

Breaking Ranks: Profits, Survival, and the Fragmentation of Criminal Organizations

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Abstract

Criminal organizations (COs) often fragment, leading to the emergence of new independent COs. This article examines the factors influencing defection and their impact on subsequent fragmentation patterns. We argue that potential defectors weigh economic viability and their probability of surviving retaliation from the CO they betray, considerations which shape who fragments, where, and when. Leveraging an original qualitative dataset covering major drug cartels in Mexico and all their fragments from 2000 to 2018, we find that members at various ranks lead defections due to leadership turnover and internal disputes. Larger fragments sometimes operate near their originating cartel's stronghold, while smaller ones only fragment when they operate in distant areas to safeguard themselves from retaliation. Moreover, fragments operating near their originating cartel form strategic military alliances with other cartels to survive retaliation. We also document key characteristics differentiating fragments from their originating cartels that suggest they may be more violent and predatory.

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1 Introduction

As illegal actors, criminal organizations (COs) rely on informal systems of rules and mechanisms to control and regulate member behavior (Lessing 2021). A growing body of literature shows that COs are very effective at creating a wide arrange of internal governance mechanisms to promote organizational cohesion (Lessing and Denyer Willis 2019; Lessing 2021; Pereda 2021, 2024; Piano 2017; Leeson and Skarbek 2010; Skarbek 2010; Skarbek and Wang 2015; Skarbek 2012, 2014, 2024), including specific “mechanisms to promote loyalty and discourage defection” (Kostelnik and Skarbek 2013, 101), which make them highly resilient to internal and external threats (Ayling 2009; Catanese et al. 2016; Agreste et al. 2016; Cavallaro et al. 2020; Varese et al. 2021; Berlusconi 2022; Pereda and Décary-Hetu 2024). Scholars also emphasize that the threat of violence underlies many of these mechanisms, with violators being punished harshly. Thus, as Varese (2020) concludes: “[fragmentation]¹ is comparatively rare” (291),

Yet, despite the inherent risks, members of COs sometimes opt to fragment and establish their own independent COs, with anecdotal accounts suggesting this is a more widespread phenomenon than is currently recognized. For example, in Italy, dissidents of the Sicilian Cosa Nostra formed the Stidda. In Brazil, Terceiro Comando da Capital splintered from Primeiro Comando da Capital, just like Amigos dos Amigos and Terceiro Comando splintered from Comando Vermelho. In El Salvador, MS503 fragmented from MS13 like the Revolucionarios did from Barrio 18. In Ecuador, Los Lobos, Los Tiguerones, and Los Chone Killers recently fragmented from Los Choneros. In the US, the Black Gangster Disciples Nation gave rise to the Gangster Disciples and the Black Disciples. In Colombia, Los Machos and Los Rastrojos emanate from the Cartel del Norte del Valle. In Japan, the Kobe Yamaguchi-gumi recently broke off from the Yamaguchi-gumi, and then suffered splintering itself when defectors formed the Ninkyō Yamaguchi-gumi and Ikeda-gumi. These few key ex-

¹Varese (2020) uses the term “separation” to describe a CO gaining autonomy, which we define as fragmentation.

amples reveal crucial fragmentation dynamics: First, deadly conflicts between the CO and its fragment(s) followed fragmentation. Second, while some fragmentations stem from internal disputes, some were instigated by government leadership decapitation, or kingpin strategies, wherein the leaders are arrested or killed. Third, while some fragments shared geographic strongholds with their former COs, others operated in separate territories. Fourth, while some fragments engaged in similar illicit activities as their originating COs, others pursued related or entirely different activities.

Surprisingly, despite its worldwide occurrence and violent consequences, the topic has received little scholarly attention. While fragmentation increasing the number of criminal conflicts has been proposed as a mechanism through which government leadership decapitation strategies increase violence in the Mexican case (Ríos 2013; Phillips 2015; Trejo and Ley 2016; Atuesta and Ponce 2017; Atuesta and Pérez-Dávila 2018; Velasco 2023), fragmentation itself remains largely understudied. Only two existing studies explicitly explore some aspect of fragmentation, though they only posit possible motivations underlying the defection and do not provide systematic analyses. Atuesta and Pérez-Dávila (2018) look at Mexico and descriptively present the breakdown of alliances between COs and their factions (which they define as fragmentation) but do not systematically examine factions becoming independent (what we define as fragmentation) beyond noting that four factions in their data became independent between 2007-2011. Meanwhile, Varese (2020) only illustrates the motivations underlying the fragmentation of two faraway outposts of the Sicilian mafia, the American Italian mafia and Stidda. Thus, systematic and analytical research on fragmentation remains wanting and key questions continue to remain unexplored. This project seeks to fill this clear gap in the literature by asking: What prompts fragmentation and what role do government policies play? What conditions facilitate or hinder a defector's decision to fragment and how do they shape subsequent patterns of fragmentation?

To answer these questions, the article first provides a novel theoretical framework about the logic underlying criminal fragmentation and its observable implications. Specifically, we

argue that when considering fragmenting, potential defectors must consider two key factors: profits and survival. First, individuals potentially leading defection need to have access to a source of revenue prior to or at the moment of fragmentation since they need to convince potential followers that they will be at least as well off if they fragment. Additionally, foreseeing that the CO the defectors betray will attack them and that criminal wars are very costly (financially and otherwise), defectors need to have a secure source of revenue to assure their survival. Second, potential defectors need to weight the probability they survive retaliation from the CO they fragment from. If they are sure to be killed, then fragmenting is not worth the risk. Thus, the relative power of the defectors vis-à-vis the CO they fragment from is critical. We take this further by arguing that geography and strategic military alliances with other COs are two key factors that can counterbalance otherwise unbalanced power differentials. Thus, weaker potential defectors that operate far from their CO's stronghold may fragment since projecting power to punish defectors is difficult and costly. Moreover, weaker potential defectors can form strategic military alliances with other COs who support their defection, allowing them to make up for uneven power differentials.

To test the theory, the article turns to Mexico, where prior to 2006 the criminal underworld was dominated by nine large, powerful drug trafficking organizations (known colloquially as “cartels”) that operated in regions key to the drug trade. Starting in 2006, however, these cartels began a process of fragmentation that resulted in the proliferation of dozens of cartels throughout the country involved not just in drug trafficking but in a wide variety of illicit activities. Experts and scholars alike have attributed this fragmentation to the government policy of leadership decapitation (or kingpin strategy), where governments seek to capture or kill the leaders of COs, which was significantly escalated as part of the War on Drugs declared in December of 2006.

As illegal organizations, COs operate in secrecy, making data collection particularly challenging. Not surprisingly, a key limitation in current scholarship on COs generally, and fragmentation more specifically, is the lack of high-quality systematic data. We overcome

existing data limitations by creating an original qualitative dataset on the nine major drug cartels operating in Mexico at the turn of the century and their 54 fragments. This dataset identifies the all splinter cartels between January 2000 and December 2018, and collects key information for each, including: date of fragmentation, reason for fragmenting, position of the individual leading the splinter group, geographic strongholds, main illicit activities, formation of alliances when fragmenting, and leaders across time, among other variables.

To examine the testable implications derived from the theory, we provide evidence using data on all fragmentation cases. This approach follows the method of Large-N Qualitative Analysis (LNQA) (Goertz and Haggard 2023). LNQA seeks to test a proposed theory by using qualitative data on *all* relevant cases. In LNQA, the strength of the theory is “simply the percentage of cases conforming with the causal claim” (1221).

First, we find four general types of fragmentation depending on who leads the defection: (1) high-level members, (2) mid-level members, (3) low-level members, and (4) cartel dissolution where high-level leadership is dissolved and mid- and/or low-level members form their own cartel(s) without a larger organization existing. Turning to factors prompting fragmentation, we first examine leadership turnover given that it is the prominent explanation in the literature. We find that only 15% of leadership turnovers prompt fragmentation, suggesting cartels are very resilient. Looking at the reason for each fragmentation, we find that only 60% of fragmentations were prompted by leadership turnover, particularly government policies removing leaders. We find that the remaining 40% resulted from internal disputes. This speaks against the conventional knowledge that fragmentation in Mexico is uniquely caused by direct government actions against the leaders of these organizations.

Second, we find that when they defect, most fragments are involved in either a subset (47%) or completely different activities (17%) than their CO of origin, indicating that most defectors are unable to directly compete against their originating CO over entire illicit markets. This also suggests that the diversification of drug cartels that started in 2007 (Alcocer 2022; Herrera and Martinez-Alvarez 2022) helped facilitate fragmentation. Analyzing rela-

tive power, the pattern is clear: the smaller the fragments, the further their strongholds are relative to the CO they betray. While about half of fragments with similar power have overlapping strongholds with their CO of origin, only about 20% of medium fragments do, and *no* small fragment do, clearly suggesting self-selection based on geographic location. This suggests that the geographic expansion of drug cartels that started in 2007 ([Alcocer 2022](#)) facilitated fragmentation. Looking at alliances, only fragments whose strongholds are in the same state as the CO they defect from form military alliances to survive fragmentation, while no fragment with strongholds in states outside the state where their CO of origin has its stronghold creates these alliances.

Finally, we discuss three additional patterns that we uncover, which we believe have significant implications for the (violent) behavior of new fragmented cartels that have not been previously identified. First, fragmentation has led to the rise of COs led by militarized leaders. Second, we find that both the average tenure and age of cartel leaders decreases across time. Third, we find that fragmentation has given rise to cartels specializing in predatory crimes.

This article advances the study of CO fragmentation in three key ways. First, it presents a novel theoretical framework to understand the fragmentation of COs, a topic that remains largely understudied despite its prevalence and importance. Second, it introduces a new, qualitative dataset on COs in Mexico that identifies the main drug cartels and all their fragments from 2000 to 2018. To the best of our knowledge, this is the first data of its kind. Third, the results provide new insights and patterns that, due to data limitations, had not been previously uncovered or systematically analyzed. Through these contributions, we challenge the existing conventional wisdom that government decapitation strategies are solely responsible for fragmentation, even in a context like Mexico after 2006 where an intense crackdown targeted cartel leaders. We also challenge existing accounts that fragmentation drove the activity diversification and geographic expansion of Mexican cartels. Instead, we show that diversification and expansion preceded fragmentation and thus facilitated it.

More generally, our article contributes to various literatures. Most directly, it contributes to the growing body of work analyzing COs, which has largely focused on understanding violence perpetrated by COs (see [Barnes 2017](#); [Albarracín and Barnes 2020](#); [García-Ponce 2023](#)), with CO-state relations and criminal governance receiving more recent attention (see [García-Ponce 2023](#)). By contrast, we focus on COs themselves, opening the “black box” to examine dynamics within and between COs, and the role of government policies in influencing these relations. More broadly, this study relates to the more developed literature on the fragmentation of rebel groups (e.g., [Pearlman and Cunningham 2012](#); [Bakke et al. 2012](#); [Fjelde and Nilsson 2018](#); [Woldemariam 2018](#); [Perkoski 2019](#); [Braithwaite and Cunningham 2020](#); [Mahoney 2020](#); [Joo and Mukherjee 2021](#)) that analyze non-state actors with political or ideological aims in the context of civil conflicts. Our study complements this literature by exploring non-state actors that are criminal, economically motivated, do not depend on citizen support to the same degree, and do not seek state power.

2 A Theory of Cartel Fragmentation

COs are structured associations that engage in illicit activities for financial gain. As illegal actors, COs rely on informal systems of rules and mechanisms to control and regulate member behavior, which can be referred to as “internal criminal governance” ([Lessing 2021](#)). Internal criminal governance is akin to corporate governance, albeit without being able to rely on legitimate, state-based legal institutions to enforce contracts, adjudicate disputes, or protect property rights. Nevertheless, a growing body of literature examining different types of COs in various countries find that these organizations are very effective at creating a wide arrange of internal governance mechanisms to promote organizational cohesion ([Lessing and Denyer Willis 2019](#); [Lessing 2021](#); [Pereda 2021, 2024](#); [Piano 2017](#); [Leeson and Skarbek 2010](#); [Skarbek 2010](#); [Skarbek and Wang 2015](#); [Skarbek 2012, 2014, 2024](#)), including specific “mechanisms to promote loyalty and discourage defection” ([Kostelnik and Skarbek](#)

2013, 101). As some scholars find, these mechanisms make COs highly resilient to internal and external threats (Ayling 2009; Catanese et al. 2016; Agreste et al. 2016; Cavallaro et al. 2020; Berlusconi 2022; Pereda and Décary-Hetu 2024).

Scholars note that underlying many of these mechanisms is the threat of violence, with violators being punished harshly. This is perhaps especially true for defectors, as COs face deep losses if members fragment, for example, losing members, assets, territories, and profits. Thus, COs offer potential defectors protection by staying and violent punishment, if not death, for defecting. Moreover, using visible violence against defectors allows COs to credibly threaten other potential defectors and dissuade them from fragmenting (Kostelnik and Skarbek 2013). Yet, even in the face of lethal threat, CO members sometimes choose to fragment and leave their CO along with a group of followers to form their own independent CO. This section presents a general framework to understand the logic of fragmentation, the role of government policies in sparking fragmentation, outlining the conditions which facilitate fragmentation, and delineating the observable patterns of fragmentation we should observe.

2.1 Who Fragments and When?

CO members may choose to defect for various reasons, and the literature has proposed some motives. Looking at the formation and collapse of alliances between COs and between internal factions within COs (they call the breakdown of these alliances “fragmentation”), Atuesta and Pérez-Dávila (2018) theorize that breakdowns of alliances can occur due to betrayals, diverging interests, succession struggles, and broken alliances. Alternatively, looking at the transplantation of mafias (outposts created due to mafia members relocating), Varese (2020) theorizes that separation (a mafia outpost becoming fully independent, which we define as fragmentation) may result when the outpost resists deeply disliked actions from the “motherland” or when they are expelled by the originating mafia. While these cover some motivations, it is likely that multiple motivations exist for why defectors may consider

fragmenting.

Turning from *why* defect and towards *who* defects, the literature tends to assume the those fragmenting are aspiring high-level leaders who break from their CO to lead their own organization. This follows (Kostelnik and Skarbek 2013), who argue that as CO members are promoted, they face stronger incentives to defect since they gain more knowledge and responsibilities that they can exploit against their bosses. It also follows Varese (2020), who argues that fragmentation is only possible when a faction becomes larger and more powerful than the CO they belong to. Indeed, CO leaders or high-ranking members can decide to fragment when disputes with other leaders fail to be resolved internally. However, we argue that high-ranking or very powerful members are not the only ones with incentives to fragment. Mid- and low-level members (e.g., regional or local leaders) that do not aspire to take over and cannot compete against the CO they belong to but do seek autonomy to lead their own smaller COs can also choose to fragment. This, in turn, has implications for the size of the fragment and its power relative to the CO it breaks from.

But *when* do these members choose to fragment? Under business as usual, there are likely few incentives to break the status quo and fragment. Moreover, under business as usual, the internal criminal governance mechanisms that promote cohesion and discourage defection likely serve their purpose. This is why existing studies emphasize the role of government policies, and in particular, leadership decapitation, in prompting fragmentation. Studies on the violent consequences of leadership decapitation emphasize that leadership removals can create power vacuums that allow potential defectors to fragment (Ríos 2013; Phillips 2015; Trejo and Ley 2016; Atuesta and Ponce 2017; Atuesta and Pérez-Dávila 2018; Velasco 2023). This is likely especially true if leadership decapitation momentarily weakens the cohesion or capacity of the COs to punish violators. The emphasis on leadership decapitation policies is likely why the conventional wisdom in the literature, and especially in the Mexican case, is that the government's kingpin strategy is solely responsible for fragmentation. Give the literature, we should therefore expect leadership turnover to act as key destabilizing moment

that allows potential defectors to fragment.

However, while leadership turnover, particularly from government kingpin strategies, may be a main driver of fragmentation, anecdotal accounts from other countries suggest that they are neither necessary or sufficient for fragmentation. We instead contend that, more generally, shocks, moments of uncertainty, or instances of intense internal disputes likely create windows of opportunities that potential defectors can exploit to fragment. We further contend that these moments are most likely to lead to fragmentation when there are internal disagreements and thus potential defectors *and* the windows of opportunities temporarily disrupt or weaken the internal criminal governance mechanisms designed to prevent defection.

2.2 The Strategic Logic of Fragmentation

To understand the dilemma potential defectors face when considering fragmenting and how it shapes fragmentation patterns, we assume that CO members are rational actors that care fundamentally about two first order concerns that shape their behavior: profits and survival. That is, CO members are profit motivated economic actors who prefer to stay alive. Thus, we argue that potential defectors strategically consider two key questions that shape their decision to fragment: (1) Will they be economically viable if they fragment? (2) Will they survive if they fragment? How potential defectors answer these questions, we argue, shape fragmentation and its patterns. Figure 1 outlines the logic of the argument presented in this section.

First, potential defectors need to have access to a source of income *prior to* or *at the time of* defection that they will continue to have access to after fragmentation. As profit-maximizing economic actors, unless they are facing credible lethal threats, potential defectors have no incentives to defect if they are not at least as well off when fragmenting, which requires access to illicit markets. Moreover, COs require illicit profits to operate, so defectors need to secure their source(s) of income when defecting in order to establish their autonomous

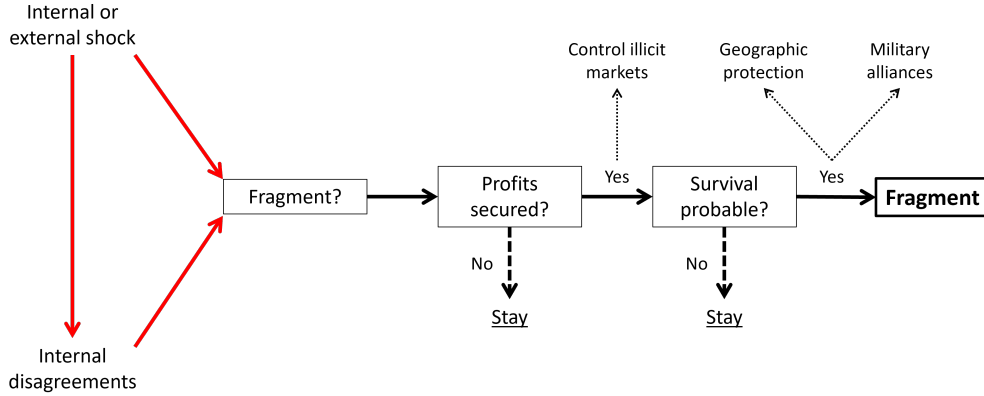


Figure 1: Theoretical framework outlining decision to fragment.

CO. Most importantly, potential defectors need to convince potential followers that they will be at least as well off financially if they follow the defector. Promises of future riches without the leader of the defectors having a secure revenue stream are unlikely to be credible, and thus potential followers will choose not to defect. Additionally, foreseeing that the CO the defectors betray will most likely attack them and that criminal wars are very costly (financially and otherwise), defectors need to have a secure source of revenue to assure their survival. Delays in acquiring revenue streams could be fatal. This further implies that potential defectors need to already be operating in territories where they control lucrative illicit markets that provide them with financial resources.

We further argue that the structure of illicit markets plays a central role in the patterns of fragmentation because they determine the financial viability of fragmenting. High-ranking defectors may be able to compete in illicit markets against their CO of origin upon fragmenting. Yet, depending on the illicit market, mid- and low-ranking defectors may not be able to compete with their CO of origin. For example, large drug trafficking organizations typically oversee drug production, transportation, and smuggling across borders, which mid- and low-ranking defectors may be unable to undertake or compete in. However, these defectors can either control more localized subsets of those activities (e.g., controlling drug production in a region) or engage in alternative illicit activities (e.g., extortion).

This contradicts some existing accounts suggesting that *after* defectors fragment, they

then seek other sources of revenue because they cannot compete in the markets that the larger COs dominate. These accounts imply that fragmented groups break from their CO without a stable source of revenue and if they cannot compete in the market and place where their CO of origin operates, then they move in search of new economic opportunities. Here we argue the inverse, that is, that potential defectors need to have a source of income secured when fragmenting to make fragmentation viable and desirable.

Second, potential defectors need to ask whether they will survive if they defect from their CO. Potential defectors know that if they defect there is a high probability that they will face retaliation by the CO they break from. If there is a high likelihood that the CO they defect from will kill them for the betrayal, they will be unlikely to fragment. This implies that the relative strength of the fragment relative to the CO of origin should be such that the fragment has a probability of survival. This is consistent with Varese (2020), who argues that defectors must accumulate enough wealth and influence to not fear retaliation from the CO they leave. Various factors likely influence the fragmenting CO's probability of surviving retaliation, among them being the number of members, coercive capacity, degree of government protection, and financial strength. This means potential defectors need to secure sufficient power *before* or *at the moment of* fragmentation to assure that they can defend themselves as an organization from rivals as soon as they break away. Without this, it is highly unlikely that they choose to fragment.

We further argue that there are two factors that can compensate for weak relative power vis-à-vis the originating CO that allow smaller defectors (mid- and low-ranking members) to fragment: Geography and alliances.

We argue that geography impacts how COs can project power and thus shape the relative power between two rivals. To make this argument, it is important to highlight a key dimension of the geographic presence of COs. In most cases, COs have a center of operations, or stronghold, from which they operate out of. This is typically where they have historically operated, where they have built the strongest ties with political, economic, and

social actors, and thus where their leaders tend to live. However, COs also often operate in territories outside of their strongholds. Following the literature from civil and international conflict, we argue that geography is a key variable that can counterbalance relative power because projecting military power across geographic distance is difficult and costly. Therefore, for defectors that fragment, distance can make up for some organizational strength. In other words, if potential defectors operate far from the parent organization’s stronghold, because projecting power across long distances is difficult, parent COs will only be able to attack defectors with a proportion of their full capabilities. Thus, geographic distance can make up for relative strength, meaning that smaller, less powerful defectors can fragment and survive if they operate far from their originating CO’s stronghold *at the moment of fragmentation*. This argument differs from some existing accounts suggesting that fragments defect and then move as they seek other territories to operate. It also differs from Varese (2020) in two important ways. First, the author only looks at members in distant outposts, where we examine potential defectors both close and far from their CO’s stronghold. Second, the author argues that only outposts who become larger and more powerful than their CO of origin can defect, where we provide a more nuanced explanation for relative power and distance.

Moreover, while the literature has given much of its attention to understanding wars between COs, they also frequently create alliances (Alcocer 2023; Atuesta and Pérez-Dávila 2018). We further argue that potential defectors can countervail an unbalanced power differential vis-à-vis the CO they defect from by creating military alliances with other COs. That is, fragments can overcome some power differentials and increase their probability of survival by strategically forming military alliances when they fragment, particularly when the fragment operates geographically close to the CO they fragment from. These alliances can take different forms, but most likely entail defectors receiving military support from a CO that is confronting or wants to confront the CO the defectors are betraying. This argument contrasts that of Atuesta and Pérez-Dávila (2018), who argue that alliances are “an

altruistic measure” and that fragments “cannot survive without the creation of an alliance” (238-239). We see alliances stemming from fragmentation as instrumental, not altruistic, and we do not claim alliances always form or are necessary for survival, but that they are strategically formed given geographic and relative power considerations.

2.3 Testable Implications

This theory yields some central predictions. The first set of predictions pertain to when we should observe fragmentation and who leads this fragmentation: (1) Fragmentation should occur when external or internal shocks temporarily weaken COs or create moments of uncertainty, and (2) fragmentation may be led by high-, mid-, and low-level CO members. The second set of predictions stem from the patterns we should observe when defectors fragment: (3) The smaller the fragments are relative to their CO of origin, the more likely it is that they are involved in more localized illicit activities than the larger COs they originate from, either by controlling a subset of their originating CO’s activities or by engaging in different illicit markets than their originating CO; (4) the smaller the fragments are relative to their CO of origin, the more likely they are to have strongholds which are far from the stronghold of their originating CO; and (5) the smaller the fragments are relative to their CO of origin, the more likely they are to form military alliances with other COs to counterbalance their weaker relative power vis-à-vis the originating CO, particularly when they operate close to their CO of origin.

3 Mexico’s Criminal Landscape

To test the theory, the article turns to Mexico. Since the late 1980s, Mexico’s criminal underworld was dominated by a handful of powerful COs, or cartels, that specialized in trafficking drugs to the United States and operated in regions key to the drug trade. Through the 1990s and early 2000s, these cartels began a series of deadly wars against each other.

In response, the newly elected president Calderón declared war against drug trafficking in December of 2006. As part of a broader strategy to combat drug trafficking and drug cartels, the federal government adopted a strategy of leadership decapitation. Through this strategy, the government sought to weaken or dismantle powerful cartels. Instead, cartel fragmentation increased dramatically starting in 2010 and resulted in an ever increasing number of COs operating across the country. Not surprisingly, experts and scholars alike have attributed this fragmentation to the government policy of leadership decapitation (Ríos 2013; Phillips 2015; Trejo and Ley 2016; Atuesta and Ponce 2017; Atuesta and Pérez-Dávila 2018; Velasco 2023), which has become the conventional wisdom.

Beyond the policy of leadership decapitation, research has shown that the government crackdown had two other consequences which we believe created conditions conducive for fragmentation. First, the crackdown prompted cartels to diversify their activities beyond drug trafficking and enter other illicit markets such as extorting local businesses, drug dealing to local consumers, property theft, and stealing oil from pipelines, among others (Alcocer 2022; Herrera and Martinez-Alvarez 2022). Second, the crackdown pushed cartels to expand geographically to new territories as they entered new illicit markets (Alcocer 2022). Together, these transformations created new underlying conditions that we believe helped fuel the fragmentation of cartels in Mexico. Diversification and expansion gave mid- and low-level members access to new markets that were more local in nature than drug trafficking (means) in many territories far from the cartel’s strongholds (opportunity).

3.1 Data on Criminal Fragmentation

As illegal organizations, COs operate in secrecy, making data collection particularly challenging. Not surprisingly, a key limitation in current scholarship on COs generally, and fragmentation more specifically, is the lack of high-quality systematic data. Data including information on each CO, such as their origin, leaders, strongholds, alliances, and activities, does not exist. Simply identifying which organizations operate in Mexico is a major exist-

ing challenge. For example, Crisis Group report that between 2009 and 2019, 463 criminal groups operated in Mexico, which is more than double the number reported by reputable local media, *El Universal*, during the same period (Esberg 2021). Scholars at CIDE Drug Policy Program (*Programa de Políticas de Drogas* or PPD) created a state-level cross-sectional data of cartel presence in Mexico for the year 2020, where they identify 150 organizations based on open sources (Atuesta and Pérez-Dávila 2021). The Armed Conflict Location & Event Data Project (ACLED) counted 20 “cartels” and 76 “gangs” between 2018 and 2019 (Raleigh et al. 2023). The Uppsala Conflict Data Program (UCDP) finds 33 actors that could be classified as COs and 18 factions between 2004 and 2022 (Sundberg et al. 2012).² If the simple task of counting COs proves to be a contested challenge, undertaking more comprehensive analyses is practically unfeasible. Moreover, beyond their names and location, these sources do not include any additional information on the COs they identify.

To overcome this existing limitation, we create a novel dataset of Mexico’s main drug cartels and their fragmentation between January 2000 and December 2018 through extensive qualitative research. The dataset first identifies Mexico’s main drug cartels at the turn of the century (Cártel del Milenio, Cártel de Juárez, Cártel de Tijuana, Cártel de Sinaloa, Cártel del Golfo, Los Cuinis, Cártel de Oaxaca, Cártel de Colima, and Cártel de Sonora),³ and systematically tracks their fragmentation, documenting all splinter cartels that operated as *independent* COs. We define an independent CO as an organization that operates autonomously without answering to another CO, which entails them having their own leadership, structures, and illicit activities. We do not track cells, factions, or armed wings that operate for or under a larger CO. Thus, even when there are internal disputes between factions of a CO, we continue to consider them as one group unless there is evidence of a definitive and permanent split.

²Unlike other sources, UCDP does not state whether each actor they identify is a CO.

³While drug trafficking was dominated in the 1990s and early 2000s by these groups, it was very decentralized and many smaller networks existed (colloquially called “cartelitos”), for example, Los Numeros in Sonora, Los 30 in Michoacán, and Los Ardillos in Guerrero. There were also small but important COs that were not drug cartels, for example, Los Mazos, Cártel de Tepito, and Cártel de Tlahuac. These groups are excluded from the analysis.

To create this data, we conduct extensive qualitative research (see Appendix for details). First, we compiled existing lists of cartels and investigated each one to determine whether they operated independently at any point within our time period. This entailed collecting information on each, including their leaders and relations to other COs. With a preliminary list of cartels that possibly operated independently within our time period, we collected qualitative information on the history and background of each cartel. With an initial map of fragmentation, we further investigated each cartel to identify any possible fragmentations that were missing. Once this data was finalized, we began systematically collecting key information on each CO, including: which cartel they fragmented from, the date of their fragmentation, the reason for their fragmentation, the individual that led their fragmentation, their primary illicit activities, the geographic location of their stronghold, leaders across time, whether each leader was captured or arrested, whether other organizations fragmented from them, and whether they ceased operating and when. To collect all this data, we relied on multiple data sources, including US and Mexican government reports and documents, academic research, books by investigative journalists, reports by experts and private companies, and news articles, among others. If conflicting or incomplete accounts were found, we documented each account, our coding decision, and an explanation for the coding.

Rather than the hundreds of COs other sources claim to operate in Mexico, we find that the country's nine main drug cartels gave rise to 54 fragments between January 2000 and December 2018.⁴ Figure 2 visualizes one aspect of the data, the temporal fragmentation of Mexico's main drug cartels (see Appendix for list of names and abbreviations). Our extensive qualitative research identified and resolved three key systematic issues present in existing lists of cartels operating in Mexico that inflates the number of independent cartels: (1) some cartels use or are referred to by different names and each is counted separately, (2) some structures within cartels that have names but are not independent are counted as independent cartels, and (3) some cartels that had ceased operating continue to be counted

⁴This excludes hyper-localized fragments that we are unable to identify or observe and measure.

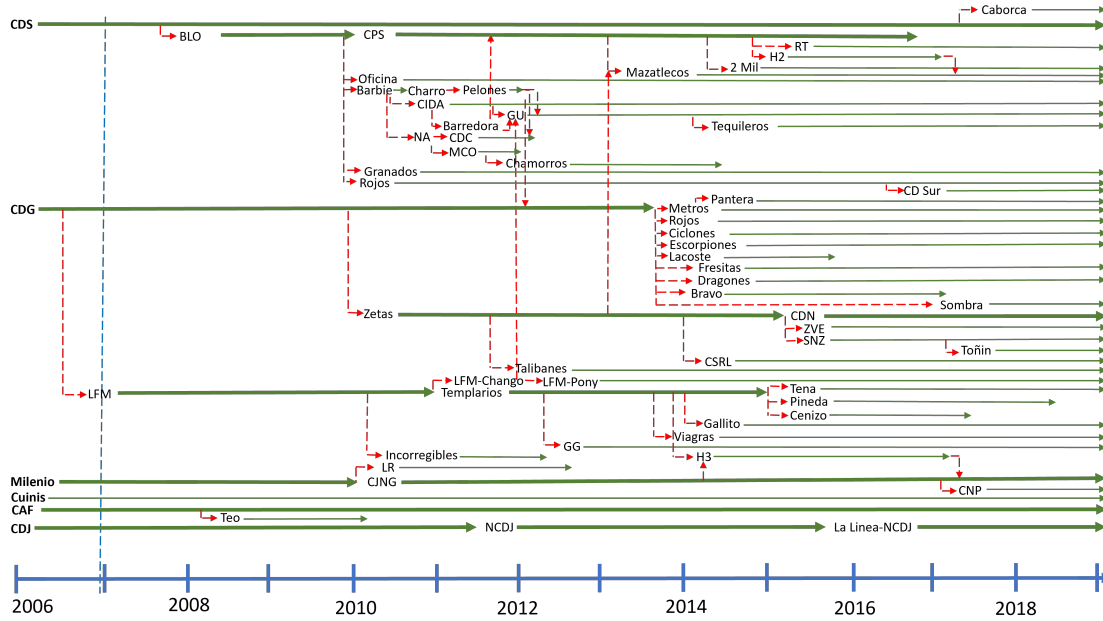


Figure 2: Temporal fragmentation of Mexico’s main drug cartels between 2006 and 2018. Initials correspond to individual cartels. Green solid arrows represent when they operate(d). Red dotted arrows represent fragmentation. Vertical dotted line represents the beginning of the government war against drug trafficking. Original data by authors.

in later years (see Appendix for details and examples). If seeking to identify *independent* COs in Mexico, these issues have resulted in drastically inflated counts of cartels. These findings are consistent with [Signoret et al. \(2021\)](#), whose external data sources identified 290 cartels operating in Mexico between 2006 and 2016, but after conducting qualitative research found that many of those referred to the same cartel or to some faction within a cartel. After accounting for this, they concluded that only 38 unique autonomous cartels operated within this time period.

3.2 Measuring Fragmentation

We use this qualitative data to measure the key concepts derived from the theoretical framework, thereby facilitating empirical testing. To examine the moment of fragmentation, we collect data on those leading defection, their relative strength, and the factors that prompted them to splinter.

To measure different types of fragmentation, we collect information on the defecting leader of each fragment. While Mexican COs vary in structure and how hierarchical and centralized they are, they generally include various levels of leadership and operational roles. We consider three types of defectors, high-, medium-, and low-ranking defectors. We classify individuals leading defection as high-ranking defectors if they are part of the central decision-making structure of the CO they fragment from, including leaders and those immediately around them, and leaders of powerful armed wings (*brazos armados*). We define mid-ranking defectors as those that hold intermediate positions within their COs, which we measure as regional leaders (*jefes regionales*). Finally, low-ranking defectors operate under regional leaders, and include local leaders (*jefes de plaza*) and leaders of smaller enforcement units (*jefe de sicarios*).

To measure balance of power, or the relative strength or power of a fragment vis-à-vis its CO of origin, we would ideally observe various aspects of each CO, for example, the number of members, economic resources, coercive capacity, and degree of protection from the state, among others. However, this information is neither observable nor measurable. Instead, we use the rank of the individual defecting within the CO they defect from to approximate their relative size. Our categorization therefore includes three categories: (1) “Balanced” when a high-ranking member leads defection, (2) “Moderately uneven” when a mid-ranking member leads defection, and (3) “Significantly uneven” when a low-ranking member leads defection. While this measure is imperfect, we believe it stands on reasonable assumptions and is the best proxy for relative size given data collection challenges.

To investigate the moment of fragmentation, we collect data on leadership turnover and factors prompting fragmentation. Because the literature emphasizes the role of leadership turnover in fragmentation, especially those caused by government leadership decapitation policies, we create a list of all leaders across time for each cartel, along with the reason there was leadership turnover. Alternatively, we also collect information for the factors that prompted each fragmentation. We note that determining the precise motivations for each

individual to fragment is difficult given that these are private decisions from individuals operating in the underworld. Rather than speculating *why* individuals leading defection decided to fragment, which is unfeasible for most fragments, we focus on identifying the factor that prompted fragmentation. Thus, for each instance of fragmentation, we collect information on the stated circumstance that precipitated fragmentation.

3.3 Measuring Fragmentation Patterns

To investigate the implications of the strategic logic underlying fragmentation, or the patterns of fragmentation, we collect data on illicit activities, geographic location of strongholds, and military alliances.

First, to measure whether and which activities fragments were involved in that allowed them to defect, we search for information on their *main* activities⁵ at the time of fragmentation. Most activities are self-contained, but we break down drug trafficking to its components given that it encompasses various activities. Specifically, for cartels involved in drug trafficking, we identify whether they were involved in specific components of the drug trade—drug production, transportation, or smuggling across the US border—or all. We also include drug dealing, or selling small amounts to local consumers, as a subset of drug trafficking.

To test whether geography shapes fragmentation, we identify the strongholds of each cartel at the moment of fragmentation. For larger COs this can entail an entire state, while for smaller COs this can be a region within a state, a few municipalities, or even a single city. We underscore that this measure should not be taken as a definite measure of exact boundaries, but rough geographic boundaries. From this information, we measure whether the strongholds of fragments overlap with those of the CO they defect from.

Finally, to test whether defectors strategically form alliances that allow them to fragment, we identify whether each fragment created an alliance at the time of fragmentation for the explicit purpose of fighting the CO they fragment from. Accordingly, this measure excludes

⁵Mexican cartels have diversified and are involved in a host of activities. Identifying them all is challenging, but most specialize in a few activities, which we focus on.

pre-existing alliances, alliances formed after fragmenting that are not directly related to their defection, and alliances formed for reasons other than fighting the CO they defect from.

3.4 Illustrative Case: The Zetas

To illustrate what our data looks like and what it can tell us, we provide a brief case study of the origins of the Zetas and its splinters. Different versions exist about the emergence of the Zetas, but most agree that Osiel Cárdenas Guillén, leader of the Cartel del Golfo, created them as a small elite unit to serve as his personal bodyguards in 1998 or 1999. The unit was led by Arturo Guzmán Decena, a former elite soldier, who recruited other elite soldiers from the Mexican military into the Zetas. While this unit was not called “Zetas” when it was created, it gained this name due to the codes they used to identify each member (Guzmán Decena was Z-1, Lucio Morales Betancourt was Z-2, Heriberto Lazcano Lazcano was Z-3, and so on). In November of 2002, Guzmán Decena was killed by the Mexican military, and Heriberto Lazcano Lazcano took leadership of the group.

In March of 2003, Cárdenas Guillén was arrested by the military, and continued to lead the Cartel del Golfo from prison. However, his arrest loosened the chain of command and gave the Zetas room to grow in size and prompted their direct involvement in illicit activities. In 2007, Cárdenas Guillén was extradited to the US and largely lost the ability to lead the Cartel del Golfo. This further increased the autonomy of the Zetas, who no longer relied on the Cartel del Golfo for profits. The Zetas rapidly increased their involvement in illicit activities and expanded as an organization. Most agree that the Zetas began to operate with increasing levels of autonomy during this period and internal disagreements between the Zetas and Cartel del Golfo began to arise. During this time, some outlets began to use the name “La Compañía” (*The Company*) to refer to the Cartel del Golfo and Zetas together given the growing power of the Zetas. In early 2008, the Beltrán Leyva brothers, high-level members of the Cartel de Sinaloa, fragmented and negotiated an alliance with the Cartel del Golfo, including the Zetas, to fight their former bosses, who the Cartel del Golfo were also

fighting.

The Zetas fragmented in early 2010 and a deadly war began against Cartel del Golfo, with the Beltrán Leyva Organization siding with the Zetas. Two main accounts exist for their decision to defect. First, some claim that a high-ranking member of the Cartel del Golfo, Eduardo Costilla Sánchez, ordered the assassination of a local Zeta leader, Víctor Peña Mendoza, who was killed on January 18, 2010. When Costilla Sánchez refused to give up the killers to the Zetas, the Zetas decided to break with the Cartel del Golfo. Second, some accounts suggest that Lazcano Lazcano began to notice after 2007 that he was being aggressively targeted by Mexican authorities, including an operation that nearly captured him. In February of 2010, Cárdenas Guillén was sentenced to 25 years in prison following his plea agreement in the US. This confirmed the suspicions of Lazcano Lazcano that Cárdenas Guillén had been cooperating with US authorities since his extradition in 2007 with hopes of reducing his sentence. According to Jesús Enrique Rejón Aguilar, a high-ranking Zeta member arrested in 2011, “The Zetas were loyal to Cárdenas Guillén until February 2010, when the agreement negotiated by his sentence leaked” ([La Jornada Online 2011](#)).⁶ While both the Zetas and Cartel del Golfo had operations throughout Mexico, their strongholds were both in the state of Tamaulipas.⁷

Following their fragmentation, various accounts document how the second in command, Miguel Ángel Treviño Morales, began making power moves by betraying individuals loyal to Lazcano Lazcano and placing those loyal to him in important positions. In October of 2011, Iván Velázquez Caballero, a regional boss, made his rupture with the Zetas public through a series of public messages and a video uploaded to YouTube, citing the betrayals of Treviño Morales as the reason. Velázquez Caballero and his group were known as Los Talibanes (also later called Sangre Zeta, Los Legionarios, and Los Hijos del Diablo), operated out of the state San Luis Potosí, and were involved in drug dealing, extortion, theft, and

⁶Translated by authors.

⁷While Cartel del Golfo had better control over the cities of Matamoros and Reynosa, and the Zetas over Nuevo Laredo, San Fernando, and Ciudad Victoria, Tamaulipas as a state served as their strongholds.

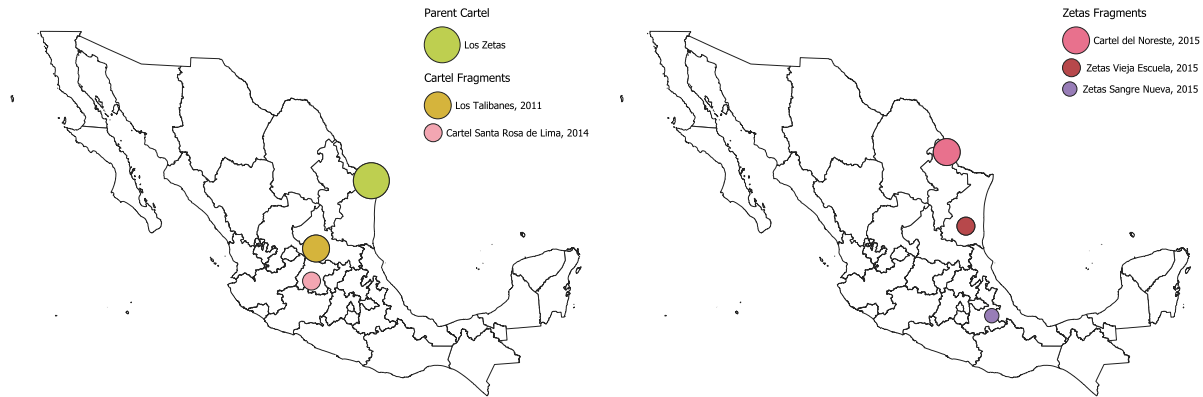


Figure 3: Geographic location of strongholds of Zetas and fragments at the time of fragmentation.

kidnapping for ransom.

Lazcano Lazcano, who led the Zetas fragmentation, was killed by the military in 2012. Treviño Morales took leadership until his capture in July 2013, after which his brother, Omar Treviño Morales, took charge of the Zetas. In 2014, a local Zetas boss, David Rogel Figueroa, that controlled oil theft and drug dealing in the southern part of the state of Guanajuato, declared his independence from the Zetas. Some accounts claim that their defection was due to financial disagreements—they got tired of paying a percent of their earnings to the Zetas leaders—while others point to opportunism—they saw the leadership instability that was unfolding and decided to leave. This group was initially referred to as *Cártel de Guanajuato*, though later named itself *Cártel de Santa Rosa de Lima*, with some media reports also calling it *Cártel del Marro*.

In March of 2015, Omar Treviño Morales was arrested. This prompted a leadership struggle where Juan Francisco Treviño Chávez, nephew of Miguel Ángel and Omar Treviño Morales, continued to lead the core of the Zetas, which was renamed to *Cártel del Noreste*. However, disagreements over leadership resulted in two important fragmentations.⁸ First, Zetas Vieja Escuela (also known as *Grupo Operativo Los Zetas*), led by Rogelio González Pizaña in some accounts and Jose Guizar Valencia in others, whose strongholds were in

⁸The arrest of Omar is often claimed to have prompted a number of fragments, but there are conflicting accounts and practically no information on many alleged fragments.

southern Tamaulipas and northern Veracruz and who were involved in drug trafficking. Second, Sangre Nueva Zeta, created by José Eduardo González Barreda or Ángel Hernández Hernández (goes by both names), a local boss in the region along the border of Puebla and Veracruz, who controlled oil theft and extortion in their territories. Treviño Chávez was arrested in September of 2016, and his brother Juan Gerardo Treviño Chávez took leadership of the *Cártel del Noreste*.

4 Research Design and Results

To examine the testable implications derived from the theory, we provide evidence using data on all fragmentation cases. This approach follows the LNQA method (Goertz and Haggard 2023). LNQA seeks to test a proposed theory by using qualitative data on *all* relevant cases. Through this approach, we seek to establish regularities, not average treatment effects. In LNQA, the strength of the theory is “simply the percentage of cases conforming with the causal claim” (1221). Given that we collect data on all relevant cases, LNQA provides an appropriate guideline for us to establish regularities and seeing to what degree they conform with the predictions made by the theory.

First, we examine the set of predictions pertaining to when we should observe fragmentation and who leads this fragmentation. Here, we follow what Goertz and Haggard (2023) call “Y generalizations,” where we select units where the outcome is present, $Y = 1$, to investigate the factors leading to Y . In our case, we analyze cases where the outcome—fragmentation—is present to examine when fragmentation occurs and who leads fragmentation.

We then turn to the second set of predictions about the patterns we should observe when defectors fragment. In this second part, we are testing what Goertz and Haggard (2023) call “X generalizations,” where a cause, $X = 1$, is postulated to be followed by an outcome. In our case, we are testing whether a cause—fragmentation—is followed by an outcome—control of specific illicit activities, location of strongholds, and military alliances—depending

on who fragments. The strength of our proposed explanation can then be estimated by the number of cases that conform with our expectations.

4.1 Types and Drivers of Fragmentation

We first examine who fragments and when. Generally speaking, we find four types of fragmentation. Drawing from [Trejo and Ley \(2020, 134-137\)](#) and their discussion about the organizational structure of Mexican drug cartels that took hold in the 1990s, [Figure 4](#) shows stylized examples of the four types of fragmentation we observe depending on who leads fragmentation—high-, mid-, or low-level members. We note that cartels vary in how hierarchical, cohesive, and centralized they are, with [Figure 4](#) overrepresenting how structured and hierarchical they are. Nevertheless, it provides an analytically useful model to understand different types of fragmentation.

[Figure 5](#) shows the distribution of types of fragmentations categorizing each fragmentation on the relative size of the fragment vis-à-vis their CO of origin.⁹ Results show an important pattern: only about 25% of defections are led by high-level members. In other words, fragmentation is primarily driven by mid- and low-level leaders. Moreover, when then categorizing fragmentation types by the relative size of each fragment vis-à-vis their CO of origin or other fragments under dissolution, we see that only about 33% of fragments are of similar sizes than those who they compete with. This suggests most fragments need to seriously consider factors that protect them and allow them to survive.

Turning to the moment of fragmentation, we first examine whether leadership decapitation explains fragmentation as is assumed in existing literature, we collect data on every leader of every cartel across time along with information on what prompted leadership turnover, including whether they were arrested, killed by the government, killed by a rival cartel, killed by an internal rival (member of the same cartel), or some other reason. Panel

⁹This contrasts the approach of [Atuesta and Pérez-Dávila \(2018\)](#), who argue four types of fragmentation: “(i) loss of reputation; (ii) through heterogeneous factions; (iii) successions within the same organization; and, (iv) broken alliances” (247). However, these authors consider the breakdown of alliances and coalitions as fragmentation.

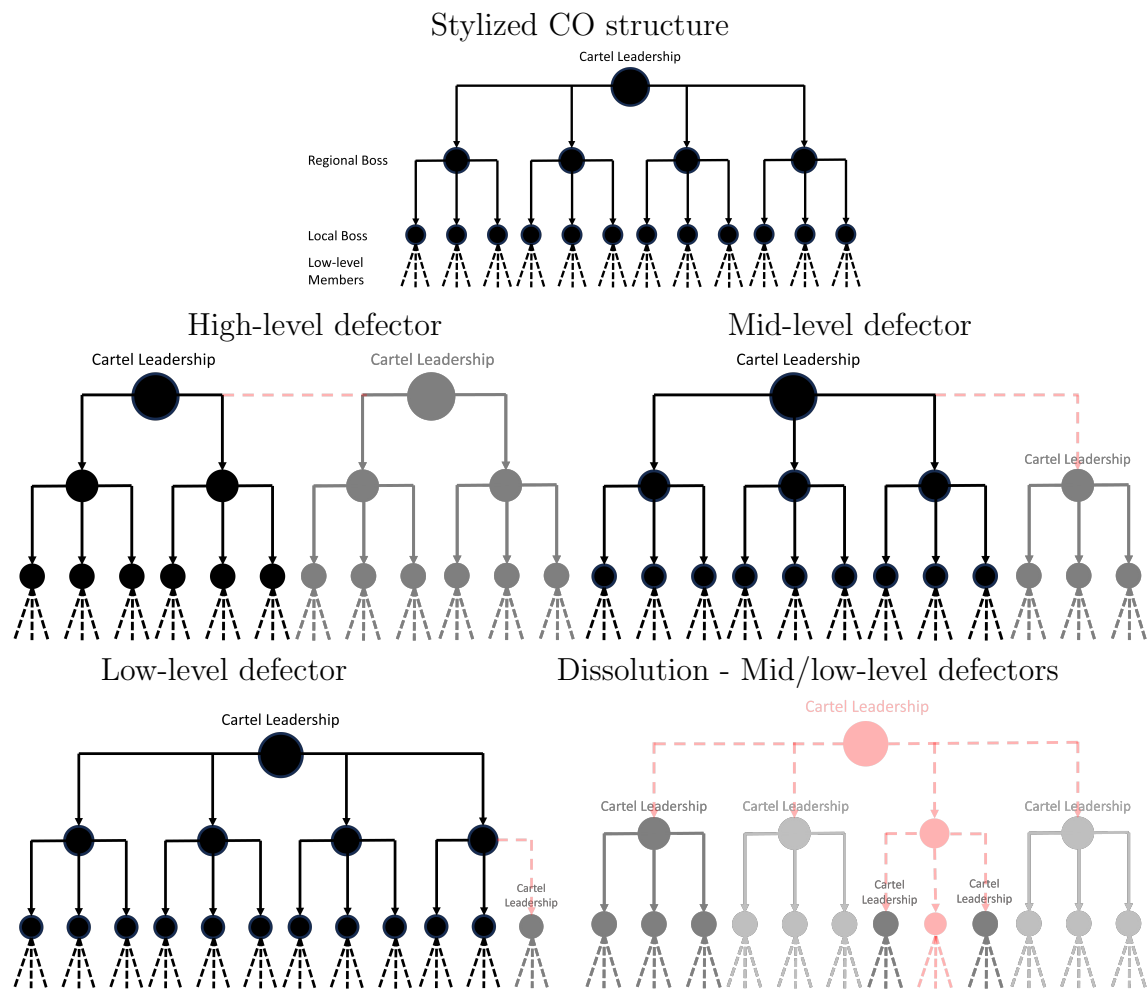


Figure 4: Stylized CO structure and types of fragmentation by leader of defection. Black structures denote CO of origin, red dotted line denote fragmentation, red nodes denote leadership vacuum, grey structures denote fragmenting COs.

(A) of Figure 6 shows the number of leadership turnovers by reason for turnover and whether it prompted fragmentation. The results are surprising: Only 15% of leadership turnovers resulted in fragmentation. These results highlight that fragmentation following leadership turnover is actually very rare and that government policies are neither necessary nor sufficient to explain fragmentation. This result supports existing literature highlighting the resiliency of COs.

Beyond looking at leadership turnover, we analyze the moment of fragmentation for each cartel to identify the postulated reason behind each defection, with results shown in Panel (B) of Figure 6. We find that while the majority (60%) of fragmentation was prompted by

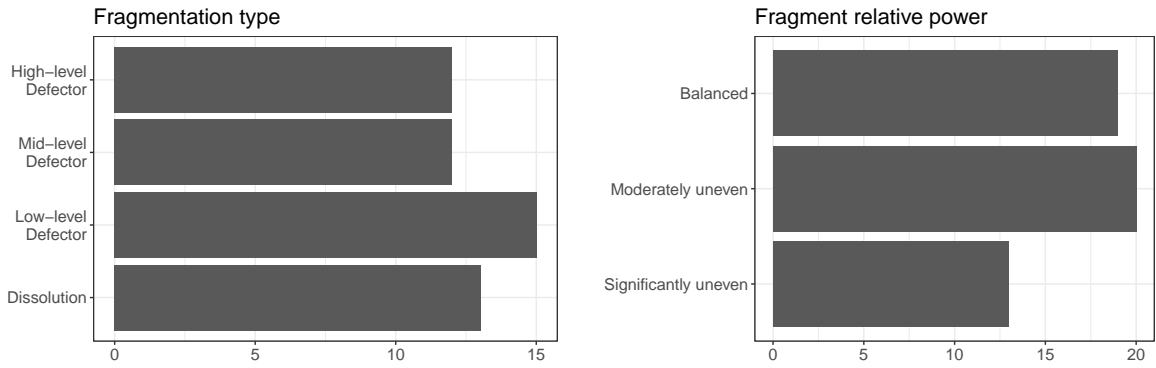


Figure 5: Number of fragments by type of fragmentation (left) and relative power of fragment vis-à-vis CO of origin or other fragments under dissolution (right).

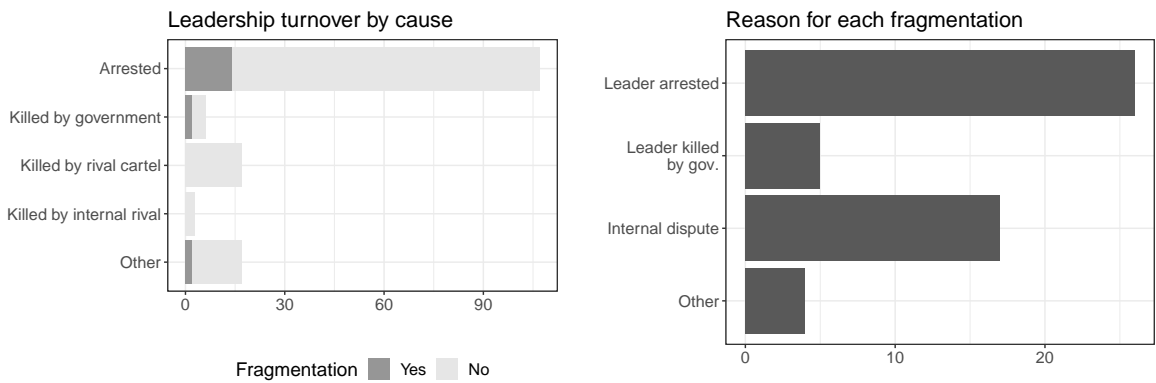


Figure 6: Leadership turnover and whether it resulted in fragmentation (left) and reasons for each fragmentation (right).

government leadership decapitation policies, a considerable amount is due to other reasons, principally internal disputes. Of these internal disputes, we find that only two can be directly attributed to government actions. In other words, the conventional knowledge that government kingpin strategies explain fragmentation in Mexico is not fully supported by the evidence.

Examining the cases where government leadership decapitation strategies were not directly responsible for fragmentation, we find a wide variety of circumstances prompting fragmentation. Due to the clandestine nature of COs, identifying the exact motives behind fragmentation is difficult. Nevertheless, we can identify the moment of fragmentation and the reasons reported for each defection. We find that key internal betrayals are responsible for five instances of fragmentation, the death of a leader by natural causes prompted one, intense moments of internal disagreements resulted in five, internal disagreements that do not initially appear as severe resulted in seven though we have less information on these, financial disagreements seem to have motivated two, the killing of a defector's brother by a CO allied with the CO they defect from resulted in one, and opportunism due to intense government pressure targeting CO leaders led to one.

4.2 Patterns of Fragmentation

We now turn to investigating the patterns of fragmentation. First, we examine the prediction that fragments will have control over illicit markets when they fragment. We then turn to investigating the predictions about fragments needing to secure survival and the role that geography and alliances play.

4.2.1 Securing Profits

One key implication of the theory is that fragments will have control over illicit markets when they fragment, with smaller fragments are more likely to be involved in more localized illicit activities. We examine this by looking at the main activities of each fragment when they

fragment. We classify these activities in three categories relative to the main activities of the CO they fragment from: (1) fragments are involved in the same activities, (2) fragments are involved in a subset of the activities, and (3) fragments are involved in different activities. To understand the second category, we note that the main cartels whose fragmentation we examine were specialized drug trafficking organizations in the early 2000s. Drug trafficking involves the production, transportation, and trafficking (into the US in our case) of illicit drugs. We consider these specific activities as subsets of drug trafficking. Thus, if a CO that specializes in drug trafficking sees defectors fragment, and that fragment specializes in drug production, we consider this a subset of the activities of the CO of origin.

Figure 7 shows the activities of fragments by the type of fragmentation. We find interesting patterns. First, evidence clearly suggests that fragments do control specific illicit markets when they fragment. Second, most fragments are involved in either a subset (47%) or different activities (17%) than their CO of origin. This indicates that in most instances, defectors choose not to or are unable to directly compete against their originating CO over entire illicit markets. Third, we see a clear pattern wherein smaller fragments are more likely to be involved in subsets or different activities than their originating CO. These other activities tend to be more local than drug trafficking, with some of the most prevalent being drug dealing to local consumers, extortion of local businesses, oil theft, theft, and kidnapping for ransom. These results highlight two key aspects of illicit markets in Mexico: (1) the extensiveness of drug trafficking and the localized nature of certain aspects of it allows defectors to fragment who control only aspects of the drug market, and (2) large drug cartels diversifying their activities during the 2000s facilitated fragmentation by giving mid- and low-level leaders access to alternative local illicit activities.

Moreover, by looking at the activities of fragments in relation to their CO of origin and the geography of their strongholds, we find that most most balanced fragments who share strongholds with their CO of origin are involved in the same activities. Controlling a subset of the illicit markets the originating CO controls is most likely when they do not

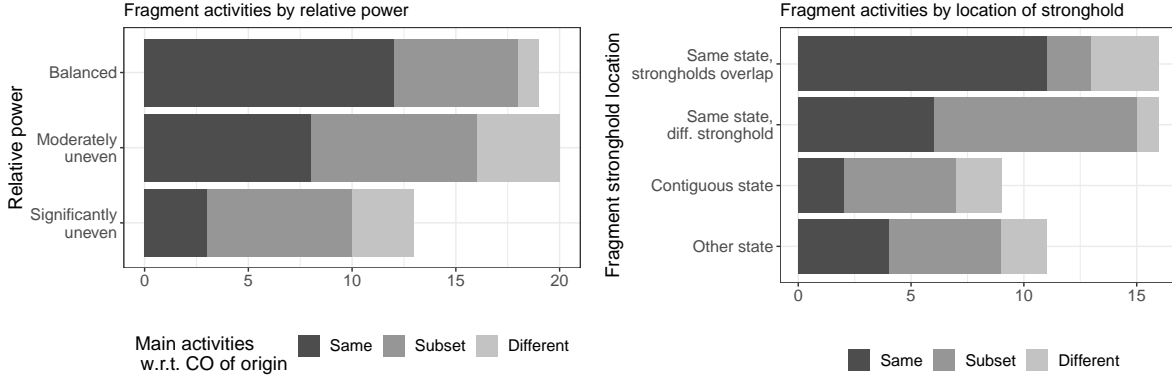


Figure 7: Main activities of fragments relative to CO of origin at moment of fragmentation by balance of power (left) and location of stronghold (right).

share strongholds, and fragments operating in distinct illicit activities do not seem to be impacted by geographic distance. By including relative power, we discover that, with one exception, all fragments that are involved in the same activities as their originating CO and operate in the same state are either large or medium fragments. Only one large fragment was involved in distinct illicit activities when they fragmented, showing that large fragments tend to compete with their CO of origin to some degree. And on the other hand, most small fragments are involved in a subset of illicit activities, but those that operate in the same or distinct activities operate in separate territories than their CO of origin.

4.2.2 Assuring Survival

A second key implication of the theory proposed is that fragments can increase their probability of survival by exploiting geography (potential defectors self-select considering relative power and geography) and strategically forming military alliances, particularly for smaller fragments.

To probe these expectations, Figure 8 shows the geographic location of fragment strongholds relative to their CO of origin by their relative power. The pattern is clear: the smaller the fragments, the further their strongholds are relative to the CO they betray. While about half of fragments with similar power share strongholds with their CO of origin, only about

20% of medium fragments do, and *no* small fragment do. This clearly suggests that geography plays a key role in the strategic self-selection into fragmentation, with low-level members discounting the possibility of fragmenting due to the inherent risk. This suggests that the geographic expansion of drug cartels that began in 2007 (Alcocer 2022) created conditions that facilitated fragmentation, as it created more regional and local bosses controlling territories beyond the stronghold of their cartel.

To further probe these survival incentives, Figure 8 shows different types of fragments by the geographic location of their strongholds and whether they formed alliances when they fragmented to fight their CO of origin. The results are stark. Only fragments whose strongholds are in the same state as the CO they defect from form military alliances to survive fragmentation. Specifically, 8 of the 10 large fragments that share strongholds with their CO of origin form military alliances when they fragment, while 4 of the 5 medium fragments do. That means 12 of the 15 (80% fragments who share a stronghold with their CO of origin form alliances to survive fragmentation. Moreover, 25% (4 of 16) of those in the same state but without overlapping strongholds also form alliances to fight their CO of origin when they fragment. No fragment with strongholds in states outside the state where their CO of origin has its stronghold creates these alliances. This provides very strong evidence that these military alliances are key when fragmenting near the CO of origin for both large and medium fragments.

Together, these results indicate that potential defectors strategically consider their relative size relative to the CO they seek to betray, and that this balance of power is clearly affected by geography and military alliances. In other words, geography and alliances make up for poor power differentials and allows mid- and low-level members to defect, while alliances also reinforce high- and mid-level defectors whose strongholds are in the same state as the CO they betray.

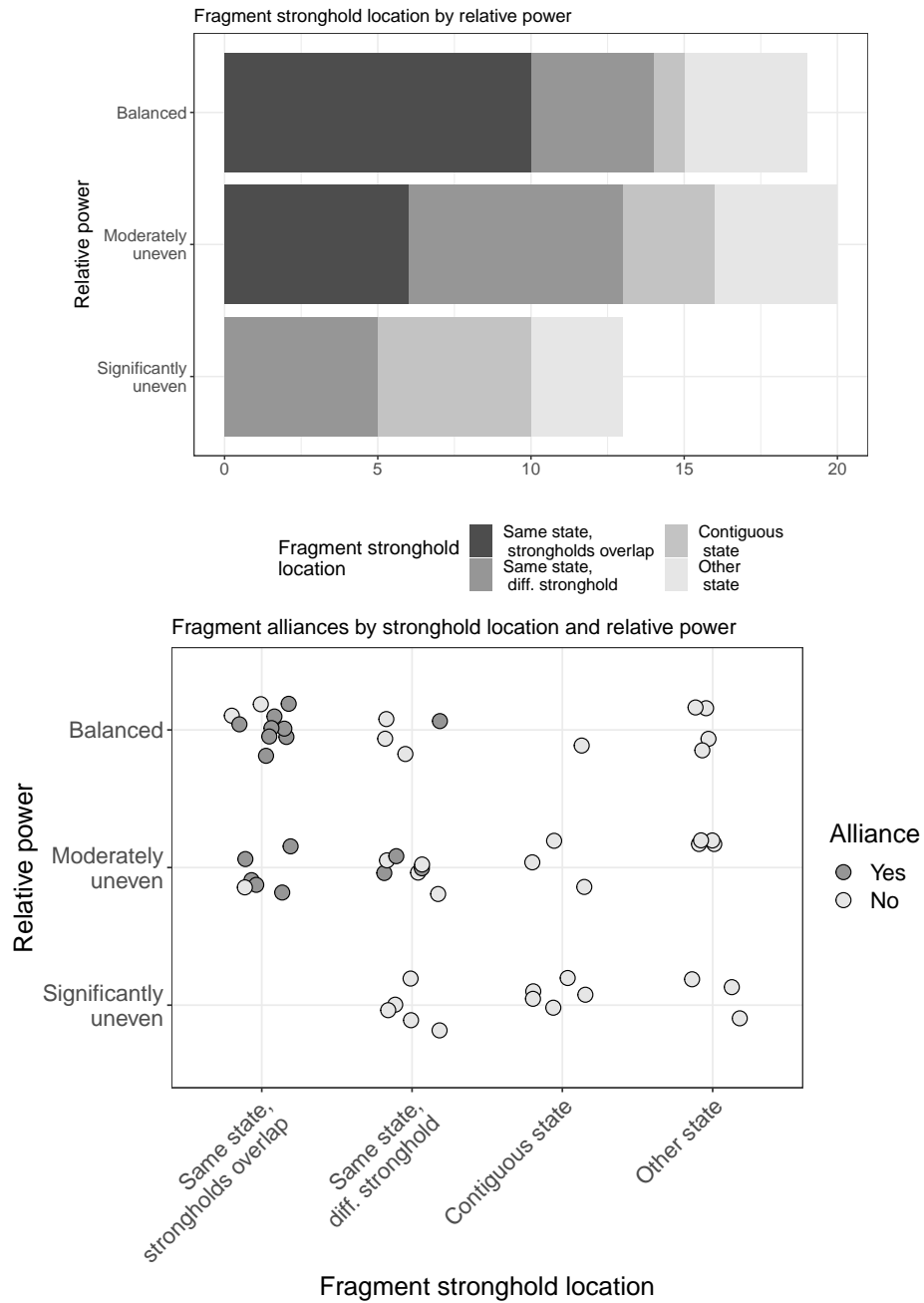


Figure 8: Location of fragment stronghold by balance of power (left) and by alliances formed at moment of fragmentation (right).

5 Further Findings

Beyond exploring the drivers and patterns of fragmentation, our data further reveals additional insights about who is most likely to fragment and the limited success of government leadership decapitation policies.

5.1 Propensity to Fragment

We find that fragmentation is largely driven by the fragmentation of fragments and their fragments. In other words, the nine large drug cartels that we begin tracking in January 2000 only see 14 fragmentations (5 high-level defectors, one mid-level defector, and 8 cartels that stem from the dissolution of the Cartel del Golfo). If we dismiss dissolution, that means an average of 0.67 fragmentations per cartel between 2000 and 2018. In contrast, those 6 fragments not stemming from dissolution saw 20 defectors fragment (17 low-, mid-, and high-level defectors and three cartels resulting from a dissolution), or an average of 3.33 per cartel. Finally, fragments of the fragments saw 13 defectors. This pattern suggests that large drug cartels are especially effective at enforcing cohesion and dissuading defection, possibly because they were the ones with the greatest coercive capacity and thus have the ability of credibly threatening potential defectors. It also suggests that “second generation” cartels, or those with one degree of separation from the historical cartels, were the most susceptible to fragmentation. It is likely that fragments of these fragments then see fewer average fragmentations as they become too small to fragment further, or at least, it becomes more difficult as they become more localized. Further research is necessary to explore this dynamic and other factors that may make some COs more prone to fragmentation.

5.2 Successful Dismantling

While we emphasize fragmentation, we also observe 23 instances of cartels either ceasing their operations or ceasing their operations as independent cartels after being absorbed by larger

cartels. The successful dismantling of cartels was the government’s aims when pursuing leadership decapitation strategies, but has received virtually no scholarly attention due to its failure to accomplish this in the vast majority of cases. Nevertheless, our data shows that 18 cartels ceased operating and that 5 were integrated by larger cartels. Looking at disbandment, we find that 17 stopped operating as a direct result of government leadership decapitation strategies (16 due to arrests of leaders and one due to a leader committing suicide prior to being arrested), while only one was due to an internal dispute between high-level members that each went their own way. This is evidence that, in some important cases, government leadership decapitation strategies were successful in disbanding COs—though this by no means outweighs their costs and negative implications. Looking at integration, we find that five cartels joined the ranks for other cartels, four from the decision of the leader to do so and one after being weakened following the arrest of their leader. Future research should investigate the factors that make a CO prone to disbandment given the arrest of their leader.

6 Violent Implications

Beyond the criminal wars that fragmentation detonates, we identify three additional patterns that we believe have significant implications for the (violent) behavior of new fragmented cartels that have not been previously identified or measured, and thus remain unexplored.

6.1 From Drug Lords to Warlords

First, fragmentation has led to the rise of COs led by militarized leaders. By militarized leaders, we mean individuals leading defections who commanded of armed wings (*jefe de sicarios* or *jefe de brazo armado*) within the CO they fragment from. Armed wings in Mexico are units typically equipped with tactical gear, vehicles, automatic and semi-automatic firearms, and in some cases even grenades, rocket launchers, and makeshift tanks. These are

not street soldiers or low-level hitmen, these are individuals who led militarized units, lead defection, and become leaders of their own COs. We find that 19 of the 54 defecting leaders (35%) led armed wings before or at the moment of defection. Given their combat training and experience, this likely has significant repercussions on the violent behavior of COs led by these individuals.

6.2 From Drug Traffickers to Predatory Cartels

Finally, we find that fragmentation has given rise to cartels specializing in predatory crimes. Of the 54 COs that fragment, 18 have primary activities that are far more predatory towards citizens (e.g., extortion, theft, local drug dealing, kidnapping for ransom) than the traditional activity of drug trafficking large amounts of drugs to the US. While the activity diversification of the large cartels meant these crimes were increasing, the rise of smaller cartels that specialize in predatory crimes has resulted in cartels that cannot fall back on drug trafficking, depend on predatory crimes, and can only grow by increasing their involvement in these predatory crimes. This likely has very significant consequences for the prevalence of these crimes and citizen security. When speaking about the fragments stemming from the Zetas, Alberto Cedillo (2018) stated:

Dozens of cells in all the entities where [the Zetas] operated were left... without profits or income from drug trafficking to the United States. Now their only relationship with drugs was local drug dealing... The new [fragment] leaders tried to supplement their income with mass kidnappings, robberies and extortion.¹⁰

(Cedillo 2018, 184)

¹⁰Translated by authors.

7 Discussion

We have argued that questions of profits and survival are key to understand fragmentation and that illicit markets, geography, and alliances shape patterns we observe. An important question for future research is whether this theory travels to other contexts. Although our empirical analysis focuses on Mexico, a country with large COs under an intense government crackdown against COs since 2007, we believe the theory generalizes to other countries, contexts, and time periods. Thus, while better-known cases like the Primeiro Comando da Capital in Brazil and the Cali and Medellin Cartels in Colombia may support the theory in violent contexts where governments use militarized approaches to combat drug cartels, we provide three alternative examples to show the plausible generalization of the theory to other contexts.

In Ecuador, a drug cartel called Los Choneros emerged in the city of Chone in the late 1990s. Los Choneros subsequently grew and expanded to prisons and new territories, becoming one of the dominant COs in Ecuador. Following the assassination of their leader in 2020, various internal factions of different sizes broke ranks and became independent, including Los Lobos, Los Tiguerones, and Los Chone Killers (the last two were armed wings of Los Choneros). In this fragmentation, both geography and alliances were key. The fragments mentioned previously formed an alliance called “Nueva Generación” to combat Los Choneros. Geographically, Los Choneros had extensive operations in the western provinces of Manabí and Guayas, while Los Lobos initially operated out of the eastern province of Pastaza, Los Tiguerones operate out of the northwestern city of Esmeraldas, and Chone Killers have their stronghold in the city of Durán ([GK 2022](#); [Newton 2023](#); [Insight Crime 2023, 2022](#)).

In Japan, the Yamaguchi-gumi, the largest yakuza organization, saw a high-level member and other dissidents split in 2015 following financial and personal disputes and form the Kobe Yamaguchi-gumi. Geographically, the Yamaguchi-gumi are headquartered in Kobe City, while the first headquarter of Kobe Yamaguchi-gumi was in Awaji Island. Later, the

Kobe Yamaguchi-gumi itself saw members defect due to internal disputes. First, in 2017 a high-level member splintered and created the Ninkyo Yamaguchi-gumi (renamed Kizuna-kai in 2020), with its headquarters in Amagasaki City. Second, in 2020, defectors led by a mid-level leader formed the Ikeda-gumi with its headquarter in Okayama City, while others, a faction known as Yamaken-gumi with headquarters in Kobe City also became independent but soon thereafter rejoined to the Yamaguchi-gumi ([National Police Agency 2024](#)).

Before becoming one of the largest gangs in the Northern Triangle of Central America, Barrio 18 began as 18th Street gang in Los Angeles, California. The Mexican-American Westside Clanton 14th Street gang is a a Sureño gang formed in the 1920s centered along Clanton Street (later renamed 14th Street). In the 1960s, some members that operated in a neighboring community along 18th Street attempted to form a click (internal faction) called Clanton 18th Street, which Clanton 14 core members rejected—allegedly because the click was not led by a Mexican-American. Members of this click decided to become independent and adopt the name 18th Street. Following quick growth due to their open ethnic enrollment, US policy of deporting non-citizen gang members to their country of origin in the 1990s resulted in the exportation of 18th Street to Central America ([Alonso nd, 2023](#)).

These examples suggest that the theory may travel to other countries with different levels of state capacity, types of COs, policies towards COs, and time periods. Future research should more formally test the generalizability of the theory to refine the incentives outlined, uncover other factors that shape fragmentation patterns, and better outline scope conditions.

8 Conclusion

We examine the factors influencing defection and their impact on subsequent fragmentation patterns. We argue that potential defectors weigh economic viability and their probability of surviving retaliation from the CO they betray. Leveraging an original qualitative dataset covering major drug cartels in Mexico and all their fragments from 2000 to 2018, we find that

members at various ranks initiate defections due to leadership turnover and internal disputes. Larger fragments sometimes operate near their originating cartel's stronghold, while smaller ones operate in distant areas which safeguards them from retaliation. Moreover, fragments operating near their originating cartel form strategic military alliances with other cartels to survive retaliation. We further finds that direct fragments of the historical drug cartels are the most prone to fragmentation, and that government leadership decapitation did result in 18 cartels ceasing their operations. Moreover, we find the rise of cartels led by militarized leaders, a reduction in both the average tenure and age of cartel leaders decreases, and the rise of cartels specializing in predatory crimes.

These results have important policy implications. Most notably, it provides more nuanced understanding of the consequences of government leadership decapitation strategies. On the one hand, these cannot be solely blamed for the fragmentation of Mexican cartels and that, in some cases, it actually does accomplish its goal of dismantling COs. Yet, it is also very clear that the costs far outweigh the benefits. Understanding which COs are prone to disbandment given leadership decapitation would allow governments to only target those leaders without cutting Hydra's head. However, it must be recognized that the policy has clear drawbacks and, in many cases, may not be a desirable option when targeting COs. The results also show that a fragmentation in one territory can affect other territories, highlighting the need for better coordination between local, state, and federal security agencies.

We also believe this article opens the door to future research on CO fragmentation by providing data and uncovering patterns that require further attention. For example, future research could look at additional factors related to COs that may shape the propensity of fragmentation and subsequent patterns, including their size, internal structure, leadership styles, social and familial ties, government relations, or factors that cause fragmentation beyond those highlighted here. Future research could also look at fragmentation in other countries to provide additional insights and help better understand the phenomenon. Finally, our results show that fragmentation creates variation that can be exploited to analyze the

consequences of fragmentation in a more nuanced manner, for example, by looking at whether fragments differ in their violent behavior based on their size, leader characteristics, geography, or illicit markets, among others.

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