

State-Evading Solutions to Violence: Organized Crime and Governance in Indigenous Mexico

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Abstract

The monopoly of violence in the hands of the state is conceived as the principal vehicle to generate order. A problem with this vision is that parts of the state and its law enforcement apparatus often become extensions of criminality rather than solutions to it. We argue that one solution to this dilemma is to “opt out from the state.” Using a multi-method strategy combining extensive qualitative research, quasi-experimental statistical analyses, and survey data, the paper demonstrates that indigenous communities in Mexico are better able to escape predatory criminal rule when they are legally allowed to carve a space of autonomy from the state through the institution of “usos y costumbres.” We demonstrate that these municipalities are more immune to violence than similar localities where regular police forces and local judiciaries are in charge of law enforcement and where mayors are elected through multiparty elections rather than customary practices.

“Here there is no organized crime presence. We don’t have criminal gangs either. If there were, the topiles (community police) would mobilize to protect social order and would alert the community so we could all get organized to resist them.”

—Interview with an elderly shopkeeper from Otozolotepec, Oaxaca, Mexico

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Introduction

Criminal groups “rule” territories, performing state-like functions such as taxation, conflict resolution, policing, and even welfare delivery, much like rebel groups ([Arjona, 2016](#); [Mampilly, 2011](#); [Arias, 2017](#); [Magaloni et al., 2020](#); [Lessing and Willis, 2019](#); [Yashar, 2018](#); [Lessing, 2020](#); [Trejo and Ley, 2020](#)). Our work expands upon this body of work focusing on rural Mexico, where the degree of infiltration and local control of cartels¹ puts them on par with very successful insurgencies.

Mexican cartels’ revenue generation model is no longer based purely on drug trafficking, but also the large-scale extortion of licit activities and looting of mineral and natural resources. Though, as our field research shows, there are clear differences between cartels’ business models regarding the importance of extortion as a source of revenues. This comprehensive illegal revenue extraction is flanked by the capture of elected governments and police at the state and municipal levels ([Trejo and Ley, 2020](#)). Because official security forces in Mexico often fail to provide security and many end up captured by the cartels, some rural communities organize *autodefensas* to defend themselves ([Guerra Manzo, 2015](#); [Osorio et al., 2021](#); [Moncada, 2019](#)). Although explaining *autodefensas* goes beyond our scope, a problem with this strategy is that cartels can coopt these armed groups even after their initial successful resistance. It is also difficult for communities to maintain citizen engagement for non-state security provision if they lack strong traditions of collective action. This paper focuses, instead, on the role of municipal governance institutions and how these shape the capacity of rural communities either to resist the dominance of cartels or to submit to them.

We argue that the institution known as *usos y costumbres* (hereafter “usos”) provides a strong protective mechanism against cartels. Usos is a form of indigenous self-rule based on customary practices ([Recondo, 2007](#); [Eisenstadt, 2011](#)). A key difference in

¹We will use the word “cartel” in an emic sense as a term used by violent crime groups in the Mexican context. In anthropology, “emic” refers to viewpoints and concepts obtained from within the social group (from the perspective of the subject).

municipalities with usos is that mayors and other local authorities are selected following local traditions. The selection often considers one's history of service to the community through the system of *cargos*, and is not organized along political party lines. The ultimate authority is the community assembly that selects these leaders and meets with regularity to make public decisions. There is also a customary justice system for dispute resolution and a community police of local townspeople.

Our theory and empirical findings raise important questions about the problem of order. The literature on state building has argued that the monopoly of violence in the hands of the state, accomplished after long-term processes of warring and conflict, allowed European nations to establish order (Tilly, 1990; Olson, 1993). The nationalization of justice rendered vigilantism, frontier justice, and violent retaliation increasingly unnecessary to deter crime (Pinker, 2012). By contrast, in many developing settings, the state has failed to monopolize violence. The literature attributes this problem to “difficult geography” (Herbst, 2014) or poverty (Fearon and Laitin, 2003). These works share a vision that the state constitutes a solution to the problem of order, and that increasing state presence in its most remote corners is needed to tame violence.

This influential vision about the emergence of order misses the important problem that parts of the state and its law enforcement apparatus often become extensions of criminality rather than solutions to it. In contrast to rebels, organized criminal groups often seek the active collaboration of the state. This is because the expansion of illicit activities is more effective with the assistance of state agents that they buy through rampant corruption (Snyder and Durán-Martínez, 2009; Barnes, 2017; Moncada, 2013). The most tyrannical form of criminal rule emerges where criminal groups extract resources from the population and violate human rights with the full backing of state agents and police forces (Magaloni et al., 2020).

In this paper we argue that one solution to this form of predatory criminal rule is to “opt out from the state.” The paper demonstrates that rural indigenous communities in Mexico live more securely where they are legally allowed to carve a space of autonomy

from the state. Our findings join Scott (2010), who also conceives benefits to the strategy of living at the margins of the state. In the case he studies, hill societies in Southeast Asia avoided exploitation in the form of taxes, slavery, and epidemics by keeping the state away. In our case, usos allow communities to prevent takeover by corrupt leaders and local police infiltrated by cartels. Our approach is also congenial with Ostrom (1990)'s seminal contribution. In her approach, cooperative governance of common pool resources can be more effective in formulating and enforcing rules than a centralized state, which lacks enough information and capacity to enforce rules. We extend this approach to the problem of social order.

Our findings also relate to the emerging literature on traditional governance. Holzinger et al. (2019) provide a comprehensive study of the constitutional acknowledgment of indigenous rights and customary law across the globe, showing that over 30% of the world's population lives under traditional political institutions. Some earlier literature regarded traditional authorities as competitors to the centralized state and a challenge to state building (Migdal, 1988). Others regard traditional authorities as the very antithesis of democracy (Mamdani, 2018). More recent literature has questioned these views and posits that recognizing traditional governance can actually strengthen state compliance (McMurtry, 2021) and that traditional authorities can be accountable and effective in providing local public goods (Holzinger et al., 2019; Baldwin, 2016).

Our paper joins Moncada (2019)'s important contribution in exploring civilian strategies of resistance to criminal groups. Our approach is also congenial with Mattiace et al. (2019), who use case studies from Mexico to argue that indigenous communities that establish regional autonomy are most able to resist narco. In their approach, autonomy is conquered by those indigenous communities that have "a history of social mobilization" in trans-local indigenous movements. Our approach underscores instead the role of formal municipal governance institutions and provides both qualitative and a range of quasi-experimental statistical evidence supporting our theoretical claims. Our findings are also congenial to Arjona (2016)'s pioneering work on Colombia, where she shows

that strong community organization allows civilians to establish less intrusive social contracts with armed groups. In our case, it is the congruence of strong social control and formal institutions granting legal autonomy that can deter cartels' collusion with local authorities and the imposition of predatory rule. The paper also contributes to recent work on vigilantism that explores why civilians who are exposed to high levels of violence and where the state fails to punish crimes often seek punitive justice, including vigilante actions ([García Ponce et al., nd](#); [Bateson, 2021](#)).

To explore how non-state forms of local leader election impact criminal rule, this paper exploits a constitutional reform in Oaxaca, the only state in Mexico that has legalized usos. Some municipalities outside Oaxaca have obtained recognition to self-rule through federal judicial channels. The most prominent cases include various P'urhepecha communities in Michoacán. Our findings draw from extensive field research that contrasts indigenous responses in municipalities ruled by political parties and usos in Oaxaca as well as responses in the indigenous P'urhepecha region. The paper presents a range of statistical tests, analyzing a national victimization survey and homicide and cartel presence data using difference-in-differences, matching, and geographic discontinuity, all of which lend credence to our argument that the protective effect of usos is causal.

1 Violence in Mexico

Mexico is the second-largest opium producer in the world [UNODC \(2008\)](#). In addition, between 60 to 90 percent of the cocaine consumed in the U.S. transits through Mexico ([DEA, 2011](#)). Cartels aspire to control territory valuable for drug cultivation, production, transportation, and smuggling. While there is a clear economic motivation explaining why cartels fight for certain locations, politics also influences territorial control and levels of conflict. During the long period of dominance by the Institutional Revolutionary Party (PRI), deals between the state and cartels could be enforced without much violence. These deals secured a state-sponsored division of territory among cartels and a more or

less peaceful co-existence (Astorga, 2003; Grillo, 2011). However, alternation of political power in office first at the local level in the 1990s (Trejo and Ley, 2020, 2018) and then at the national level in 2000 upended these deals (Osorio and Reyes, 2014; Ríos, 2015). With competitive party elections and political alternation, these deals became unstable, and increased the frequency with which cartels intimidate, coerce, and kill local officials (Blume, 2017; Trejo and Ley, 2016).

The recent sharp increase in violence in Mexico is further associated with security policies. The onset of the Drug War during the Calderón presidency (2006–2012) produced a massive escalation of violence. Armed forces deployed across the country to help local governments fight organized criminal groups, and targeted cartel leaders for arrest or assassination. State crackdowns and this beheading strategy had unanticipated consequences, fracturing cartels and increasing the incidence of turf wars for valuable territory (Guerrero, 2011a; Dell, 2015; Lessing, 2015; Phillips, 2015; Calderón et al., 2015; Castillo and Kronick, 2020).

With escalating competition over territory, cartels developed a diversified revenue generation model that includes the large-scale extortion of licit activities, including farming (e.g., avocados, lemons, berries). They also invade land to prey on oil, mining, and forestry (Guerrero, 2011b; Moncada, 2019). In addition to the regular payment of “cuotas,” many cartels began to use “kidnappings” and “disappearances” to extract revenue from local populations.

Cartel takeover

As part of this illegal revenue extraction model, cartels aim to capture elected governments at the state and municipal levels, and the corresponding administration and police. The capture of elected governments and administrations offers to these criminal groups protection, intelligence, and, ultimately, impunity. Existing literature and our fieldwork suggest that takeover of municipalities by organized criminal groups occurs via a combi-

nation of three mechanisms.

First, takeover involves establishing criminal cells and infiltrating communities. Local criminal cells represent a ready-made entry point for cartels to infiltrate municipalities. They begin by providing information about a locality and carrying out initial criminal activities on behalf of the cartel. In return, cells receive money and weapons, and can use the cartel’s name (or “brand”).² Where successful, crime surges. The constant threat of criminal groups forces local communities to remain vigilant to fend off infiltrations and intrusions. As we explore below, usos municipalities are significantly better able to deter and sanction this form of infiltration.

Second, once initial cells have been established, cartels can strengthen their presence and build connections to local politics and police. Influencing politics can go through various channels, including financing electoral campaigns of main local candidates and continuing to pay bribes to the winner. In addition to mere corruption, the “hard” way of infiltrating local politics is through the use of violence to intimidate and, if necessary, kill rivals (Trejo and Ley, 2020).

A third way in which cartels take control of communities is by violent takeover. This is the hardest and most violent form of gaining control of a territory. It is omnipresent in current-day Mexico—and also highly visible. These military offensives are often accompanied by assassinations of political officials. In addition to targeting the population, cartels take aim at mayors and chiefs of police whom they fear may defect to a rival cartel or are already on rivals’ payrolls.

2 Indigenous Autonomy in Oaxaca

Oaxaca is the only state that has legalized indigenous cultural practices and autonomy. Since 1995, 418 of the 570 municipalities of Oaxaca govern themselves accordingly. The usos reform was adopted by governor Heladio Ramirez (1986-1992)—himself indigenous—

²We identified several likely cases during our fieldwork. Debriefing on November 2019 in Michoacán and February 2020 in Oaxaca.

to recognize Oaxaca's multiculturalism. There is considerable speculation in the literature about why political elites in Oaxaca adopted the reform. One line of argumentation stresses that state elites feared the spread of indigenous peasant uprisings from the Zapatista rebellion in Chiapas ([Eisenstadt, 2011](#); [Trejo, 2012](#)). Other scholars focus on local elites' electoral calculations, arguing that the PRI selected usos to entrench itself and deter the entry of opposition parties into local politics ([Benton, 2012, 2017](#)). A third explanation emphasizes the convergence of various national and local factors, including the presence of a strong local indigenous movement lobbying for autonomy and state power holders' imperative to halt the opposition and settle persistent problems of violence ([Recondo, 2007](#)). Indeed, as we show below, in the early 1990s rural municipalities in Oaxaca had among the highest levels of interpersonal violence in the country.

It is important to further trace the usos reform to longer-term historical processes. Indigenous communities in Oaxaca have long traditions of autonomy, some dating back to pre-Hispanic times. The Aztecs ruled Oaxaca's Valles Centrales for only thirty years, when in 1486 they established their first major military base in Huaxyácac charged with the enforcement of tribute collection ([Schmal, 2006](#)). Before that, a significant area of today's Oaxaca lay wholly outside of Aztec imperial boundaries—what [Davies \(1968\)](#) called *Señoríos Independientes*. When the Spaniards conquered Mexico, and during the colonial era, Oaxaca saw the emergence of a more powerful indigenous elite. [Díaz-Cayeros and Jha \(2016\)](#)'s study shows that indigenous producers of cochineal dye—New Spain's most valuable processed good that was mostly produced in Oaxaca³—were more likely to survive the conquest and extract concessions from the conquistadores because this economic activity was hard to replicate and expropriate. There was also a tradition of violent resistance in Oaxaca. After the Spanish conquest, the Mixes (Ayuujkä'äy) were able to resist through violent uprisings ([tot Westerflier, 2007](#); [Burgoa, 1989](#)). The last major Mixe rebellion came in 1570, when they attacked and burned the Spanish presidio

³Cochineal was also produced in other regions such as Tlaxcala, where contrary to Oaxaca, the indigenous elite would lose their cultural ethnic distinctiveness.

of Villa Alta, which had been established as the new capital of the province with sixteen Mixe towns that would be subject to the Crown. The Spaniards crushed the rebellion and the Mixe retreated to remote parts of the Sierra, retaining significant autonomy ([tot Westerflier, 2007](#)).

With Mexican independence, attempts at state building and establishing centralized military control challenged the autonomy of indigenous communities. Liberal reforms in the second half of the nineteenth century would abolish lands held in common by indigenous communities. In contrast to most states where indigenous communities were totally expropriated from their lands by powerful landholding white local elites, Oaxaca was not governed by White or Ladino elites or landowners, but an ascendant indigenous political class.⁴ Communal land often dating back to colonial times, rather than ejidal land, survived these reforms, underscoring the persistence and strength of traditional forms of indigenous rule.

The 1995 reform legalized these cultural traditions. Several authors believe the reform enhanced conflict, particularly in the electoral arena (see [Eisenstadt, 2007, 2011](#); [Eisenstadt and Ríos, 2014](#)). This paper departs from these perspectives by providing solid evidence that the usos reform significantly *reduced* interpersonal violence. We emphasize that our reading of the existing literature allows us to understand why Oaxaca's unique history explains the adoption of the reform. Nonetheless, there remains a gap in our knowledge and available data⁵ to explain why different municipalities adopted this reform. We know that adoption was heavily correlated with a municipality being more indigenous, poor, and rural. We will exploit this variation to provide causal evidence of the effect of this institution on criminal governance.

⁴Recall that in 1858, Benito Juárez became the first president of indigenous origin in Mexico. He was born in Oaxaca to a poor, rural Zapotec family.

⁵Unfortunately, to our knowledge there are no voting records from when community assemblies opted for these institutions.

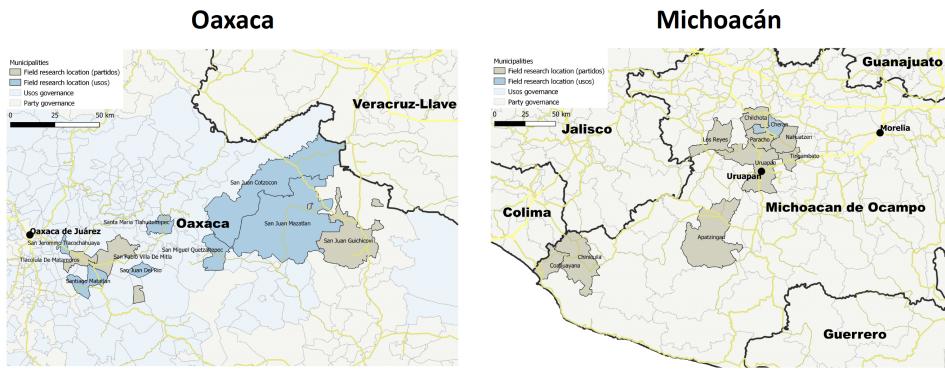
3 Background of Qualitative Evidence

The centerpiece of our qualitative evidence stems from research conducted in 2019-20 in central and northeastern Oaxaca focusing on rural non-governmental police forces. We hired graduates of the Instituto Superior Intercultural Ayuuk (ISIA), a university of indigenous students located in the lower Mixe region, training them using the Institution-Centered Conflict Research (ICCR) approach (see [Koehler et al., 2019](#)). During the training we selected 10 municipalities in Oaxaca, three “party”- and seven “usos”-governed (see left panel in Figure 1). Five lie in ethnic Mixe areas and cluster around Route 147, the westernmost route leading from the Isthmus towards the north and bordering Veracruz. This area is hotly-contested between the Cartel Jalisco Nueva Generación (CJNG) and remnants of the Zetas and Gulf Cartel. It is not uncommon to see armed sicarios in daylight (see e.g. field diary, August and September 2019). The other five lie in the Valles Centrales, 20 to 60 minutes driving distance from Oaxaca City. This area is well-connected and its economy, based on tourism and mezcal production, is vibrant. With the Valles Centrales municipalities we thus wanted to investigate whether in a more connected and developed context usos communities still resist cartel takeover. We found strong supporting evidence.

However, our qualitative research in Oaxaca is much longer-term and dates back to 2009, when one author first conducted focus group discussions and further qualitative interviews. This was followed by large-scale fieldwork in 2012–13 in northeastern Oaxaca—also with students from ISIA and using the ICCR methodology, but focusing on local governance. As our research interest shifted to include the presence or absence of cartels, the author(s) conducted additional field visits and interviews in the area (in 2014, 2018, and 2019). Finally, to contextualize our findings, we conducted extensive literature and online research on the broader region of our fieldwork municipalities: a large territory encompassing 119 municipalities between Route 147 along the Veracruz Border and Route 190 in the Valles Centrales reaching down toward the Isthmus.

We also conducted fieldwork in Michoacán using the same methodology, with local students led by a preeminent local photojournalist. The research team in Michoacán divided into two groups: the indigenous P'urhepecha region, and Tierra Caliente and Costa. In this paper we exclusively report on the Meseta P'urhepecha. Details of all research, including training, fieldwork, ethical considerations, and outputs, are in the Online Appendix.

Figure 1: Research sites



4 Why Usos Deters Cartel Takeover

In terms of the criminal economy, Oaxaca is an important transshipment nexus with a long coastline, a busy harbor (Salinas Cruz), and three important routes leading from Central America towards the US-Mexican border (one along the coast, another via the center crossing the state capital, and a third along the Veracruz border). There is significant cultivation of marijuana and opium poppy in remote areas. Based on UNODC (2008), Oaxaca is the fifth-largest opium poppy cultivating state in Mexico. Despite its importance for the drug economy, violence in Oaxaca has remained relatively low (as compared to other Mexican states). Mexico's criminal cartels nonetheless maintain a presence in the state. Our qualitative evidence and statistical analyses demonstrate that the institution of usos is more resilient to cartel takeover and better able to deter criminal activity and violence. In this section, we develop a theory based on our fieldwork

that focuses on three mechanisms explaining why usos municipalities are better able to resist cartel takeover and control crime than party municipalities: i. social control and capacity for collective action; ii. a strongly participatory form of decision-making; and iii. the system of police and conflict resolution that is detached from the state.

Social control and capacity for collective action

Social control refers to how people's behavior is regulated by norms, rules, and laws. When this is strong, it is costly for individuals to engage in anomie behavior. Informal forms include norms and values, which are internalized and reinforced in social interactions. Formal social control relates to sanctions enforcing codified rules, regulations, and laws. It usually implies the involvement of state judicial (courts) and executive (police) bodies.

Usos communities share informal social control with many indigenous communities across Mexico endowed with strong communitarian traditions. However, a main difference is the backing of informal social control with formal mechanisms. Formally-constituted usos polities enforce explicit (often written) rules. The sindico or alcalde in pettier cases, and the communal assembly in grave cases, determine sanctions for breaches. Community police (topiles) implement sanctions and are first-responders to crime.

In usos communities, fines are common for many smaller transgressions: absence from communal meetings (Mex\$100-200 fine imposed in five of eight usos municipalities surveyed in 2012), non-participation in communal work (all surveyed communities sanctioned non-participation with fines, up to Mex\$500), speeding, littering, and drunkenness. Unsurprisingly, in contrast to party municipalities, usos communities are cleaner, more orderly, have only a few (if any) drunkards roaming the streets (they get arrested and thrown in the communal jail, as the sale of alcoholic beverages is often prohibited to known alcoholics), and bars and cantinas close by 10pm, enforced by topiles.

With regard to suppressing criminal behavior, these informal and formal mechanisms

of social control are rather effective. Communities suppress drug abuse, and prevent and punish norm-breaking criminal behavior. More serious transgressions like theft, refusal to perform cargos, or corruption can result in expulsion, confiscation of lands, or death. Expulsions are not spontaneously-imposed or taken lightly, but are explicitly stipulated for certain transgressions as one of the harshest punishments possible and deliberated over a series of assemblies. They are repeatedly put into practice. In our fieldwork and desktop research we identified 21 cases of expulsions from the case study area, with nine relating to criminal behavior. Four expulsions resulted from the refusal to perform cargos, and two from mayoral corruption. We found no expulsions in party municipalities, where people expressed an inability to denounce crimes to anybody other than the (often corrupt) police. Our interviews revealed that these residents mostly decide not to denounce crimes.

In some cases, formal and informal sanctions are combined. We recorded an interesting case from the municipality of UC17,⁶ where a comunero reportedly assisted car thieves. As the plot was uncovered the external criminals fled. The assembly fined the man, but decided not to expel or physically punish him. However, it permitted the damaged parties to take revenge. The (alleged) perpetrator was then severely beaten by the person whose car was stolen and is now socially dead—the community avoids social contact with him and excludes him from communal activities.

Relating social control back to the first hypothesized mechanism of cartel takeover—the establishment of criminal cells—our cases make it clear that the strong social control in usos communities makes it more difficult for deviant criminal groups, which cartels use to gain footholds in communities, to emerge. Moreover, social cohesiveness is essential to repel armed criminal attacks, as we discuss below in the section on community policing. Our field research revealed that communities often sounded an alarm (ringing the church bell) and violently confronted intruding criminals. In many usos municipalities we found night curfews and chains on access roads to prevent entry.

The high degree of social control in usos contrasts with party municipalities, which lack

⁶We omit locality names when important to protect our informants.

formal sanctions enforcing participation in assemblies, communal works, or, in extreme cases, collective defense. Instead, norm compliance relies exclusively on informal sanctions (shame and respect). Enforcement of criminal behavior relies on informal sanctions and the rather-dysfunctional police and justice system. As a result, party municipalities have greater difficulty enforcing norm-compliant behavior, making the emergence of criminal cells more likely.

Moreover, we observed that party municipalities tend to be significantly more divided and fragmented. These divisions, in turn, make it harder for communities to act collectively to respond to cartel attacks. It is difficult to know if these divisions are the product of partisan competition, but given fierce partisan fights over public resources this is possible. [Magaloni et al. \(2019\)](#) demonstrate that usos municipalities distribute public resources more equally than in party municipalities, where mayors often disproportionately favor their supporters. It is not uncommon to find public services like water cut off from neighborhoods that voted for opposition parties. The authors even found in some party municipalities that people refuse to socialize with or marry members of different political parties. In terms of community initiatives to improve security, our field research revealed few actions in party municipalities. We found no night curfews nor chains closing access to the towns. The most we saw were neighborhoods with private police, or “casetas de vigilantes.” We also found groups of men performing night watch, but performed at most in a few streets and never involving the entire town.

An exception to this general observation on party municipalities are villages (*agencias*) where indigenous communities informally continue their usos traditions. As such, they have communal assemblies, unpaid cargos, tequios, and topiles (e.g. El Zapote in the party municipality of San Juan Guichikovi). These communities are often better-placed to provide security to their citizens than neighboring party *agencias*. But a problem with these usos *agencias* is that their municipal police is selected and controlled by a mayor who is elected through party elections and, as we elaborate below, generally more likely to be corrupt.

Participatory decision-making

The second approach to capture municipal governments relates to bribing and intimidating municipal leaders already in office. The greater transparency of usos (compared to party governance) and how ultimate authority lies with the communal assembly make collusion between elected authorities and criminal groups more difficult. There is a very high degree of public participation in communal governance and decision-making. The usos municipalities we have surveyed have regular communal assemblies (between four to 12 times a year) that last between two to eight hours. Communities can also call meetings if need arises. Of the six usos municipalities that provided us with agendas of their most recent assemblies, five discussed public works, budgets, and spending (community profiles 2012), underlining a high degree of transparency and accountability of usos authorities. As an example, on the last day of our team training in Jaltepec, an extraordinary and obligatory communal assembly convened because the cargo-holder for public works was accused of embezzling Mex\$400,000. Participation in the assembly to adjudicate his dismissal was enforced by topiles closing all roads leading out. Once there, the accused cargo-holder could prove that he had submitted the amount in cash to the mayor. This case illustrates the swift and highly-public investigation of any accusations regarding misuse of funds. We also learned about two mayors expelled for corruption, further underscoring the degree of public scrutiny and level of punishments for irregularities in handling public funds.

The high degree of participation in public matters and the resulting accountability of office holders sharply contrasts with party municipalities, where decision-making is delegated to local authorities and administrations. As such, government is easily captured by a small number of local elites. In party municipalities there is a *cabildo* or local assembly, but this is appointed, powerless, and dis-embedded from the community, leaving mayors with more freedom to steal from public coffers and cut deals with narcos.

In usos municipalities, it is extremely rare for someone to be elected as local

authority—mayors, regidores, council of elders, etc.—without a clear history of service. The system of *cargos* provides the key ladder for ascension to leadership positions, so those with a proven record of service are elected as mayors. Magaloni et al. (2019) find that usos mayors are more constrained by the expectation of living in the community after their terms than party-elected leaders, who normally leave in search of higher office after one term.⁷

The high degree of transparency and the constant scrutiny of the assembly also makes it potentially more difficult for corrupted (or intimidated) authorities within usos municipalities to deliver on corrupt deals. In usos community UC02-b, a cartel requested cooperation from an agente (chairman or mayor of a community). The agente called an extraordinary assembly where he reported the threats he had received. The assembly decided to visibly demonstrate its capacity to defend itself. With armed comuneros riding in the beds of 100 pickup trucks, it entered a nearby town considered to be the cartel’s local headquarters. The demonstration did not result in violence, but in the coming days the community erected chains and posted night guards at its entrances. Assemblies where local officials must give account to the public are the absolute exception in party municipalities (one notable exception is our 2013 survey municipality of Ayotzindepec).

Detached community police and justice from the state

The third mechanism that protects usos communities from cartel capture is their local security and justice (retribution) system that is largely detached from the state. This is key because official Mexican law enforcement and security forces are unable to provide reliable security due to corruption, ineptitude, and insufficient numbers. Victimization surveys analyzed below and our interviews from Michoacán show a great deal of mistrust in municipal and state police, perceived as corrupt. In Michoacán allegations of collusion between the police and the narcos were common, as we elaborate below, and in many cases

⁷Until recently, mayors (both usos and party) could not be reelected for a consecutive term. Reelection for mayors first took place in July 2018. Exploring the effect of mayor reelection on criminal governance goes beyond our scope and time period.

civilians fear reporting crimes to the police because they can be targeted in retaliation. In our Oaxaca interviews the most frequent allegations were not responding in cases of criminal threats and that if perpetrators are handed over to the justice system, they would be immediately let free (e.g. interview with former head of usos municipal police on 2 July 2014). We also noted clear cases of police harassment and even extortion in the broader research region (see, e.g. in Tamazulapam, debriefing in 2012; see also Quadratin, 24 March 2015).

In contrast, usos municipalities can provide local security and justice mostly independent of the state. First, the far-reaching autonomy granted by the constitution of Oaxaca extends partly to the field of security and justice, allowing these communities to resolve most crimes and conflicts internally—in theory, as long as all those involved agree to follow customary law (Code of Criminal Procedure of the State of Oaxaca, Art. 414 “Indigenous Communities”). Even though homicide and manslaughter are exempt, usos communities seek to and have traditionally sought to informally extend their autonomy to these offenses, too. Second, through their institutional setup and strong social control they have the capacity to effectively organize collective violence to fend off intrusions and sanction perpetrators. This autonomous system thus represents an effective alternative to state-provided security, justice, and enforcement.

In usos municipalities, the autonomous security and justice provision and its capacity to organize collective violence has three key pillars. We found this structure, with minimal variations in titles, responsibilities, and terms, in all qualitatively-surveyed usos municipalities and communities. Police leadership comes from the cargo-holding communal headmen, most importantly the municipal president in cabeceras and agentes in communities outside of them; the sindicos (a kind of constable) who are responsible for resolving conflicts and are usually also the commander of the communal police; and officers of the communal police (mayores or mayores de vara).

The first line of active defense is the community police, or topiles. They conduct patrols, identify outsiders, enforce curfews, and man checkpoints. Usually they are un-

armed, but increasingly, as in the case of night patrols in the community of Otzolotepec, they carry arms due to mounting cartel threats. Topiles play an active role in keeping the community safe from organized criminals, including alerting the community so all mobilize against criminals, as expressed by the elderly shopkeeper in the epigraph. In another case in a community of San Juan Mazatlán (UC01-a), topiles drove off and arrested criminals who tried to kidnap a comunero (debriefing, February 2020).

The last layer of the autonomous security and justice system is the community itself and its decision-making body in the communal assembly. During emergencies, like incursions by hostile armed men, kidnappings, or robberies, usos communities mobilize spontaneously. Out of a total of 18 identified cases of violent communal self-defense, ten likely involved a spontaneous mobilization of the (mostly male) population. Often in such cases topiles ring a bell calling all comuneros to participate in defense. As an example, in 2011 a suspected Zetas raiding party entered the usos community (UC02-b) of the municipality of San Juan Cotzocón guided by a local delinquent. This Zetas group was known to have entered and extorted other communities nearby, and community UC02-b was on alert. Upon being informed, the agent sounded the alarm and called the population to arms in Mixe via loudspeakers. Seeing the general mobilization, the Zetas fled and did not return (debriefing and case study, May 2012). In other cases communal mobilization is even more spontaneous. In VCUC07 in the Valles Centrales, the community was on alert because of repeated robberies and extortion in the town. One night, neighbors heard cries of a family being assaulted and came to help. Topiles apprehended three criminals who were then, by communal decision, burnt alive (debriefing and case study, February 2020).

When criminals cannot be arrested on site and instead flee, usos communities often alarm neighboring communities who rapidly erect checkpoints to block all escape routes. In all three such cases we identified in the research region (debriefing 2012, interviews in 2014 and 2018), this regional mobilization succeeded either in apprehending the fleeing criminals (two cases) or forcing (one case) the criminals to free kidnapped children lest

they risk passing spontaneously-erected checkpoints with victims in their vehicle. Topiles coordinated the action with local authorities, and community members participated in the mobilization. If security challenges leave time for deliberation, like planning raids or demonstrations, erecting and manning checkpoints for prolonged periods, or deciding what to do with apprehended criminals, communal assemblies are convened to organize collective mobilization. We are aware of various cases of such deliberate mobilizations linked to organized crime. One is the already-mentioned case of the UC02-b community's armed demonstration in the cartel's local headquarters. Following the incident, the community erected concrete posts with heavy chains to block vehicle access and for several weeks manned these checkpoints at night. To our knowledge, the community does not pay extortion to the cartel.

Once criminals are apprehended, usos communities must decide how to deal with them. The Mexican criminal justice system is notoriously corrupt and incompetent, and communities (rightly) distrust it. Usos communities thus face a dilemma. Either they adhere to the law, hand over apprehended criminals, and risk the criminals soon coming free (interview with former chief of Mazatlán's uniformed municipal police on 2 July 2014; debriefing February 2020), or they take justice into their own hands. If criminals are from the community, the usual sanction for grave crimes is expulsion. These and lesser sanctions (prison, fines, and informal sanctions like shaming) not only contribute to enforcing norm-compliant behavior, but also physically remove nascent criminal cells and those who could be hired by cartels to form the nucleus of cartel infiltration.

If the criminals are outsiders and the assembly decides not to hand them over to official authorities, a common punishment is lynching. We identified 29 cases of attempted and successful lynchings and extrajudicial killings for the broader research region (9 in party, 20 in usos municipalities). Of these, six (all usos) were actually carried out resulting in the death of 12-14 alleged perpetrators, while the remaining were not carried out, usually because the police intervened. Our cases suggest a clear difference between party and usos municipalities with regard to lynchings. In our usos cases the decision to lynch a criminal

is made by the assembly and follows prolonged deliberation. In party communities, lynchings appear to follow *ad hoc* dynamics, which may be why they abandon attempts once police arrive. A sindico from an usos municipality (VCUC06) in the Valles Centrales illustrates the deliberative process: “Insecurity was rampant in 2015, and in 2016 it was the same. In the middle of September, the population made justice, they chased a thief and lynched him ... We have managed to control crime by not involving the state. The law doesn’t do what it should. Because the community had all participated in the lynching, criminals were afraid. Imagine, there are many cases when the state detains someone and they let the criminal walk free the next day.”

It is important to emphasize that far-reaching impunity does not only refer to crime, but also to self-justice. In none of the cases we are aware of were communal leaders or participants in lynchings persecuted. Nonetheless, fear of state sanctions does impede certain communities from lynching suspected criminals. One example from an usos community within a party municipality in the Valles Centrales: “When we captured the criminals we tied them and were going to burn them, but some said that this will get us in trouble with state authorities.” Faced with the dilemma of breaking the law or risking that the state lets criminals go free, some communities devise creative solutions. For example, topiles in an usos community (UC01-a) within the usos municipality of San Juan Mazatlán captured three would-be kidnappers. While they wanted to avoid problems associated with lynching, they feared state authorities would free the kidnappers and wanted to send a strong message about the community’s toughness on criminals. They thus turned the tables and requested a very high ransom from the kidnappers’ families. Upon payment, the kidnappers were freed. In another case, the same community faced an even greater dilemma: how to deal with a kidnapper within their own ranks. The community decided to expel the kidnapper’s parents, who had failed to reign in or report their son’s activities. The kidnapper was handed over to state justice. On the day of his court case, the entire community attended and staged a demonstration, forcing the judges to hand down a tough sentence (debriefing, February 2020).

5 The P'urhepecha Uprising in Michoacán

Michoacán is a key producer of marijuana, opium poppy, and—since the mid-2000s—synthetic drugs like crystal meth. Moreover, Michoacán is an important transhipment location for illegal goods. It contains Mexico's second largest port, Lázaro Cárdenas, a key entry for South American cocaine and of East Asian precursor chemicals for synthetic drugs. But drug trafficking is only one branch of the newly-diversified criminal business portfolio. In the 2000s, Michoacán's then-dominant cartels, the Familia Michoacana and the Knights Templar, pioneered using extortion of businesses and citizens, kidnap for ransom, diversion of government funds via local and regional state capture, and the exploitation of farming, mineral, and natural resources as main revenue generators. Since then, re-emergent mini-cartels mostly abandoned the most exploitative forms revenue generation and appear to have refocused on drug trafficking as their core business.

Faced with intolerable exploitation and terror, popular resistance emerged in central and southern Michoacán in the early-to-mid 2010s. Though not well-known, we can actually distinguish between two different, though related, uprisings. The internationally better-known, thanks to the charismatic and media-savvy José Manuel Mireles Valverde, is the autodefensa movement that broke out in February 2013 in two Tierra Caliente municipalities against the Knights Templar. By the end of 2014, half of Michoacán's territory was under autodefensa control and the Templars and the Familia Michoacana were defeated and degraded to mini-cartels with no importance outside of Michoacán. From the beginning, the Mexican federal state had an ambivalent relationship with the autodefensa movement. When, under public and international pressure, it intervened in 2014, it integrated existing autodefensa forces into a newly-created police force, only to disband it in 2016 and merge it with the normal state police. With federal intervention the autodefensa movement petered out. Narcos gradually re-infiltrated liberated areas and also some autodefensa groups became drug traffickers.

The second and less well-known uprising was the communitarian uprising of indigenous

communities. Contrary to autodefensas, this uprising was incremental, progressing less through cooperation and coordination and more through emulation. Probably the first community to establish its own non-state police was the P'urhepecha community of Nurio in 2005,⁸ followed by the Nahua community of Santa María Ostula in 2009,⁹ and the P'urhepecha community of Pichátaro (then municipality of Tingambato) in 2010, against taxation by the Familia Michoacana. These small indigenous local uprisings went largely unnoticed by the Mexican media until in 2011 Cherán, another indigenous P'urhepecha municipality, rose up and expelled the ruling Familia Michoacana gang plus the mayor and municipal police who had been protecting them. With newfound national media attention, one by one, more P'urhepecha communities followed suit.

We use as a counterfactual the uprising in the indigenous Meseta P'urhepecha. In particular, the case of Cherán, a town of 20,586 inhabitants. This case study is significant for various reasons. It first helps illustrate how cartels infiltrate party municipalities. Here, Familia Michoacana infiltrated the community through linkages with local criminal gangs from within Cherán proper and in nearby hamlets ([Gasparello, 2018](#)). Moreover, the case reveals why the strategy of “opting out from the state” (here, Cherán gaining legal recognition to self-governance through the 2011 uprising and later gaining autonomy with a ruling from the Supreme Court) is a solution to the problem of social order when existing state institutions for law enforcement are incapable of providing security (here, because they were ineffective and captured by the narcos).

From 2006 onward organized crime presence in Cherán grew. The focus of the criminal economy was, aside from transporting drugs through the town and the (very likely) production of meth in clandestine laboratories, illegal logging and extortion of businesses. Both the latter criminal activities escalated over time. To suppress dissent and intimidate the population, cartels also escalated violence. From 2009 onwards, 15 comuneros were killed and six disappeared ([Gasparello, 2018](#), p. 195).

⁸Yet with its links to the Zapatista movement, it may have had a rudimentary patrol much earlier.

⁹Directed in equal measure against organized crime and mining companies.

Finally, in a well-coordinated uprising, on 15 April 2011, the population of Cherán confronted the criminal gangs. The uprising took the local gangs, the co-opted municipal government, and Familia Michoacana completely by surprise. Two trucks carrying illegally-logged wood were apprehended in the first hours of the uprising. Municipal police attempting to free the criminals were, after a confrontation, chased out of town with the mayor, suspected by all to be on the criminals' payroll. The townspeople then prepared for defense. They erected barricades at town entrances, organized patrols, and set up neighborhood watches every few blocks that gathered around some 180 fireplaces (fogatas) every night. Over the coming weeks and months the Cheránese repeatedly repulsed attacks by the cartel with several casualties ([Gasparello, 2018](#)). In the coming months, a U.S.-based diaspora financed a considerable extent of the uprising.

With the uprising, the community undertook the first step in “opting out from the state.” The next essential steps were deciding the town’s governance and gaining formal recognition. Cherán’s citizens spent considerable effort discussing the form of their usos government. They devised a structure that differs considerably from those in Oaxaca, opting to be governed by a Consejo Mayor (great council) formed of 12 representatives (three from each of the four barrios of Cherán) elected by communal assemblies of the barrios. The council would have no president or chairman and would need to bring decisions by voting. This structure was explicitly devised to make it difficult for criminals to capture local government by bribing or intimidating any single leader ([Ruiz, 2015](#), p. 227).

They also needed to decide the role of political parties. The notion that parties aided the criminal takeover of the town was widespread. One interviewee stated: “If the parties were to enter again, it would be as if we opened the door again for delinquency” ([Ruiz, 2015](#), p. 207). Thus, just six weeks after the uprising began, a communal assembly decided that Cherán would not participate in state and municipal elections scheduled for that year, thereby also banning political parties. Then a group of Cherán citizens filed a request for recognition of their usos at the Tribunal Electoral del Poder Judicial de la

Federación (TEPJF). With its decision in November 2011, the TEPJF recognized their right to self-governance according to usos y costumbres. Following this victory, in January 2012 Cherán held elections according to its then officially-recognized usos system. Soon thereafter, it requested that Michoacán release the budget earmarked for the municipality to its newly-constituted government. With these funds and official recognition, Cherán could establish official armed and uniformed police to safeguard its citizens. Since then, there have been no political campaigns, parties, ballots, nor elections. Today Cherán is treated as an autonomous municipality, much like usos communities in Oaxaca. The authority of the community assembly lies above any other body. As in Oaxacan usos municipalities, decisions are made by the assembly, including the allocation of public services and overseeing the spending of the budget. Cherán's armed and uniformed community police, and its forest guard (guardabosques), combat illegal logging. Both are staffed with townsmen vetted and nominated by the four barrios (interview with coordinator of the ronda comunitaria on 11 September 2019). There are armed checkpoints on the three main roads coming into town.

Indigenous self-rule and community police allowed Cherán to significantly improve its security. In 2017, it had one of the lowest homicide rate in the entire state (see Online Appendix Figure A2). Kidnappings, murders, and extortion largely disappeared. Previously police forces were actively complicit with criminals and governing authorities provided criminals with public resources; current authorities and local police work with great independence from cartels.

Yet, from mid-2019 onwards, security once again deteriorated dramatically in southwestern Michoacán, the core of the autodefensa and communitarian police movement of the mid-2010s. The reason was the offensive of the CJNG from neighboring Colima and Jalisco states, whose explicit aim is to capture the Tierra Caliente and coast of Michoacán. Faced with the CJNG onslaught, a large part of the defense in the Tierra Caliente is organized by mini-cartels that have re-emerged after the autodefensa movement. These mini-cartels joined into the Cárteles Unidos de Michoacán and enjoy the tacit support

of the remaining autodefensa forces in the Tierra Caliente. Meanwhile, the expansion of the indigenous rondas comunitarias follows the blueprint of Cherán. That is, they ban parties, establish a ronda comunitaria, revert to usos governance, and request recognition and a budget for their newly-established usos y costumbres government. Pichátaro—a community that resisted the Familia Michoacana even before Cherán—received recognition in 2016. Sevina, a community of Nahuatzen Municipality, held a referendum on transforming to usos governance during our research and reportedly received recognition. Just recently, further municipalities are refusing to participate in Michoacán state elections scheduled for late 2021, and are requesting legal recognition to revert back to usos to maintain their own security.

6 Statistical Evidence

In the following sections we offer a range of statistical tests that lend support to our theory that qualitative evidence showing usos-governed municipalities have significantly less crime and are better able to deter cartel takeover. Our statistical data comes from three sources: surveys, homicide data, and automated text analysis.

Victimization surveys

We first use Mexico’s Encuesta Nacional de Victimización (ENVIPE) pooled from 2011–16 to provide statistical evidence on self-reported victimization, perceptions of public safety and police performance, and the social and economic context of crime.

If our claims about usos are correct, we expect to observe lower levels of police corruption in usos municipalities than in party ones. We also expect to observe higher levels of trust in the police and lower levels of police brutality. Moreover, we expect to observe significantly lower levels of criminal and cartel activity, which we proxy using extortion, gang presence, drug sales, and robbery. Lastly, our theory claims that usos municipalities have higher social control. We proxy this with a question asking if respondents have

engaged in communal collective organization for security purposes.

Our models include a variable for the indigenous share per municipality. We have argued that indigenous communities have stronger social control irrespective of the particular institutional setting and hence we expect this variable to have an independent effect deterring crime. Still, we expect usos to have a consistent and statistically significant effect on all variables.

**Table 1: Perceptions of municipal police, crime and presence of gangs
Analysis of ENVIPE 2011-2016 (rural areas only)**

	Municipal Police			Crime and presence of gangs				Social capital
usos	Corruption (0.0937)	Trusts Police (0.0765)	Police Violence (0.139)	Extortion (0.199)	Gangs (0.154)	Drug sales (0.148)	Robbery (0.109)	Organization (0.119)
indshare	-0.00400*** (0.000618)	-0.000336 (0.000459)	-0.000499 (0.000979)	-0.00681*** (0.00117)	0.000833 (0.00117)	-0.00499*** (0.00118)	-0.00436*** (0.000899)	0.00000652 (0.00101)
Constant	0.983*** (0.0520)	-0.748*** (0.0471)	-1.757*** (0.0718)	-2.713*** (0.0765)	-1.185*** (0.0837)	-1.630*** (0.0771)	-1.031*** (0.0612)	-2.477*** (0.0993)
N	65934	72470	106394	106394	106394	106394	106394	109033

Note: *** p<0.01, ** p<0.05, * p<0.1. Models are logits, with controls for age, sex, and education, and year FEs.

In Table 1 we estimate logistic regression models on ENVIPE data only from rural municipalities.¹⁰ Results are as expected; usos has a consistently negative and statistically significant effect on police corruption and police violence, extortion, the presence of gangs, drugs sales, and robbery. Also as expected, usos has a positive effect on police trust and community organization. The effects are substantial: for municipal-level police corruption our model predicts a 42% probability of evaluating the municipal police (*topiles*) as corrupt in usos municipalities versus more than 64% in party municipalities.

As for crime, we predict a close to 50% decline in the probability of having gangs in usos municipalities (9% versus 17%) and of being extorted (4% versus 7%). We also find that usos municipality residents report seeing fewer robberies (19% versus 26%) and drug sales (10% versus 16%).

In Column 8 we predict usos municipalities to have a significantly higher propensity to organize with community members in the name of neighborhood safety (18% versus

¹⁰More information on ENVIPE variables are in the Online Appendix.

9%). It should be noted that the share of indigenous population also has an independent effect on most variables in this analysis. Remarkably, community organization is not generally higher in indigenous municipalities, suggesting that the institution of usos is key to collective action.

Evidence from homicide data

This section uses homicide rates to explore the differences between usos and party municipalities in levels of lethal violence. Figure 2 shows homicide rates in Mexican municipalities from 1990 to 2017, with data from the National Health Information System (SINAIS). The figure presents rates for usos and large and small party municipalities of less than 10,000 inhabitants.¹¹

Municipalities that adopted usos had significantly higher homicide rates in the 1990s than comparable small party municipalities. Yet after the onset of the Drug War, homicide rates dramatically increase in party municipalities, especially in those of less than 10,000 inhabitants, whereas they remain significantly lower in usos municipalities.

Results from difference-in-differences OLS models

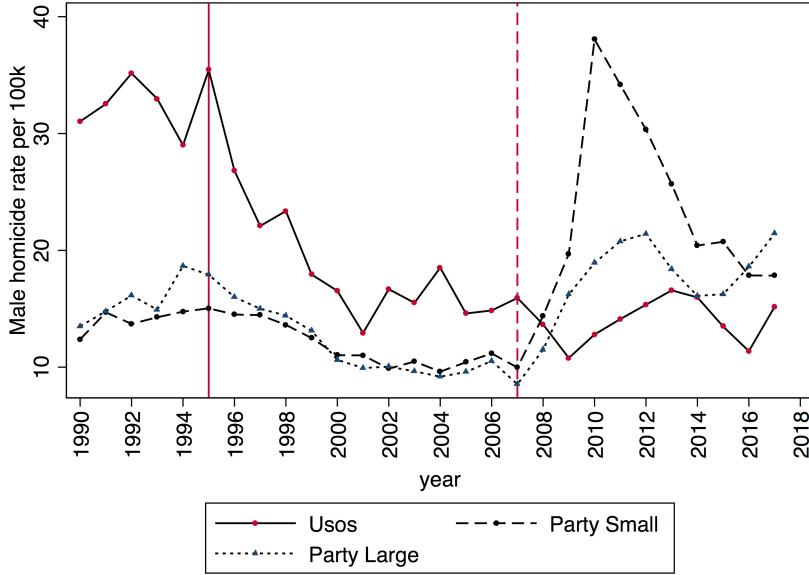
We next present results of difference-in-differences OLS regressions where our dependent variable is municipal homicide rates, to analyze the effect of usos on deterring cartel-related crime. We again use data from SINAIS from 1990–2017 at the municipality level.¹²

A challenge of identification is that usos are smaller and have a higher percentage of indigenous inhabitants than party municipalities, shown in the Online Appendix. We hence present results for the entire set of party municipalities, those with under 10,000 inhabitants, and those where at least 25% of the population is indigenous, according to

¹¹Differences between usos and party municipalities are even more striking with a 5,000-inhabitant cutoff.

¹²In the Online Appendix we show robustness to inverse hyperbolic sine transformations, and control for population.

Figure 2: Homicide rates in usos and party municipalities



Notes: Vertical lines signify the usos reform and Drug War onset, respectively. Population calculated from the Mexican censuses and "conteos" 1990–2015 using yearly extrapolation.

the 2000 Mexican census.

For this part of our analysis, our time-varying covariates focus on drug seizures and drug crop eradication by the National Defense Secretary (that includes the Mexican army and the navy) obtained via the Mexican Freedom of Information Act.¹³ Data consist of monthly observations at the municipal level from 1990 to 2017 for seizures of marijuana, cocaine, heroin, and methamphetamine in kilograms. The Mexican government also eradicates plots of marijuana and opium poppy, measured in hectares. To have a single measure, we use the yield rates per hectare reported in UNODC (2008). We construct a yearly average weight per municipality of all drug seizures, and hectares of opium-poppy and marijuana subject to eradication, with an inverse hyperbolic sine transformation. In the Online Appendix we present descriptive statistics on governance type, municipality size, and indigenous share.

Our expectation is that municipalities where more drugs are eradicated or seized should experience higher homicide rates. This could signify more drug-trafficking ac-

¹³Request number/Folio: 0000700012419.

tivity, accompanied by the presence of organized criminal groups and armed men. But eradication of crops and seizures also might reflect higher levels of state enforcement, which can further fuel violence (Dell, 2015; Castillo and Kronick, 2020). To account for this, in the Online Appendix we show robustness to focusing exclusively on areas “suitable for drug production” rather than eradication or seizures. We take the suitability measure from Rodriguez (2021). Importantly, suitability for opium is quite similar in rural party and usos municipalities.

We estimate a series of OLS models using:

$$Homicides_{i,t} = \beta U sos_{i,t} + \theta Drugs_{i,t} + \gamma Drugs_{i,t} \times U sos_{i,t} + \eta_t + \gamma_i + \epsilon_{i,t}$$

Above, $Homicides_{i,t}$ represents the outcome for municipality i in year t . $U sos_{i,t}$ is a dummy for the usos treatment for municipality i in year t , taking 1 for usos municipalities after the 1995 reform and 0 otherwise. We expect a negative coefficient. $Drugs_{i,t}$ corresponds to the presence of a drug economy, proxied with drug seizures in municipality i in year t . The interaction $Drugs_{i,t} \times U sos_{i,t}$ aims to capture heterogeneous effects of the drug economy in usos relative to party municipalities. We expect a negative effect. Models add year (η_t) and municipal (γ_i) fixed effects, so time-invariant municipal characteristics will be accounted for such that we utilize only within-municipality variation in homicide rates. We calculate robust standard errors clustered by municipality.

Table 2 presents the results, and all are as expected. Usos has a consistent negative and statistically significant effect in all nine models. As expected, our composite variable for all drug seizures as well as seizures of opium and marijuana are associated with higher homicide rates, and the results are all statistically significant. Also as expected, we find consistently negative effects for the interaction of usos with drug seizures/eradication, supporting our theory that usos municipalities, even when there is drug cultivation, are significantly less violent than party municipalities.

Table 2: OLS Regressions: Homicide Rates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All party	Indigenous party	Small party	All party	Indigenous party	Small party	All party	Indigenous party	Small party
Usos	-15.69*** (2.3709)	-15.44*** (3.4739)	-16.82*** (2.6032)	-15.87*** (2.3744)	-15.20*** (3.4400)	-17.31*** (2.6180)	-15.75*** (2.3698)	-15.54*** (3.4703)	-16.86*** (2.5996)
All drugs	0.466*** (0.1327)	0.456 (0.3029)	0.750** (0.3450)						
Usos X All drugs	-1.006*** (0.2500)	-0.934** (0.3916)	-1.238*** (0.3958)						
Opium				0.785*** (0.2316)	1.513** (0.7067)	1.121** (0.5529)			
Usos X Opium					-2.290*** (0.4802)	-2.795*** (0.8664)	-2.546*** (0.6838)		
Marijuana							0.437*** (0.1201)	0.417 (0.2635)	0.708** (0.3137)
Usos X Marijuana							-0.882*** (0.2238)	-0.803** (0.3444)	-1.106*** (0.3587)
Cons	15.66*** (0.6386)	18.50*** (1.2748)	18.35*** (1.2226)	15.84*** (0.6263)	18.48*** (1.2672)	18.52*** (1.2085)	15.65*** (0.6389)	18.50*** (1.2735)	18.34*** (1.2234)
N	67451	20021	30513	67451	20021	30513	67451	20021	30513
r2	0.0184	0.0273	0.0143	0.0184	0.029	0.0141	0.0185	0.0272	0.0143
Groups	2,444	728	1,216	2,444	728	1,216	2,444	728	1,216

Notes: Estimated coefficients from OLS regressions. The DV is homicide rates per 100,000 inhabitants from SINAIS. Models 1, 4 and 7 use all party municipalities. Models 2, 5 and 8 select for party municipalities that have at least 25% of indigenous inhabitants. Models 3, 6 and 9 select party municipalities that are smaller than 10,000 inhabitants. All models include year and municipality FEs. Robust standard errors clustered at the municipality level in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Robustness: propensity score matching

The adoption of usos was not random, and there are notable differences in party versus usos municipalities at baseline, as shown in Table 3. The sections below use matching and geographic discontinuity approaches to provide evidence about the plausibly causal effects of usos on a municipality's capacity to deter cartel violence. By combining matching and a difference-in-differences design, we aim to evaluate if usos municipalities were capable of maintaining their pre-Drug War levels of violence, even while the rest of the municipalities in the country were on average increasing them. Here we take the Drug War as a shock that drastically altered violence across the country.

First, we use propensity score matching to identify a counterfactual group of municipalities that, before the beginning of the Drug War, were similar to usos municipalities. This matching strategy is useful when treated and control groups show high levels of

imbalance, as here.¹⁴ Our propensity score incorporates variables of theoretical importance to the adoption of usos and to homicides. First, we use 1990 municipal data from the National Population Council (CONAPO) for population, illiteracy rates, household electricity rates, and indigenous share. We also construct an average of homicide rates from 1990–94 in each municipality from SINAIS, helping ensure pre-Drug War balance on the outcome. We also use the yearly average weight of all drug seizures and hectares of opium-poppy and marijuana subject to eradication per municipality from 1990–94. Finally, we draw from Calderón et al. (2015)'s strategic points index comprising the number of ports, border crossings, train hubs, airports, landing sites, railroads, and highways per municipality. We use log or inverse hyperbolic sine transformations for population and drug seizures. Descriptive statistics of pre-matching variables are provided in Table 3, and details on the matching strategy are in the Online Appendix.

Table 3: Descriptive statistics: pre-treatment period (1990-1994)

Variable	Party Municipalities			Usos Municipalities		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N
Population	36497.58	95921.12	1969	2751.605	2759.598	418
% Illiterate	21.367	13.455	1969	31.581	16.092	418
% no electricity	23.008	21.315	1969	28.483	26.924	418
% Indigenous	15.967	29.017	1969	48.473	40.955	418
Avg homicides 90-94	6.125	20.863	1978	48.473	40.956	418
All drug seizures	15209.18	120089	2022	2067.401	8125.04	418
Strategic points	1.734	1.027	2022	1.010	0.373	418
Poppy suitability	0.458	0.118	1757	0.493	0.095	418

We report balance in Table 4, assessing balance between the weighted matched treatment and control units on covariates from the propensity score model. Results demonstrate balance along these covariates.

We estimate the ATT effect of being an usos municipality on homicide rates before and after the Drug War. To compare homicide rates over time, we run a panel difference-in-differences model comparing usos and party municipalities by also controlling for time trends and municipal characteristics that do not change over time. The model takes the following form:

¹⁴We discuss nonparametric matching methods (Coarsened Exact Matching) in the Online Appendix.

Table 4: Balance after matching

	Pop	Literacy	Electricity	Indigenous	Homicides	Drugs	Strategic Pts
Usos	0.025 (0.056)	1.403 (1.083)	-0.854 (1.831)	2.184 (2.762)	0.095 (0.052)	-0.237 (0.240)	-0.029 (0.022)
Constant	7.537*** (0.040)	30.178*** (0.766)	29.337*** (1.295)	46.289*** (1.953)	0.497*** (0.037)	2.317*** (0.170)	1.039*** (0.016)
Observations	935	935	935	935	935	935	935

Table reports log population, and inverse hyperbolic sine of drugs and strategic points

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

$$Homicides_{i,t} = \beta Usos_i + \sum_{k=1990}^{2017} [\delta_k (year_{k,t} * Usos_i)] + \gamma_i + \eta_t + \epsilon_{i,t}$$

Above, $Homicides_{i,t}$ represents the outcome for municipality i in year t . $Usos_i$ is a dummy for the usos treatment for municipality i , which is not identified due to municipality fixed effects. The coefficient for the $year_{k,t} * Usos_i$ interaction term is our key outcome, the change in homicide rates between matched control and treatment municipalities across $year_k$. We include fixed effects for municipalities i (γ) and years t (η). We estimate this using inverse propensity score weights derived from our matching process, and robust standard errors clustered by municipality.

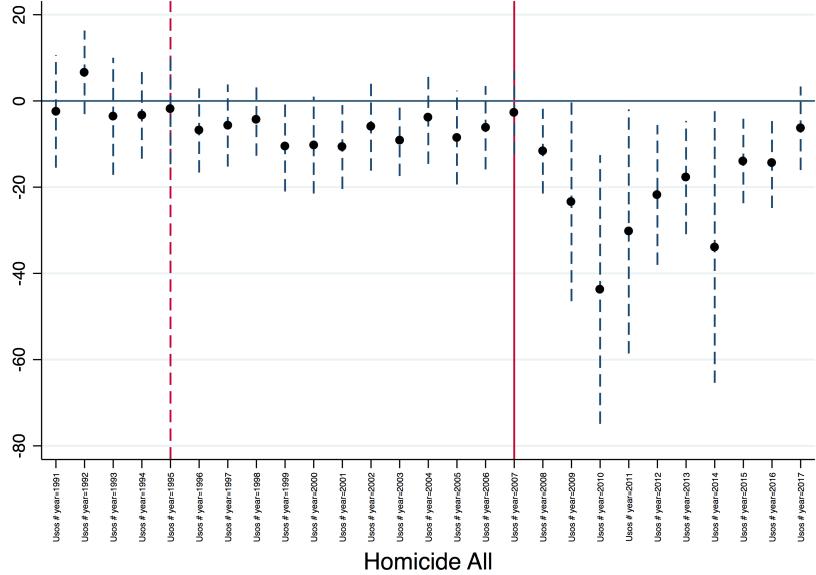
Figure 3 presents the yearly difference in predicted homicide rates of usos versus matched party municipalities, showing large predicted differences after the Drug War onset.¹⁵ In the first full year after onset, usos municipalities experienced on average 15 fewer homicides per 100,000 than party municipalities. By 2010, usos municipalities experienced 43.8 per 100,000 fewer homicides. These negative effects are large and statistically significant for every year after the onset, with the exception of 2017. We take this as further evidence that usos institutions insulate municipalities from cartel violence.

This figure also lends empirical evidence in support of the parallel trends assumption necessary for identification. This would hold that unobserved differences between usos and party municipalities are time-constant pre- and post-Drug War.¹⁶ While we can-

¹⁵In the Online Appendix, we show robustness to an IHS transformation of homicide rates.

¹⁶Parallel trends in the 1990–1995 time period are partly by construction due to propensity score

Figure 3: Propensity score difference-in-differences: estimates of homicide rates



Notes: This figure shows the interaction between usos and yearly dummies on homicides rates per 100,000 from SINAIS. Vertical lines signify the usos reform and Drug War onset, respectively. The model uses inverse propensity score weights derived from matching, and includes municipality and year fixed effects. Error lines show 95% confidence intervals

not test this assumption directly, we do find results consistent with the assumption, as coefficients in Figure 3 from the 1995–2006 time period are substantially close to zero.

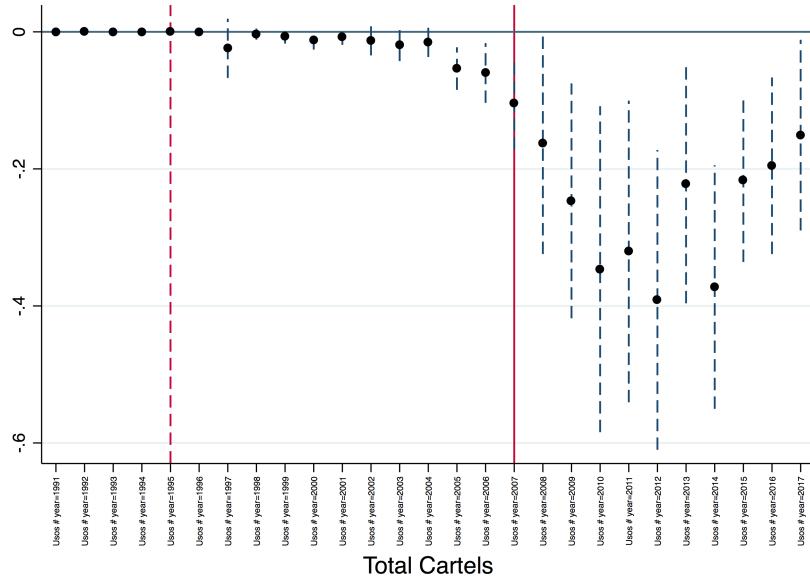
We next employ the same approach using cartel presence as our dependent variable. Our strategy to map cartel presence draws on the framework proposed by [Coscia and Ríos \(2012\)](#). They developed a Web crawler to extract information from Google News on criminal group activity in Mexico from 1990–2010. Their data is available at the municipality level and consists of dummy variables indicating whether a particular cartel had presence in a municipality in a given year from 1990–2008. Beatriz Magaloni, Gustavo Robles, and Luis Rodríguez updated the former analysis for 2008–2018 by establishing a collaboration with two of the biggest news monitoring agencies in Mexico. Details of the automated text analysis of cartel presence are in the Online Appendix.¹⁷

In particular, we analyzed text data from 15 years of coverage of local and national construction.

¹⁷The cartel presence data is a project of the Poverty, Violence and Governance Lab coordinated by Beatriz Magaloni, Gustavo Robles and Luis Rodríguez.

news (about 7 million notes) related to security and violence in hundreds of media outlets (both printed and electronic) in Mexico. We searched for mentions of 19 criminal organizations (e.g. La Familia Michoacana); 126 armed wings or gangs (e.g. Guardia Morelense); and 76 cartel leaders (e.g. El Chapo).

Figure 4: Propensity score difference-in-differences: estimates of number of cartels



Notes: This figure shows the interaction between usos and yearly number of cartels mentioned by news outlets per municipality. Vertical lines signify the usos reform and Drug War onset, respectively. The model uses inverse propensity score weights derived from matching, and includes municipality and year fixed effects. Error lines show 95% confidence intervals.

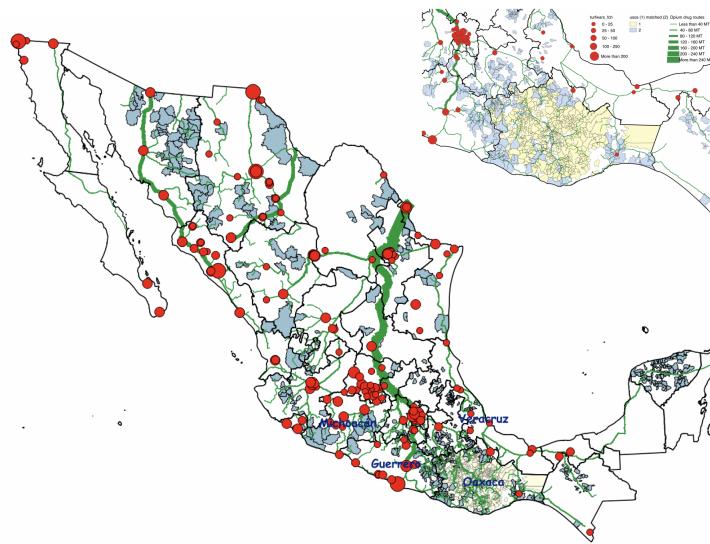
Figure 4 show the results. The results practically mirror those of homicides. Usos municipalities systematically have lower cartel presence. In the Online Appendix section 22 we further perform intensive manual Google searches in all 119 municipalities of the broader case study area, and provide more context about the content of news we classified. The results are broadly consistent with those reported in Figure 4.

Geographic discontinuity

The prior analysis revealed that Oaxacan usos municipalities reported lower homicide rates and cartel presence than similar municipalities across the country once the Drug

War began. Figure 5 shows the locations of these usos (yellow) and matched party (blue) municipalities. Many municipalities that served as our control group come from Oaxaca and neighboring states of Guerrero, Puebla, and Veracruz, in areas with an abundance of opium production and transport routes. Yet others border heroin crossover points into the United States, or abut the sites of numerous turf wars (shown in red circles on the map). It should be noted that the municipalities in the Meseta P'urhepecha in Michoacán that are part of our case studies are part of our control group.

Figure 5: Usos and matched municipalities across Mexico



Notes: The figure shows usos municipalities in Oaxaca (yellow) and their matched indigenous municipalities (blue). Heroin routes in green based on own calculations as described in the Online Appendix. Circles correspond to turf wars between 2014–2018. Details on turf war calculation are provided in the Online Appendix.

Given that we are comparing different regions that have been affected by different cartels, turf wars, and even policies, there could still be skepticism about whether our results are causal. As a robustness test, we use a geographic discontinuity approach. This approach exploits similarities that may exist in a narrow bandwidth around geographic boundaries as a strategy for identification. The primary assumption for identification under this design involves continuity of the conditional regression functions near the border (Keele and Titiunik, 2015). In our case, this would be violated if individuals moved in or out of usos municipalities to benefit from or avoid indigenous governance.

But, as detailed in Magaloni et al. (2019), this would be difficult for individuals and for villages. Communities in our sample impose strict land tenure rules making it difficult for individuals to buy or sell land. Moreover, communities tend to be closely knit and are not open to outsiders relocating into their lands. High linguistic diversity also reduces the scope for exit. Additionally, because municipal boundaries are rarely redrawn, it would be difficult for villages to formally sort into or out of indigenous governance.

For this analysis, we limit our sample to municipalities in a small geographic bandwidth (1 km) of usos municipalities. Then, we use propensity score matching and two-period difference-in-differences to analyze five homicide outcomes of interest: all homicides per 100,000 citizens, and then restricting by victim sex, victim age, and weapon type, in line with homicides most likely to be associated with cartel violence.¹⁸ We estimate effects using a two-period difference-in-differences model.

Table 5: Geographic discontinuity - one kilometer

	(1) Homicide All	(2) Firearm All	(3) Homicide Male	(4) Homicide Male 15-39 Yrs	(5) Firearm Male 15-39 Yrs
Post=1	-15.44*** (5.083)	-8.071** (3.621)	-27.45*** (10.50)	-11.73 (30.80)	1.463 (29.66)
Post=1 × Treatment=1	-5.725 (3.472)	-7.111** (3.047)	-9.734 (7.407)	-34.16** (16.90)	-44.65*** (14.82)
DV Mean: Party Pre-2007	23.18	14.58	43.30	66.57	45.28
Year FE	Yes	Yes	Yes	Yes	Yes
Mun FE	Yes	Yes	Yes	Yes	Yes
Observations	7868	7868	7868	7868	7868
Municipalities	281	281	281	281	281
R-squared	0.0358	0.0337	0.0380	0.0313	0.0324

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

Table 5 displays the result of the difference-in-differences analysis when limiting matches to party municipalities within 1 kilometer of usos municipalities (our number of observations drops to 281). Strikingly, when compared to party municipalities less than 1 kilometer away (meaning they are likely neighboring), usos municipalities experience fewer homicides per 100,000 than their party neighbors. This result is statistically signif-

¹⁸We also use the cartel presence dataset in the Online Appendix applying a similar geographic discontinuity design.

icant at the 0.05 level for three of our dependent variables of interest. For the outcome especially likely to indicate cartel-related violence, young male firearm homicides, usos governance is associated with 44.65 fewer homicides per 100,000 in the Drug War time period than party governance. In the Online Appendix, we show that as the distance bandwidth increases up to 20 kilometers, the effect of indigenous institutions diminishes but remains statistically significant and approximately 40% of baseline levels of homicides. This suggests that the borders delimiting usos municipalities—borders internal to Mexico as well as to the state of Oaxaca—are associated with statistically and substantively significant changes in homicide rates.

7 Conclusion

The results presented in this paper suggest that indigenous, local self-governance can produce better outcomes than being integrated into the state. Combining fieldwork with statistical evidence, we show that communities granted self-rule are better able to insulate themselves from predatory armed actors. Unlike their political-party-ruled counterparts, indigenous usos municipalities in Oaxaca on average avoided the spikes in violence associated with the onset of the Drug War.

We argue that due to higher social control, strongly participatory decision-making, and the presence of separate community police and justice, usos municipalities were more resilient to cartel takeover. We find suggestive evidence for this mechanism using survey data. Usos residents were more likely to trust their local police forces, less likely to live in the presence of gangs and crime, and reported higher propensity for organization than municipalities governed by typical political party institutions.

Our results show the limits of the state in creating order. While some states face resource constraints in doing so, others directly harm their citizens or turn a blind eye as criminal organization prey in the population. In the context of predatory regimes, our findings suggest that “opting out from the state” can be a viable solution for some

communities. While hill peoples of Southeast Asia retreated to the mountains to avoid slavery, conscription, and epidemics (Scott, 2010), in modern times and with modern technology, geographic retreats are more difficult. Our paper demonstrates that communities today can retreat from the state by opting for local autonomy, and can foster order with traditional institutions designed to solve collective action problems.

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Online Appendix

State-Evading Solutions to Violence: Organized Crime and Governance in Indigenous Mexico

Beatriz Magaloni, Kristóf Gosztonyi, and Sarah Thompson

Contents

1	Background of qualitative evidence	45
2	Risk management and ethical considerations	50
3	IRB protocol	52
4	Interview Guidelines and further ethical considerations	53
5	Funding of the research	55
6	Evolution of Cherán's homicide rate before and after the uprising	55
7	Description of victimization survey (ENVIPE)	55
8	Description of drug seizures and eradication data	56
9	Size of municipality and effect on homicide rates	57
10	Robustness checks: OLS regression models with different specifications of homicide data	58
11	Discussion of propensity score matching	61
12	Robustness check: poppy opium suitability and heroin demand shocks	62
13	Cartel presence: Google searches and automated text analyses	66
14	Cartel data	73
15	Turf wars and heroin routes	74
16	Robustness check: geographic discontinuity with other cartel violence indicators	78

In this appendix, we outline our fieldwork and procedures for building the variables we use for our analysis. Additionally, we present supplementary robustness checks, alternate specifications, and full regression tables for regressions which we truncated in the paper. We further provide a discussion of Google searches as well as automated text analyses to document the differences in cartel presence between usos and party municipalities.

1 Background of qualitative evidence

1.1 Description of fieldwork

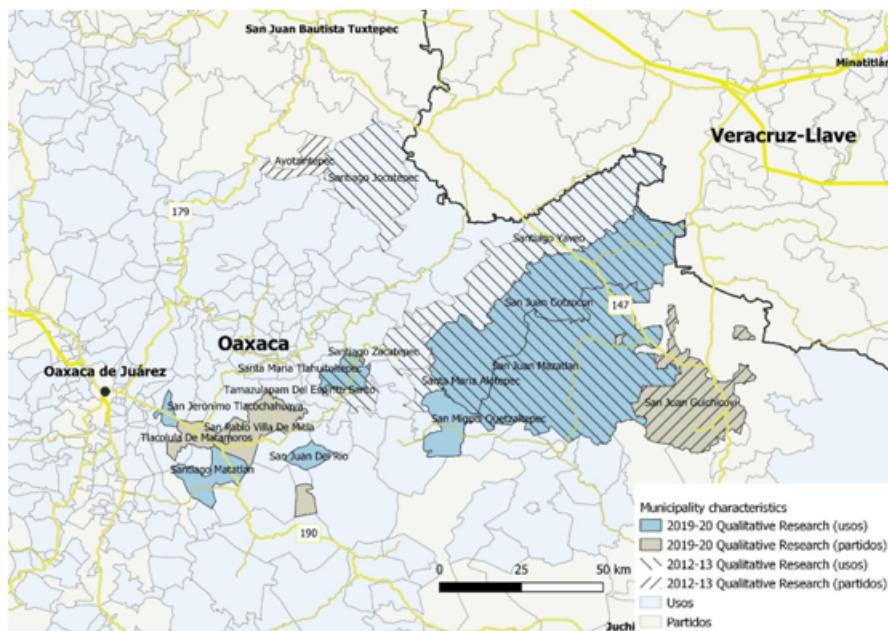
The centerpiece of our qualitative research was collected in Oaxaca and it stems from research conducted in 2019-20 in Central and North-Eastern Oaxaca focusing on rural non-governmental police forces. The main focus of the research was to understand how traditionally governed indigenous communities interact with the illegal drug economy and whether they are comparatively more successful in resisting drug cartels than municipalities and communities following the conventional party model.

We assumed that the governance form, social capital and organizational know how of these communities would offer them a certain degree of protection against encroachment by cartels and against criminal violence. Our intention was to select a combination of municipalities that were (a) comparatively remote and distant from the state capital and (b) of municipalities that were well-connected, developed and close to the state capital, we wanted to investigate whether usos communities would – even in such very different contexts – show resilience against organized crime takeover. We found strong supporting evidence.

The project leader, Beatriz Magaloni (Stanford University), and the leader of the qualitative research, Kristóf Gosztonyi (then Berghof Foundation, now University of Osnabrück), jointly conducted a preparatory trip to Oaxaca from 13-19 August 2020 during which we established links with the Instituto Superior Intercultural Ayuuk (ISIA) located in the Mixe Region in South-Western Oaxaca and identified the team leader for the Oaxaca research, Aarón Santiago León, a lecturer at ISIA who received permission from the University to participate in the Local Policing Research. Following the preparatory visit, we conducted the training from 24-30 September a team of six researchers (two females, four males) associated with ISIA (mostly former students) including Aarón, the team leader. For the training we followed the framework of the Institution-Centered Conflict Research (ICCR) approach (Koehler, 2015; Koehler et al., 2019), which one of the authors of this paper has already used in such diverse contexts as Afghanistan, Pakistan, Peru and Mexico (De Juan, Gosztonyi, and Koehler, 2016). ICCR is a qualitative research approach that uses the analysis of conflicts as a heuristic tool to understand local context and local social structures. The identification, investigation, and analysis of conflicts thus takes center stage in the course of fieldwork. In the course of the training we explained the goals of the research and its funding sources and practiced how this information should be presented to local authorities (when asking for permission to conduct fieldwork) and to potential interview partners (when asking for interviews). An example of an introductory letter asking authorities to grant permission to our teams for conducting research and the introductory dialogue are presented in sections below. We also recapitulated

qualitative research methods, jointly adapted interview guidelines initially developed for our research in Michoacán for the context in Oaxaca and introduced tools in line with the ICCR approach for investigating and analyzing conflicts. The interview guidelines translated from Spanish to English are presented in the last section of this appendix. At the end of the training we signed contracts with the now trained researchers and transferred the first payment to them. During the training we also selected a total of 10 survey municipalities (see map below), three of which were “party” and seven usos-governed. Five of the selected municipalities lie in ethnic Mixe areas and cluster around Route 147, the north-westernmost route in Oaxaca leading from the Isthmus towards the US-border in the north. This region is rather remote and underdeveloped. The other five selected municipalities lie in the Valles Centrales and cluster around Route 190 leading from the Isthmus to the state capital, Oaxaca de Juarez, and from there to Puebla, Mexico City and ultimately also further to the north (see Figure A1).

Figure A1: Research sites in Oaxaca



Notes: The figure shows our field research areas in Oaxaca.

The low-lying tropical (or hot) zone of the Mixe region (up to elevations of 1,500 meters) lies in the northeast along Federal Route 147 and forms part of the Gulf coastal plain. Agriculture is commercial, characterised by the cultivation of sugar cane, tropical fruits, beans, and coffee. Cattle ranching, as witnessed by the large patches of cleared forest transformed into pastures, is also widespread. The low zone borders Veracruz and drug traffickers are openly present in the main roads. There is also an Army checkpoint, attesting to the dangers present in the region. It is not safe to travel after dark in this area. Leaving Route 147 behind and ascending in a south-westerly direction towards the peaks of the Sierra Norte one first reaches the temperate (between 1500-2200 meters) and then the cold zone (2200 meters and above with the highest peaks of the Sierra Norte reaching elevations of 3000 meters and higher). The landscape here is very rugged and

driving on the dirt roads is slow. At the entrance of many communities there are signs such as, “Criminals don’t dare enter, we will kill you.”

Fieldwork was subsequently carried out without any significant obstacles or incidents between October 2019 and the beginning of February 2020. For all preselected survey municipalities and survey communities we received written permission from local authorities to conduct fieldwork. The students were significantly safer carrying out the authorities’ permission while conducting the field work, although for each interview subjects were told (as we explain below) that participation was completely voluntary and that their identity would be kept protected and anonymous in all the research stages. The leader of the qualitative research component, Kristóf Gosztonyi, carried out a supervisory coaching visit from 20-24 November. The debriefing of the Oaxaca field team took place from 18-24 February 2020 led by Beatriz Magaloni and supported by Kristóf Gosztonyi. All deliverables were submitted by the researchers by the end of March 2020 after which we disbursed the final payment to all researchers.

1.1.1 Prior fieldwork

However, our qualitative research in North-Eastern Oaxaca is much longer term and dates back to 2009 when one of the authors first conducted large-scale fieldwork in Oaxaca, including focus groups in 8 municipalities as well as a large N survey focusing on governance. Two of the authors in 2012 also conducted large-scale field work with students from ISIA and using a similar methodology as for the rural policing study but focusing on local governance. The training was conducted by two of the authors, Beatriz Magaloni and Kristóf Gosztonyi, and took place from 14-19 April 2012 at the facilities of the Universidad Intercultural de Chiapas (UNICH) in San Cristóbal de las Casas in Chiapas. In the course of the training we capacitated 20 local indigenous students (eight from the Mixe region in Oaxaca and 12 from the Highlands of Chiapas, Los Altos, of ethnic Tzotzil and Tzeltal ethnic background). In the course of the research, we surveyed 12 municipalities from Los Altos and ten from Oaxaca (see Figure A1 for the survey municipalities in Oaxaca). In the course of the four-week-long research, the students were continuously supervised by Kristóf Gosztonyi. The debriefing took place from 7-11 May 2012 at the same location at UNICH.

As our research interest shifted to include the presence or absence of cartels, two of the authors also conducted additional field visits and interviews in the area (in 2014, 2018 and 2019). In the course of these research trips, we visited most ethnic Mixe and some Zapotec municipalities of the Sierra Norte de Oaxaca conducting interviews and making observations.

1.2 Research in Michoacán

We also conducted field work in Michoacán using the same methodology and also working with local students. The research intended to investigate, first and foremost, whether and how NGPs in Michoacán can deliver meaningful security to citizens. It also intended to understand how these NGPs functioned in indigenous and non-indigenous contexts and how sustainable this solution to local security was. In terms of its implementation, Alberto Díaz Cayeros (Stanford University) and Kristóf Gosztonyi (then Berghof

Foundation) conducted a preparatory trip to Mexico City and Michoacán from 25-31 March. As part of this visit, we established contact with former indigenous students of the project leader, Beatriz Magaloni, and Alberto Díaz Cayeros. Every summer, the authors in collaboration with Vidal Romero and the American Embassy bring Mexican indigenous students to Stanford University to take a three week course on “Global Risks, Biodiversity, Security and Governance in Latin America.” Some of the students in these courses participated in our research as “field researchers” and also they gave us names of potential collaborators. We also identified Juan José Estrada Serafín (in the following “Serafín” as he is usually referred to by his friends and colleagues), himself of P’urhépecha origin, a well-established photojournalist covering the communitarian uprising since its beginnings in 2011, as the team leader and facilitator of the research. The team that we put together for the Michoacán research consisted of four males (including Serafín) and one female. A further female team member from Tierra Caliente unfortunately dropped out during the training and could be replaced.

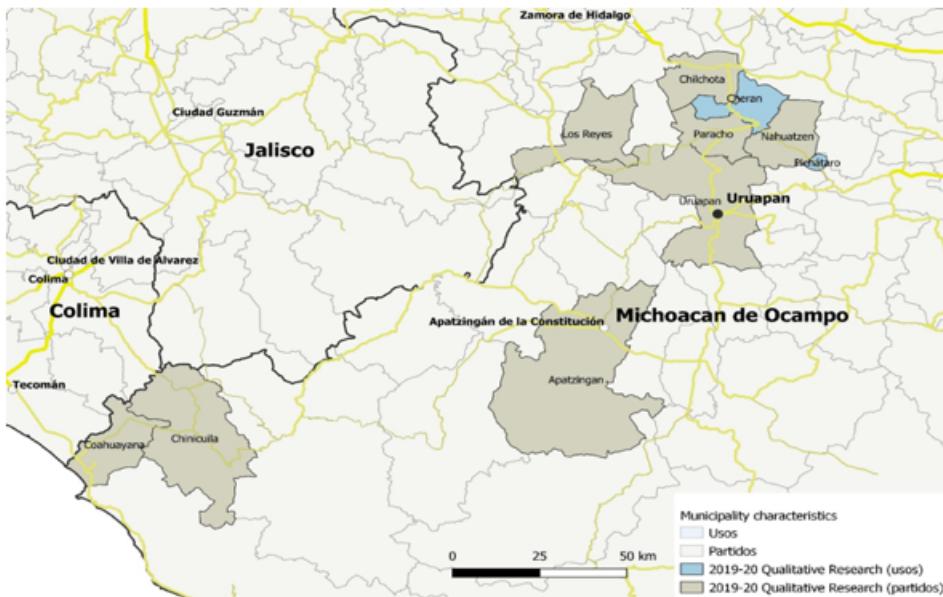
The group was then divided in two: Three native P’urhépecha team members (one female and two male) from the municipalities of Cherán and Paracho of the Meseta P’urhépecha were to focus on the indigenous areas of the Meseta P’urhépecha, while Serafín, together with a colleague from Apatzingán, the main town of the Tierra Caliente, were to work in the more insecure Tierra Caliente and Sierra Costa areas. The training of the qualitative researchers was conducted from 18-23 June at facilities of the University of Michoacán de San Nicolás de Hidalgo. The training used the same ICCR methodology already discussed above for the Oaxaca research. During the training we also selected a total of 10 survey municipalities (see map below). Five of the municipalities were located in the mostly indigenous areas of the Meseta P’urhépecha and another five in the mostly mestizo areas of the Tierra Caliente and Sierra Costa. Due to the deteriorating security situation and because local communities denied permission for the research, we had to change three pre-selected selected survey municipalities. The final selection of survey municipalities thus is as follows.

In the Meseta P’urhépecha: Cherán, Paracho, Nahuatzen, Chilchota, and Pichátaro (replacement for Santa Fé de la Laguna, where we did not get permission from the municipality). In the Tierra Caliente and Costa: Uruapan (replacement for Buenavista, which we decided to drop due to the deteriorating security situation caused by the CJNG offensive); Los Reyes (replacement for Tingambato for which we did not receive permission from the municipality); Apatzingán; Chinicuila; and Coahuayana.

The survey municipalities were selected in a way to include a wide range of non-government police types: informal autodefensas (Coahuayana), formalized autodefensas (former autodefensa who first entered the rural police and were later taken over by the Michoacán state police, but contrary to normal state police officers are not rotated but remain local), informal indigenous rondas comunitarias and formalized and uniformed rondas comunitarias, such as in Cherán). The selection also covered a municipality of pure of criminal governance (Apatzingán). With our selection we also intended to examine how NGPs function in indigenous and non-indigenous communities (see A2).

The training was followed by an approximately one-week-long in-field coaching and support (including test-interviews) by Beatriz Magaloni Kerpel and Kristóf Gosztonyi. Subsequently, after a review of the research tools in light of the original in-field coaching and support, the actual fieldwork began towards the end of July. However, on 13 August

Figure A2: Research sites in Michoacán



Notes: The figure shows our field research areas in Michoacán.

2020, Mexico's most powerful and most aggressively expanding criminal cartel, the Cartel de Jalisco Nueva Generación (CJNG) suddenly declared war on the “mini-cartels” of Michoacán. Initially, the “declaration of war” did not lead to a significant uptick in violence and a field support visit by Kristóf Gosztonyi from 20-26 August could be carried out without any significant obstacles and visiting the teams in both areas, the Meseta P’urhépecha and the Tierra Caliente and Costa.

Shortly after the field visit, however, heavy fighting broke, fundamentally changing the security context, in which the survey was carried out. While previously the security situation was assessed as tense, but stable and predictable for the Tierra Caliente and stable and mostly secure for the Meseta P’urhépecha, now violence and unpredictability increased considerably in particular for the Western Tierra Caliente and Costa region. As a result, the research team working in the Tierra Caliente and Costa had to change its approach. Instead of spending up to eight days in a municipality for conducting interviews, our researchers now switched to an approach of repeated short visits but only if local advised them the day visit was safe. The researchers stayed only for a few hours or a day at most thus reducing their visibility and exposure in these cartel-war affected municipalities. By October/November security deteriorated to an extent that it became clear that the required number and types of interviews per municipality could not be achieved. We thus suspended data collection and our team no longer traveled within Michoacán. In spite of these challenges, the data gathered by the Tierra Caliente team is remarkable and helped us greatly in understanding the situation in this region.

While tensions also rose in the hitherto mostly peaceful Meseta P’urhépecha, with additional precautions and more delays in getting permissions from local authorities, the research in this region could still be carried out fully as envisaged. At the end of the field research, we gathered the teams for a five-days debriefing in Morelia from 25-29

November. By the end of March 2020, the team members submitted all outstanding interview transcripts, standardised interviews and profiles.

2 Risk management and ethical considerations

Conducting our research posed many challenges for subjects and researchers. In this section, we will describe how we handled risks both for our team and subjects. To manage the risks of the field research, we designed a Security Protocol (see Textbox below) and set up WhatsApp groups through which the field research team leader (Kristóf Gosztonyi) could remotely manage the research and regularly kept in touch with both entire teams and with the individual researchers. The security protocol was generally adhered to and we did not encounter any serious threat situations.

2.1 Security protocol

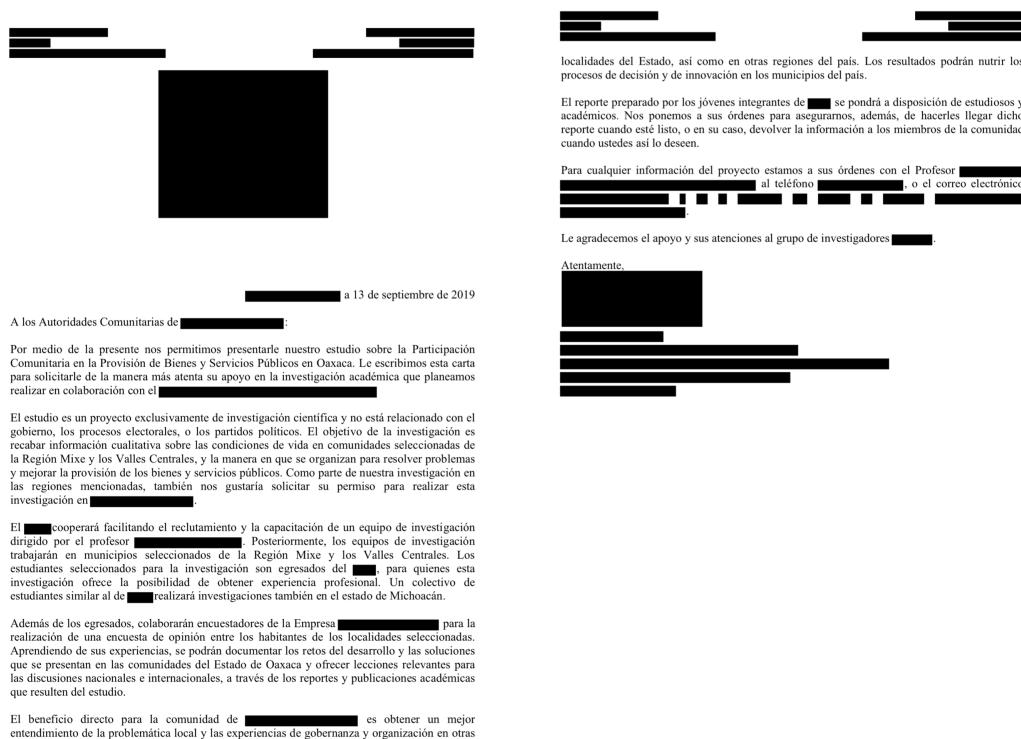
2.1.1 Letter of permission

Our long experience in conducting research in Oaxaca and rural Mexico has taught us that conducting interviews in small rural municipalities is not safe without obtaining prior approval from local authorities. Before entering a municipality, we contacted municipal authorities for permission to conduct field research in the municipality by presenting a letter to them, signed by the project management at Stanford University, explaining the academic objectives and aim of the research and presenting the research team to local authorities. In Figure A3 we provide an example of such a letter addressed to authorities in Jaltepec de Candayoc, the head town of the Municipality of San Juan Cotzocón. We eliminate from this letter our university's overhead and our signature to maintain our anonymity in the review process.

We approached communities within every municipality in a similar way. In all contacted municipalities and communities we received permission to conduct the research. The team conducting the field work carried with them the signed letter by the authorities in case the police or somebody approached them with distrust, in which case we instructed them to show the letter. This letter was essential to protect our team of researchers and to open the doors for us to conduct interviews without creating distrust among the authorities or the local police. Only in the party municipality of Tlacolula de Matamoros, located in the Central Valley, did we not ask for permission as local citizens had chased away the mayor and the entire municipal government and there was no authority to ask permission from.

A rough translation of the letter is as follows: the letter introduces the team of researchers conducting interviews about community participation, governance and provision of public goods. It states that the research is conducted in collaboration with the Instituto Intercultural Ayiuk (ISA). The letter states that the objective is exclusively academic and that it is not related with the government, political parties or electoral processes. It also states that the data will be collected in other regions of Oaxaca and that we are seeking their permission to speak with the community and government authorities such as police officers to conduct our research.

Figure A3: Letter of permission



The letter says that ISA has trained and is coordinating the research and it gives the name of the person responsible for our team in that institution. It says that the students have graduated from that institute and that the research experience offers them an opportunity to gain experience in research.

The letter also says that a polling company, Opina S.A de C. V is also collaborating with us helping conducting other surveys in Oaxaca.

The benefit for the community, as stated in the letter, is to obtain a better understanding of the local governance problems and about how similar communities in other areas of Oaxaca resolve these problems as well as to provide knowledge of which institutional innovations prove effective resolving the most important problems facing these communities. The letter says that a final report will be prepared jointly by the students and the professors coordinating the research and that it will be shared with academic researchers.

The letter also says that we will make sure that the report reaches the community. It says that our aim is that the results of the research may influence how public decisions are made in the country regarding public problems affecting communities like yours.

At the end of the letter we provide one of our names as professors coordinating and responsible for the research, the name of our university, and our telephone in case the authorities or anyone wants more information about the project.

In addition to this paper, we plan to deliver a report written in Spanish jointly with the indigenous students. The report will be written in general terms such that it will not be possible to identify neither places nor people and will be delivered to the local authorities and communities where we conducted our work.

2.1.2 Security Protocol (English Translation)

Conducting research in violent areas requires strict security protocols to protect both the team collaborating with the researchers and the subjects. We implemented the following security protocol to protect our team of researchers.

1. Notify the team leader about all planned movements and exact routes in advance
2. Always carry a charged cell phone with you
3. Leave the fieldwork notes from the previous weeks at home (bring an empty notebook for each new work location)
4. Always introduce yourself BEFORE starting the field work to the relevant “authority”
5. Send a message to the Team Leader at the time of DEPARTURE and at the time of RETURN and in cases where there is no network, in the MORNING and at NIGHT.
6. Always carry with you an official identification (INE, etc.) in addition to the letter from the University (and badge or credential)
7. Do not expose yourself to unnecessary risk situations
8. Do not consume alcohol during field work
9. Do not move at night or in the dark
10. If there is any doubt about the risk of entering a selected community, contact the Researchers before deciding
11. Carry a small medicine cabinet

In addition, we advised students not to write down highly sensitive issues, but to take down notes from memory once they returned home to the field. We also advised them that - after field stints - they should leave their notes at home so that at any given time they should only be travelling with a few interview notes with them. The objective of this protocol was to protect our team as well as our subjects in case the researchers were intercepted by someone suspicious. Interview transcripts were exchanged via Dropbox. However, we offered researchers the possibility to upload interviews in separate folders which other team members could not access. In the Tierra Caliente area team members indeed made use of this possibility.

3 IRB protocol

To protect our subjects, our research was approved by the IRB committee in our home institution in the US. We provided to them a detailed description of the interview protocols (see below) as well as our method to protect the anonymity and security of the

subjects. Participation in the study was voluntary and the researchers never showed the letter of the mayor to the subjects so as not to make them think that they had an obligation to participate. During the training, we provided instructions to the field researchers for introducing themselves to potential interview partners and repeatedly practiced the content—also concerning how to respond to additional questions about the research and the interview by potential interview partners. The introduction, as we practiced it, is closely aligned with APSA guidelines for seeking consent regarding participation in social scientific research:

“Hello, my name is _____. I am a (former student / student / professor) at the Instituto Superior Intercultural Ayuuk (ISIA) in Jaltepec de Candayoc. I participate as a researcher in an investigation funded and guided by Stanford University in the United States. The aim of the research is exclusively scientific and is not related to the government, electoral processes, or political parties. The objective of the research is to gather qualitative information on local governance and local forms of security provision in Oaxaca and in other regions of the country. The results may contribute to the discussion about local governance reform in Mexico. We have received permission from local authorities for conducting interviews. Therefore, I kindly ask you to allow me to conduct a roughly 45-60 minutes-long interview with you. There is, however, no obligation to participate and you can simply decide not to respond to any the questions or any question that makes you uncomfortable. The interviews will be transcribed and submitted to Stanford University. [For non-public figures] We will not ask you for your name and you will remain fully anonymous. Your identity will be kept confidential throughout the research and in the writing of the materials and we will make sure that in writing the results your identity remains hidden. Interviews will be kept secure, and we will not quote you by name. [For public figures] You can choose to remain anonymous, and you can also specifically highlight information on which you wish to remain fully anonymous. Interviews will be kept secure and we will not quote you by name.”

4 Interview Guidelines and further ethical considerations

The *first* subsection contains guidelines for interviewing public figures, such as mayors, police chiefs, presidents of business associations but also leaders of non-government police (NGP) forces.¹ Instead of referring to all of the different types of communitarian police (topiles), autodefensa, or vigilante groups individually, we used the generic term “non-government police” or NGP, derived from the term “NGO” to refer to these non-state (but non-criminal) security forces. For each specific “type” of interview partner, e.g. the mayor, the head of the ejidal commissariat, the leader of a business association, etc. we designed specific interview guidelines that reflected the activities and specific type of knowledge of that public actor. For example, members of a political party were asked, in addition to their assessment of local security, also questions about the local party organization, their relationship with other parties in the municipality and their

¹As mentioned above, we will not mention names of localities when we believe it is important for protection of our informants.

possibilities to actively participate in the municipal council.

The *second*, shorter, section compiles interview guidelines for non-public figures, locally known personalities such as respected teachers or doctors, as well as ordinary male and female citizens. These interviews focused on the perspective of ordinary citizens and discussed topics such as local security, trust in state, municipal and communal representatives, citizen participation in communal life, and similar issues. Each interview guideline carried an interview cover sheet which contained biographic information about the interview partner and the circumstances of the interview, including a personal assessment of the interview by the researcher. The interview cover sheet for public figures noted the full name of an interview partner as well as his or her position—unless anonymity was explicitly requested.

We should note that the research team was instructed to follow these structured interviews, but also to allow the conversation to evolve to a non-structured format when subjects were willing to give detailed examples about cartel presence, security issues, community organization against criminals, lynchings, and evaluations about the police. We gave them instructions to memorize these conversations and some tips as to how to write small clues. The reason to do so was to protect both our team and our subjects in case the notes reached the wrong hands.

Due to space limitations, the interview guidelines are available upon request.

4.1 Qualitative data sharing

As a further ethical consideration, we offered anonymity to all interview partners who were non-public figures. In our academic work we use codes for interview partners and survey locations if references are made to illegal activities (e.g. lynchings, expulsions) or if statements were made that could put an interview partner at risk. Our interviews and qualitative data will not be made public for security reasons. First, publishing the information very likely would put the interviewees at risk because of the sensitive nature of the interviews. Second, Our research team come from these communities, and their identity is well known. Revealing the data they collected would likely put them at risk. Although the interviews are anonymous, materials contain many details that can easily be used to trace the subjects. This could potentially get our subjects and our team in trouble with the criminal groups or with their communities. We refer to the article by Fujii (2012) which discusses why researchers might need withhold data for safety reasons, and how it has mattered in real terms.

Third, as mentioned above, before our interviews we notified our subjects that their identities would remain anonymous and that we would not share their interviews with anyone. Publishing the content of the interviews will undermine this promise. The qualitative interviews have been input into NVIVO, which we will use for further analysis and future projects. Further analysis of the qualitative material is ongoing. We also implemented standardized surveys with NGPs in both Oaxaca and Michoacán but their systematic analysis will be part of a different project. This data will be shared.

4.2 Other ethical considerations

One our team's objectives is to give back to the communities that opened their doors to us to talk about such sensitive topics. One way in which we are doing this is by establishing a summer program in our home US university, Stanford, where we bring indigenous students for these and other indigenous communities in Mexico for three weeks during the summer and offer them a series of courses (e.g., environmental policy and biodiversity, governance, Mexican politics, etc.). The program is partly funded by the US Embassy and we pay for all the costs (transportation from and back to their home towns in Mexico, food, lodging, planned activities and visits to museums, etc). 30% of the research team has assisted to this summer course. In addition, during the research upon which this paper is built we paid salaries, all travel expenses and incidentals, and gave bonuses to the top-performing members of the research team.

5 Funding of the research

The research was funded by various institutions and sources. The early stages of the research were funded with one of the author's research accounts. Second, we received generous financial support from XX University Global Development Project. Lastly, the research conducted in 2019-2020 was funded by the State Department, Bureau of International Narcotics and Law Enforcement Affairs. The grant from INL was to explore the professionalization of policing across the country, including in urban areas; the logic and dynamics of violence and citizens' responses to police forces and cartels. We provided a report to the INL mostly based on statistical analyses of surveys and of a variety of crime indicators across the country. Our qualitative work was not shared with any of our sponsors and the identity of all participants remains fully anonymous.

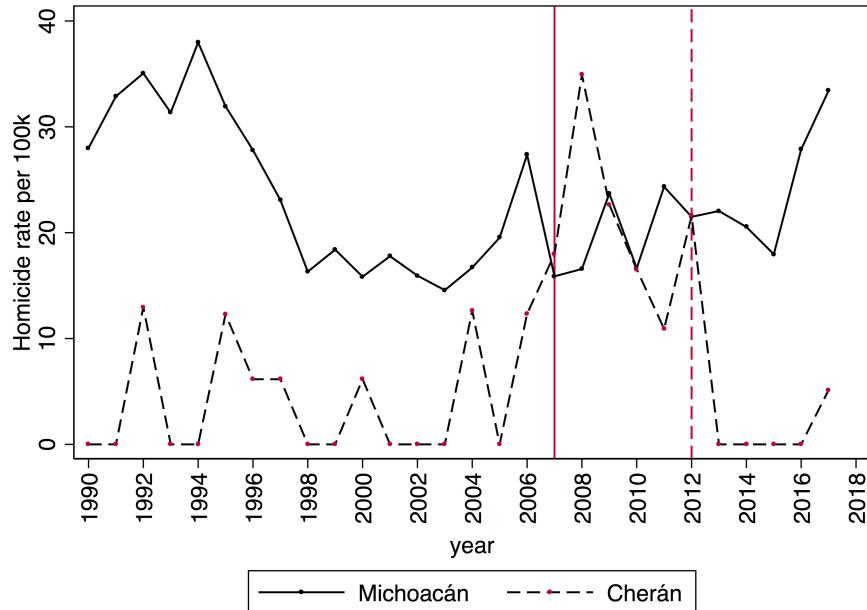
6 Evolution of Cherán's homicide rate before and after the uprising

Figure A4 reports the homicide rates for Cherán and the average rate for Michoacán using municipal level homicide data from SINAIS. It is worth highlighting that after the uprising the homicides are brought down to zero for various years until 2017 where there are 3 homicides.

7 Description of victimization survey (ENVIPE)

Since 2011, the Encuesta Nacional de Victimización (ENVIPE) has been collected yearly by the Mexican Institute of Statistics and Geography (INEGI) with the goal of providing information on self-reported victimization, perceptions of public safety and police performance, and the social and economic context of crime. Surveys are conducted with individuals, and municipality data is available to see whether they resided in usos or party municipalities. Since 2011, the ENVIPE has been collected yearly, and our models pool all surveys collected from 2011 to 2016 using yearly fixed effects. It should be noted

Figure A4: Homicide Rates in Michoacán and Cherán



Notes: Homicide rates per 100,000, from SINAIS. The vertical solid line is the onset of the Drug War. The dashed vertical line is the end of the uprising and recognition of autonomy for Cherán.

that every year the sample is drawn independently from previous years, which means the same municipality is rarely surveyed twice, especially in rural areas.

In Table A1, we detail the variables used for our analysis. All variables are originally coded as a binary, except for “Trusts police” which we recode to 0 for no to little trust in police, and 1 for some to high trust in police. We use ENVIPE data from 2011 to 2016.

Table A1: ENVIPE (2011-16) Summary Statistics

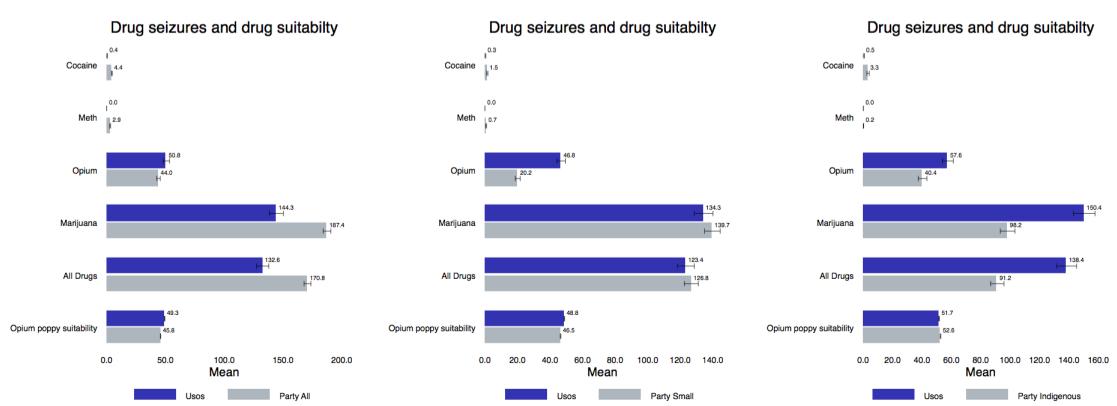
Variable	Description	Obs	Mean	SD	Min	Max
Corruption	Perceive municipal police as corrupt	314,589	0.727	0.446	0	1
Trusts police	“High” or “some” trust	337,841	0.095	0.293	0	1
Police violence	Police violence against civilians	477,750	0.129	0.335	0	1
Extortion	Extortion or <i>cobro de piso</i>	477,750	0.121	0.326	0	1
Gangs	Exist violent gangs	477,750	0.309	0.462	0	1
Drug sales	Drug sales nearby	477,750	0.236	0.424	0	1
Robbery	Frequent robberies or assaults	477,750	0.391	0.488	0	1
Organization	Organized a neighborhood police	483,649	0.114	0.318	0	1

8 Description of drug seizures and eradication data

Figure A5 presents basic descriptive statistics for these data according to whether municipalities are ruled by usos or parties. We provide descriptive statistics for the entire set of party municipalities (left), small party municipalities (center), and indigenous party

municipalities (right). Focusing on the entire universe of party municipalities, seizures of cocaine, methamphetamine and marijuana are higher in party municipalities, which makes sense given that more drugs likely transit through areas that are better connected to the transportation network (Calderón et al., 2015). The figure in the center shows that there are no substantial differences in terms of drug seizures/eradication of marijuana and all drugs compared to small party municipalities of less than 10,000 inhabitants. This bolsters our argument that the drug economy is highly present in usos municipalities. Compared to small rural municipalities, however, there are more opium seizures in usos municipalities, which might indicate that the Mexican authorities disproportionately target these places over party municipalities. This would work against our argument that there is less violence in usos municipalities. Lastly, usos municipalities have significantly higher drug seizures than comparable party municipalities where at least 25% of the population is indigenous. Again, this might reflect that the Mexican authorities target usos over party municipalities. The last bars show that in terms of suitability for production of opium poppy, a variable that we take from Rodriguez (2020), usos and party municipalities can't be distinguished from one another.

Figure A5: Drugs in All, Small, and Indigenous Municipalities



Notes: These bars correspond to mean yearly drug seizures/crop eradication from 1990 until 2017. The dark blue correspond to municipalities with usos (9,614 yearly observations) and the light grey with parties (50,868 yearly observations). The last bars correspond to Opium Poppy Suitability, that we draw from Rodriguez (2020) as described in the section below. The figures correspond to All party municipalities (left), party municipalities of less than 10,000 inhabitants (center) and party municipalities where at least 25% of the population is indigenous.

9 Size of municipality and effect on homicide rates

As noted in the main text, usos municipalities and party municipalities on average differ on several key characteristics, like population. Table A2 shows that few usos municipalities have more than 10,000 residents, although these data displays municipality and population since 1990. After 2000 more usos municipalities have larger populations. To describe size of the municipalities we use data from the Mexican census and “concejos” from 1990 to 2015 and calculate yearly population figures by extrapolation.

Table A2: **Size of municipality 1990-2017**
(yearly observations)

Size	Party	Usos	Total
Less than 2,500	3,847	6,849	10,696
2,500 to 5,000	6,090	3,147	9,237
5,000 to 10,000	9,825	1,179	11,004
10,000 to 20,000	13,050	1,430	14,480
20,000 or more	24,278	98	24,376
Total	57,090	12,703	68,793

Table A3 displays the results of our main OLS difference-in-differences models presented in the main text segmenting the data according to population. The results compellingly demonstrate that usos generates a negative effect on homicide rates regardless of size. They also show that the effect of the interaction term between usos and drugs becomes larger and statistically more significant in municipalities of 5,000, 10,000, and 20,000 inhabitants. These results are important as they suggest that the effects of usos hold in larger localities.

Table A3: **Effect of usos on homicide rates and size of municipality**

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
SIZE	2,500	5,000	10,000	20,000	2,500	5,000	10,000	20,000	2,500	5,000	10,000	20,000
Usos	-20.01*** (4.3179)	-16.26*** (2.8734)	-16.82*** (2.6032)	-15.97*** (2.4408)	-19.92*** (4.3064)	-16.27*** (2.8699)	-16.86*** (2.5996)	-16.03*** (2.4389)	-20.93*** (4.3744)	-17.10*** (2.9498)	-17.31*** (2.6180)	-16.40*** (2.4482)
All drugs	1.017 (1.1745)	0.878 (0.5886)	0.750** (0.3450)	0.594*** (0.2272)								
Usos X all drugs	-1.112 (1.2144)	-1.390** (0.6254)	-1.238*** (0.3958)	-1.141*** (0.3071)								
Marijuana					1.027 (1.0717)	0.849 (0.5396)	0.708** (0.3137)	0.558*** (0.2061)				
Usos X marijuana					-1.102 (1.1065)	-1.267** (0.5720)	-1.106*** (0.3587)	-1.009*** (0.2765)				
Opium									-0.833 (1.6943)	0.0122 (0.8181)	1.121** (0.5529)	0.622* (0.3644)
Usos X Opium									.2	-1.527* (-0.2546***)	-2.546*** (-2.151***)	
cons	20.53*** (2.7543)	20.73*** (1.7241)	18.35*** (1.2226)	17.26*** (0.8962)	20.50*** (2.7557)	20.71*** (1.7253)	18.34*** (1.2234)	17.25*** (0.8969)	20.78*** (2.7347)	20.93*** (1.6974)	18.52*** (1.2085)	17.46*** (0.8843)
N	10446	19553	30513	43968	10446	19553	30513	43968	10446	19553	30513	43968
r2	0.0112	0.0118	0.0143	0.0151	0.0113	0.0119	0.0143	0.0151	0.0108	0.0115	0.0141	0.0148

Notes: Estimated coefficients from OLS regressions. The dependent variable is homicide rates per 100,000 inhabitants from SINAIS. All models include year and municipality fixed effects. Robust standard errors clustered at the municipality level in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

10 Robustness checks: OLS regression models with different specifications of homicide data

We show that results in our OLS models remain unchanged when we use the inverse hyperbolic sine transformations for this variable because it shows a significant right-skew (Table A4). We also show that results remain unchanged when we use log transformations (Table A5). We also use homicide counts controlling for population in the right hand side of the equation (Table A6). Using data from the 1990, 2000, and 2010 census and

from the “conteo” of 1995, 2005 and 2015 we interpolate population for the regression. Most of our results remain unchanged in signs. Finally, we run an additional test using homicide rates per 100,000 of homicides committed via firearm against men aged 15-39 (Table A7). Again, the results remain largely unchanged.

Table A4: OLS Regressions: Homicide Rates with IHS Transformation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All party	Indigenous party	Small party	All party	Indigenous party	Small party	All party	Indigenous party	Small party
Usos	-0.449*** (0.0635)	-0.398*** (0.0916)	-0.476*** (0.0760)	-0.447*** (0.0637)	-0.397*** (0.0910)	-0.477*** (0.0756)	-0.453*** (0.0635)	-0.403*** (0.0916)	-0.480*** (0.0759)
All Drugs	0.0122*** (0.0034)	0.0198** (0.0082)	0.0142* (0.0077)						
Usos x All Drugs	-0.0285*** (0.0093)	-0.0347*** (0.0129)	-0.0314*** (0.0117)						
Opium				0.0180*** (0.0058)	0.0340*** (0.0125)	0.0313* (0.0168)			
Usos x Opium				-0.0764*** (0.0182)	-0.0833*** (0.0254)	-0.0885*** (0.0245)			
Marijuana							0.0117*** (0.0031)	0.0179** (0.0074)	0.0132* (0.0070)
Usos x Marijuana							-0.0235*** (0.0084)	-0.0286** (0.0116)	-0.0259** (0.0106)
Cons	1.940*** (0.0309)	1.763*** (0.0572)	1.366*** (0.0522)	1.945*** (0.0308)	1.767*** (0.0571)	1.368*** (0.0522)	1.939*** (0.0309)	1.763*** (0.0572)	1.366*** (0.0522)
N	67451	20021	30513	67451	20021	30513	67451	20021	30513
r2	0.0257	0.0211	0.0113	0.0258	0.0215	0.0116	0.0257	0.0211	0.0112

Notes: Estimated coefficients from OLS regressions. The dependent variable is the rate of homicides per 100,000 inhabitants from SINAIS, with an inverse hyperbolic sine transformation. Models 1, 4 and 7 use all party municipalities. Models 2, 5 and 8 select for party municipalities that have at least 25% of indigenous inhabitants. Models 3, 6 and 9 select party municipalities that are smaller than 10,000 inhabitants. All models include year and municipality fixed effects. Robust standard errors clustered at the municipality level in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A5: OLS Regressions: Homicides (log transformations)

	1	1	3	4	5	6	7	8	9
	All party	Indigenous party	Small party	All party	Indigenous party	Small party	All party	Indigenous party	Small party
usos	-0.396*** (0.0552)	-0.350*** (0.0795)	-0.420*** (0.0657)	-0.394*** (0.0554)	-0.350*** (0.0790)	-0.420*** (0.0655)	-0.399*** (0.0551)	-0.355*** (0.0795)	-0.423*** (0.0657)
All drugs	0.0110*** (0.0029)	0.0170** (0.0071)	0.0124* (0.0067)						
Usos X All drugs	-0.0255*** (0.0080)	-0.0306*** (0.0111)	-0.0270*** (0.0101)						
Opium				0.0168*** (0.0051)	0.0303*** (0.0113)	0.0281* (0.0146)			
Usos X Opium				-0.0682*** (0.0157)	-0.0739*** (0.0220)	-0.0782*** (0.0210)			
Marijuana							0.0105*** (0.0026)	0.0154** (0.0064)	0.0115* (0.0061)
Usos X Marijuana							-0.0212*** (0.0072)	-0.0253** (0.0100)	-0.0228** (0.0091)
cons	1.601*** (0.0262)	1.473*** (0.0487)	1.159*** (0.0446)	1.605*** (0.0261)	1.476*** (0.0486)	1.161*** (0.0446)	1.600*** (0.0262)	1.473*** (0.0487)	1.159*** (0.0446)
N	67451	20021	30513	67451	20021	30513	67451	20021	30513
r2	0.0269	0.0225	0.0118	0.027	0.023	0.0121	0.0269	0.0225	0.0117

Notes: Estimated coefficients from OLS regressions. The dependent variable are log transformations of homicide rates per 100,000 inhabitants from SINAIS. All models include year and municipality fixed effects. Robust standard errors clustered at the municipality level in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A6: OLS Regressions with homicide counts

	1	2	3	4	5	6	7	8	9
	All party	Indigenous party	Small party	All party	Indigenous party	Small party	All party	Indigenous party	Small party
Usos	1.485** (0.7112)	-0.254 (0.2605)	-0.444*** (0.0853)	1.381* (0.7179)	-0.174 (0.2585)	-0.462*** (0.0870)	1.487** (0.7077)	-0.267 (0.2702)	-0.447*** (0.0852)
All drugs	0.311*** (0.1010)	0.155 (0.1217)	0.0347*** (0.0125)						
Usos X All drugs	-0.296*** (0.1008)	-0.173 (0.1108)	-0.0576*** (0.0143)						
Opium				0.597 (0.4450)	0.573* (0.3377)	0.0825** (0.0333)			
Usos X Opium				-0.639 (0.4208)	-0.628* (0.3220)	-0.139*** (0.0354)			
Marijuana							0.288*** (0.0862)	0.136 (0.1047)	0.0319*** (0.0113)
Usos X Marijuana							-0.270*** (0.0870)	-0.15 (0.0956)	-0.0508*** (0.0129)
Population	0.000356*** (0.0001)	0.000130*** (0.0000)	-0.000129 (0.0001)	0.000356*** (0.0001)	0.000131*** (0.0000)	-0.000128 (0.0001)	0.000356*** (0.0001)	0.000131*** (0.0000)	-0.000129 (0.0001)
Cons	-6.835** (3.1433)	0.173 (0.6533)	1.179*** (0.3057)	-6.738** (3.1460)	0.161 (0.6557)	1.181*** (0.3055)	-6.838** (3.1403)	0.175 (0.6560)	1.178*** (0.3056)
N	67451	20021	30513	67451	20021	30513	67451	20021	30513
r2	0.0824	0.0853	0.02	0.0823	0.0944	0.0202	0.0824	0.0851	0.02

Notes: Estimated coefficients from OLS regressions. The dependent variable are homicide counts from SINAIS. All models include population that is extrapolated using census data since 1990. Models have year and municipality fixed effects. Robust standard errors clustered at the municipality level in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A7: OLS Regressions: Firearm Homicide Rates for Men 15-39

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All party	Indigenous party	Small party	All party	Indigenous party	Small party	All party	Indigenous party	Small party
Usos	-46.18*** (8.0921)	-42.69*** (10.5280)	-47.69*** (8.9381)	-48.38*** (8.0749)	-43.53*** (10.4787)	-51.52*** (8.9579)	-46.26*** (8.0980)	-42.75*** (10.5388)	-47.71*** (8.9346)
All Drugs	1.449*** (0.3824)	1.467* (0.8071)	2.694*** (1.0196)						
Usos x All Drugs	-3.575*** (0.7954)	-2.825** (1.1570)	-4.752*** (1.2187)						
Opium				1.562** (0.6159)	2.898* (1.6731)	2.02 (1.5800)			
Usos x Opium					-5.102*** (1.6715)	-5.494** (2.5283)	-5.258** (2.2171)		
Marijuana							1.358*** (0.3463)	1.374* (0.7056)	2.524*** (0.9261)
Usos x Marijuana							-3.223*** (0.7148)	-2.577** (1.0278)	-4.340*** (1.1044)
Cons	35.31*** (2.2351)	40.47*** (4.0162)	45.82*** (4.4466)	36.05*** (2.2037)	40.68*** (3.9949)	46.58*** (4.4115)	35.28*** (2.2361)	40.46*** (4.0125)	45.78*** (4.4493)
N	67449	20020	30513	67449	20020	30513	67449	20020	30513
r2	0.0123	0.0229	0.0109	0.0118	0.023	0.0101	0.0123	0.0229	0.011
Groups	2444	728	1216	2444	728	1216	2444	728	1216

Notes: Estimated coefficients from OLS regressions. The dependent variable is the rate of firearm homicides of men aged 15-39 per 100,000 inhabitants from SINAIS. Models 1, 4 and 7 use all party municipalities. Models 2, 5 and 8 select for party municipalities that have at least 25% of indigenous inhabitants. Models 3, 6 and 9 select party municipalities that are smaller than 10,000 inhabitants. All models include year and municipality fixed effects. Robust standard errors clustered at the municipality level in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

11 Discussion of propensity score matching

To select a group of party municipalities as similar as possible to usos municipalities, we match on pre-treatment covariates. In the main specification, we use the form of matching that gives us greatest overlap on variables of theoretical importance, and which is popularly used: propensity score matching.

While non-parametric matching strategies are preferred when there is already high balance in the data and a larger sample size, so as to avoid problems of model dependence (King and Nielsen, 2019), propensity score matching is most appropriately used when there is low common support between the treatment and control groups. This method prevents us from discarding data, particularly usos municipalities. It also allows us to encode knowledge gathered during extensive fieldwork about potential pre-treatment information that could have influenced usos assignment. In the end, we achieve balance on these important variables using propensity score matching, and discard significant amounts of data when using coarsened exact matching.

The propensity score is calculated following the strategy proposed in Reardon et al. (2009). First, we fit a logit model where the probability of being an usos municipality is calculated based on these seven municipal characteristics. As a conservative test of balance, we divide the sample into blocks based on propensity score, and ensure our sample achieves balance on covariates across nearly all blocks when assessing significance at a $p < 0.01$ level. Then, we use the estimated propensity scores to choose the ten closest party municipalities within a certain range of the predicted score of each usos

municipality. Once we have identified the usos municipalities that have party matches, we estimate weights for each matched party municipality, where the weighted sum of party equals the sum of usos municipalities. In the analysis, $\mathbf{w}(i, j)$ is the weight assigned to the j th municipality that is matched to the i th municipality.

11.1 Alternate dependent variables

Table A8 shows coefficient estimates for the main matched difference-in-differences analysis in Column 1. This uses the rate of homicides per 100,000 people as its outcome. In Columns 2 and 3, we show robustness to two related outcomes: rates of homicides by firearm, and rates of homicides of men aged 15-39 years. We see similar trends in with these new outcomes. Namely, that we cannot distinguish homicide rates between usos and party municipalities in the pre-Drug War period, but that this difference becomes statistically significant for most years in the Drug War period.

12 Robustness check: poppy opium suitability and heroin demand shocks

In this section, we present results from a robustness test probing the mechanisms of the insulating effects of usos governance from cartel violence.

In Mexico during the time of our analysis, land becomes more valuable to cartels the more suitable it is for growing poppy. However, we might see results similar to our main empirical analysis if cartels had systematically avoided usos municipalities. To test our proposed mechanism that usos institutions worked to decrease cartel encroachment, we therefore craft a more difficult test for ourselves by measuring the expected intensity of wars for territory among cartels. That is, is the marginal impact of usos governance higher when cartels' interest in a municipality grows?

Following Dube et al. (2013) and Rodriguez (2020), we use external demand shocks to signify changes in the cartel-appraised value of territories. Mexican cartels are uniquely positioned to supply the U.S. heroin markets. Areas suitable for poppy cultivation, especially when heroin prices are high, produce a greater return for cartels than those not suitable. According to the 2019 National Drug Threat Assessment (NDTA, 2019), Mexico-sourced heroin continues to dominate the U.S. heroin market because of “its proximity, established transportation and distribution infrastructure, and ability to satisfy the heroin demand in the United States.” Moreover, “heroin was still involved in more overdose deaths than any other illicit drug except fentanyl in 2017.” Figure A6 shows the number of drug overdose deaths in the United States since 1999 by type of drug. After 2010, heroin-involved overdose deaths dramatically increase, surpassing cocaine-involved deaths. The number of deaths has stabilized in recent years.

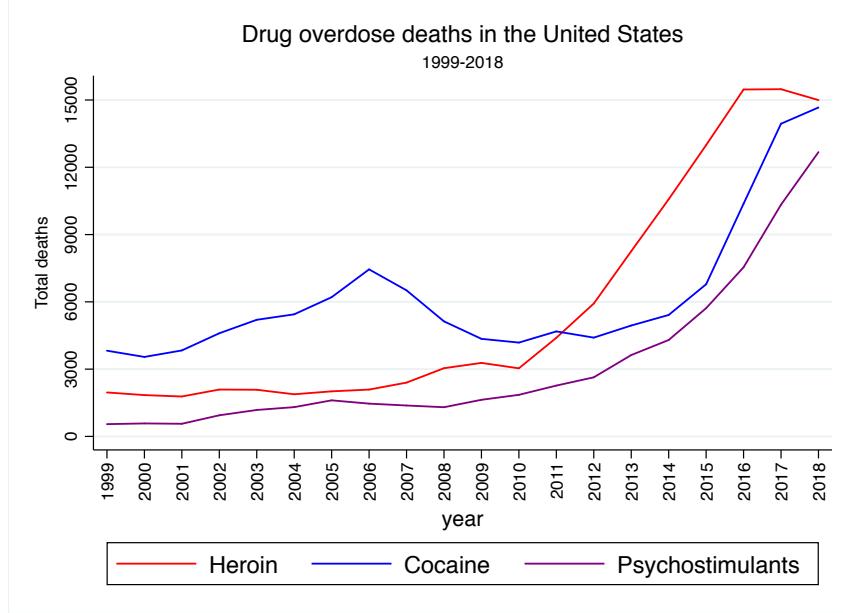
Our empirical strategy is similar to Rodriguez (2020) and Sobrino (2019), as we interact a municipality's suitability for growing poppy with yearly demand for heroin to capture spatial and temporal changes in potential drug markets. We then interact this term with a measure for whether a municipality is governed by usos and if the year falls in the Drug War period. Below we present our heterogeneous treatment effects model:

Table A8: Matched difference-in-difference with alternate DVs

	(1) All homicides	(2) Firearm homicides	(3) Male 15-39 homicides
Usos × year=1991	-2.430 (6.655)	-1.786 (6.039)	-6.857 (26.01)
Usos × year=1992	6.629 (4.941)	4.125 (4.493)	37.36* (21.15)
Usos × year=1993	-3.566 (6.924)	-2.650 (6.687)	9.088 (27.60)
Usos × year=1994	-3.359 (5.123)	0.369 (4.321)	-3.535 (20.58)
Usos × year=1995	-1.898 (6.513)	3.189 (5.252)	-2.041 (34.15)
Usos × year=1996	-6.865 (4.970)	-4.981 (4.178)	-4.023 (21.22)
Usos × year=1997	-5.705 (4.850)	-3.887 (4.555)	-23.84 (21.94)
Usos × year=1998	-4.359 (4.258)	-2.719 (4.008)	3.022 (19.76)
Usos × year=1999	-10.51** (5.349)	-10.41** (4.780)	-47.89* (27.53)
Usos × year=2000	-10.24* (5.727)	-8.249 (5.124)	-28.00 (32.53)
Usos × year=2001	-10.70** (4.958)	-7.258 (4.596)	-28.48 (25.58)
Usos × year=2002	-5.880 (5.252)	-4.128 (4.670)	-7.177 (23.61)
Usos × year=2003	-9.114** (4.231)	-8.665** (3.721)	-41.68** (16.88)
Usos × year=2004	-3.866 (5.471)	-4.045 (4.693)	-19.16 (23.27)
Usos × year=2005	-8.496 (5.545)	-3.422 (4.371)	-11.57 (21.47)
Usos × year=2006	-6.213 (4.931)	-3.686 (4.419)	-10.67 (21.78)
Usos × year=2007	-2.687 (4.929)	-3.191 (4.346)	-12.37 (21.78)
Usos × year=2008	-11.65** (5.013)	-6.161 (4.509)	-26.61 (22.94)
Usos × year=2009	-23.37** (11.76)	-13.44* (7.055)	-60.53 (36.86)
Usos × year=2010	-43.73*** (15.88)	-42.19*** (15.51)	-85.24** (38.22)
Usos × year=2011	-30.27** (14.43)	-24.85* (13.88)	-124.9 (79.35)
Usos × year=2012	-21.80*** (8.269)	-17.98** (7.658)	-59.32*** (22.73)
Usos × year=2013	-17.77*** (6.694)	-18.11*** (6.169)	-74.27** (31.20)
Usos × year=2014	-33.89** (16.05)	-33.47** (15.70)	-160.6* (96.13)
Usos × year=2015	-13.93*** (4.996)	-10.28** (4.464)	-20.22 (21.93)
Usos × year=2016	-14.39*** (5.325)	-9.721* (5.024)	-42.59* (21.91)
Usos × year=2017	-6.343 (4.939)	-4.014 (4.383)	-25.26 (22.76)
Observations	26180	26180	26180
Municipalities	935	935	935
R-squared	0.0244	0.0256	0.0216

Omitted year 1990. SEs in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure A6: Drug Overdose Deaths in the United States, 1999-2018



Source: Centers for Disease Control and Prevention.

$$\begin{aligned}
 Homicides_{i,t} = & \beta_0 + \beta_1 U sos_i + \beta_2 Suitability_i + \beta_3 Price_t + \beta_4 Post_t + \\
 & \beta_5 (U sos_i * Suitability_i) + \beta_6 (U sos_i * Price_t) + \beta_7 (U sos_i * Post_t) + \\
 & \beta_8 (Suitability_i * Price_t) + \beta_9 (Suitability_i * Post_t) + \beta_{10} (Price_t * Post_t) + \\
 & \beta_{11} (U sos_i * Suitability_i * Price_t) + \beta_{12} (U sos_i * Suitability_i * Post_t) + \\
 & \beta_{13} (Suitability_i * Price_t * Post_t) + \beta_{14} (U sos_i * Price_t * Post_t) + \\
 & \beta_{15} (U sos_i * Suitability_i * Price_t * Post_t) + \gamma_i + \eta_t + \epsilon_{i,t}
 \end{aligned}$$

Above, $Homicides_{i,t}$ represents the outcome of homicides for municipality i in year t . $U sos_i$ represents the first-order effect of usos governance in municipality i , $Suitability$ represents the first-order effect of opium suitability in municipality i , $Price_t$ represents the first-order effect of heroin prices in year t , and $Post_t$ the first-order effect of the Drug War period in year t . The terms beside β_5 to β_{10} denote the second-order interaction effects of these base terms, and those beside β_{11} to β_{14} the third-order interaction. The term beside β_{15} represents the main coefficient of interest—the interaction between indigenous governance, suitability for growing poppy, heroin prices, and the post period. We include fixed effects for municipalities i (γ) and years t (η), while $\epsilon_{i,t}$ is the error term. Including municipality and year fixed effects means that some terms will not be identified.

Data for the homicide rate dependent variable, homicides per 100,000 residents, comes from SINAIS. We operationalize heroin demand as the yearly average street price of heroin in the U.S. Data for heroin prices from 1990 to 2016 comes from the UNODC, is adjusted for inflation, and is reported in 2016 USD (UNODC, 2018).

We take the opium poppy suitability from Rodriguez (2020), who uses the Open-Modeller software to develop a Maximum Entropy Ecological Niche Model of poppy suitability in Mexico. Such models work on the basis of the presumption that a species

Table A9: Homicides and Drug Shocks

Panel A: Matched Municipalities Only					
	(1) Homicide All	(2) Firearm All	(3) Homicide Male	(4) Homicide Male 15-39	(5) Firearm Male 15-39
Usos × Post	-844.2** (348.2)	-726.1** (312.1)	-1303.4* (698.7)	-1278.1 (1468.0)	-1078.1 (1244.7)
Usos × Post × Price × Suitability	-8.649** (3.756)	-7.312** (3.341)	-13.19* (7.658)	-12.61 (16.71)	-10.26 (14.49)
Observations	23814	23814	23814	23814	23814
Municipalities	882	882	882	882	882
R-squared	0.0505	0.0491	0.0479	0.0411	0.0398

Panel B: All Municipalities					
	(1) Homicide All	(2) Firearm All	(3) Homicide Male	(4) Homicide Male 15-39	(5) Firearm Male 15-39
Usos × Post	-328.9*** (73.97)	-248.1*** (62.75)	-644.4*** (143.2)	-1050.7*** (263.4)	-864.5*** (220.2)
Usos × Post × Price × Suitability	-3.397*** (0.893)	-2.582*** (0.770)	-6.702*** (1.741)	-11.37*** (3.149)	-9.354*** (2.669)
Observations	58373	58372	58373	58373	58372
Municipalities	2175	2175	2175	2175	2175
R-squared	0.0318	0.0256	0.0320	0.0283	0.0238

Note: Notes: SEs in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All models include year and municipality FEs. DVs measured in homicides per 100,000. Price measured as heroin street prices in the US per gram, in 2016 USD

has a “niche”—that is, a set of environmental conditions that are conducive to its survival. The software produces a raster that represents the probability that a given point can support the species of interest. To solve the classification problem, in this case, a probability distribution over the likelihood that a municipality is suitable for poppy production or not, Rodriguez (2020) uses the observed occurrence of poppy fields in Mexico from official eradication data along with rasters of data on climactic and environmental conditions and subsequently can estimate a range of models producing the probability of observing that species in a given area. We aggregate this measure to the average opium suitability for each municipality in Mexico.

Table A9 shows the results of the heterogeneous treatment effects analysis, the effect of usos governance on homicides interacted with terms that capture when and where municipalities are most valuable to cartels. Panel A compares usos municipalities only to party municipalities selected through the propensity score matching process. Consistent with our theory, we observe that when a municipality is most valuable (as heroin prices increase and municipalities are increasingly suitable for growing poppy), usos governance is associated with a greater decrease in homicides relative to party municipalities. While we run into power concerns when trying to identify a four-way interaction term with a small number of treated municipalities, this effect is statistically significant in three out of five dependent variables of interest. In Panel B, we show similar results by expanding

the analysis to all municipalities in Mexico. Again, we see that the marginal effect of usos during the Drug War is larger (more negative) as heroin prices and the suitability for growing poppy opium increases. The main negative effect of usos governance on homicides during the Drug War also remains present in the matched and non-matched analyses.

Thus, we find that in years when plausibly exogenous demand for heroin increases, and where municipalities are more suitable for growing opium, the impact of usos governance on insulating communities from violence is most pronounced. We take this as evidence supporting our theory that usos governance drives this reduction in homicides, as we show that usos institutions are especially powerful in the highest-value locations to cartels.

13 Cartel presence: Google searches and automated text analyses

13.1 Google searches in core research area

We complement our field research with Google searches for cartel presence in the study region. We conducted intensive web searches on all the 119 municipalities of the Oaxaca case study region. The search involved a fixed list of terms designed to uncover cartel presence, cartel exposure, and forms of violence. We used the following list of search terms in conjunction with the name of the municipality: drugs, narcos, marijuana, amapola (opium poppy), murderer/murder, sicario (cartel killer), kidnapping, narcomanta, Cartel del Golfo, CJNG, los Zetas and lynching (to identify retaliation against criminals).

A key challenge throughout was to test two simultaneous findings: (a) a widespread engagement of some usos municipalities with the narco-economy and (b) an absence of cartel control in these same usos areas. This latter finding contrasts with the situation in party municipalities, where engagement with the narco-economy is often accompanied by cartel control of territory. For the Google search and related classification of municipalities, we considered a time span of ten years, i.e. from 2010-2020 for events to be considered. Based on our nine years of qualitative work in the case study region, we are confident that this is indeed the case. We classified municipalities into three categories:

1. Municipalities with cartel presence: (a) municipalities with narcomantas or municipalities mentioned in narcomantas as a target of contestation, (b) municipalities where cartel symbols were displayed, and (c) municipalities repeatedly considered under cartel control by observers.
2. Municipalities with narco-violence: municipalities where the following activities took place: kidnapping and torture, beheadings, cutting out tongues (to identify betrayals within the organization), signs explaining the reasoning behind a homicide, also aimed to warn about unwanted behaviors (cooperating with rival groups or resisting extortion), targeted assassinations (using motorbikes or shooting victims outside of their homes, from their blind side), and gang shootings. For municipalities to be classified as having narco-related violence, we needed to identify at least two cases of violence showing the above characteristics. It has to be emphasised that in this classification we did not consider cases of agrarian violence, domestic

violence or blood feuds, as the aim of the analysis was to track the reach of organised crime groups. We identify agrarian violence by type of violence, e.g. battles between hostile villages, or if the violence was clearly attributed to an ongoing agrarian conflict, e.g. the conflict between Tamazulápam del Espíritu Santo and San Pedro y San Pablo Ayutla for a water spring.

3. No indicator of cartel presence: municipalities with no cartel presence, nor cartel violence; these municipalities might still evidence violence, such agrarian conflicts (e.g. the already mentioned conflict between Tamazulápam and Ayutla), blood feuds between families, etc.

Although there is a clear overlap between the first two categories, we could not find any evidence of municipalities with cartel presence, but no cartel-related violence. However, we did find cases in which narco violence was not accompanied by overt and visible cartel presence. For example, we identified occasional narco-style homicides in the Usos municipality of Santiago Jocotepec, just a few kilometers away from the Federal Highway 147, even though cartels are based in the adjacent municipality of Playa Vicente and probably San Juan Lalana. Also in Santiago Jocotepec, we identified the homicides of politically active individuals that do not involve open cartel presence—the murder, in 2013, of a Comisario Ejidal and a local leader of a farmers' union who was shot dead in his way home. In contrast, the municipality of Playa Vicente displays both visible signs of cartel presence and cartel type violence. For the early 2000s, the detailed ethnography of (Hernández, 2013) links the “narco-ganaderos” (narco-cattle ranchers) to the Gulf Cartel. Later, the municipality was described as being controlled by Cartel de Chachalacas. More recently, in a narcomanta, CJNG threatened to conduct attacks against “mugrosos y perros” in Playa Vicente—as well as in other towns located along the Federal Highway 147. The narcomanta added that ordinary people had nothing to fear. Furthermore, on December 2017, five supposed cartel gunmen died in firefight at different locations in the municipality and, on April 2018, Vicente Leonardo Hernández, the alleged local leader of the Gulf Cartel, was assassinated at a cockfight. At the time of the fieldwork in 2019-20, most of Route 147 was reportedly under the control of CJNG. The still frequent violence along the route was, at that time, attributed to infighting between local CJNG associated groups. It thus seems that open (visible) presence of cartels in a municipality is a more advanced stage of takeover, which begins, as suggested previously, with the establishment of criminal cells, proceeds via increased criminal activity and violence and culminates in the openly displayed capture of the municipality, where an organized criminal group openly claims a territory.

Table A10: Municipal Degree Exposure to Cartels: Study Area in Oaxaca

Municipality	Total	Cartel Presence	Narco-violence	No violence/presence
Party	12	7	10	2
Usos	63	3	18	42
Total	75	10	28	43

Table A10 presents the analysis of cartel exposure in the case study area. Our results identify open cartel presence in 16 of the 30 party municipalities, but only in three

of the 89 usos municipalities. A further nine party municipalities have been coded as experiencing incidents of narco-violence without simultaneously showing signs of open cartel presence, while 13 usos municipalities have been coded as falling in this category. Lastly, only five party municipality were fully peaceful, that is they showed no signs of either open cartel presence or narco-related violence. In contrast, all the remaining 73 usos municipalities fall into this latter category.

13.2 Mapping our main research area

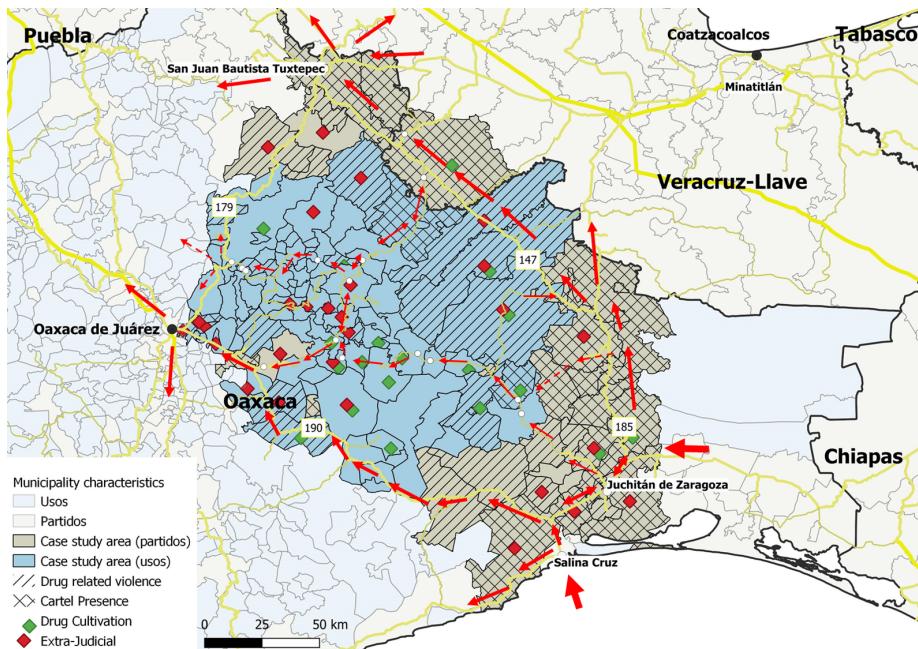
A look at Figure A7 below displays information on drug cultivation, trafficking routes and cartel presence in a map of our study area representing about a quarter of Oaxaca's territory. Before entering into a detailed discussion of cartel presence in the case study area, we need to offer a brief overview of the area's integration into the broader narco economy. Historically, drug cultivation and trafficking in the region goes back to the 1970s when groups of mestizo cattle ranchers and farmers from Veracruz linked up with the nascent Gulf Cartel and began to grow marijuana and import cocaine ([Hernández Rivera, 2011](#)). Since then narco presence and, increasingly, violence have been endemic in the area. Marijuana is now cultivated in at least four municipalities of tropical zones adjacent to Veracruz, as well as in the temperate and cold zones of the Sierra Norte, where in addition to marijuana, opium poppy is cultivated. While there is considerable drug cultivation going on, we only found evidence of drug labs in the Isthmus.

In addition, to drug cultivation, we could also identify a number trafficking routes through the triangulation of evidence from our field research (field trip July 2014, debriefing February 2020), literature review ([Hernández Rivera, 2011](#)) and Google searches. As such, we found two main routes, one leading from the Isthmus along Route 190 through the Central Valley to Oaxaca and from there to Puebla and another, a more northerly route along the border with Veracruz following Routes 185 and 147. In addition to these two main federal routes, we also found evidence of a number of off-road trafficking routes that crisscross the rugged sierra. These remote routes partly serve to transport cultivated drugs *out* of the region, but also to traffic drugs (possibly Latin American cocaine) *through* the region. In conclusion then, we can determine that the case study area is *well integrated into* and forms part of *the overall drug economy of Southern Mexico*. In a next step we will then examine the geography cartel presence, criminal violence or the absence of both in this same region.

In terms of cartel presence, the case study area can be divided into roughly three sections. The first is a stretch of territory ranging from the port of Salina Cruz over Juchitán in the Isthmus of Tehuantepec along Federal Route 185 until the Palomares junction and extends from there in a north-western direction along Federal Route 147 until San Juan Bautista Tuxtepec, a strategic road junction and one of Oaxaca's most violent towns. This territory has been, for the past several years, hotly contested between different Mexican cartels. In the early 2010s the area was contested between the Gulf Cartel and the Zetas, but recently CJNG emerged as the dominant cartel in the region. All party and some usos municipalities along this corridor are effected, but to somewhat different degrees. Whereas practically *all* party municipalities in this area show open cartel presence, this is only the case for two usos municipalities, Guevea de Humboldt in the south-east and San Juan Lalana in the north-east, where off-road drug trafficking

routes enter or leave the usos block. Most other usos municipalities in this eastern section of the broader case study area only show occasional cases of narco violence. Moreover, if one zooms in more closely into the micro-geography of cartel presence along the main federal routes, one finds that cartel presence tends to stop where communities within an usos municipalities actually practice usos.

Figure A7: Cartel presence, trafficking routes, drug cultivation and lynchings in the broader case study area



Notes: The figure shows a detail of the broader case study area in eastern Oaxaca indicating cartel presence, criminal violence, drug routes, drug cultivation and lynchings as derived from our fieldwork, literature review and google searches. To protect our informants and communities, we don't indicate areas of non-state justice unless these were covered by newspapers.

Narco-related violence (without visible cartel presence) tends to occur in the municipalities adjacent to the strip of cartel-controlled municipalities. In general, the further away a municipality lies from Route 147 or from the cartel-controlled municipalities of the Isthmus, the less severe and less frequent cartel type violence tends to be.

The second section of the broader case study lie in the temperate and cold zones of the Sierra Madre of Oaxaca between Federal Route 147 along the border with Vera Cruz and Federal Route 190 in the Central Valley. All municipalities of this area are governed by usos and *all* are free of open cartel presence, though a few show narco-related criminal violence. However, categorizing this zone as free of open cartel presence does not imply that this large swath of territory is entirely free of violence. It is not. However, it does mean that the logic of violence in this region is different. Aside of the few cases of criminal type executions and kidnappings, e.g. in Santiago Lachiguiri or Santo Domingo Roayaga, violence here mainly relates to agrarian and communitarian conflicts between local communities (such as the conflict between the cabecera and Chuxnaban community in our case study municipality of San Miguel Quetzaltepec) and to cases of defensive violence against criminal incursions. This differentiation is meaningful and

citizens of indigenous communities in the area clearly distinguish between agrarian and criminal violence. As a Mixe comunero in his mid-30s from a community neighbouring the feuding towns of Quetzaltepec and Chuxnaban put it: “It is very ugly. Shots are heard almost every day. [But] for us there is no problem, because Condoy [the community of the respondent] does not interfere, but still you have to be careful. There are no narcos here as it appears on television. This is a communitarian problem, not like the Zetas” (interview on 30 October 2019).

Lastly, the third section of the broader case study area lies in the Central Valley along Route 190 between Oaxaca City and the Isthmus. Most municipalities (15) in this well-connected region govern themselves according to usos, but five municipalities—including two already in the Isthmus are governed by parties though indigenous Zapotec traditions remain strong. This area along Route 190 is clearly of interest for Mexican Cartels and narcomantas placed in Oaxaca repeatedly announce intentions to take control of the route, like the Sinaloa Cartel (NVI Noticias, 28 August 2019) and an ominous group referring to itself as the Cartel de Oaxaca (Nacional, 25 August 2019). Nonetheless, visible cartel presence is limited to three municipalities (two party, one usos) in the closer vicinity of Oaxaca City. Aside of these municipalities we find either only criminal violence (in five municipalities), or the municipalities are completely free of both open cartel presence and of criminal violence (eleven municipalities: one party, all the rest usos). The Central Valley experienced deteriorating security until about the mid-2010s, when a wave of lynchings in usos municipalities halted the trend (at least seven lynchings attempts of which two—both in usos municipalities—were carried through resulting in the death of the accused delinquents). At the time of our field research in 2019, interview partners in the Valles Centrales assessed security positively, often referring to the lynchings as the turning point that restored security.

With open cartel presence being concentrated in party municipalities lying in the Isthmus-Tuxtepec corridor along Federal Routes 185 and 147, the questions emerges whether usos municipalities are only free of cartel presence, because they are remote and thus simply “not sufficiently interesting” for organised crime to capture it. This is highly unlikely for at least two reasons.

First, and most obviously, the results from the Central Valley clearly suggest that even in a well-connected and developed area usos communities appear to be more resilient to cartel takeover than party governed municipalities. There is considerable visible cartel presence at both ends of the Central Valley section of the broader case study area, in Oaxaca City and the Isthmus, and it is only usos dominated territory in between the two that shows only very limited open cartel presence and even limited narco-related violence.

Second, while well-communicated areas offer clear benefits in terms of accessibility and ease of transport, from the perspective of an illegal business, remote areas compensate through the added protection due to limited authority presence. This is clearly the case for the remote usos municipalities of the Sierra Norte which we study. Moreover, most of the drug cultivating areas (marijuana and opium poppy) of the case study area are in these remote usos areas (see map), which should make the area by its very nature interesting to drug cartels. Moreover, drug trafficking routes also crisscross the area transporting the local produce out as well as South American cocaine through the region. Nonetheless, in the usos municipalities of our case study area of the Sierra Norte of Oaxaca, drug transports and occasionally migrants pass through and farmers cultivate marijuana or

opium poppy without having to pay cuotas and without being harassed by cartel gunmen.

Third, our results from Michoacán, where we also conducted qualitative research, clearly show that remote areas are prized territories for cartels for drug cultivation and the establishment of clandestine drug labs. Accordingly, local cartels fight bloody turf wars for the control of these territories. It is thus not so much that the remote usos municipalities of the case study area are worthless from the perspective of a narco cartel, but rather that, in spite of its value, cartels cannot take control of it. Indeed, our research noted repeated attempts by violent criminal cells to establish themselves in the usos areas, but these attempts were again and again repelled.

Lastly, even in the cartel dominated tropical lowlands between Oaxaca and Veracruz, usos governance matters. This is not visible at first sight, as there are only few usos governed municipalities in this area and these appear, at first glance, strongly affected by cartel presence. However, zooming in into the micro-geography of Federal Route 147 one notes further relevant detail that actually reinforces the notion of an enhanced resilience of usos communities against cartel takeover. Looking at the modes of governance as actually practiced by local communities we observe a striking variation. Some communities even in party municipalities adhere to strong informal usos governance (e.g. indigenous communities in Guichicovi and partly in Xochiapa). In contrast, some local communities in usos municipalities govern themselves according to the party system (e.g. in the north-east of San Juan Cotzocón).

This variation in informal modes of governance is meaningful. Cartels show open presence in the party governed communities within the usos municipalities of Cotzocón and Yaveo located along the federal route and to its north-east, but not so much in the usos governed Mixe and Zapotec communities to the south-west towards the sierra. Therefore, in the map we only depicted cartel control as reaching until Federal Route 147.

The party/usos distinction is, however, often also meaningful in otherwise party governed municipalities. Thus, the usos governed Mixtec community of El Zapote, lying along Federal Route 147 in the cartel-controlled party municipality of Guichikovi (where we find cuotas on businesses, executions and sicarios associated with cartels), is relatively safer than the party-based communities of that municipality. This is all the more remarkable as the strategic bifurcation of Palomares, where CJNG sicarios can often be seen in open daylight (see e.g. field diary from 17 August 2019), lies only three kilometres to the east of El Zapote.

In conclusion, our case study, based on qualitative fieldwork as well as on extensive desktop research, suggests a pronounced resilience of usos governance against cartel takeover as compared to party governance in both a remote as well as a well-communicated (non-remote) setting.

13.3 Automated text analysis

To move beyond the research study areas, we extended our geographic scope to the entire state of Oaxaca to explore patterns relating to cartel presence and the narco-economy. In order to account for this larger area, we used automated text analysis of [Data Source]. We searched for the following terms associated with each municipality for the range of 2008–2018: amapola (opium poppy), asesino (murderer), Cartel del Golfo, CJNG, cocaína,

derecho de piso (cartel extortion fees), desaparecido (disappeared), droga (drugs), Los Zetas, marijuana, narco, narcomanta, secuestro (kidnapping), and sicario (cartel killer).

Table A11: Oaxacan Municipalities, 2008–18 Term Comparison

Word	Party Mean	Usos Mean	Reg Coef	Adj P-Value
Amapola	0.076	0.023	0.019	1.000
Asesino	0.120	0.051	0.052	0.006 ***
Cartel_del_Golfo	0.115	0.041	0.013	1.000
CJNG	0.036	0.006	0.000	1.000
Cocaina	0.085	0.029	0.012	1.000
Derecho_de_Piso	0.035	0.003	0.015	0.002 ***
Desaparecido	0.405	0.204	0.119	0.002 ***
Droga	0.219	0.076	0.018	1.000
Extorsion	0.190	0.062	0.066	0.010 ***
Laboratorio	0.088	0.021	0.024	0.163
Los_Zetas	0.099	0.028	0.035	0.006 ***
Marijuana	0.137	0.064	0.008	1.000
Narco	0.246	0.124	0.007	1.000
Narcomanta	0.017	0.004	0.001	1.000
Secuestro	0.281	0.134	0.011	1.000
Sicario	0.169	0.062	0.023	1.000

Notes: Weights from PS matching. Controls for population and indigeneity

In Table A11 we present the effect of usos governance structures on digital references to cartel presence and activity in the narco-economy. The outcome variable is measured in terms of the average number of years between 2008–2018 when the term was mentioned for a municipality. Columns 2 and 3 show the mean usage these terms for party versus usos municipalities. For example, party municipalities on average registered the term “desaparecido” in about four distinct years (40.5% of municipality-years) between 2008–2018, whereas usos municipalities only registered the term for approximately two years (20.4%). All cartel and narco-economy terms appear at a higher rate in party municipalities than in usos municipalities.

Since we observe that usos municipalities have smaller populations on average than party municipalities, among other differences, we supplement this difference in means with a comparison of municipalities that are similar on observables. The linear regression coefficient in column 4 represents the change in term usage for usos municipalities compared to matched party municipalities, holding constant 2005 population and percentage indigenous.

We note that even when compared to party-governed municipalities that look similar, those governed by usos are less likely to report mentions of narco-violence (“asesino” and “desaparecido”) or cartel presence (“derecho de piso,” “extorsion,” and “Los Zetas”). We are unable to find a statistically significant ($p < 0.05$) difference for drug-related newspaper terms (e.g. “amapola,” “cocaina,” “droga,” “laboratorio,” and “marijuana”) with this data.

14 Cartel data

With support from a grant from the State Department, we tracked the emergence, operation, and decline of cartels in Mexico using web content. The initiative is part of a broader project aiming to understand drug-related violence in order to design and evaluate better government interventions and police practices at the federal and local levels in Mexico.

The project is based on the framework first proposed by [Coscia and Rios \(2012\)](#). The authors developed a Web crawler to extract information from Google news on the activity of criminal groups in Mexico from 1990 to 2010. The data is available at the municipality level and consists on dummy variables indicating whether a particular cartel had presence in a municipality in a given year.

A team at the Poverty, Violence and Governance Lab composed of Beatriz Magaloni, Gustavo Robles and Luis Rodríguez updated the former analysis for the period 2008-2018 by establishing a collaboration with two of the biggest news monitoring agencies in Mexico. In particular, the team analyzed text data from 15 years of coverage of news (about 7 million notes) related to security and violence in hundreds of media outlets (both printed and electronic) in Mexico. The team searched for the mention of 19 criminal organizations (e.g. La Familia Michoacana, Cartel de Sinaloa); 126 armed wings or gangs (e.g. Guardia Morelense, Mata Zetas); 76 cartel leaders (e.g. El Chapo, Arturo Beltrán Leyva); 32 law-enforcement authorities or institutions (e.g. Policía Federal, Procuraduría General de la República); 86 actions related to criminal activities (e.g. kidnap, extortion); and 173 objects related to criminal activities (e.g. narco tunnel, laboratories).

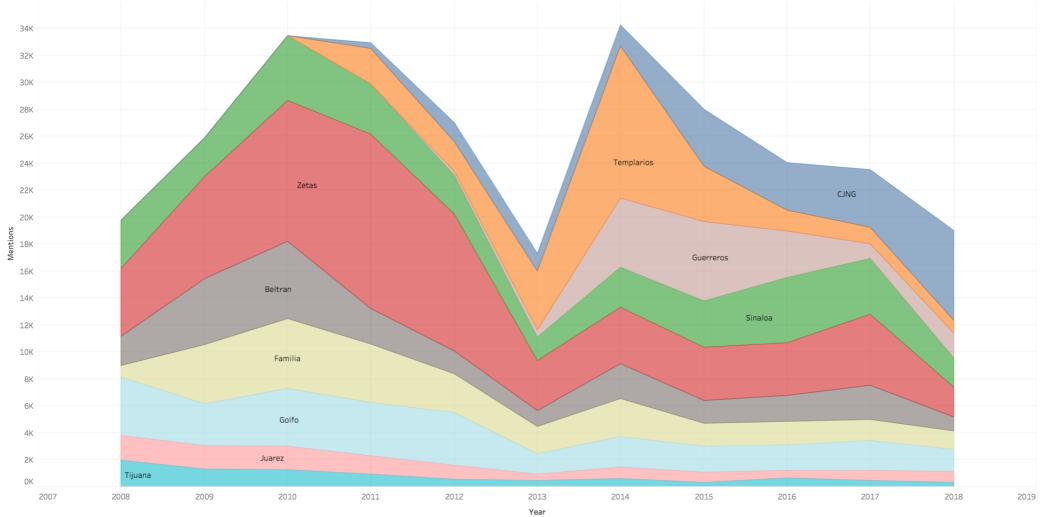
Figure A8 below shows the total number of articles related in the raw database related to each of the selected cartels. It is observed that the total number of articles decrease between 2011 and 2013, which corresponds to the trends in violence observed in previous sections. The number of articles related to criminal groups peaked again in 2014 after the kidnapping and murdering of 43 students in Guerrero and has decreased in the following years. It is also observed that the distribution of news across groups have change across the years. In 2010, a big share of online news mentioned Los Zetas, Beltrán Leyva, Golfo, and La Familia Cartel. In comparison, in 2017 most of the mentions included Jalisco Nueva Generación, Sinaloa, and Los Zetas cartel.

The raw database produced a considerable amount of false positives given that: 1) a single article can report multiple events across different regions; 2) a considerable number of municipality names are common names or last names (e.g. López); 3) municipalities share the same name across states; and 4) an important event is mentioned each year after its occurrence (e.g. the mass murder in San Fernando, Tamaulipas).

In order to reduce the amount of noise in the data set and avoid overestimating the presence of a cartel, we integrated a team of reviewers to validate our data set. In particular, we asked our reviewers to validate at least one news article for each combination of year-cartel-group of the database (e.g. at least one valid news article mentioning the presence or operation of the Sinaloa cartel in Culiacán in 2007).

We compiled a database that chronologically and geographically compiles information regarding violence and criminal activity. Specifically, we have mapped monthly cartel presence at the municipal level during the last two administrations (2006-2012 and 2012-2018).

Figure A8: Number of news articles, 2008-2018



15 Turf wars and heroin routes

The map in Figure 5 in the main text shows turf wars and heroine routes. None of these data is used in the statistical models and hence are not going to be made available since we are working with these data for other projects. Nonetheless, for transparency here we describe in brief how these measures were constructed.

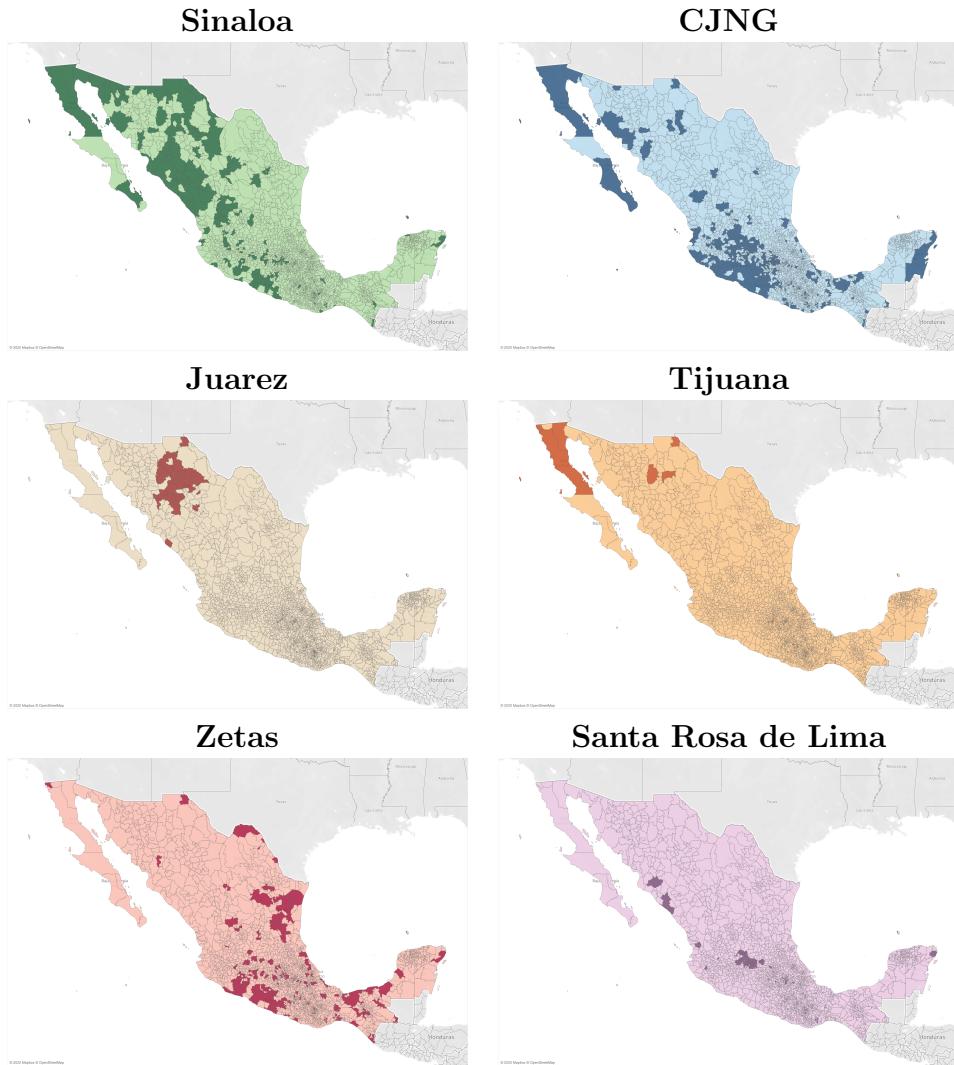
15.1 Turf wars

Identifying and measuring drug-related violence and inter-cartel conflict is a challenging task for the researcher for three reasons. First, drug-related violence is difficult to measure given the lack of accurate data identifying drug homicides from other types of murders. Second, by its very own nature, drug-related violence is episodic, targeted at specific individuals, and characterized by intermittent but dramatic peaks of violence. These characteristics make this type of violence highly non-linear and therefore difficult to model and predict using common econometric techniques. Third, drug-related violence comes with increases in other types of crimes such as extortion and property crime.

Following XX, we propose the use of an event approach to identify conflicts related to drug wars. We define the onset of a ‘turf war’ in a municipality as the moment when violence increases from historical trends beyond a relatively high threshold. In particular, we identify the onset of a turf war when the number of homicides by firearms (centered annualized monthly average) of young males—15 to 39 years old—increases by more than 3 standard deviations with respect to the historic mean of the last 10 years. Similarly, we consider that a turf war ended when the annualized monthly average of homicides comes back to the pre-conflict levels (e.g. within the historic bands). To deal with the problem of small municipalities with almost no homicides having large variations because of one month having one or two homicides, we only include municipalities for which the yearly average homicides using monthly data are above 3.

The number of turf wars would be higher under less strict measurements of treatment,

Figure A9: Cartel presence in 2018



Note: The maps show the geographical presence of selected DTOs in 2018. Areas were estimated using our longitudinal database, that describes the yearly territorial presence of criminal groups using news articles.

for example, increases of one standard deviation with respect to the historic mean. Nevertheless, under less strict definitions, a large number of additional municipalities with minimal levels of homicides (historic trends close to zero), predominantly rural, and not disputed by drug traffickers would be included. Another advantage of using three standard deviations is that it identifies municipalities with dramatic changes in their levels of violence with respect to their individual historic trends. Changes of this magnitude are strongly correlated with violent conflicts between criminal organizations.

15.2 Drug trafficking routes

Based on Robles (2016), we estimate optimal road routes from each municipality to the closest border crossing with the United States. Using optimal routes and drug seizures from each administration, we estimate the approximate volume of marijuana, cocaine,

opium-heroin, and methamphetamine that transits through each municipality. As a final step, we create a composite index of “connectivity,” by weighting each drug market by its corresponding share in the U.S. wholesale market.

Using the shapefile of Mexico’s road system, we estimate the shortest traveling time from each of the 2,456 municipalities’ main cities or towns (*Cabeceras Municipales*) to each of the 35 official border crossings with the United States. The shapefile consists of 18,916 segments of roads and includes information on length (in meters), number of lanes (1 to 6), type (paved vs. gravel), and jurisdiction (federal vs state). The Ministry of Communications and Transport in Mexico estimates that the average speed on a two-lane highway is about 60 km per hour (37 mph) and 110 km per hour (68 mph) on a four to six-lane highway. In addition, we assume that the average speed on a one-lane or a gravel road is 50km per hour (31 mph).

Once traveling times from each municipality to each border crossing are estimated, we consider the “shortest route” in time as the “optimal” one for that municipality. Using optimal routes one can quickly assess how strategic a municipality is by counting the number of optimal routes that go through the municipality. This measure would be ideal if all municipalities produce and send the same amount of illicit drugs to the U.S.

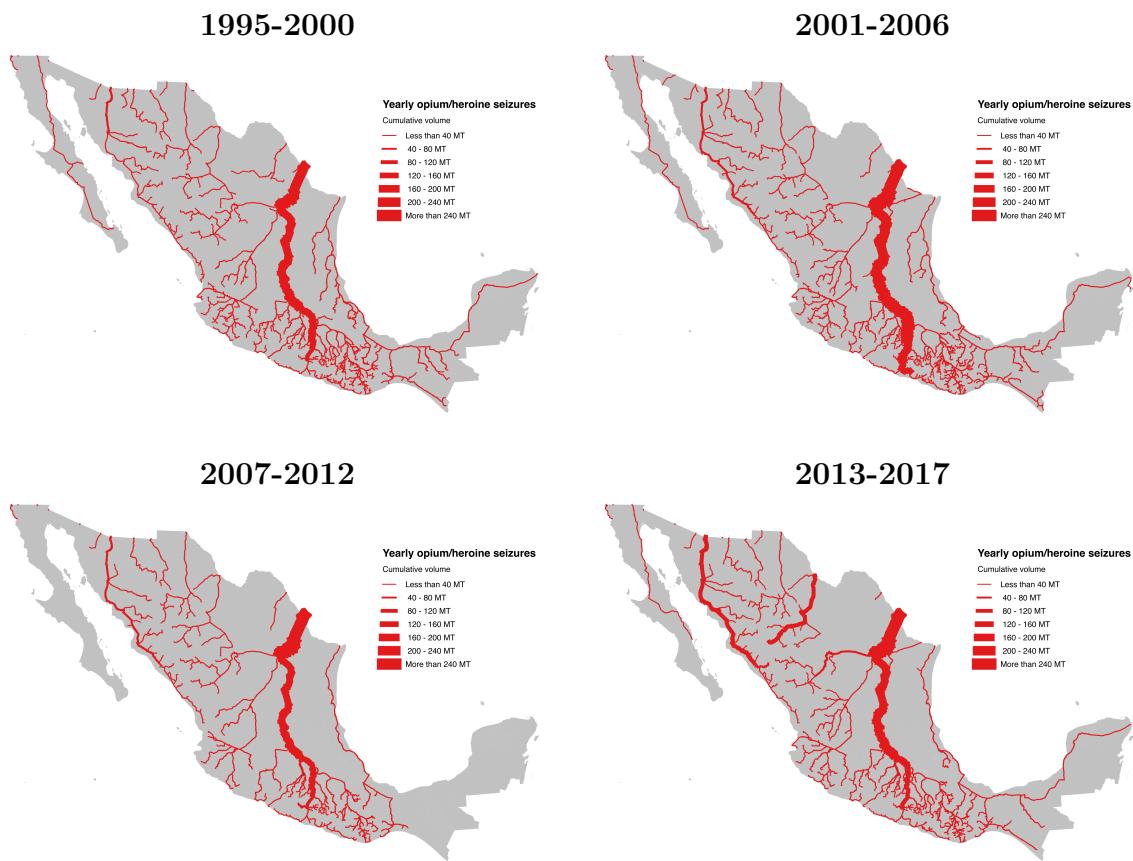
To approximate the volume of drugs produced and trafficked in each municipality, we used historic drug seizures described in a previous section for the four most important types of drugs: 1) *cannabis* herb (marijuana), 2) cocaine, 3) methamphetamine, and 4) opium poppy-heroin. In addition to drug seizures, the Mexican government also eradicates plots of marijuana and opium poppy, measured in hectares. For a single measure for each type of drug in kg, we used the yield rates reported in the 2008 World Drug Report ([UNODC, 2008](#)). We also used the same source for the conversion rate between opium and heroin. The full set of assumptions are shown in Table A12.

Using government seizures as proxy for drug production may be inadequate given that they reflect government strategic actions and not actual production. The measure might be biased given unobserved political factors, electoral incentives, or potential pacts between local authorities and criminal organizations. Nevertheless, regular drug seizures in the same municipality across years should still be a clear indicator of drug-trafficking activity in that municipality. For example, the Mexican government eradicates considerable amounts of cannabis herb every year in the same municipalities in the “Golden Triangle,” a region between the states of Sinaloa, Durango, and Sonora.

The maps below show the predicted trafficking routes for each drug using the optimal routes and volume shares described above. The width of each segment is equal to the accumulated sum of drug seizures in municipalities on the same route. In other words, the width of the segment represents the approximate volume of drugs that go through that road.

These measures are highly predictive of drug-related violence (models not shown here). Moreover, the measured can be used to predict changes in the patterns of violence as the result of changes in the relative prices of drugs in the US.

Figure A10: Optimal trafficking routes for opium poppy



The graphs show predicted drug-trafficking route volumes by type of drug using optimal routes and government seizures. Optimal routes were estimated as the shortest traveling time from each municipality to a border crossing in the United States. Volume shares were estimated using annual averages of government seizures from 1995 to 2017. The width of each segment is equal to the sum of drug seizures of municipalities on the same route. Assumptions are shown in Table A12.

Table A12: Drug-trafficking Route Assumptions

Variables	Assumptions	Source
Road speeds		
Single lane or gravel road	50 km per hour	Own assumption
Paved road, 2 lanes	60 km per hour	Mexican Minister of Transportation
Paved road, > 2 lanes	110 km per hour	Mexican Minister of Transportation
Drug yields and shares		
Cannabis (kgs)		
Yield	1,200 kg per hectare	World Drug Report 2008
Opium (kgs)		
Yield	21.2 kg opium per hectare	World Drug Report 2008
Conversion rate	1 kg heroin per 10 kg opium	World Drug Report 2008
Wholesale income in the US in 2005 by type of drug (US\$mill)		
Cannabis	11,759 (44.46%)	World Drug Report 2005
Coca / Cocaine	3,426 (34.36%)	World Drug Report 2005
Opium / Heroin	2,175 (8.23%)	World Drug Report 2005
Amphetamine-type stimulants	9,089 (12.95%)	World Drug Report 2005
Type of municipality according to government seizures in 2000-2006		
Producer	> 1 ha of cannabis, annually OR	
	> 1 ha opium-poppy, annually OR	
	> 1 drug lab	
Importer	> 1 kg cocaine, annually AND Intl airport OR port OR south crossing	
	> 1 kg heroin, annually AND Intl airport OR port OR south crossing	
Destination	US crossing AND any type of seizure	

Notes: The table shows the assumptions used to estimate the drug-trafficking route shares by municipality. Information on road speeds comes from the Mexican Minister of Transportation, cannabis and opium yields come from [UNODC \(2008\)](#). Information on market shares by wholesale income comes from [UNODC \(2005\)](#). Information on government seizures comes from the Mexican Freedom of Information Act.

16 Robustness check: geographic discontinuity with other cartel violence indicators

In Table A13 we supplement results from the geographic discontinuity by using a transformation of the dependent variables. Rather than use the homicide rate per 100,000 residents, here we use a log-like transformation (inverse hyperbolic sine) due to the variables' right skew. We maintain the bandwidth at 1km, meaning we use propensity score matching only for those usos municipalities and party municipalities that are likely adjacent. While we lack power to assess this relationship for most logged dependent variables, the sign on the interaction term remains suggestive, and we find strong results for the protective effect of usos for homicides among young men killed by firearm, which is shown to be highly correlated with drug-related violence ([Calderón et al., 2015](#)).

Table A13: Geographic Discontinuity - One Kilometer with Logged Homicides

	(1) Homicide All	(2) Firearm All	(3) Homicide Male	(4) Homicide Male 15-39 Yrs	(5) Firearm Male 15-39 Yrs
Post=1	-0.714** (0.300)	-0.410* (0.226)	-0.761** (0.348)	-0.284 (0.394)	-0.0122 (0.377)
Post=1 × Treatment=1	-0.0432 (0.162)	-0.193 (0.139)	-0.00925 (0.188)	-0.197 (0.189)	-0.411** (0.164)
DV Mean: Party Pre-2007	2.384	1.716	2.666	2.286	1.699
Year FE	Yes	Yes	Yes	Yes	Yes
Mun FE	Yes	Yes	Yes	Yes	Yes
Observations	7868	7868	7868	7868	7868
Municipalities	281	281	281	281	281
R-squared	0.0285	0.0348	0.0295	0.0297	0.0299

SEs in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All outcomes inverse hyperbolic sine.

In addition to using homicide rates as an indicator of cartel violence, we also use the cartel dataset that was compiled by the Poverty, Violence, and Governance Lab (coordinated by Beatriz Magaloni, Gustavo Robles, and Luis Rodríguez) and described previously. By restricting the analysis to only usos municipalities and those within a small geographic bandwidth of their borders—who should belong to similar media markets and face similar cartel threats—we provide an alternate counterfactual group of municipalities.

Table A14: Cartel Presence Geographic Discontinuity

	1km	5km	10km	15km	20km
Post=1	0.450*** (0.0924)	0.434*** (0.0774)	0.477*** (0.0791)	0.526*** (0.0801)	0.532*** (0.0760)
Post=1 × Treatment=1	-0.296*** (0.0957)	-0.264*** (0.0800)	-0.299*** (0.0780)	-0.344*** (0.0791)	-0.343*** (0.0745)
DV Mean: Party Pre-2007	0.00507	0.00467	0.00415	0.00575	0.00529
Year FE	Yes	Yes	Yes	Yes	Yes
Mun FE	Yes	Yes	Yes	Yes	Yes
Observations	8990	13311	15051	16182	17052
Municipalities	310	459	519	558	588
R-squared	0.114	0.111	0.111	0.115	0.114

SEs in parentheses. *** p<0.01, ** p<0.05, * p<0.1

We report cartel presence estimates in Table A14, where the dependent variable is the yearly number of cartels mentioned by news outlets in each municipality. In Column 1, for example, news outlets in the Drug War period make on average 0.296 fewer references to cartels in their coverage of usos municipalities, in comparison to party municipalities located less than one kilometer away from them. This effect holds through Column 5 where, as the geographic bandwidth gets larger, so does the total number of municipalities included in the analysis. While these results include only geographic bandwidth pre-processing, we note that towns close to each other should be home to similar cartels and

hold roughly equal value as strategic drug-trafficking points, increasing our confidence that nearby municipalities are important counterfactuals.

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