

# A Bargaining Theory of Criminal War

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Criminal war is a leading cause of death around the world. We argue for the inclusion of this topic in security studies and adapt a bargaining framework to shed light on why criminal groups fight or agree to peace. We propose that shocks to relative coercive capacity cause criminal war. This escalation in violent conflict proves more likely when criminal groups face greater difficulty negotiating: when they are more factionalized, less rooted in their territory, and in strategic rivalry with a greater number of rivals. Our empirical strategy leverages a critical, policy-relevant shock to access to weapons following an arms control repeal, and novel city block-level, monthly data on criminal organization traits, turf, and violence over ten years to understand how changes in coercive inputs upset the existing balance of power among criminal groups and shaped patterns of war and truce.

La guerra criminal es una de las principales causas de muerte en todo el mundo. Abogamos por la inclusión de este tema dentro de los estudios de seguridad y adaptamos un marco de negociación que permita arrojar luz sobre por qué los grupos criminales luchan o llegan a acuerdos para la paz. Proponemos que los shocks que se producen con relación a la capacidad coercitiva relativa son los que causan una guerra criminal. Esta escalada en el conflicto violento resulta más probable cuando los grupos criminales se enfrentan a mayores dificultades para negociar, es decir, cuando están más fraccionados, menos arraigados en su territorio o en rivalidad estratégica con un mayor número de rivales. Nuestra estrategia empírica aprovecha un shock crítico y relevante para la formulación de políticas como es el acceso a las armas, tras la derogación del control de armas, así como nuevos datos mensuales a nivel de manzanas de la ciudad sobre los rasgos, el territorio y la violencia de las organizaciones criminales a lo largo de diez años con el fin de comprender cómo los cambios en los insumos coercitivos alteran el equilibrio de poder existente entre los grupos criminales y dan forma a los patrones en materia de guerra y de treguas.

La guerre criminelle est une des principales causes de décès dans le monde. Nous soutenons son inclusion dans les études internationales et adaptons un cadre de négociation pour mettre en lumière les raisons qui poussent les groupes criminels à se battre ou à accepter la paix. Nous proposons que les chocs de la capacité de coercition relative entraînent des guerres criminelles. Cette escalade en conflit violent s'avère d'autant plus probable quand les groupes criminels se trouvent davantage en difficulté dans les négociations: si les factions sont nombreuses en leur sein, si leur ancrage territorial est plus faible, et s'ils rivalisent avec un plus grand nombre de groupes sur le plan stratégique. Notre stratégie empirique exploite un choc critique et pertinent – l'accès aux armes, après une abrogation du contrôle des armements – et sur de nouvelles données mensuelles au niveau des pâtés de maisons sur les caractéristiques des organisations criminelles, leur territoire et leur violence sur dix ans. L'objectif est de comprendre comment les changements dans ces apports coercitifs bouleversent l'équilibre des pouvoirs existant entre les groupes criminels et façonnent les modèles de guerre et de trêve.

## INTRODUCTION

Between 2000 and 2017, 870,000 people died in armed conflicts globally (Davies et al. 2022). During the same period, organized criminal violence inflicted at least 1.17 million deaths around the world (UNOCD 2019), 1.34 times the rate caused by interstate and intrastate wars. Even in countries plagued by civil conflicts, violent deaths from crime in postwar peacetime have surpassed rates during the height of the armed conflicts. In El Salvador, for example, while the United Nations estimates an average 2,077 conflict deaths per year during the 13-year civil conflict, organized crimi-

nal violence killed 3,926 in 2017 alone (UNOCD 2019). In addition to fatalities, criminal violence has deleterious effects on international security, domestic politics, economic development, and social welfare (Lessing 2017; Magaloni et al. 2020). Turf war among criminal actors emerges as the leading cause of this criminal violence: the outbreak of criminal wars accounts for dramatic escalations in atrocity in locations as diverse as Mexico, Brazil, Pakistan,<sup>1</sup> South Africa,<sup>2</sup> Italy, Sweden,<sup>3</sup> Japan,<sup>4</sup> the United Kingdom,<sup>5</sup> and the United States. At the same time, high-profile criminal

<sup>1</sup>"At least 39 killed in new Karachi violence," *Reuters*, 08/21/2021.

<sup>2</sup>"Turf wars: Seven gunned down in Cape Town gang violence in one week," *Daily Maverick*, 03/01/2021.

<sup>3</sup>"Swedens gun violence rate has soared due to gangs, report says," *The Guardian*, 05/26/2021.

<sup>4</sup>"Yakuza war has anniversary with a bloody bang," *Asia Times*, 09/02/2019.

<sup>5</sup>"London killings: 'It's like a war zone. How did it come to this?'" *The Guardian*, 05/01/2021.

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truces that enable criminal groups to avert such turf warfare also have been documented around the world, including in Belize, Brazil, Colombia, El Salvador, Guatemala, Honduras, Mexico, Trinidad and Tobago, Japan, Italy, and the United States.

International relations possesses the theoretical toolkit to understand war and peace in the face of anarchy (Art and Jervis 1986). For decades, scholars have used this toolkit to understand international wars (Fearon 1995; Powell 2006). However, despite the existence of states, anarchic conditions, violence, and war often still transpire within the borders of such governing authorities around the globe. This observation led scholars to translate international relations theories to explain the phenomenon of civil wars (Posen 1993; Snyder and Jervis 1999). We expand this scope, applying existing international relations theory to new and important sub-national contexts.

Drawing on this analytical toolkit, we join scholarship that theorizes criminal turf war and truce (Osorio 2015; Lessing 2017; Castillo and Kronick 2020). We propose that competition between criminal organizations entails delicate equilibria, which rely on a stable distribution of power. Shocks to coercive capacity can dislocate this power balance, triggering relatively strengthened criminal organizations to invade other armed criminal groups' territory. However, such shocks do not always lead to turf war. We argue that their likelihood of doing so depends on criminal organizations' ability to successfully bargain, which rests on traits of the organizations themselves and of their strategic environment. Organizations with a longstanding presence in their territory and fewer rivals are better able to overcome time inconsistency and information problems that threaten to short-circuit the resolution of conflict following a power shock. Our framework helps us understand patterns of turf war among criminal organizations, which may otherwise prove capable of forming arrangements that stabilize levels of violence.

To evaluate the framework, we analyze the effects of a critical, policy-relevant shock—access to weapons following an arms control repeal that differentially impacted criminal power—and leverage a rare data-rich environment—Chicago—where years of our Freedom of Information Act (FOIA) requests yielded novel, block-level, monthly data over the course of ten years on criminal organization traits, turf, and violence. We use a difference-in-difference design to causally identify the effects of the shock to the balance of coercive power on patterns of strategic violence along criminal group borders. Consistent with our theory, we find that shocks to criminal organizations' relative armed power cause turf war, and that weak organizational networks and multi-actor landscapes exacerbate this risk that violence will spike following such shocks.

We make several key contributions in this paper. First, we highlight criminal violence and war as important subjects of inquiry for the field of security studies. Second, we adapt international relations frameworks of bargaining to shed light on when criminal groups prove more likely to fight or agree to truces. Finally, we integrate knowledge from industrial organization, criminology, and international security to reveal why, even when territory is contested, some criminal group dyads may avert war.

### Existing Approaches to the Study of Criminal War

Theories of war solve a critical puzzle: why belligerents engage in armed conflict or instead agree to negotiated settlements that stabilize levels of violence (Schelling 1960;

Fearon 1995). We argue that international relations bargaining theory affords novel theoretical insights to enhance scholarship on criminal warfare.

Leading explanations examine how varied state policies structure patterns of organized criminal violence (Calderón et al. 2015; Lessing 2017; Castillo and Kronick 2020; Magaloni et al. 2020; Barnes 2022). Focused on a range of different state interventions, they argue that offensives against organized criminal groups often backfire, engendering turf wars and proliferating violence. Lessing (2017), for example, illuminates how indiscriminate state crackdowns engender brutal state-cartel wars, whereas conditional crackdowns incentivize cartels to make peace with the state. Castillo and Kronick (2020) model violent conflict among criminal groups, which may erupt as a result of state policies that raise the stakes, shorten the shadow of the future, and target non-defectors. Calderón et al. (2015), meanwhile, argue that leadership captures or killings breed violence by creating inter-cartel fighting. Magaloni et al. (2020) demonstrates that militarized interventions against criminal groups that maintain a local monopoly of violence and cooperative relations with residents prove counterproductive, whereas in cases in which the criminal groups do not collude with public security actors, state interventions lead to direct confrontations between the state and criminal groups. Trejo and Ley (2020) and Dell (2015) advance that security reforms and processes of democratization, while well-intentioned, can undo state-sponsored protection rackets, incentivizing criminal groups to invade the turf of cartels weakened by the opposition's takeover.

We build on these key works by treating criminal groups as highly strategic organizations engaging in competition and bargaining for turf amidst quasi-anarchic circumstances. However, our approach departs from these works in several ways: one, we adopt an organizational in addition to geographic approach. Most studies examine municipal-level variation in homicides. As such, they reveal that monopoly generates lower levels of violence than competition (Osorio 2015; Durán-Martínez 2018; Yashar 2018). We focus on the strategic dynamics between organized criminal groups along their turf borders and argue that these borders are not unconditionally violent; rather, there exists important variation. This is the variation we seek to explain; our study helps us understand *when* and *why* criminal boundaries become violent.

We build on studies of criminal violence that discuss shifts in the balance of power as a potential mechanism leading to criminal violence (Dell 2015; Osorio 2015). However, we explicitly draw on international relations theory to do so, rooting our theoretical conceptualization in a bargaining framework. We apply the core theoretical logic of conflict as bargaining failure to the context of war between organized criminal groups. Under quasi-anarchic conditions, differential shocks to coercive capabilities and power, we argue, may alter the structure of truces and feuds among criminal groups, depending on the nature of their organizational networks and strategic environments.

In adapting a bargaining logic, we allow for the possibility of successful negotiations and truces that avert conflict, and thereby theorize heterogeneity in criminal war following power shocks rather than assuming that shifts in the balance of power invariably lead to violence (Dell 2015; Osorio 2015). The bargaining approach strengthens our understanding of the dynamics between criminal groups by specifying the types of criminal groups that would be better able to overcome information and commitment problems to form arrangements to limit conflict. Here, we draw on inter-

secting literatures on armed non-state actors, derived from theories of industrial organization,<sup>6</sup> and on systemic factors, drawn from theories of international relations<sup>7</sup> to posit that, even when territory is contested and criminal organizations experience differential shocks to the balance of power, some dyads may avert a spike in violence if they enjoy long tenure in their territory and face fewer foes. Within a circumscribed context, we speak to a gap cogently advanced by Gartzke and Poast (2018, 6): that the "foundational mechanisms of the bargaining model. ... have largely eluded empirical investigation."

We study the effects of a plausibly exogenous shock to criminal groups' coercive capacity rather than shocks emanating from state strategies, which may be endogenous to criminal groups' use of violence. In this sense, our coercive capacity argument constitutes a contribution to a literature that largely emphasizes law enforcement efforts as the catalyst of criminal territorial conflict. Our focus on a particular policy shock to inter-criminal organization relations – changes in arms control – builds on work by Dube et al. (2013), which demonstrates that the expiration of a US assault weapon ban increased lethal criminal violence in neighboring cross-border regions of Mexico.

Given the trans-regional and transnational nature of organized crime, shocks derived from cross-border policy changes are commonplace as the work of Angrist and Kugler (2008), Castillo et al. (2020), and Estancona and Tiscornia (2022) convincingly indicates. A range of other policies from regime change to deportations to housing demolitions also unintentionally alter criminal groups' relative power and generate elevated violence as the research of Trejo and Ley (2020) and Sviatschi (2022) shows. Albeit more challenging to causally infer, we predict a similar logic of violence following endogenous shocks emanating from states' myriad policies to counter organized crime as that following the exogenous shock that we analyze.

Finally, our application of international relations theory to criminal turf war casts doubt on explanations for criminal violence as non-strategic or oriented around violent domination of core turf. Our framework instead models criminal violence as strategic and occurring along groups' territorial borders. Given the disproportionate burden of criminal violence on race-class subjugated communities around the world, our research focuses specifically on these communities and, as such, has implications for how these communities may be integrated more generally into the study of security.

### Shocks and Bargaining Failure: Explaining Criminal Turf War

When and why does criminal war break out? In El Salvador, transnational gangs Mara Salvatrucha 13 and Barrio 18 fought a bitter country-wide war, and then, in 2012, signed a truce that more than halved the daily rate of fatalities in the country (Cruz and Durán-Martínez 2016). The breakdown of such truces, however, can be deadly. In Brazil, the deterioration of a three-year truce between the Família do Norte and Comando Vermelho led to a chilling spike in deaths, as criminal groups resumed violent competition over international trafficking routes.<sup>8</sup>

We argue that shocks to the balance of power between armed criminal organizations raise the risk of criminal war.

But, not all criminal groups fight; some negotiate successfully. Bargaining theory models armed conflict as an inefficient way to settle disputes over the allocation of resources that occurs when commitments are not credible, actors possess private information about the costs of fighting and incentives to misrepresent that information, and actors are uncertain over the probability of victory (Fearon 1995; Lake 2003). We advance that shocks to the criminal power distribution generate these bargaining problems, while variation in criminal groups' ability to overcome these problems depends on the groups' organizational networks and strategic landscapes.

#### *Adapting the Bargaining Framework to the Context of Criminal War*

We adapt the bargaining framework and tailor it to our context of wars fought between criminal groups. By criminal groups, we mean organized, non-state armed actors that engage in criminal activities, including gangs, cartels, trafficking organizations, and mafias.

The puzzle of criminal war diverges from that of interstate war. To be translated to the criminal context, the assumptions of bargaining theory need to be relaxed in several ways. First, the object of inquiry in an analysis of criminal war is not the rare transition from war to peace or from peace to war, but rather a highly dynamic pattern of violence escalation and de-escalation. Second, criminal groups may be unitary actors, as assumed by the bargaining model, but there exists important variation. We leverage this variation to understand criminal groups' divergent bargaining success and specifically their susceptibility to information and commitment problems. Third, criminal strategic environments may involve more than the two players modeled formally in bargaining literatures. We use this variation in the number of criminal groups to understand how strategic complexity magnifies problems of information asymmetry and time inconsistency.

The context we study does not constitute anarchy as it exists in the international system. A government is present. However, given the criminal actors' illicit nature, they must rely on informal means of resolving conflicts (Shirk and Wallman 2015). There are no institutional enforcement mechanisms or legal remedies for criminal organizations to correct breaches of business contracts, safeguard against entities that may encroach upon their operations or exploit their earnings, or ensure the fulfillment of agreements (Gambetta 1993; Venkatesh and Levitt 2000; Skarbek 2014). And, given the states' decision to at best abandon—and at worst antagonistically police—certain communities, the relations we study arguably fall into the arena of self-help (Venkatesh and Levitt 2000).

Finally, while many sociologists and criminologists argue that criminal group relations are driven predominantly by what David Lake (2003) calls non-rational factors: greed and envy, hubris and honor, fear and confidence, we align with bargaining theory to advance instead that an important share of these relations may be explained by strategic, rational dynamics. As such, we argue that there is analytic utility and empirical value in adapting a bargaining lens to understand war and truce between organized criminal groups.

In an analogous fashion to shocks that upset the balance of power between states, disruptions in the criminal system can affect criminal groups unevenly, relatively strengthening some, while weakening others. Such shocks come in different flavors. For example, the decapitation of criminal group leadership (Calderón et al. 2015), regulatory changes to coercive inputs (Donohue and Levitt 1998; Dube et al. 2013),

<sup>6</sup>See, for example, Moe (1984); Weinstein (2007); Daly (2016).

<sup>7</sup>See, for example, Gallop (2017).

<sup>8</sup>"Brazil: Gang truce in Amazonas falls apart," *Crisis* 24, 05/20/2018.



shifts in revenue sources, changes to counter-narcotics policy (Castillo et al. 2020), and territorial incursions may all destabilize relations between organized criminal groups.

Relations among these armed non-state criminal actors center on territory: the productive resource over which they vie for control. Territorial control allows these armed criminal groups to operate a protection racket, to control the sale of drugs (and other illicit goods), and to expand their influence (Calderón et al. 2015; Arias 2017). While there is significant variation in how territorial dynamics differ across criminal groups (Olson 1993; Kalyvas 2015; Koivu 2016; Magaloni et al. 2020; Barnes 2022), territoriality is a scope condition of our theory.<sup>9</sup> We argue that differential shocks to criminal organizational capacity incentivize newly strengthened groups to grab turf.

Power shocks create time-inconsistency problems that impede the effective renegotiation of the territorial arrangements that might otherwise limit turf war. Bargaining theory holds that, faced with shifts in the distribution of power, the belligerent that is growing weaker may have an incentive to fight preventively today in hopes of obtaining its ideal outcome rather than tomorrow when it will be weaker (Powell 2006). In our context, whereas the criminal organizations would be better off in the present by committing themselves to a cooperative relationship in the future, knowledge that the arrangement will be ex-post sub-optimal renders a mutually beneficial agreement elusive. Given the expected change in relative capabilities following the shock, the organized criminal actor that stands to gain from the shift cannot credibly promise not to exploit its enhanced future position to seek more favorable terms and lay claim to the domains of neighboring criminal groups that either did not benefit from the shock, or benefited from it less. Anticipating incentives to renege in the future, cooperation fails.

These shocks also create information problems. In the international sphere, only states themselves know their true resolve, capabilities, and the costs of fighting; this is private information. In the criminal sphere, during times of flux following shocks to the criminal power balance, uncertainty around criminal rivals' preferences and capabilities emerges. Only the criminal groups themselves know how the shocks have impacted them, and they may bluff about their tactical advantages and vulnerabilities in order to extract more favorable terms from bordering criminal opponents.

In sum, we argue that shocks to the balance of criminal power are likely to create obstacles to potential bargaining, sparking an overall pattern of intensified violence along the borders between criminal organizations' respective territories. Unable to agree on the turf and material transfers necessary to avert a bloody turf feud, criminal war results. However, homicidal eruptions are not uniform across shocked criminal organizations. At times, criminal groups are able to successfully negotiate arrangements to reflect the altered power balance. In these cases, relatively bolstered criminal groups gain access to the territory, street corners, vacant lots, and redistributed resources of the relatively weakened groups, and an increase in costly, violent competition among rivals is minimized or averted.

#### *Why Are Some Criminal Groups Better At Bargaining?*

The variation in the outbreak of criminal war following a power shock, we argue, depends on criminal groups' ability

<sup>9</sup>We would not anticipate the logic applying to non-territorial groups such as those Koivu (2016) theorizes.

to overcome information and time-inconsistency problems. This ability varies due to traits of gangs and their strategic environments.

#### INTERNAL CRIMINAL NETWORK STRUCTURES

We build on research that integrates organizational economics into the study of rebel recruitment and post-civil war remilitarization to advance that internally cohesive organizations possess myriad advantages with respect to information and commitment challenges (Weinstein 2007; Daly 2016).<sup>10</sup> Studying counterinsurgent organizations, Daly (2016), for example, argues that strong social bonds between combatants reduce information asymmetries and allow leaders greater certainty around estimates of armed groups' post-shock capacity. We similarly advance that criminal groups built on robust social ties between members tend to enjoy more accurate intelligence. As Gravel and Tita (2015) describe, "the topography of networks" of criminal groups determines the quality and "degree of diffusion of information ... [and] the speed and extensiveness of [this] diffusion" within criminal organizations.

In the context of intrastate conflict, Ross (2004) argues that stronger organizational command and control also renders commitments more credible and prevents spoilers of arrangements designed to stabilize violence. For criminal groups, durable ties similarly fortify the social contract between connected individuals, and deter wanton violence by members (Krackhardt 1992). With mitigated information and commitment challenges, cohesive organizations can bargain more effectively to prevent an escalation of fatal rivalry following coercive capacity shocks.

In contrast, fragmented groups suffer greater information asymmetries within their structures, challenges controlling their rank and file members, and time-inconsistency problems vis-à-vis their competitors, rendering bargaining more likely to fail (Pearlman and Cunningham 2012). Echoing the link between fragmentation and turf war, qualitative analyses in Colombia and El Salvador show that organizational cohesion led to truce durability (Cruz and Durán-Martínez 2016), while research on "beheading" of criminal commanders in Mexico finds that factionalization sparked a higher death toll (Calderón et al. 2015). In the US context, Gravel and Tita (2015) demonstrate how "highly fractured factions or factions with low [network] density are unlikely to propagate messages as efficiently" and face "a reduced likelihood of the development of a social control mechanism between [criminal group] members." We suggest that, as a result, fragmented criminal organizations prove challenged to negotiate successfully to avert the outbreak of territorial conflict following a power shock.

#### CRIMINAL GROUP EMBEDDEDNESS

Existing scholarship argues that not only internal ties but also external ones between armed non-state actors and civilians facilitate the actors' ability to update estimates of their own and their neighboring armed actors' relative power and to make their commitments credible when facing a disruption to relative capabilities (Daly 2016). In the criminal context, social embeddedness refers to the nesting of groups within broader spaces, institutions, structures of social relations, and communities (Sánchez-Jandowski 1991).

<sup>10</sup>Papachristos (2009) defines the cohesion of criminal groups as stability in the structure of internal networks, with within-group factions consistent in their relationships to the criminal organization hierarchy as well as to each other.

Over time, armed groups become rooted in their territories through personal ties; provision of employment, social services, community organizing, and protection; and collaborative relations with third parties, including civil society, religious entities, and political parties (Vargas 2016). Embedded organizations have a comparative advantage in surveillance over their turf and especially the periphery of that turf (Stuart 2020).

At the same time, criminal groups with longstanding presence in their territories also become locked in iterated games with neighboring criminal actors, face a longer shadow of the future, and potentially enjoy greater “trust and shared expectations” generated through durable relations (Vargas 2016). As Aspholm (2020) writes, “The familiarity derived from shared geography can serve as a basis for friendly intergang relations.” Criminal organizations with extended tenure and embeddedness in their communities also may have greater access to mediators and external actors able to help guarantee cooperative arrangements, resolve disputes, and broker peace.

In contrast to embedded gangs, we suggest that criminal organizations divorced from their communities will prove less able to accurately calculate their post-shock power relative to rivals and to make their promises credible. These criminal groups suffer from poorer quality information from neighborhood residents, shorter time horizons, lower-density relations with abutting groups, and thinner access to third-party mediators, raising the probability of an escalation of violence along their turf borders following changes to the distribution of power. For example, the Chicago Crime Commission’s gang book describes how the Vice Lords’ “violent behavior, use of intimidation and extortion tactics. ... placed fear in the citizens” and generated “negative publicity and a loud public outcry from the community” (2006, 18). Other gangs are not embedded in their communities not because of their violent tactics, but because of their lack of social ties.

#### CRIMINAL GROUP CONFIGURATIONS: MULTIPOLARITY

Outside of the organizational structures themselves, multipolar criminal systems exacerbate the risk of negotiations failing, and strategic violence erupting after a coercive capacity shock (Osorio 2015; Cruz and Durán-Martínez 2016; Arias 2017; Trejo and Ley 2020). A greater number of veto players has been found to complicate bargaining across spheres of conflict by shrinking the range of acceptable agreements, increasing information asymmetries, and generating incentives to hold out (Cunningham 2006). In the international sphere, multi-actor settings pervert incentives, yielding situations in which actors might prefer to go to war (Gallop 2017) or alternatively might exploit the challenges of attribution to advance their cause, leading to conflict (Baliga et al. 2020).

In our context, greater criminal turf overlap strains criminal organizations’ intelligence-gathering capacities, as the organizations must gather information on and estimate shifts in the relative capabilities of multiple potential adversaries rather than just one. Moreover, shifting alliances and truces add an additional informational challenge as criminal groups need to account for not only their dyadic relationships but also the ways in which their rivals’ allies strengthen or weaken them. This echoes dynamics in which rebel groups may fight longer under the expectation of external support, even if this support has not yet materialized. The increased information costs imposed by multi-actor settings are supported by a consistent finding that an increas-

ing number of criminal groups is associated with violent conflict over turf (Osorio 2015; Yashar 2018; Castillo and Kronick 2020).

#### Observable Implications

Our theory implies that systems exposed to shocks to criminal power are at greater risk of turf war than those not exposed to such shocks. Specifically, we anticipate that this violence will take place between criminal groups and along territorial borders.

Moreover, our theory predicts not a uniform increase in violence; rather, we anticipate that bargaining will be likely to fail and violence likely to escalate where (1) criminal groups are structurally factionalized; (2) criminal groups possess weak ties to their communities; and (3) criminal groups face multiple local rivals.

#### Empirical Context

We situate our empirical investigation in an unusually data-rich environment for the study of criminal war: Chicago. We chose this research site for several reasons. We can leverage extremely granular data on the dynamics of turf conflict over time. Some assumptions of the bargaining framework could be adapted to this context: the criminal groups we study were strong, organized actors able to engage in strategic action, both truce-making and turf-fighting. What is more, the United States presents a hard case for the bargaining theory of criminal war; state capacity is strong and anarchy circumscribed. If the framework has analytic leverage in this context, it suggests the framework’s broader utility in explaining turf war and truce where states are weaker and anarchic conditions more widespread. We describe these traits of our empirical setting in further detail here and provide a deeper historical context of gangs in contemporary Chicago in Online Appendix A.2.

#### Micro-data on Criminal Groups

Studying a case of criminal conflict within the United States provides a unique opportunity to explore extremely rich, micro-data on localized dynamics that, to our knowledge, do not exist elsewhere. A volley of FOIA requests yielded ten years of block-level maps of criminal group territory, maintained by the Chicago Police Department. Combining these data with administrative data and detailed information from law enforcement agencies, we are able to leverage a novel, decade-long, city-block, month-level dataset on criminal group traits, turf, and violence. We study a gun law reform shock to the balance of power between gangs to identify its effects on violence among criminal turf borders.

#### Self-Help Environment

Given high state capacity, anarchy is bounded in our context. At the same time, there are two factors that render the environment generally self-help. One, the illicit nature of criminal organizations’ activities and truces means that the organizations could not rely on an overarching authority to broker agreements and enforce their deals.<sup>11</sup> Two, the

<sup>11</sup>The state may allow conflict-mitigating truces; the former commissioner of police in Chicago admitted: “We do not mind if the gangs engage in illicit activities as long as they keep a lid on violence.” However, they do not enforce the truces (Personal interview, Chicago, May 2014). This assumption of quasi-anarchic conditions governing inter-criminal group relations has long been adopted by scholars of organized crime (foundationally, see Gambetta 1993).

perceived absence, brutality, and deep mistrust of police in criminal group-controlled territories means that residents often felt that they had to protect (and arm) themselves. Survey evidence from Chicago suggests that members of impoverished, race-class subjugated communities felt abandoned by and did not trust state authorities, especially law enforcement (Sierra-Arévalo 2016), with particularly low levels of trust among Black and Latinx Chicagoans.<sup>12</sup>

#### *Criminal Organizations as Strategic Actors*

The scope condition for our theory is *organized, territorial* criminal groups capable of strategizing, negotiating, agreeing to truces, or fighting wars. Non-organized criminal groups are beyond the limits of our theory. We focus our analysis on criminal groups in Chicago because they were institutionalized for more than a half century (Howell 2015; Vargas 2016). At the same time, the ethnographic literature on Chicago's gangs documents how the decline in the crack epidemic, demolition of public housing, and incarceration of gang leaders "shattered" some gangs in neighborhoods such as Kenwood, Washington Park, Hyde Park, and Woodlawn. Survey participants in these communities described their gangs as possessing no structure (Aspholm 2020; Stuart 2020). Accordingly, drawing on expert accounts, we omit from our analysis community areas 34–43, 60, and 69: the administrative units of the city most affected by the policies that led to the breakdown and dissolution of organized gangs. Online Appendix A.4 maps the ex-ante variation in criminal group institutionalization and our inclusion criteria, which yields a final sample of 63 of Chicago's 76 community areas.<sup>13</sup>

#### *War and Truce Among Criminal Groups*

The context we study exhibited the necessary, significant variation in turf war and truce. In the 1960s, the Disciples and the Stones brokered six peace treaties to limit escalation in violence. In the 1980s, the BDGN and Latin Disciples formed the Folk Alliance, and the Latin Kings and Vice Lords formed the People alliance, resulting in "relative stability in street gang-motivated violence for a few years" (Block and Block 1993, 7). In the mid-1990s, various gangs brokered the "Almighty Latin King and Queen Nation Peace Treaty." In recent times, these criminal groups engage in an alliance practice referred to as "cliquing up," which stabilizes levels of violence (Aspholm 2020, 54), and other forms of cooperative relations that "preserve an unconventional social order" (Vargas 2016) and allow the criminal groups to focus on economic activity rather than combat (Aspholm 2020). While peace treaties exist, criminal war is also prevalent during the period we study.

### **Empirical Strategy**

To gain causal leverage on criminal war, we study a policy-relevant shock: a change in cross-border gun laws, which differentially altered criminal groups' capacity for violence. Criminal groups often source their guns across jurisdictions with regulatory discrepancies, both domestic and international. However, criminal groups differ in their network structures for accessing such out-of-state gun markets, and,

as a result, gun law changes can affect different criminal groups unevenly, upsetting the balance of power.

#### *Arms Control as a Shock to Criminal Groups*

We focus on a shock provided by a repeal of the waiting period for handgun purchases in Wisconsin, which shares a border with Illinois close to the Chicago area. This repeal, Wisconsin Law 22, passed on June 27, 2015, removed the previously legislated 48-hour mandatory waiting period for handgun purchases in the state of Wisconsin. This, in effect, also nullified the requirement for prospective gun owners to pass a Department of Justice background check in advance of purchasing a handgun.<sup>14</sup> Heralded as a victory for gun rights in Wisconsin, this law reversed forty years of background check requirements in Wisconsin.

#### *Justifying the Coercive Power Shock*

We suggest that this shock significantly and unevenly affected the coercive power of Chicago's criminal groups. Chicago's local market for firearms is characterized by low access and high transaction costs (Cook et al. 2007), high levels of friction, and thinness in terms of buyers, sellers, and transactions (Cook et al. 2015; Roberto et al. 2018). Survey data suggest that, in Chicago, "it is common for criminals who would like to have a gun to indicate that they would have difficulty in obtaining one" (Cook et al. 2007). The bulk of illegal firearms in Chicago are trafficked into the city from places with greater access to guns across state lines (Cook et al. 2015).

Criminal groups mediate access to these guns. In a survey of violent offenders, gun users described that "gang leaders ... they purchase a lotta guns, it's called a crate (which are then distributed within 'the organization')... you have to be 'associated' with a gang" to get one (Cook et al. 2015). Network analysis in Chicago found that joining a criminal organization reduced the social distance to a gun by 27 percent (Roberto et al. 2018), with survey evidence of violent offenders finding that up to 83 percent of Chicago offenders obtained their guns through their trusted personal connections (Cook et al. 2015). Qualitative accounts emphasize how criminal group leaders "[bring] a supply of guns for lower-ranking gang members to defend themselves" when attempting to reclaim or hold turf (Vargas 2016, 162).

The gun law repeal in Wisconsin changed the gun supply in Illinois. In online Appendix Figure A.1, we display firearm trace data for recovered crime guns in Illinois, which illuminate that crime gun flows from Wisconsin to Illinois, albeit trending upward, spiked following the repeal. Over the same period, regulation in the other dominant gun supplier states to Illinois – Indiana and Missouri – remained constant. We present further support for our gun shock in Online Appendix A.3.1.

This empirical context presents an opportunity to identify the causal effect of a shock to coercive capacity on criminal war due to Chicago criminal groups' differential exposure to Wisconsin's gun deregulation. The shock to coercive capacity affected different gangs to varying degrees. Of the criminal groups consistently active in Chicago between 2009 and 2018, fewer than 20 percent possessed a regional network in Wisconsin at the time of the gun reform based on law enforcement data. A Wisconsin-based network presented a substantial advantage in accessing the

<sup>12</sup>MacArthur Foundation, 2021.

<sup>13</sup>We also exclude community area 76, which contains only O'Hare International Airport.

<sup>14</sup>Previously, prior to the 2015 reform, the background check had been processed during the waiting period.



newly-deregulated gun supply, shocking the gun supply of the criminal groups with regional networks in Wisconsin while leaving the power of those without regional networks unaltered; whereas Wisconsin residents with a state ID could purchase a handgun in Wisconsin without any background check or waiting period, Illinois residents could not buy firearms in Wisconsin without passing a federal background check, obtaining a handgun license, and waiting Illinois' 72-hour "cool down" period for handgun purchases.

### Net Effects of Shock to Coercive Capacity on Criminal Group Violence

We explore how this differential shock to the coercive capacity of Chicago's criminal groups shaped average levels of criminal turf war between them.

#### *Data: Criminal Groups, Turf, Violence, and Guns*

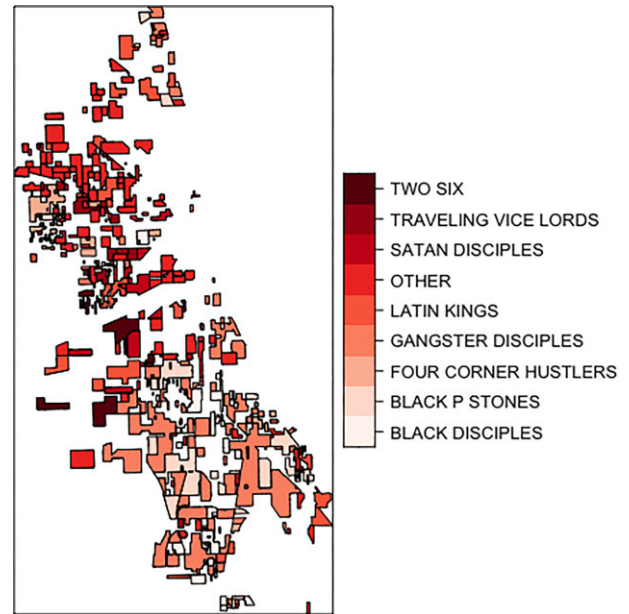
Criminal group turf is generally defined by ethnographers with reference to city blocks, and thus, we focus on the city block as our unit of analysis. In particular, during the years of our analysis, they describe the criminal groups in Chicago as hyper-local, neighborhood-based collectives operating block-versus-block.<sup>15</sup> Due to these extremely local dynamics of gang territorial presence and contestation, we adopt measurements of turf and shocked status at the block level to most closely cohere with our theoretical framework and the traits of our empirical context.

To reflect these local dynamics, we define a unique city block as the length between one intersection and the next closest intersection (or dead end) of a continuous street, corresponding to the unique geometries in Chicago's Street Center Lines, as presented in Online Appendix A.6. Our panel covers city block-month observations from January 2009 through December 2018. We present summary statistics in Online Appendix A.1.

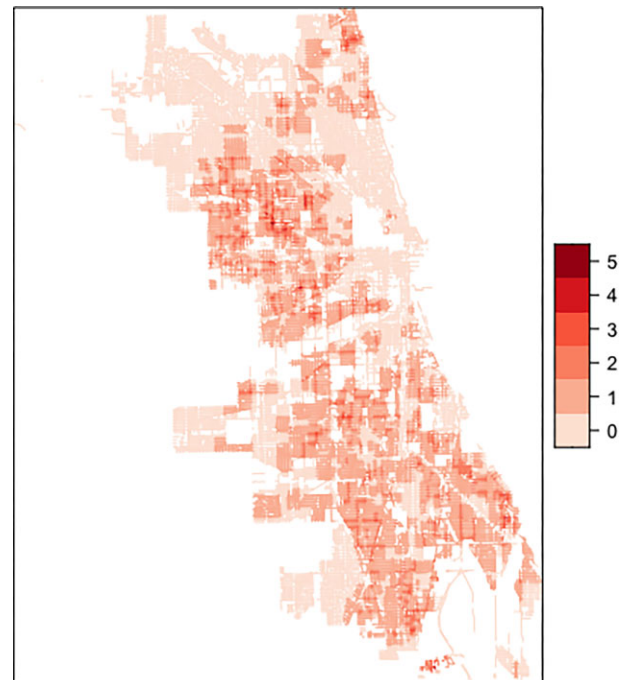
#### CRIMINAL GROUP PRESENCE AND TURF TYPE

We rely on data from the Chicago Police Department (CPD) to map criminal group boundaries. A volley of FOIA requests, filed June 2017 through December 2020, yielded access to annual, digital maps of criminal groups' territorial holdings from 2004 through 2018, based on CPD's internal gang audits. Such law enforcement data present potential weaknesses. Criminal groups may fracture, disband, or change names, and CPD's use of criminal group names and attribution of territories to the names may lag these fast-shifting dynamics on the ground. Despite this limitation, law enforcement data remain the most comprehensive available and, as a result, are those conventionally used in the study of Chicago violence (Papachristos 2009; Bruhn 2019). To address the turf mappings' potential endogeneity to our shock, we use the criminal group map assembled before our shock, at the beginning of 2015, which reflects the criminal group spatial geography at the end of 2014. The criminal group mappings contain a maximum of 57 unique criminal groups, with many groups holding non-continuous territory. Figure 1 presents the 2015 turf map, with the eight largest groups denoted individually and the remaining groups pooled into the "other" category.

For each block in our block-month panel, we record each criminal group whose territorial holdings overlap with the given block within a 25 m buffer. Blocks range from no criminal group presence to a maximum of five criminal groups



**Figure 1.** Criminal Territory Map and Distribution of Criminal Group Presence in Blocks, 2015

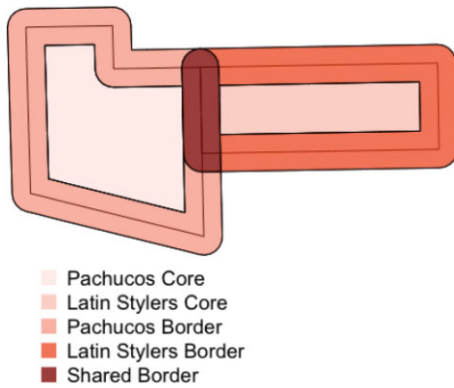


**Figure 2.** Distribution of Gang Presence in Blocks, 2015

with overlapping territory in a given block; Figure 2 shows this distribution for January 2015.

We also leverage these maps to categorize blocks by where they fall relative to criminal groups' turf. Figure 3 shows our classification for two criminal groups: the Pachucoes and the Latin Stylers. We define border turf as the 100 m (about two city blocks) buffer around the border lines of the criminal groups' turf (medium shading in Figure 3). Blocks that are within criminal group borders and  $\geq 100$  m from turf boundaries we classify as "core" criminal group turf (light shading in Figure 3). Where the territorial boundaries of

<sup>15</sup>Aspholm (2020)



**Figure 3.** Sample Turf Map

two or more criminal groups overlap, we consider the blocks shared borders (dark shading in [Figure 3](#)). Blocks falling outside of any criminal group territory we consider unoccupied. During our sample period, turf within 100 m of criminal group borders comprised 2.2 million block-month observations (45.2 percent of city blocks); core turf made up 624,760 (13.1 percent of city blocks); and the remaining 41.7 percent of city blocks were not occupied by criminal groups.

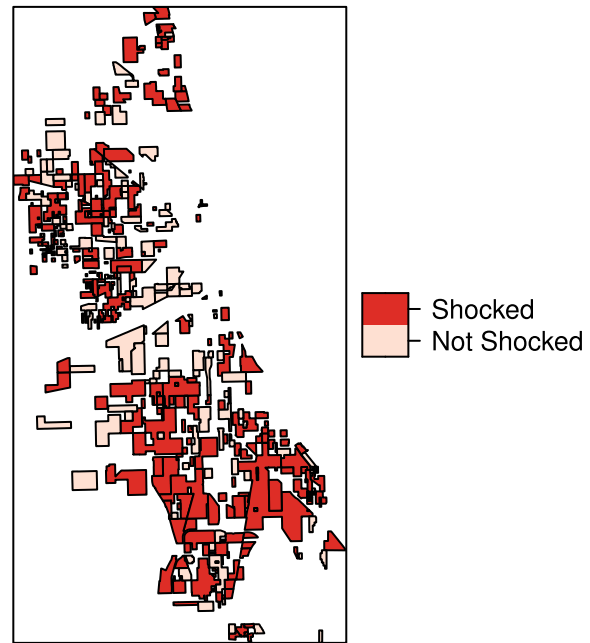
#### OUTCOME MEASURE—HOMICIDE DATA

We operationalize inter-criminal group war by focusing on changes in fatalities occurring in criminal group border turf. This measure excludes non-fatal violent interactions that do not result in deaths, but which nonetheless dramatically deteriorate inner-city quality of life. To guide our spatial design, we draw on criminology literature, which finds that homicides occurring close to criminal group boundaries are more likely to reflect inter-criminal group conflict than homicides occurring deeper within criminal group turf or on blocks that are distant from existing criminal group turf ([Brantingham et al. 2012](#); [Bruhn 2019](#)).

We rely on homicide data available from the Chicago Police Department through the Chicago Data Portal.<sup>16</sup> Alternative sources of homicide data, such as the Cook County Coroner were incomplete prior to 2015.<sup>17</sup> The CPD data are dated and geo-referenced, allowing us to count fatalities to the block-month in which the violence occurred.<sup>18</sup>

#### GUN-ACQUISITION NETWORKS AND EXPOSURE TO THE GUN SHOCK

We combine several sources of data to identify criminal groups with a regional network in Wisconsin, and thus with exposure to the gun deregulation and shock to weapon access. Our primary analysis triangulates across two sources of data: the Federal Bureau of Investigation (FBI)'s National Gang Threat Assessment from 2011, and the Midwestern Regional Gang Arrest Database. The FBI assessment includes a list of criminal groups active in each state as a component of its investigation into regional networks. To select criminal groups that may have operated in each state, we create a list of criminal groups that had operations listed in both Illinois and Wisconsin. We validate which criminal groups we code as shocked by cross-referencing the shocked criminal



**Figure 4.** Map of Shocked Criminal Group Turfs, 2015

groups with an inter-state arrest database, relied on by law enforcement to coordinate across state lines, as presented in [Online Appendix A.3.2](#).

For our main specifications, we code a criminal group as “shocked” if it was listed as operating in both Wisconsin and Illinois in the FBI’s 2011 assessment and the networks are validated by the pre-treatment arrest data ([Federal Bureau of Investigation 2011](#)). This yields a list of 12 of the 56 criminal groups in our dataset with Wisconsin networks, which we categorize as “shocked.” We then classify a block as “shocked” if it falls within 100 m of a shocked criminal group. We note that shocked criminal groups include both Black and Latino gangs, both large and small. We assign this shock at the block level through the territorial presence of gangs in a given block: when a shocked gang is present in a block, we code that block as shocked. This strategy enables our design to leverage the effects of local changes in access to arms on the extremely localized conflict that may erupt following the power shock.

We triangulate several additional sources of data to validate this shock. First, we review three years of qualitative federal district court filings to verify that the criminal groups in Wisconsin comprised a gun pipeline for their Chicago counterparts pre-repeal (see [Online Appendix A.3.1](#)). Second, in [Online Appendix A.3.3](#), we document that firearm violations increased in shocked blocks following the shock. This provides on-the-ground evidence of our mechanism at work. [Figure 4](#) plots the distribution of shocked criminal groups across Chicago’s criminal turf.

#### Identification Strategy

We rely on a difference in difference (DID) design to estimate the causal effect of the shock to coercive capacity on criminal group violence. We compare the difference in homicides between shocked and un-shocked blocks prior to and following the firearms law repeal and specify the follow-

<sup>16</sup>While we submitted numerous FOIA requests for gang-related violence data to the CPD, these requests were repeatedly ignored or delayed.

<sup>17</sup>For the years for which the data overlap, CPD homicide counts correspond to between 97 percent and 99.7 percent of those reported by the Coroners office.

<sup>18</sup>[Online Appendix A.6](#) visualizes event aggregation at the block level.



ing DID estimator:

$$Y_{i,t} = \beta_1 (\text{Post Shock}_t \cdot \text{Shocked}_i) + \beta_2 \text{Shocked}_i + \delta_i + \gamma_t + \varepsilon_{i,t} \quad (1)$$

Here,  $Y$  represents the outcome of interest: the number of homicides occurring within a given block. The subscript  $i$  indexes each block, while “Post Shock $_t$ ” is a binary time indicator that becomes a “1” after the repeal was in place, and 0 prior to the repeal. We define “Shocked” as a binary indicator that becomes a “1” when any criminal group in the block is exposed to the shock, and “0” otherwise.  $\beta_1$  is our main coefficient of interest, representing the interaction between exposure to the gun shock and the post-shock period.

We implement two-way fixed effects for the unit (block) and time (month-year),  $\delta_i$  and  $\gamma_t$ , which is standard for the time-varying, block-month structure of our difference in difference design (Bertrand et al. 2004; Angrist and Pischke 2008). Using months as our temporal unit allows us to address seasonal trends in homicides and accurately code the post-shock period, given that the shock occurred mid-2015. To account for spatial auto-correlation in our residuals, we cluster our standard errors at the census block level, of which there are approximately 10,000 in the city of Chicago (Bruhn 2019). Our results are robust to higher levels of clustering (Online Appendix A.13).

We leverage multiple techniques to validate core assumptions of the difference-in-difference design. Online Appendix Figure A.4 plots the pre-trends for the DID estimators showcased in our core results. We complement this visualization with a formal test of violations of parallel pre-trends, as well as a discussion of potential violations of model assumptions and of other possible shocks in Online Appendix A.7. Following Khan-Lang and Lang (2019), we assess balance in theoretically important variables across our treatment and control blocks in Online Appendix A.2, which increases our confidence that un-shocked criminal group border blocks are a sound counterfactual. In Online Appendix A.7.3, we address concerns of other conflating shocks by undertaking a comprehensive audit of federal indictments against Chicago criminal groups during our study period. We find both the formal test of parallel trends and our audit of federal indictments to support the validity of our identification strategy.

We note that our design departs from standard two-period difference-in-difference designs due to the theoretical and conceptual importance of allowing for dynamic turfs at the block level. We code blocks as shocked (our “treated” condition) when they are inhabited by a shocked gang, in the post-shock period. However, gang maps shift slightly over time, rendering both some delayed uptake in treatment and some attrition from treatment over the post-shock period in our panel. Due to the centrality of turf contestation to gang conflict, we update measures of gang presence in the maps as often as possible, which is annually given CPD’s yearly map creation procedures. This produces a small amount of staggered onset of treatment and attrition from treatment at the block level, which we describe in Online Appendix A.8.

We present two robustness tests to address concerns about differential attrition from treatment. First, we code blocks as treated once they are exposed to a shocked gang, and keep them coded as shocked throughout the rest of the post-shocked period. We present these results in Table A.6. Second, we drop blocks from the data once they are vacated by treated gangs; in other words, we exclude blocks rather than returning them to “control.” We present these results in Table A.7. Findings from both of these analyses are robust to

**Table 1.** Homicides increase in shocked blocks following the shock

|                         | Dependent variable: Homicide |                       |
|-------------------------|------------------------------|-----------------------|
|                         | (1)                          | (2)                   |
| Shocked (Ind.)          | 0.00004<br>(0.0002)          |                       |
| Shocked (Ind.) X Post   | 0.0003**<br>(0.0002)         |                       |
| Shock Intensity         |                              | -0.0001<br>(0.0001)   |
| Shock Intensity X Post  |                              | 0.0004***<br>(0.0001) |
| Block & Time FEs        | Yes                          | Yes                   |
| Observations            | 1,896,132                    | 1,896,132             |
| Adjusted R <sup>2</sup> | 0.002                        | 0.002                 |

Note: \*p < 0.1; \*\*p < 0.05; \*\*\*p < 0.01.

design choices, and bolster our confidence that differential attrition from treatment—due to the complexity of our data structure—is not biasing our results. We provide additional discussion of the role of dynamic turfs and the implications for our empirical design in Online Appendix A.8.

Finally, both the nature of the regulatory change as well as our measurement strategy for criminal group exposure bolster our confidence that selection into treatment is not a major concern in the context of our design. The regulatory repeal and treatment assignment, particularly as we measure it, are exogenous to the local criminal group context. Part of a broader regulatory purge in Wisconsin, the gun regulatory change was not enacted by a government responsible for Chicago or accountable to Illinois voters. While criminal groups may have attempted to expand their cross-border, Wisconsin network following the repeal, we base our network measure on the 2011 FBI regional network data, which predates the repeal, and we validate this measure with pre-treatment arrest data, as discussed in Online Appendix A.3.2.

#### *Results: Shocks to the Balance of Coercive Capabilities Cause Criminal War*

We expect violence to have increased where one or more criminal groups were exposed to the shock to relative coercive capacity that upset the balance of power between the criminal organizations. We first test for overall differences comparing shocked and un-shocked blocks in criminal group border regions, relying on Equation (1). We then analyze the effect of intensity of exposure to treatment (see Online Appendix A.10).

We find that, following the repeal, shocked blocks in a boundary region experienced an increase of 0.00035 homicides per block-month relative to un-shocked blocks in such a region.<sup>19</sup> Given a baseline fatality rate of 0.0017 per block-month, this represents a 21 percent uptick in the homicide rate at the block-month level following the shock. Column 2 of Table 1 presents results for the total number of shocked criminal groups: we find that each marginal shocked criminal group increases the likelihood of homicide in a given block-month by an additional 24 percent. These strong results are consistent with our theoretical account: where the shock to coercive capacity shifts the local

<sup>19</sup>We note that we are unable to weight these data by population due to the lack of city-block level population data.

distribution of criminal power, increased violent conflict between organized criminal groups may result. These effects are substantial in their welfare costs: across the whole city, the effects represent an increase of approximately 3.4 deaths per month, or approximately 40.3 deaths per year in the post-shock period due to the shock.

We argue that this uptick in violent conflict is strategic and centers on power and bargaining. However, there exist several alternative pathways by which the shock to coercive capacity could have led to the observed increase in fatalities. One, gun rights could have increased violence through non-strategic mechanisms such as emotional and interpersonal ones (Lake 2003). Papachristos (2009), for example, argues that the spark of most criminal group fatalities is typically an argument over non-material issues: symbolic matters, such as disrespectful gang graffiti or boasts of social status and reputation. Distinguishing non-strategic violence may be murky—whereas transgression of turf by a rival criminal group member is often counted in this category, it could also indicate failed bargaining. To evaluate this alternative logic, we use domestic violence as a “placebo test.” If violence were non-strategic, we would expect domestic violence to have followed the same pattern, increasing in exposed blocks following the gun shock. We find no such increase in domestic homicides, as presented in Online Appendix A.11. We interpret this as supporting our interpretation of escalation in violence along shared criminal group boundaries as strategic.

A second alternative pathway is that increases in access to weapons could have resulted in greater violence through criminal groups engaging in more violent domination within their core territories. In this scenario, we would expect levels of violence on criminal group boundaries to have remained unchanged, while levels of violence within core turf would have increased for criminal groups that gained greater coercive capabilities. To test this, in Online Appendix A.12, we leverage an analysis of core turfs and uncontested borders—turf that criminal groups do not compete over with other criminal groups. We find no evidence of increases in violence in either of these territories, consistent with our interpretation of Table 1’s models as evidence of inter-criminal group strategic violence deployed to compete over turf along criminal group boundaries.

Finally, we test for the robustness of our findings to the inclusion of a number of theoretically-important variables, including poverty, unemployment, and differential levels of policing. Our findings are robust to the inclusion of these controls, as shown in Online Appendix A.14.<sup>20</sup>

### Heterogeneous Effects: Criminal Group Networks and Landscapes

How does the shock to criminal groups’ relative coercive capacity elevate levels of criminal war and, specifically, why, within shocked territories, do some criminal groups manage to stabilize violence whereas others become embroiled in a spike in turf homicides? Following from our bargaining framework, we expect that weaker internal and external criminal networks and multipolar strategic environments can exacerbate the effects of a power shock on the intensification of conflict.

### Measuring Factions, Embeddedness, and Multipolarity

To code criminal group fragmentation, we obtained a list of all known factions of each criminal group from the Chicago Police Department. We normalize the raw number of factions to the size of the criminal groups’ turf holding in January 2015 to account for the fact that a greater number of factions may reflect a larger criminal group size or territory. The resulting measure employed in our regression analyses is the total number of factions in the CPD faction data set, normalized by the criminal groups’ January 2015 territorial holdings. The CPD data do not include time of activity, but rather present the universe of factions, so we are not able to create a time-varying factions’ measure. We do not believe that these data systematically overestimate or underestimate the number of sects in distinct criminal groups.<sup>21</sup>

To capture the degree of embeddedness of each criminal group, we construct a measure of historical presence in a given block over time, comparing criminal group occupants of a block at year  $t$  relative to year  $t - 1$  for the five years (2004–2009) for which the criminal group maps are available.<sup>22</sup> We also examine the share of criminal groups holding tenure in the block in the previous year. This latter variable represents the complementarity of tenure across criminal groups, in which criminal groups share access to the varied bargaining assets that mutually strong ties to the communities provide.

To operationalize the role of multi-criminal actor settings, we use our criminal group maps and code the number of criminal groups present within 400 m of each block. We count the number of distinct criminal groups’ 400 m buffer within which each block falls. In the data, blocks fall within the 400 m boundary regions of between zero and eight groups.

### Results: Cohesion, Embeddedness, and Multipolarity Shape Patterns of Bargaining and Criminal War

We examine these sources of heterogeneity—organizational networks and multipolarity—shaping the likelihood of bargaining failure and, thus, an increase in violence. To do so, we introduce a triple interaction to the main interaction in our base specification. We present estimators in Online Appendix A.10.

Table 2 displays the results. Consistent with our expectations, column (1) reveals that increases in the relative factionalization of criminal groups elevates the likelihood of violence in response to the shock; however, this difference is not statistically significant.

Strikingly, our findings underscore the value of local embeddedness for criminal groups to avert an escalation of violence following a power shock, as presented in columns (2) and (3). The coefficient in column (2) indicates that a one-year increase in the average length of criminal group tenure in a given block reduces the occurrence of homicides by 30 percent of the baseline effect. Tenure also matters across criminal groups; column (3) shows that a higher percentage of tenured criminal groups in the block decreases the likelihood of violence, washing out the effect of the regulatory shock for blocks in which all criminal groups are tenured. This is consistent with the complementarity of tenure across criminal groups; the success of bargaining relies on all criminal groups possessing the cohesion, surveil-

<sup>20</sup>We also find that our analysis is robust to design choices, including broader definitions of treatment, and larger buffer zones for criminal groups, with these results available upon request.

<sup>21</sup>We discuss these data in depth in Online Appendix A.5.

<sup>22</sup>Since our analysis began in 2009, five years is the maximum length of tenure-years we can code for a criminal group and maintain consistency across our panel.

**Table 2.** Fractionalization, Tenure, Multipolarity and Patterns of Violence

|  | <i>Dependent variable: Homicide</i> |                      |                     |                      |
|--|-------------------------------------|----------------------|---------------------|----------------------|
|  | (1)                                 | (2)                  | (3)                 | (4)                  |
| Shocked (Ind.) X Post                                      | 0.0002<br>(0.0002)                  | 0.003**<br>(0.001)   | 0.003**<br>(0.001)  | -0.0004<br>(0.0003)  |
| Shocked (Ind.) X Post X Factions (Normalized)              | 0.00002<br>(0.0001)                 |                      |                     |                      |
| Shocked (Ind.) X Post x Avg. Tenure                        |                                     | -0.001**<br>(0.0004) |                     |                      |
| Shocked (Ind.) X Post x Pct. Tenured                       |                                     |                      | -0.002**<br>(0.001) |                      |
| Shocked (Ind.) X Post x Total Criminal Groups within 400 m |                                     |                      |                     | 0.0003**<br>(0.0002) |
| Block & Time FEs   | Yes                                 | Yes                  | Yes                 | Yes                  |
| Observations   | 1,896,132                           | 1,179,204            | 1,494,048           | 1,896,132            |
| Adjusted R <sup>2</sup>                                    | 0.002                               | 0.003                | 0.002               | 0.002                |

Note: \*p < 0.1; \*\*p < 0.05; \*\*\*p < 0.01 .

lance, and third-party ties necessary to effectively negotiate following a shock.

Our quantitative results cohere with descriptive accounts of bargaining over territory between criminal groups. In his impressive ethnographic dive into criminal groups in Little Village, for example, Vargas (2016) tells how, following a shock that "altered [power] relations between the gangs," the cohesive and embedded 22 Boys "withdrew from occupying street corners and spraying graffiti ... [and] signified to rival gangs that their turf was up for grabs." As a result, without an inefficient increase in violence, the Latin Kings were observed "standing on the corner of Cermak and California, a corner typically occupied by the 22 Boys street gang ... the Satan Disciples walk[ed] near 2877 W. 22nd Place, a block occupied by the 22 Boys." In this suggestive example, the relatively embedded 22 Boys had access to higher quality intelligence and were thus able to correctly estimate that they could not hold turf, strategically ceding it accordingly.

Similarly, Stuart (2020) highlights how criminal groups with more enduring presence can use strategic drill music, a version of rap full of hyper-violent boasts and taunts, to convey information about power, territorial control, "truces, and feuds," facilitating negotiations. As Stuart (2020)'s interviewees explain: "If they are walking through a neighborhood and hear a certain kind of drill ... they know that corner belongs to the gang Diddy Grove. If they're in Diddy Grove territory and notice songs by O-Block, that tells them Diddy Grove and O-Block are likely cliqued up."

Qualitative accounts further suggest that criminal groups embedded in their communities may have greater access to mediators and third parties able to help broker peace, transmit information, and guarantee the arrangements between criminal actors, another dynamic that likely underpins our findings. This access is created by "the relationships formed through the everyday interactions between the [third parties] and the gang members in which each [feels] a mutual obligation to help the other" (Vargas 2016). For example, ethnographic accounts show how social workers "relay messages back and forth between the warring parties" to avert increases in criminal group violence (Papachristos 2009). The power of the ceasefire projects similarly lay in their ability to locate group members with social capital to diffuse deterrence messages between competitive criminal organizations (Howell 2015). Reformed criminal group members,

street watchers, church leaders, and nonprofits have also been known to serve as "open communication channels," violence 'interrupters', and third-party guarantors (Vargas 2016).<sup>23</sup> Our quantitative results cohere with these examples, suggesting that the role of embeddedness in improving criminal groups' capacity to avoid turf war is systematic.

Finally, we find support for our hypothesis that multi-criminal group environments exacerbate the risk of violence following the power shock, as presented in column (4). The coefficient is positive and significant, suggesting that additional criminal groups within a relatively localized area (about a quarter of a mile) led to worsened violence in the aftermath of the shock. This is consistent with our expectation that multiple criminal actors result in a greater likelihood of bargaining failure. For example, proximity to both the Latin Kings and Satan Disciples made the 22 Boys "especially vulnerable to aggression" following a disruption to their power (Vargas 2016, 168). The presence of multiple criminal groups increases the strategic complexity, a reality group members note: "You know, everybody got they own little oppositions.... We into it with n—s three blocks to the left. We into it with n—s two blocks down.... Like, we be on our block and look to the left, we see 'em posted up" (Aspholm 2020, 80).

Taken together, the results are consistent with our argument that criminal war results from failed bargaining, and that the criminal groups' organizational networks and strategic landscapes shape whether they can overcome information, commitment, and multipolarity problems to avert violent conflict.

While the results are largely consistent with our theoretical account, we further probe the plausibility of our mechanisms by assembling data on public hotline complaints of graffiti. Graffiti is often used by criminal groups in the initiation and escalation of violent turf conflict and concentrates, according to Vargas (2014), on turf borders between criminal groups. A Latin Kings' member described the escalation process: "First, we spray graffiti on your territory, and if you don't do anything, we take your corner. If you don't protect your corner, we take your block" (Vargas 2016,

<sup>23</sup>On the role of nonprofit organizations, see Sánchez-Jandowski (1991). On that of governments, see Cruz and Durán-Martínez (2016). Vargas (2016), tells of nonprofit organizations like the PCG that prevented small gang conflicts from spiraling.



160). Vargas describes: when “gang members ... paint their symbols on streets in rival gang territory ... conflicts often erupt into acts of violence that ignite a series of back-and-forth retaliations, some of which result in homicides.” Accordingly, we would anticipate that criminal groups endowed with a superior repertoire of communication and bargaining assets would have needed to engage less in this confrontational tactic to signal enhanced strength and capacity to grab turf. As presented in Online Appendix A.15, we find that graffiti increased in shocked blocks following the shocks, but was much less utilized in blocks where criminal groups had substantial tenure, and where all criminal groups present held tenure in the block, consistent with our argument about access to alternative, non-violent means of bargaining. We interpret these findings as bolstering our claims about the importance of information and channels of communication in shaping post-shock patterns of criminal war.

To boost confidence in our interpretation of the results, we further consider several alternative explanations. First, bargaining theories also stress the role of high stakes in contributing to violent conflict rather than peaceful resolution following a shock to coercive capacity. This could produce heterogeneous effects through the value of territory being contested. Turf is valuable for many reasons: it yields access to rents from drug markets, as well as providing safety for criminal group members as a defensive base (Vargas 2016; Aspholm 2020). We test this explanation by examining one salient value of turf: the utility of a given block for gang operations. We operationalize this utility by marshalling data on abandoned lots, valuable because they provide potential places to store contraband, house criminal group members, and facilitate illicit transactions without interference (Vargas 2016). As presented in Online Appendix A.16, we do not find evidence that the value of turf in border blocks influences the escalation or stability in levels of violence.

We further consider the symbolic value of turf, which might render the turf indivisible, hindering bargaining. If such symbolic value were impeding successful negotiations, we would anticipate embedded criminal groups with stronger ties to their neighborhoods experiencing higher levels of violence. That we observe the opposite, given the negative effects of criminal group tenure, casts doubt on this explanation.

Second, variation in economic competition across criminal groups might also distort violence levels following the shock (Bruhn 2019). Specifically, criminal groups that compete economically might face greater incentives to go to war against rival groups following an upset to the balance of power, with competition for the drug market heightening incentives to compete for turf. To test for these effects, we marshal data on drug arrests over our time period to categorize each criminal group’s drug sales in a given block-year. For each year, we create a measure of which drugs are being sold within each criminal group’s turf to describe the criminal group’s economic portfolio. We then code whether abutting criminal groups’ economic activities overlap. As displayed in Online Appendix A.16, we find no evidence that similarities in economic portfolio across criminal groups can account for variation in violent conflict.

Finally, bargaining and conflict literatures highlight ethnic heterogeneity as a key factor in shaping the risk of war across groups. We test whether heterogeneity—both within and across criminal groups—accounts for variation in negotiation success and conflict following the shock. To test

this, we rely on a database of criminal group-related arrests from the Chicago Police Department to categorize criminal groups by their ethnic and racial composition.<sup>24</sup> We classify criminal groups as predominantly Black, predominantly Latino, or mixed. We find no evidence that either intra- or inter-criminal group heterogeneity increases conflict across criminal groups following the shock, as presented in Online Appendix A.17. The lack of evidence for economic and identity-based causes of criminal group conflict lends confidence to our theory that bargaining failures explain variation in violence following shocks to coercive capacity.

## Conclusion

Criminal war is a leading cause of insecurity around the world. However, criminal organizations do not always fight; at times, they agree to arrangements that avert an increase in violence. We illustrate the merit of studying criminal war within the field of international security, and the utility in applying international relations’ theories of war and peace to criminal conflict. We argue that disruptions to the balance of power between criminal groups make escalations in criminal violence more likely by incentivizing relatively strengthened criminal groups to incur on others’ turf and by creating time inconsistency and information challenges. Certain criminal groups prove better able to overcome these bargaining challenges and to agree upon or commit to the transfers necessary to avert a spike in deaths following a shock to coercive capabilities. These are criminal organizations with robust internal and external networks and those in simpler strategic environments. We leverage a data-rich environment to map criminal conflict to the city-block level, and an important policy-relevant shock related to arms control. The results of the empirical analysis fit the expectations of a bargaining theory of criminal war.

Criminal war remains under-examined (Skaperdas and Syropoulos 1993; Lessing 2017; Kronick 2020). Our project invites future inquiry of strategic turf war and truce through a bargaining lens elsewhere. This would extend the research agenda to other power disruptions and to other regions of the world in which criminal groups are similarly organized and institutionalized. The same framework may be applied to other shocks, which do not affect criminal groups in a uniform fashion. These include shocks to the illicit economy (drug seizures/changes in counternarcotics); military invasions of criminal group territory; decapitation of criminal groups’ command; and international deportations that differentially benefit and harm criminal groups. Understanding how these myriad shocks to the balance of power between criminal groups influence commitment and information dynamics, the negotiation process, and levels of violence constitutes an area ripe for future research. The methodology may also travel and could be fruitfully applied to other contexts with rich data on relations between armed criminal actors.

Many people around the world suffer insecurity not from armed conflict, but from criminal violence. These are places in which homicidal ecologies have taken hold as Deborah Yashar (2018) shows, sparking mass international migration, regional non-state actor wars, and state failure, and driving international relations and foreign policy. Even in places not plagued by all-out criminal war, significant, marginal-

<sup>24</sup>Due to racial profiling, Black and Latinx Chicagoans are likely overrepresented among gang arrests. Albeit normatively highly problematic, we do not believe that this would likely vary systematically by criminal group. See Online Appendix A.17.

ized populations lack protection because of police and military corruption, incompetence, abandonment, or brutality, and therefore become victims of turf violence between criminal organizations. These populations merit inclusion in the field of security studies.

This project is about a shock to arms control. Firearms policy is legislated within borders, accountable to the constituencies within those borders. However, guns are trafficked across state and international boundaries, adversely impacting social welfare for populations with no voice in the policy-making process. For example, [Dube et al. \(2013\)](#) shows how a change in a US weapon law had lethal externalities for citizens in Mexico. This highlights the importance of multilateral policy-making to address the global firearm epidemic and prevent flows from places with looser arms control to those with stricter control. The accountability gap engendered by the potential mismatch between jurisdictions in which arms policy is set and jurisdictions in which the effects of arms policy are felt generates myriad questions around public opinion and the electoral politics of firearms control. We suggest this as a further area for investigation in international security, building on research on the role of international borders and smuggling in shaping security ([Kim and Tajima 2022](#)). While we focus on an easing of gun restrictions, even laws created to reduce access to weapons (or otherwise counter criminal violence) could have destabilizing effects on local power balances, raising the risk of criminal war. Indeed, this may explain why public policy in this area is so fraught.

Finally, our findings have potential implications for security policy. Our analysis points to a promising research agenda on crime-state relations that would theorize when and why the state and police cooperate with or combat organized criminal groups. The data indicate that strategies that induce criminal groups to relocate, shortening their time horizon and embeddedness in their territories, may increase bargaining failure and turf war as do policies aimed at splintering criminal groups, which creates greater multipolarity in the strategic landscape. We caution that, like counterinsurgency policy, policing and counternarcotics policy that upsets criminal organizations' relative power may produce more volatile situations ([Daly 2016](#)). Accordingly, our research indicates the importance of detecting and ameliorating shocks to the balance of power when they do occur. Our results also speak to contemporary deliberations over state's use of force and point to a particularly useful role for community policing and third-party civil society: mediation, transmission of information between criminal groups, and guaranteeing territorial arrangements to facilitate successful bargaining and avert criminal war.

### Supplementary Information

Supplementary information is available at the *International Studies Quarterly* data archive.

### References

- ANGRIST, J. D., AND J. S. PISCHKE. 2008. *Mostly Harmless Econometrics: The Empiricist's Companion*. Princeton, NJ: Princeton University Press.
- ANGRIST, J., AND A. KUGLER. 2008. "Rural Windfall or a New Resource Curse? Coca, Income, and Civil Conflict in Colombia." *The Review of Economics and Statistics* 90 (2): 191–215.
- ARIAS, E. D. 2017. *Criminal Enterprises and Governance in Latin America and the Caribbean*. Cambridge: Cambridge University Press.
- ART, R., AND R. JERVIS. 1986. *International Politics: Enduring Concepts and Contemporary Issues*. London: Pearson.
- ASPHOLM, R. R. 2020. *Views from the Street: The Transformation of Gangs and Violence on Chicago's South Side*. New York: Columbia University Press.
- BALIGA, S., E. BUENO DE MESQUITA, AND A. WOLITZKY. 2020. "Deterrence with Imperfect Attribution." *American Political Science Review*. 114 (4): 1155–1178.
- BARNES, N. 2022. "The Logic of Criminal Territorial Control: Military Intervention in Rio de Janeiro." *Comparative Political Studies* 55 (5): 789–831.
- BERTRAND, M., E. DUFLO, AND S. MULLAINATHAN. 2004. "How Much Should We Trust Differences in Differences Estimates." *Quarterly Journal of Economics* 119 (1): 249–275.
- BLOCK, C. R., AND R. BLOCK. 1993. *Street Gang Crime in Chicago*. Washington D.C.: U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.
- BRANTINGHAM, P. J., G. E. TITA, M. B. SHORT, AND S. E. REID. 2012. "The Ecology of Gang Territorial Boundaries." *Criminology* 50 (3): 851–85.
- BRUHN, J. 2021. "Competition in the Black Market: Estimating the Causal Effect of Gangs in Chicago." *Bravo Working Paper #2021-004*.
- CALDERÓN, G., G. ROBLES, A. DÍAZ-CAYEROS, AND B. MAGALONI. 2015. "The Beheading of Criminal Organizations and the Dynamics of Violence in Mexico." *Journal of Conflict Resolution* 59 (8): 1455–85.
- CASTILLO, J. C., AND D. KRONICK. 2020. "The Logic of Violence in Drug War." *American Political Science Review* 114 (3): 874–87.
- CASTILLO, J. C., D. MEJÍA, AND P. RESTREPO. 2020. "Scarcity without Leviathan: The Violent Effects of Cocaine Supply Shortages for the Mexican Drug War." *The Review of Economics and Statistics* 102 (2): 269–86.
- CHICAGO CRIME COMMISSION. 2006. *The Gang Book*. Chicago IL: Chicago Crime Commission.
- COOK, P., R. HARRIS, J. LUDWIG, AND H. POLLACK. 2015. "Some Sources of Crime Guns in Chicago: Dirty Dealers, Straw Purchasers, and Traffickers." *Journal of Criminal Law and Criminology* 104 (4): 717–60.
- COOK, P., J. LUDWIG, S. VENKATESH, AND A. A. BRAGA. 2007. "Underground Gun Markets." *The Economic Journal* 117 (524): 588–618.
- CRUZ, J. M., AND A. DURÁN-MARTINEZ. 2016. "Hiding Violence to Deal with the State: Criminal pacts in el Salvador and Medellín." *Journal of Peace Research* 1 (14):197–210.
- CUNNINGHAM, D. 2006. "Veto Players and Civil War Duration." *American Journal of Political Science* 50(4): 875–92.
- DALY, S. Z. 2016. *Organized Violence After Civil War: The Geography of Recruitment in Latin America*. Cambridge: Cambridge University Press.
- DAVIES, S., T. PETERSON, AND M. OBERG. 2022. "Organized Violence 1989–2021 and Drone Warfare." *Journal of Peace Research* 59 (4): 593–610.
- DELL, M. 2015. "Trafficking Networks and the Mexican Drug War." *American Economic Review* 105 (6): 1738–79.
- DONOHUE, J. H., AND S. LEVITT. 1998. "Guns, Violence, and the Efficiency of Illegal Markets." *The American Economic Review* 88 (2): 463–7.
- DUBE, O., A. DUBE, AND O. GARCÍA-PONCE. 2013. "Cross-border Spillover: U.S. Gun Laws and Violence in Mexico." *American Political Science Review* 107 (3): 397–417.
- DURÁN-MARTINEZ, A. 2018. *The Politics of Drug Violence: Criminals, Cops and Politicians in Colombia and Mexico*. Oxford: Oxford University Press.
- ESTANCONA, C., AND L. TISCORNIA. 2022. "From Cocaine to Avocados: Criminal Market Expansion and Violence." *Working Paper* Accessed 10 January 2024. [https://www.wider.unu.edu/sites/default/files/Events/PDF/papers/Estancona\\_Tiscornia\\_2022%20Chelsea%20Estancona\\_0.pdf](https://www.wider.unu.edu/sites/default/files/Events/PDF/papers/Estancona_Tiscornia_2022%20Chelsea%20Estancona_0.pdf).
- FEARON, J. 1995. "Rationalist Explanations for War." *International Organization* 49 (3): 379–414.
- GALLOP, M. 2017. "More Dangerous than Dyads: Bargaining and War in Multi-actor Disputes." *Journal of Theoretical Politics* 29: 353–81.
- GAMBETTA, D. 1993. *The Sicilian Mafia*. Cambridge: Harvard University Press.
- GARTZKE, E., AND P. POAST. 2018. "Empirically Assessing the Bargaining Model of War." *The Oxford Encyclopedia of Empirical International Relations Theory*. Oxford: Oxford University Press.
- GRAVEL, J., AND G. TITA. 2015. "With Great Methods Come Great Responsibilities: Social Network Analysis and the Implementation and Evaluation of Gang Programs." *Criminology & Public Policy* 14 (3): 559–72.
- HAGEDORN, J. M. 2006. "Race not Space: A Revisionist History of Gangs in Chicago." *The Journal of African American History* 91 (2): 194–208.
- HOWELL, J. 2015. *The History of Street Gangs in the United States: Their Origins and Transformation*. Lanham: Lexington Books.
- KALYVAS, S. 2015. "How Civil Wars Help Explain Organized Crime—and how they do not." *Journal of Conflict Resolution* 59 (8): 1517–40.

- KHAN-LANG, A., AND K LANG. 2020. "The Promises and Pitfalls of Differences-in-differences: Reflections on 16 and Pregnant and other Applications." *Journal of Business and Economic Statistics* 38 (3): 613–620.
- KIM, D., AND Y TAJIMA. 2022. Smuggling and Border Enforcement. *International Organization* 76 (4): 830–867.
- KOIVU, K. 2016. "In the Shadow of the State: Mafias and Illicit Markets." *Comparative Political Studies* 49 (2): 155–83.
- KRACKHARDT, D. 1992. "The Strength of Strong Ties: The Importance of Philos in Organizations." *Networks and Organizations: Structure, Form and Action* 216–39. Cambridge: Harvard University Press.
- KRONICK, D. 2020. "Profits and Violence in Illegal Markets: Evidence from Venezuela." *Journal of Conflict Resolution* 114 (3): 874–87.
- LAKE, D. A. 2003. "International Relations Theory and Internal Conflict: Insights from the Interstices." *International Studies Review* 5 (4): 81–9.
- LESSING, B. 2017. *Making Peace in Drug Wars: Crackdowns and Cartels in Latin America*. Cambridge: Cambridge University Press.
- MAGALONI, B., E. FRANCO, AND V. MELO 2020. "Killing in the Slums: The Problems of Social Order, Criminal Governance, and Police Violence in Rio de Janeiro." *American Political Science Review* 114 (2): 552–72.
- MOE, T. 1984. "The New Economics of Organization." *American Journal of Political Science* 28 (4): 739–77.
- NATIONAL GANG THREAT ASSESSMENT: EMERGING TRENDS. 2011. Washington D.C.: Federal Bureau of Investigation.
- OLSON, M. 1993. "Dictatorship, Democracy, and Development." *American Political Science Review* 87 (3): 567–76.
- OSORIO, J. 2015. "The Contagion of Drug Violence: Spatiotemporal Dynamics of the Mexican War on Drugs." *Journal of Conflict Resolution* 59 (8): 1403–32.
- PAPACHRISTOS, A. 2009. "Murder by Structure: The Social Structure of Gang Homicide." *American Journal of Sociology* 115: 74–128.
- PEARLMAN, W., AND K. G. CUNNINGHAM 2012. "Nonstate Actors, Fragmentation, and Conflict Processes." *Journal of Conflict Resolution* 56 (1): 3–15.
- POSEN, B. 1993. "The Security Dilemma and Ethnic Conflict." *Survival* 35 (1): 379–414.
- POWELL, R. 2006. "War as a Commitment Problem." *International Organization* 60 (1): 169–203.
- ROBERTO, E., A. BRAGA, AND A. PAPACHRISTOS 2018. "Closer to Guns: The Role of Street Gangs in Facilitating Access to Illegal Firearms." *Journal of Urban Health* 95 (3): 372–82.
- ROSS, M. 2004. "How do Natural Resources Influence Civil War? Evidence from Thirteen Cases." *International Organization* 58 (1): 35–67.
- SÁNCHEZ-JANDOWSKI, M. 1991. *Islands in the Street: Gangs and American Urban Society*. Berkeley: University of California Press.
- SCHELLING, T. 1960. *The Strategy of Conflict*. Cambridge: Harvard University Press.
- SHIRK, D., AND J. WALLMAN 2015. "Understanding Mexico's Drug Violence." *Journal of Conflict Resolution* 59 (8): 1348–1376.
- SIERRA-ARÉVALO, M. 2016. "Legal Cynicism and Protective Gun Ownership among Active Offenders in Chicago." *Cogent Social Sciences* 1 (2): 1227293.
- SKAPERDAS, S., AND C. SYROPOULOS 1993. *Gangs as Primitive States*. Technical Report by California Irvine-School of Social Sciences.
- SKARBEK, D. 2014. *The Social Order of the Underworld: How Gangs Govern the American Penal System*. Oxford: Oxford University Press.
- SNYDER, J., AND R. JERVIS. 1999. "Civil War and the Security Dilemma." *Civil Wars, Insecurity, and Intervention*, edited by Barbara F. Walter and Jack Snyder, New York: Columbia University Press.
- STUART, F. 2020. *Ballad of the Bullet: Gangs, Drill Music, and the Power of Online Infamy*. Princeton: Princeton University Press.
- SVIATSCHI, M. M. 2022. "Spreading Gangs: Exporting us Criminal Capital to El Salvador." *American Economic Review* 112 (6): 1985–2024.
- TREJO, G., AND S. LEY 2020. *Votes, Drugs, and Violence: The Political Logic of Criminal Wars in Mexico*. Cambridge: Cambridge University Press.
- UNOCD. 2019. *Global Study on Homicide: Understanding Homicide*. Vienna: United Nations Office on Drugs and Crime.
- VARGAS, R. 2014. "Criminal Group Embeddedness and the Adverse Effects of Arresting a Gang's Leader: A Comparative Case Study." *Criminology* 52 (2): 143–68.
- . 2016. *Wounded City: Violent Turf Wars in a Chicago Barrio*. Oxford: Oxford University Press.
- VENKATESH, S. A., AND S. D. LEVITT 2000. "Are we a Family or a Business? History and Disjuncture in the Urban American Street Gang." *Theory and Society* 29: 427–62.
- WEINSTEIN, J. 2007. *Inside Rebellion: The Politics of Insurgent Violence*. Cambridge: Cambridge University Press.
- YASHAR, D. 2018. *Homicidal Ecologies: Illicit Economies and Complicit States in Latin America*. Cambridge: Cambridge University Press.