we claim in accordance with Trejo and Ley (2020), cartels can influence electoral outcomes by using violence against specific politicians, then the party in power at the local level could be a result of this violence and a strategic choice of cartels.

To measure the federal crackdown that began in December 2006, we would ideally have information on the location of military and federal police deployments. However, given that it was a national crackdown that was implemented across states through federal and state forces, we measure it using a dummy variable that takes a value of 1 starting in 2007 and remains a 1 thereafter. Operations varied in how they were implemented, from being directly led by federal troops to regional commands where federal forces coordinated efforts with state and local level governments. However, in general, these operations were part of a single top-down strategy.

Studies on Italy underscore the role that state absence has on the emergence of mafia-style COs (Gambetta 1996; Buonanno et al. 2015; Dimico et al. 2017; Bandiera 2003). While current scholarship tends to agree that this is a simplified misconception, as COs frequently operate in the same spaces as the state and in regions with strong state capacity (e.g., Arias 2006; Trejo and Ley 2020; Lessing 2021; Durán-Martínez 2017), state capacity is still understood as a factor that shapes how criminal groups and states interact (e.g., Yashar 2018; Durán-Martínez 2017; Moncada 2016, 2022). Thus, while state capacity may not be sufficient to prevent political violence by organized crime, it could still play some role in increasing the costs of such actions.

To operationalize state capacity, we would ideally use a measure like total municipal government expenditure. However, this data is missing for 7.6% of the observations in the national dataset (missing observations = 3,534) each year. As noted by Trejo and Ley (2021), given that a municipality's population has a 0.92 correlation coefficient (standard error = 0.002, adjusted R-squared = 0.8) with its expenditure (see Online Appendix), we instead use data on municipality population from 2000 as a proxy for state capacity.

Empirical Strategy

To assess our hypotheses, we triangulate evidence from two different datasets: national data covering 2000 to 2018 and data on Guanajuato covering 2000 to 2021.

We rely on two-way fixed effects (TWFE) models to estimate our main results. We believe this approach has at least three main strengths over other approaches used in this literature. First, fixed effects do not assume that unobserved heterogeneity is uncorrelated with the observed explanatory variables like the random effects models used by Trejo and Ley (2021), making fixed effects consistent. Second, unlike random effects and the count and logistic models used by Blume (2017); Huerta (2020), fixed effects allow us to exploit within-unit variation. That is, unit fixed effects estimate how criminal and political changes *within* each municipality affect violence against government officials, which we believe is a more appropriate comparison rather than pooling observations and comparing differences *across* municipalities as the random effects and count models do. Third, unit fixed effects control for any unit-specific time-invariant omitted variable and the time fixed effects control for any common shocks that affects all municipalities.¹⁴

Our first regression analysis focuses on criminal wars and follows the form:

$$y_{it} = \delta_1 monopoly_{it} + \delta_2 war_{it} + \beta X_{it} + \tau + \mu + \epsilon_{it} \quad (1)$$

where y_{it} denotes the number of violent attacks against government officials, $monopoly_{it}$ is a dummy variable indicating whether there is only one cartel operating in a municipality (for the Guanajuato sample this indicates whether there is only one cartel or more than one cartel but they not at war), war_{it} is a dummy variable indicating whether there is more than one cartel operating in a municipality (for the Guanajuato sample this indicates whether two or more cartels are actively fighting in a municipality), X_{it} is a matrix of control variables that includes the political factors, and τ and μ are time and unit fixed effects, respectively.

¹⁴We also estimate the main results using negative binomial models for robustness. Results can be found in the Online Appendix and are consistent with the TWFE results.

For the analysis of Guanajuato, we not only have data on geographic presence, but also on the strength of that presence at the local level. We can therefore test whether, at the local level, criminal wars between cartels that are not well established and criminal wars between well-established cartels have differential effects. To test this, we estimate:

$$y_{it} = \delta_4(strength_{it} \times war_{it}) + \beta X_{it} + \tau + \mu + \epsilon_{it} \quad (2)$$

where $strength_{it}$ denotes the strongest presence of a cartel (i.e., 0 for no presence, 1 for cell presence, 2 for weak presence, and 3 for strong presence) in municipality i and time t .

To analyze the effect of criminal expansion, we estimate:

$$y_{it} = \delta(cartel\ number_{it} \times new\ presence_{it}) + \beta X_{it} + \tau + \mu + \epsilon_{it} \quad (3)$$

where y_{it} denotes the number of violent attacks against government officials, $cartel\ number_{it}$ denotes the number of cartels operating in a municipality (for the Guanajuato sample this indicates the strongest presence of a cartel), $new\ presence_{it}$ is a dummy variable measuring whether municipality i experienced a new cartel enter its territory at time t , X_{it} is a matrix of control variables that includes the political factors, and τ and μ are time and unit fixed effects, respectively.

To investigate whether different types of cartels driven by fragmentation use violence against the state differentially, we estimate the following:

$$y_{it} = \gamma_1 small\ cartel_{it} + \gamma_2 large\ cartel_{it} + \beta X_{it} + \tau + \mu + \epsilon_{it} \quad (4)$$

where $small\ cartel_{it}$ is a dummy variable indicating whether a small cartel is present in a municipality and $large\ cartel_{it}$ is a dummy variable indicating whether a large cartel is present in a municipality.

Finally, to test whether violence against politicians is more prevalent in territories central to illicit markets we estimate the following regression:

$$y_{it} = \psi_1(\text{cartel}_{it} \times \text{valuable territory}_i) + \beta X_{it} + \tau + \mu + \epsilon_{it} \quad (5)$$

where large cartel_{it} is a dummy variable measuring whether a municipality has cartel presence (for the Guanajuato sample this measures the strongest presence of a cartel in a municipality), and $\text{valuable territory}_i$ is a dummy variable which takes the value of 1 if the municipality is central for drug trafficking (for the Guanajuato sample it takes the value of 1 if a municipality has oil pipelines) and 0 otherwise.

Results

Below are the results from TWFE models using our national data on political assassinations from 2000 to 2018 and subnational data in Guanajuato on state official assassinations from 2000 to 2021. We further discuss how these findings compare to the Trejo and Ley (2021) study on high-profile attacks from 2007 to 2011 when replicating their results using our variables on criminal dynamics.

Politician Assassinations

Table 1 shows the results using the national data on the assassination of politicians by cartels between 2000 and 2018. First, all models find null results for political vulnerability explaining political violence. Moreover, unlike the existing studies, this analysis does not find that local elections are associated with more attacks. Given that the data used here includes more years, particularly after 2012, these results may suggest that assassinations are occurring more frequently outside of election cycles as they have become more prevalent.

Looking at criminal dynamics, model (1) shows that the assassination of politicians is driven by cartel wars. The effect is also substantively large, as the coefficient suggests that cartel wars are associated with more than three times the number of killings than the average municipality. The coefficient for monopoly control is also positive and statistically

Table 1: Criminal dynamics and political assassinations of elected officials in Mexico, 2000-2018. Model (1) shows effects of criminal wars. Model (2) shows effects of criminal expansion. Model (3) shows effects of cartel size. Model (4) shows effects in key territories for drug trafficking.

	<i>Dependent variable:</i>			
	Politician Assassinations			
	(1)	(2)	(3)	(4)
Cartel monopoly	0.010*** (0.003)			
Cartel war	0.029*** (0.004)			
Cartel dummy		0.010* (0.005)		0.017*** (0.003)
New cartel presence		0.011*** (0.003)		
Cartel dummy X New cartel presence		0.009 (0.007)		
Large cartel			0.018*** (0.003)	
Small cartel			0.014*** (0.005)	
Cartel dummy X Valuable territory				0.029** (0.012)
State pol. vulnerability	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)
Federal pol. vulnerability	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	0.001 (0.002)
State and federal pol. vulnerability	0.000 (0.003)	0.000 (0.003)	0.001 (0.003)	0.000 (0.003)
Local election	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)
Adj. R ²	0.029	0.029	0.029	0.028
Controls	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Num.Obs.	38 678	38 678	38 678	38 678

Standard errors clustered at the municipality level.

* p < 0.1, ** p < 0.05, *** p < 0.01

significant, perhaps suggesting that cartels began using violence against government officials even in the absence of cartel wars. Another interesting difference shown by model (2) is that the coefficient for new cartel presence is positive and statistically significant – it is associated with a 0.11 SD increase in assassinations – though only when there is no pre-existing cartel presence in a municipality. One interpretation is that politicians in territories where a cartel already operates have already implemented precautions against cartels or because the incumbent cartel protects the politicians they have already captured. Looking at the types of cartels, model (3) shows that both small and large cartels are associated with killing politicians. And while the coefficient for large cartels is slightly larger than small cartels, we cannot conclude that they are statistically different from each other. These results make sense substantively: cartel fragmentation increases significantly starting 2010, so this extended sample is capturing the effects smaller fragments once they started proliferating. These results suggest that smaller cartels began assassinating state officials, like larger cartels, once they proliferated. Lastly, we find that cartels are more likely to assassinate politicians in key drug trafficking territories with geographically-fixed characteristics. As with territories with cartel wars, territories with valuable geographically-fixed characteristics and cartel presence are more than three times more likely to see an assassination than the average municipality.

In the Online Appendix we also include the following analyses to show that the results are robust to alternative specifications: using a negative binomial model, the less conservative outcome measure of whether assassinations were related to cartels, lagged measures of criminal dynamics, and data on where the politicians were killed rather than where they worked. All results are consistent with the main results shown here.

High-Profile Assassinations in Guanajuato

Narrowing in on Guanajuato where criminal dynamics are better measured gives us a more nuanced understanding of their effects on violence against government officials. Table 2 shows the results of this analysis. As with the national sample, all coefficients for political

vulnerability are statistically insignificant. This provides additional evidence that political vulnerability does not appear to be a central explanation in understanding criminal attacks against the state. Unfortunately, since elections happen at the same time in Guanajuato, the year fixed effects absorb the effect of election cycles.

Perhaps most interesting is that, unlike the national results, criminal wars (model 1) have a positive but statistically insignificant effect on assassinations of government officials. However, model (2) provides a more nuanced explanation. Criminal wars by cartels that are well-established in a territory does explain these assassinations and each increase in presence strength is associated with more than 2.6 times the killings than the average municipality. The results suggest that criminal wars by themselves are not sufficient to explain this violence, but that they need to be between cartels that are well-established in a territory. This is consistent with the national results showing that large cartels are more likely to perpetrate this type of violence. Model (4) further supports this interpretation by showing that it is cartels with a strong presence in territories that are most associated with political assassinations. Unlike the national sample, model (3) does not find evidence that new cartel presence at the local level leads to assassinations. Yet, the coefficient is positive, perhaps suggesting that there is some effect but that we cannot estimate it with enough precision. Finally, as with the other sample, we find that political assassinations are most likely in territories with illicit markets that are geographically fixed.

When interpreting these results and what they may tell us about other states, the case of Guanajuato should be taken into consideration. We believe these results are most likely to generalize to other states where cartels may have operated but did not have historical strongholds before they began expanding geographically in 2007 and where oil theft is a key illicit activity.¹⁵ Yet, it is unclear to us whether these we would find similar patterns in states with historical presence of cartels.¹⁶ Given that the former are *much* less studied, however, our results shed light on an understudied phenomenon in an understudied region

¹⁵Including states like Veracruz, Zacatecas, San Luis Potosí, Puebla, Hidalgo, and Aguascalientes.

¹⁶Such as Sinaloa, Baja California, Tamaulipas, or Michoacán.

Table 2: Criminal dynamics and political assassinations of state officials in Guanajuato, Mexico, 2000-2021. Model (1) shows effects of criminal wars. Model (2) shows effect of criminal wars depending on the strength of cartel presence. Model (3) shows effect of criminal expansion. Model (4) shows effects of the strength of cartel presence in a territory. Model (5) shows effects in key territories.

	<i>Dependent variable:</i>				
	Government Official Assassinations				
	(1)	(2)	(3)	(4)	(5)
Cartel monopoly	0.102 (0.109)				
Cartel war	0.015 (0.043)	-0.326** (0.161)			
New cartel presence			-0.103 (0.125)		
Cartel presence strength		-0.005 (0.018)	0.004 (0.018)		-0.015 (0.019)
Cartel presence strength X Cartel war		0.157** (0.077)			
Cartel presence strength X New presence			0.053 (0.065)		
Cartel presence strength X Oil pipeline					0.057* (0.032)
Cell presence				0.063* (0.032)	
Weak presence				-0.057 (0.039)	
Strong presence				0.123* (0.061)	
State pol. vulnerability	0.042 (0.104)	0.041 (0.104)	0.042 (0.093)	0.046 (0.099)	0.029 (0.099)
Federal pol. vulnerability	0.012 (0.081)	0.016 (0.078)	0.014 (0.075)	0.011 (0.079)	0.003 (0.082)
State and federal pol. vulnerability	-0.044 (0.171)	-0.057 (0.169)	-0.048 (0.158)	-0.059 (0.166)	-0.032 (0.168)
Adj. R ²	0.114	0.123	0.113	0.128	0.121
Controls	Yes	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Num.Obs.	1012	1012	1012	1012	1012

Standard errors clustered at the municipality level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

within Mexico.

High-Profile Attacks in Mexico

In addition to analyzing our original datasets, we also analyze the effects of criminal dynamics using data from (Trejo and Ley 2021) on high-profile attacks (e.g., murders, kidnappings, and public threats) in Mexico against government officials, political candidates, and party activists between 2007 and 2011. We replicate their results but replace their proxy for cartel wars, homicides, with our variables on criminal dynamics. Full details on the replication and all results are provided in the Online Appendix.

We find that cartel wars are associated with an increase in the number of attacks, while monopoly control is not associated with more attacks. The effect of cartel wars is substantively large, as it signifies nearly twice the mean of attacks in the sample. Like the Guanajuato sample, we find no evidence that new cartel presence is associated with criminal attacks in the short term. We find that large cartels are the ones driving this violence between 2007 and 2011, with small cartels having a positive but statistically insignificant effect. This makes substantive sense, as fragmentation took off in 2010 and this sample only covers up to 2011, meaning that violence during this period was primarily driven by large cartels. Finally, we find that high-profile criminal attacks are far more likely in territories with geographically-fixed markets.

Triangulating Results

Taken together, the evidence suggests at least four key conclusions. First, criminal wars drive political assassinations, particularly when at least one of the cartels is well-established in the territory where they are fighting. Second, we find mixed evidence that cartels entering new territories is associated with more violence against government officials in the short term. Third, while violence against politicians was primarily a strategy used by larger cartels soon after the 2007 government crackdown, it seems to have then been adopted by cartel fragments

that proliferated starting in 2010. It is also a strategy used in territories where cartels are well established, not where they have weak presence. Finally, political violence by cartels is more prevalent in territories with lucrative and geographically-fixed illicit markets.

Other results, while not our main focus, are worth noting. First, once criminal dynamics are accounted for, we find no evidence supporting the hypothesis that political vulnerability, driven by party polarization and party politics, is an important factor for understanding when and where cartels attack politicians. This finding counters prominent arguments about political vulnerability and inter-governmental cooperation explaining CO violence. Second, when using data that extends beyond 2011 and accounting for criminal dynamics, we also find no evidence that local election cycles are associated with more violence against politicians, perhaps suggesting that as this type of violence has become more prevalent it has extended beyond election cycles.

Conclusion

Violence against government officials, including assassinations, is one of the most perverse actions that can be taken against the state by any non-state actor, be it rebel groups, terrorist organizations, or COs. Nevertheless, little attention has been given to the phenomenon, and specifically the role that COs play in perpetrating political violence. This article contributes to this literature by exploring how criminal dynamics help explain when and where COs use violence against government officials, an explanation that has been largely overlooked by existing research.

By measuring the extent of violence against state actors by COs, this article also accentuates that COs are very important *political*, and not just economic or criminal, actors. While this article focuses on Mexico, the killing of state actors by COs is prevalent across Latin America. If we want to understand the drivers of this violence in order to counteract it, further research on the topic is necessary and crucial. For example, research has found that

a main cause for the increase in criminal wars, fragmentation, expansion, and diversification in Mexico was the government crackdown that began in December of 2006. If these types of government policies exacerbate criminal dynamics, which then lead to COs using violence against the state, it suggests the need to rethink these hard-line policies.

Moreover, while this study focuses on the drivers of this violence, future research would benefit from exploring the consequences that this violence has on various outcomes of interest. This has received even less attention than understanding the drivers of this violence. Yet, understanding the use of violence against government officials by COs is imperative, as it has fundamental and widespread implications for democracy, governance, the rule of law, state capacity, and citizen trust in government institutions.

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