


RESEARCH NOTE

## Criminal fragmentation in Mexico

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(Received 3 August 2023; revised 17 April 2024; accepted 18 September 2024)

### Abstract

Mexico's war on drugs is increasingly characterized by small, local groups rather than large cartels. This research note introduces new data developed from a *narcoblog*—a citizen journalism website—on more than 450 criminal organizations operating in Mexico between 2009 and 2020. I use the data to test prominent theories of fragmentation, providing suggestive evidence that drug war policies contributed to a more complex conflict: kingpin removals were correlated with the emergence of smaller groups; profit opportunities (in this case, fuel theft) then attracted these organizations to new territories. This research contributes to our understanding of criminal control and informs debates over violence reduction policies.

**Keywords:** civil/domestic conflict; comparative politics: developing countries; Latin American politics and Caribbean politics

In 2009, Mexican marines killed a leader of the powerful Beltrán Leyva Organization (BLO). Heralded at the time as a major success in the war on drugs, one military officer later described its effects: “nobody accepted the other’s leadership and they started betraying and fighting each other” (International Crisis Group, 2020). The remnants of the BLO, like *Los Rojos* and *Los Guerreros Unidos*, continue to vie for territory.

Such small organizations play a growing role in Mexico’s drug-related violence (Garzón Vergara, 2015; Trejo and Ley, 2020). To better understand the conflict, I introduce new data on 473 groups operating in Mexico between 2009 and 2020 derived from a citizen journalism website (*narcoblog*). This research furthers efforts to map cartel presence over time, by focusing on smaller groups and drawing on a new information source (Coscia and Rios, 2012; Osorio and Beltran, 2020; Signoret *et al.*, 2020; Sobrino, 2020).

I use the data to test prominent theories of criminal fragmentation: leadership decapitation and profit opportunities (here, fuel theft) (Garzón Vergara, 2015; Atuesta and Pérez-Dávila, 2018). Critics of Mexico’s “kingpin strategy” argue that removing cartel leadership spurs territorial contestation; promotes splintering; and encourages decentralization (Calderón *et al.*, 2015; Garzón Vergara, 2015; Farfán-Méndez, 2019; Castillo *et al.*, 2020). Once created, these organizations must sustain themselves. A related literature demonstrates that increased profit opportunities attract groups to new territories (Dube *et al.*, 2016; Farfán-Méndez, 2016; Sobrino, 2020; Alcocer, 2022; Franco-Vivanco *et al.*, 2023). I show that both kingpin removals and profit opportunities are associated with more criminal groups in affected regions, supporting previous literature. However, kingpin removals correlate with the emergence of new organizations, while profit opportunities attract existing ones. This provides evidence of how the war on drugs contributed to a more complex conflict.

Criminal groups around the world increasingly act as franchised networks rather than vertical hierarchies (Garzón Vergara, 2012, 2015; Farfán-Méndez, 2019). This research contributes to

literature on criminal control, as well as work on leadership decapitation and profit opportunities as conflict drivers (Angrist and Kugler, 2008; Bazzi and Blattman, 2014; Calderón *et al.*, 2015; Osorio, 2015; Phillips, 2015; Dube *et al.*, 2016; Trejo and Ley, 2018; Blair *et al.*, 2021; Magaloni *et al.*, 2020; Estancona, 2021; Blair *et al.*, 2022). More broadly, findings contribute to policy and academic debates on strategies to address criminal violence (Garzón Vergara, 2012; Lessing, 2021).

## 1. Mapping criminal groups

Mexico's criminal conflict has grown increasingly violent and complex over the past few decades (Trejo and Ley, 2018, 2020). I refer to the growing number of criminal groups as "criminal fragmentation," though it reflects both the territorial expansion of existing organizations and the emergence of new ones. I define criminal groups as at least loosely organized, semi-independent, non-state collectives that engage in illicit activities. Such groups differ considerably. Cartels may be hierarchical or adopt a "wheel network" (Farfán-Méndez, 2019). Smaller groups may form a spoke of this wheel or operate independently. Some extend nationwide, while others are local. They may participate in the international drug trade or focus on extortion (Garzón Vergara, 2015). While groups are sometimes entangled with state structures, here I focus on non-state criminal groups (Snyder and Durán Martínez, 2009; Barnes, 2017; Yashar, 2018; Trejo and Ley, 2020).

I develop original data on criminal organizations by hand-coding a *narcoblog*, an anonymous citizen journalism website focused on Mexico's drug war. *Narcoblogs* act as both press aggregators and alternative news sources, offering several benefits. By filtering relevant press, one can be realistically hand-coded. This is useful for identifying criminal actors, especially when names are common in other contexts (e.g., "the Taliban"). *Narcoblogs* also publish citizen reports, like crime scene photos or narco-banners. Such content is informative, but may go unreported: in 2011 some outlets stopped publishing criminal "propaganda" (Acuerdo para la Cobertura Informativa de la Violencia, 2011). Given anonymity, *narcoblogs* reduce concerns about under-reporting due to violence against journalists (Larreguy *et al.*, 2020; Dorff *et al.*, 2022).

I use the *narcoblog* *Borderland Beat*, the longest-running and most consistently active of popular blogs. In addition to coverage, this helps differentiate increased posting from a rise in groups. It also prides itself on verification of information.<sup>1</sup> Coverage begins in 2009 and ends in October 2020, when a lawsuit by a convicted criminal leader temporarily shuttered the site. Founded by editor "Buggs,"<sup>2</sup> *Borderland* relies on anonymous volunteer contributors in the United States and Mexico to write, translate, and validate information (Marentes, 2019). Content primarily comes from the press, supplemented with user forums, social media, and submitted emails (Appendix A).

To code criminal groups, I focus on organizations with a unique name. Theoretically, such groups operate at least semi-independently; empirically, this ensures groups can be tracked over time and provides clear guidelines for inclusion. For each post, I identify organizations and their municipalities of operation. I supplement with press information, including whether groups operate under multiple names and their relationships to other organizations (Appendix A).

I identify 473 groups operating between June 2009 and October 2020. Following Sobrino (2020), I define nine as major cartels, like the Sinaloa Cartel and BLO. Such groups differ in structure and methods, but represent the most dominant and internationally active organizations in my study period (Durán-Martínez, 2015, 2017; Farfán-Méndez, 2019; Congressional Research Service, 2022). Twenty-three groups cannot be tied to a municipality, dropping from the data (see Appendix A for details).

<sup>1</sup>See BorderlandBeat.com, "BB Info."

<sup>2</sup>Later revealed as Alex Marentes, retired police officer (Marentes, 2019).

Other groups I split into three categories. *Cells* are affiliates of larger cartels, often local wings or enforcers. Tracking them offers insight into the adoption of more horizontal leadership structures through decentralization (Garzón Vergara, 2015; Farfán-Méndez, 2019). By design cells operate with some independence. For example, *La Línea* is an enforcer unit for the Juárez Cartel, but grew in power as the larger cartel weakened. Cells also contribute to violence, including by fighting one another: *La Gente Nueva* and *Los Emes* warred despite being Sinaloa affiliates (Corcoran, 2011; Calderón *et al.*, 2015). I identify 177 cells (see Appendix A for more on coding decisions).

Ninety-three groups are splinters that broke with their former compatriots. Unlike cells, they do not operate under a higher authority. They may emerge from cartel breakdown, as with BLO's disintegration. Some form after wars of succession. Cells may become splinters: in Tijuana, the dominant Jalisco New Generation Cartel (CJNG) went to war with its former unit *Los Cabos* (La guerra interna del CJNG, 2019). I differentiate cells from splinters based on press descriptions, with the caveat that internal group dynamics are difficult to observe. If a group was a cell that split, I code it as a splinter.

Another 171 have no known past or present affiliation to larger organizations. I call these "unaffiliated groups," though this is a category of exclusion: we may simply lack information. Many are local, like the Mexico City-based *Los Tóxicos* robbery gang. Some become significant regional players. The Santa Rosa de Lima Cartel, dedicated to fuel theft, in some areas challenged the CJNG. Despite flaws, mapping unaffiliated groups offers insight into organizations that lack large cartels' resources.

One limitation is that categories are fixed, due to the difficulty of documenting group dynamics. Cells may begin as unaffiliated, for example, but identifying if and when this changes is challenging. Here I combine cells, splinters, and unaffiliated organizations under the category *minor groups*. Theoretically, they closely resemble what Garzón Vergara (2015) call "predatory micro-networks" rather than hierarchical cartels. Empirically, grouping them skirts the challenge of differentiation. Appendix B shows results by subtype and with alternative coding rules.

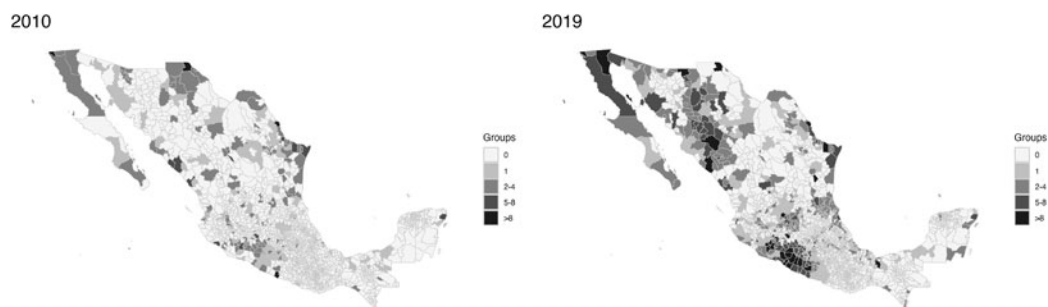
Among minor cartels, I differentiate between when new organizations emerge and existing organizations expand.<sup>3</sup> I define a group as emerging when it first appears in the *narcoblog* dataset (excluding 2009, when all groups are "new"). An organization expands by reaching a new municipality after its first year operating. While imperfect, these proxies provide suggestive evidence for mechanisms underlying fragmentation. Figure 1 shows criminal group presence in 2010 and 2019, the first and last full years of data (to make the descriptive comparison cleaner). Maps demonstrate an increase in criminal groups and the spread of their territory.

Data contribute to literature mapping Mexico's criminal organizations (Appendix A). Recent projects use machine learning and news corpuses to track cartels, both large (Coscia and Rios, 2012; Sobrino, 2020) and small (Osorio and Beltran, 2020). Hand-coding identifies more groups—about three times the number in Osorio and Beltran (2020)—but does not match breadth of coverage.<sup>4</sup> Other datasets use press or government sources, though with a more limited timeframe (Lantia Intelligence, 2022; BACRIM, 2022; Aguilar *et al.*, 2024). I extend this work by focusing on tracking small groups and drawing on a new source.

Like press sources generally, the data likely bias toward groups that seek territorial control and use violence, and toward municipalities with stronger media presence (Anders, 2020). *Narcoblogs* also do not follow standard reporting practices. Most concerning, some are denounced as mouthpieces for state agents or criminal groups. Using reputable *Borderland Beat* reduces these concerns (International Crisis Group, 2024). More broadly, however, low-quality information may

<sup>3</sup>All major cartels emerged prior to 2009.

<sup>4</sup>This makes my data more likely to miss year-on-year presence of groups. To partially account for this, if a group operates in a municipality in non-consecutive years up to three years apart, I assume it operated in the intervening period. Results hold using the non-backfilled data (Appendix B).



**Figure 1.** Criminal Groups, 2010 and 2019. *Criminal groups by year in 2010 and 2019, the first and last full years of data (the full data cover mid-2009 to October 2020).*

inflate group counts.<sup>5</sup> Since there is no ground-truth data, Appendix B benchmarks my data against other sources, including existing datasets (Osorio and Beltran, 2020; Sobrino, 2020), press searches, a Spanish-language *narcoblog*, and leaked military intelligence (Aguilar *et al.*, 2024). My results increase confidence that the data are not significantly biased or low quality.<sup>6</sup>

## 2. Understanding fragmentation

What drives fragmentation? I provide evidence that the kingpin strategy contributed to the devolution of large cartels and that, in turn, profit opportunities compelled groups to seek resources in new areas (Castillo and Kronick, 2020; Trejo and Ley, 2020; Alcocer, 2022). While in line with past literature, the *narcoblog* dataset allows testing how such mechanisms influence fragmentation.

### 2.1 The kingpin strategy

To explore leadership decapitation and criminal fragmentation, I combine US sanctions lists with the *narcoblog* data, aggregated to the municipality level. While sanctions lists capture groups with international presence—meaning they are far from complete—they include the highest-profile kingpins. My main specifications use two-way fixed effects to estimate change in criminal groups following kingpin removals, controlling for state-specific time trends; whether a municipality has a conservative mayor (Magar, 2018); and log hectares of poppy and marijuana seized, a proxy for drug presence (Ch, 2023). A municipality is “treated” if a group operated there in the year of or year prior to a kingpin removal. Municipalities remain “treated” for three years (see Appendix A for details).

The number of criminal groups increases in affected territories following kingpin removals (Table 1; Figure 2, left panel). For minor groups this is due to both emergence and expansion (Figure 2, right panel). Appendix A shows these results are primarily due to increased splinters and cells, suggesting decentralization of large cartels. The rise in major cartels points to intergroup competition after a power vacuum.<sup>7</sup> Appendix B presents robustness checks, including with alternate independent variables and estimators. Main results largely hold.

While following a difference-in-differences design, these results are not causal: successful kingpin removals may reflect weakened cartels. Indeed, major groups increase *before* attacks.

<sup>5</sup>Results hold using measures less prone to bias, including dropping rarely mentioned groups and using a binary measure of group presence (Appendix B).

<sup>6</sup>I show robustness to dropping groups I could not confirm with other sources in Appendix B.

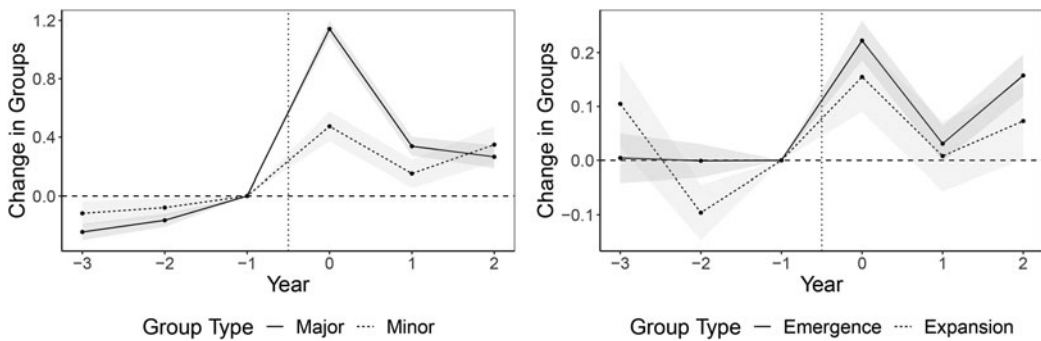
<sup>7</sup>Given the definition of affected municipalities, this increase is partially mechanical in year 0.

**Table 1.** Kingpin removals and criminal groups

	Major (1)	Minor (2)	Emergence (3)	Expansion (4)
Kingpin removal	0.76*** (0.02)	0.23*** (0.03)	0.06*** (0.01)	0.05** (0.02)
$R^2$	0.70	0.57	0.31	0.28
Observations	29,480	29,480	27,024	27,024
Dependent variable mean	0.25	0.24	0.06	0.09
Municipality fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓

Robust SEs clustered by municipality. Controls for mayoral party, poppy eradication, and marijuana eradication, plus state-year linear time trends.

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ , + $p < 0.01$ .



**Figure 2.** Kingpin removals and criminal groups. Event study plots showing major and minor groups (left) and the emergence or expansion of minor groups (right). The independent variable is the number of years to or from a kingpin capture.

However, qualitative evidence suggests some relationship between the kingpin strategy and fragmentation. Take the state of Sonora, once Sinaloa Cartel territory. Leader El Chapo’s arrest and extradition led to a succession conflict between his lieutenant and his sons, backed by cells *Los Cazadores* and *Los Salazar*. In the power vacuum, the CJNG entered, as did the Caborca Cartel, via its armed wing *La Barredora 24/7* (Dittmar, 2022).

### 2.2 Fuel theft and fragmentation

Increased competition and drug interdiction encourage criminal groups to diversify (Herrera and Martinez-Alvarez, 2022). One profitable alternative to drugs is fuel theft (*huachicoleo*), the stealing of gas to sell at below-market rates (often by tapping pipelines). *Huachicoleo* increased after Mexico began removing fuel subsidies in 2010, following losses during the 2008 financial crisis. Full deregulation occurred in 2017, with prices jumping as much as 20 percent overnight (Appendix A) (Planta and Jordan, 2013; Un 20 de aumento a cualquiera le pega, 2017). Cartels thus had “even more incentive to undercut the prices of the legal market” (Jones and Sullivan, 2019, p. 7). Exploiting plausibly exogenous pipeline placement, I use a two-way fixed effects design to measure the relationship between the value of territory and armed group presence.<sup>8</sup> As a proxy for value, my main independent variable interacts domestic gas prices (in inflation-adjusted pesos, divided by ten for visualization) and logged pipeline length by municipality (in km).

<sup>8</sup>Information on pipeline infrastructure is available through the Mexican government (de Energía de Mexico, 2018) and aligns with the duct maps produced by Carto Crítica (2017). I exclude ducts built after the 2006 for endogeneity concerns, in case violence influences construction. Results hold when using 2020 pipeline length (Appendix B).

**Table 2.** Gas pipelines and criminal groups

	Major (1)	Minor (2)	Emergence (3)	Expansion (4)
Gas pipeline × price	0.06** (0.02)	0.11*** (0.03)	0.009 (0.009)	0.05** (0.01)
$R^2$	0.63	0.57	0.30	0.28
Observations	29,480	29,480	27,024	27,024
Dependent variable mean	0.25	0.24	0.06	0.09
Municipality fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓

Robust SEs clustered by municipality. Controls for mayoral party, poppy eradication, and marijuana eradication, plus state-year linear time trends.

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ , + $p < 0.01$ .

Table 2 suggests that areas with more pipeline attracted more criminal groups as gas prices rose. This is driven mostly by expansion—only unaffiliated groups appear somewhat more likely to emerge (Appendix A). Findings point to profit opportunities encouraging groups to expand their territories, in line with work using other data sources (Alcocer, 2022; Franco-Vivanco *et al.*, 2023). Robustness checks, including alternative independent variables, are given in Appendix B.

Qualitative evidence illuminates how the decentralization and splintering of large cartels contributed to territorial expansion. The dominant Gulf Cartel and Zetas moved into fuel theft in 2010, as subsidies decreased. Following leadership removals, their splinters—like *Sangre Nueva Zeta* and *Grupo Sombra*—increasingly engaged in *huachicoleo*.

### 3. Conclusion

Most criminal groups in Mexico are not large, vertically-integrated cartels, but rather small—and often local—outfits. For example, fighting between the powerful CJNG and a collection of regional rivals caused mass displacement in western Mexico (Desplazamiento de familias de Tierra Caliente, 2023). To further our understanding of the criminal conflict, this research note introduces new data that centers small groups and derives from a unique source, the *narcoblog*.

I apply the data to theories of criminal fragmentation. The failure of the kingpin strategy to decrease violence is often attributed to its role in breaking up cartels (Calderón *et al.*, 2015; Garzón Vergara, 2015; Farfán-Méndez, 2019; Castillo *et al.*, 2020). New groups must then sustain themselves, even as competition increases (Garzón Vergara, 2015; Atuesta and Pérez-Dávila, 2018). I find kingpin removals are associated with more intergroup competition, splintering, and decentralization. Increasing territorial value mostly attracts existing groups.

My results highlight how traditional drug war strategies, like leadership removal and interdiction, contributed to the atomization of criminal conflict. This is not unique to Mexico: the decentralization and disintegration of larger criminal groups has happened in states like Colombia and Haiti. Understanding when and why these smaller organizations emerge or expand can thus inform debates about addressing criminal conflict.

**Supplementary material.** The supplementary material for this article can be found at <https://doi.org/10.1017/psrm.2025.4>. To obtain replication material for this article, <https://doi.org/10.7910/DVN/WDS8HB>.

**Acknowledgments.** I thank Rafael Ch Duran, Ulrich Eberle, Falko Ernst, Chelsea Estancona, Tarek Ghani, Guy Grossman, Jacob Shapiro, Anouk Rigterink, Santiago Tobón, and participants at the 2020 Economics of Conflict Conference, the 2022 Empirical Studies of Conflict Conference, the Penn Development Research Initiative seminar series, and the 2023 Empirical Studies of Conflict in Latin America Conference for providing comments on previous versions. Annela Bergen, Emily Schultis, and Beatriz Teles provided excellent research assistance.

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