Inter-Group Learning and Diffusion in Militant Alliances: Evidence from Kidnapping

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Abstract

This paper investigates the learning processes in militant groups and how different alliances shape these processes. By examining the relatively understudied aspect of tactical choices in civil wars, this study highlights the mechanisms through which armed groups adopt new tactics from allies. Challenging the conventional view that tactical diffusion is a straightforward outcome of alliances, I argue that alliances offering joint training are more effective in facilitating inter-group learning compared to those limited to arms, funds, or rhetorical support. This effectiveness stems from joint training enabling not only elite-level interactions but also socialization among fighters across groups, fostering shared norms, understandings, and practices. The study tests this theory using cross-sectional time series data on militant alliances among 53 militant groups in Northeast India between 1980-2021, focusing on their use of kidnapping tactics. The findings reveal that alliances involving joint training with groups proficient in kidnapping significantly increase the likelihood of a group adopting kidnapping, whereas alliances limited to arms, funds, or rhetorical support do not. Once kidnapping is adopted, its persistent use suggests that what is learned from allies becomes entrenched within the group's practices, indicative of a contagion process where norms and practices are socially reinforced within a community. By shedding light on how alliances influence tactical diffusion, this study contributes to the broader understanding of armed groups' decision-making and the tactical conduct of civil wars. The results also highlight how specific inter-group interactions can facilitate complex organizational learning, opening new research avenues into how militant groups learn about practices beyond violence, such as rebel governance, public relations, diplomacy, or transnational campaigning.

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Introduction

In 2018, NATO conducted *Trident Juncture*, its largest military exercise since the end of the Cold War, bringing together approximately 3,500 personnel from 31 nations. Directed by the NATO Joint Warfare Centre (JWC), *Trident Juncture* aimed to train the NATO Response Force through various scenarios involving conventional and hybrid warfare, providing a platform for direct collaboration among soldiers and officers from diverse national armies. Reflecting on the exercise, JWC's Senior Exercise Control Advisor, Roger Lane, remarked, "By creating this environment... JWC provides a mirror which reflects [participants'] performance back to them from which they can learn and grow, whilst also providing insights into future capability requirements or doctrinal changes"(Joint Warfare Centre 2018). Such cross-national joint exercises, thus, not only enhance NATO's collective defense capabilities but also facilitate the development of a cohesive military doctrine across the Alliance.

Militant organizations, too, often form alliances to expand their resource pool, improve their odds of victory against governments, and facilitate mutual learning of new tactics, strategies, technologies, and other innovative approaches (Acosta and Childs 2013; Horowitz 2015; Tominaga 2018; Chávez and Swed 2023). Tactical choices are a critical yet understudied dimension of civil wars, and alliances are thought to play a key role in shaping these choices by creating opportunities for inter-group learning. However, militant alliances vary in the nature of interactions they enable. Some permit only limited engagements, like meetings between top leaders, while others foster more interactive environments where rank-and-file fighters from different groups can directly socialize and interact, similar to joint training exercises of NATO.

The nature of interactions alliances enable among militant groups is likely to impact the extent of inter-group learning. This paper examines how these interactions shape the diffusion of tactics, offering new insights into the processes through which militant organizations adopt and implement tactical innovations during civil wars. Specifically, I explore how militant organizations learn from each other, emphasizing the organizational changes necessary for learning and the varying interactions enabled by different forms of alliances. The key concept explored within the realm of inter-group learning is tactical diffusion, defined as the

process by which one group adopts a tactic from another group. Specifically, I address the question of under which conditions cooperation between militant organizations facilitates the diffusion of tactics among allied groups?

Building from the existing literature, I propose a theory of organizational learning in militant groups. Defining organizational learning as the process of a group acquiring new knowledge to improve its ability to apply specific tactics (Jackson et al. 2005, p. 9), this theory suggests that learning occurs through three interconnected processes: elite-level changes in the group's mindset, socialization of mid-ranking leaders and rank-and-file fighters into this new mindset, and acquisition of new skill sets. Based on this theory, I argue that inter-group learning is more complex than previously assumed. Challenging conventional accounts that treat the diffusion of tactics as a simple, almost automatic extension of forging an alliance, I contend that alliances involving joint training by allies are much better positioned than those involving only the exchange of arms, funds, or rhetorical support to facilitate diffusion. This is because they foster not only elite-level interaction but also enable rank-and-file fighters from different groups to socialize with each other, share ideas, create shared understandings and practices, and normalize and internalize each other's belief systems.

To underscore this argument, I investigate tactical diffusion in the context of kidnappings by militant groups, a tactic that demands substantial organizational adaptation and represents a departure from conventional violent tactics. Unlike tactics such as bombings or assassinations, which rely on straightforward combat skills, kidnapping requires groups to adopt new norms, develop complex logistical capabilities, and master non-combat-related skills. Its adoption signifies significant organizational changes, including a reevaluation of the effectiveness of less-lethal violence, the socialization of fighters into alternative norms that prioritize restraint over immediate lethality, and the acquisition of skills such as hostage management and crisis negotiation. These multifaceted requirements make kidnapping a uniquely demanding tactic to learn and diffuse, providing a rigorous test for my hypotheses about inter-group learning. I also explore whether inter-group learning is better characterized as a simple diffusion process, wherein a single exposure is sufficient for the spread of the tactic, or as a complex contagion process that requires repeated interactions with multiple sources of exposure.

I test my theory using original cross-sectional time series data on militant alliances among 53 groups in Northeast India from 1980 to 2021. Using Panel Vector Autoregression, I find that alliances involving joint training with groups that frequently utilize kidnapping substantially increase the likelihood that a group will subsequently adopt kidnapping tactics. In contrast, alliances involving only the exchange of weaponry, financial, or rhetorical support do not have a similar impact. Moreover, the influence of alliances involving joint training is long-term; once groups adopt kidnapping as a tactic, they continue using it for an extended period, suggesting that what is learned from allies becomes an integral part of the group's practices. My findings suggest that inter-group learning is best described as a complex contagion process, wherein repeated exposures to shared norms around a specific tactic create a community of practice, akin to how policies and institutions converge among socioculturally peer states (Simmons and Elkins 2004).

This paper offers at least three contributions to our study of militant group behavior. First, my findings expand our understanding of militant group learning by examining variation in militant alliances. Rather than assuming a uniform and spontaneous effect, my theory of organizational learning informs how militant alliances channel their effects through intra-organizational mechanisms to enhance learning, and my data allows me to test the efficacy of different types of militant alliances in facilitating the diffusion of tactics.

Second, by investigating the adoption of tactical choices such as kidnapping, this study addresses recent calls in the civil conflict literature to deepen our understanding of militant repertoires and their tactical diversity, particularly the causes and implications of non-lethal and less-lethal violence (Gutiérrez-Sanín and Wood 2017; Balcells and Stanton 2021; Gilbert 2022). My findings suggest that the study of non-lethal and less-lethal violence would benefit from incorporating insights on how groups learn about the efficacy of such violence from militant communities they are a part of.

Third, scholarly work on inter-group learning has traditionally focused on the diffusion of violent tactics, while often neglecting the extent to which groups learn from allies about practices related to rebel governance, public relations, diplomacy, or transnational campaigning. This oversight is presumably due to the belief that these non-violent practices, which require complex organizational routines and institutions, are not diffusible. My work em-

phasizes how certain inter-group interactions can assist groups in learning things from allies that necessitate complex organizational changes.

A Theory of Organizational Learning in Militant Groups

Jackson et al. (2005, p. 9) defines organizational learning in militant groups as "a process through which a group acquires new knowledge or technology that it then uses to make better strategic decisions, improve its ability to develop and apply specific tactics, and increase its chance of success in its operations". Adopting a similar perspective, I propose that learning in militant groups occurs via three interconnected processes: elite level change in groups' mindset, socialization of mid-ranking leaders and rank-and-file fighters into the new mindset, and acquisition of new skill sets by mid-ranking leaders and rank-and-file fighters.

Elite Level Change in the Group's Mindset

Militant group learning begins with an elite-level change in mindset, a critical step that guides the subsequent learning phases. In various groups, from PIRA to Aum Shinrikyo, FARC, Zetas, Hamas, and AQ Khan Network, a change in the mindset of the central decision-making body preceded organizational learning (Ackerman 2016). For example, Aum Shinrikyo leader Shoko Asahara's obsession with unconventional weapons drove the group's decision to acquire weapons of mass destruction (Nehorayoff, Ash and Smith 2016). Even in a highly decentralized group like al-Qaeda, the writings of the top leadership guided fundamental changes in organizational practices (Ranstorp and Normark 2015).

Change in mindset represents fundamental shifts in how top leaders shape ideological and normative frameworks, define political objectives and strategic goals, and identify and prioritize the tactics best suitable for the group. This fundamental shift in ideological, normative, and strategic frameworks is necessary to break free from the path dependencies that stem from the organization's history of past decisions and practices (Horowitz 2010; Gill et al. 2013; Chávez and Swed 2023).

These fundamental shifts at the leadership level can be prompted by dramatic changes in the group's political and operational environment (Jackson et al. 2005, p. 43), pressures

from government counterterrorism measures (Ackerman 2015; Horowitz, Perkoski and Potter 2018), competition with other organizations (Bloom 2005; Horowitz, Perkoski and Potter 2018), interactions with allied groups (Horowitz 2010; Acosta and Childs 2013), or engagements with civilian populations (Mampilly and Stewart 2021). Albeit less frequent, criticism or pressure from the lower echelons of the group, can trigger elite-level change in mindset[1].

The change in mindset at the elite level reflects normative and practical alterations in how top leaders think and operate. From a normative perspective, for learning processes to begin, leaders must be willing to critically examine and revise established norms of the organization. Such rescripting of established norms is an essential step in militant group learning because normative concerns prescribed by group ideologies often constrain groups from using forms of violence that are otherwise strategically favorable (Gutiérrez Sanín and Wood 2014). Revising established norms redefines what is acceptable within the group's normative landscape[2]. Such normative shifts may involve reinterpreting previously prohibited practices, such as when some jihadist groups began embracing sexual violence that they once considered religiously forbidden (Ahmad 2019) or condemning those once regarded as tolerable, such as when the PKK (Partiya Karkerên Kurdistanê) in Turkey publicly denounced the use of landmines (Geneva Call 2001, p. 82), a tactic the group frequently used before 2000. The adoption of new norms must be ideologically justified by the elites for the organization as a whole to be able to internalize and adapt to new norms. For example, after embracing previously proscribed forms of violence, jihadist groups offer ideological justifications by referring to religious legalistic principles (Ahmad 2019, p. 83).

Socialization of Mid-Ranking Leaders and Rank-and-File Fighters

While the shift in mindset at the top leadership level sets a new normative and strategic direction for the group, it is insufficient to facilitate organizational learning on its own. For

[1]For example, Silverman, Acosta and Huang (2023) argue that rebel leaders, especially younger ones, may capitulate to the rank-and-file fighters' impulses for disproportionate retaliation.

[2]The idea that militant groups have a normative landscape is not meant to suggest that they always act in normatively justifiable ways, but rather to suggest that they try to justify their actions in normative terms.

the new norms and accompanying practices to effectively change the groups' operations, they must be normalized and internalized across the entire group. The process of militant group learning, thus, extends beyond the elite-level change in mindset and to the socialization of mid-ranking leaders and rank-and-file fighters into the new mindset. Socialization is the "process through which actors adopt the norms and rules of a given community" (Checkel 2017, p. 597). For militant groups, socialization processes are instrumental in turning "combatants with heterogeneous motivations into a coherent group and dampening principal-agent problems" (Gutiérrez Sanín and Wood 2014, p. 213).

The socialization of rank-and-file fighters into the new norms and practices is vital for the tangible realization of the group's learning process since these fighters are the ones who actualize the practices on the ground. Militant groups need to socialize fighters into a set of communal norms and values in order to achieve collective action (Gutiérrez Sanín and Wood 2014, p. 214). Without the collective compliance of rank-and-file fighters, significant discrepancies may emerge between the ideological and normative frameworks, political objectives, and strategic goals envisioned by the top leaders and the fighters' actual day-to-day operations (Abrahms and Potter 2015).

However, rank-and-file fighters' compliance is difficult to achieve exclusively via punitive practices or monetary enticements (Hoover Green 2016). To control rank-and-file behavior, militant groups strive to give their fighters a new identity, distinct from the one they possessed before recruitment, through processes of ideological indoctrination, political education, and systematic socialization of fighters into group's norms that help align the rank-and-file preferences with those of the top-leaders (Hoover Green 2016, 2017; Haner 2018). For instance, the PKK, alongside routine political training, held mandatory weekly 'self-criticism' sessions where fighters had to reflect on their compliance with the group's tactical practices, confess any breaches of the group's code of conduct, and reaffirm their commitment to these practices and standards. (Grojean 2014, p. 7-8). Similarly, the FMLN (Farabundo Martí National Liberation Front) in El Salvador used the practice of self-criticism as a form of disciplining and socializing the fighters into the group's norms around mistreatment of civilian populations (Hoover Green 2017, p. 696).

This implies not that groups employing socialization methods restrain their violent tac-

tics, but rather that socialization assists groups in aligning the behavior of their fighters with the top leaders' preferences. For instance, groups' norms and codes of conduct around mistreatment of civilians do not necessarily prohibit all forms of civilian victimization. The LTTE (Liberation Tigers of Tamil Eelam) in Sri Lanka partook in the ethnic cleansing of civilians but refrained from widespread systematic wartime rape (Wood 2009). On the other hand, groups with robust socialization mechanisms might engage in every conceivable form of violence against civilians, specifically because they are effective in socializing fighters into internalizing the normative justification of extensive violence as advocated by the top leadership (Gutiérrez Sanín and Wood 2014, p. 221).

Mid-ranking leaders are crucial for normalizing and internalizing new norms and practices as well as socializing the rank-and-file fighters into this new mindset. In organizations with weak top-leadership control, tactical decisions are often delegated to lower cadres, such as unit or cell leaders. Yet, the principal-agent problems between top leaders and unit leaders are also particularly acute, often leading to situations where different units engage in practices not necessarily approved by the top leadership (Abrahms and Potter 2015). Given that the top leadership lacks control over the group's practices, the failure of mid-ranking leaders, who make the tactical decisions, to normalize and internalize new norms and practices poses a risk that these changes will not be implemented effectively or possibly not implemented at all, impeding the coherency of the learning process (Jackson et al. 2005, p. 38).

Conversely, even in hierarchically organized groups with central control, top leadership lacks complete control. In PIRA (Provisional Irish Republican Army), for example, the centralized top-leadership council, despite being potent, did not fully oversee all the activities of individual cells (Bell 1998, p. 468). In hierarchical groups, mid-ranking leaders maintain the group's command-and-control structure (Sharif 2022, p. 721) by acting as intermediaries between top-level leaders and rank-and-file fighters (Doctor and Willingham 2022). They maintain discipline, establish a code of conduct, and enforce social norms among the fighters (Wood 2009; Doctor 2021). The key to LTTE's maintenance of organizational discipline and enforcement of a code of conduct was the constant provision of information between its Central Committee and operational units, brokered by the mid-level field commanders

(Wood 2009, p. 151). In FPL (Fuerzas Populares de Liberacion) in El Salvador, political education aimed at disciplining fighters into groups' norms around violence and human rights was provided by mid-ranking political leaders in periodic conversations about the purpose of the conflict (Hoover Green 2017, p. 695). According to a former fighter, the PKK's code of ethics could not have been established without the efforts of mid-ranking unit leaders (Haner, Benson and Cullen 2019, p. 403).

Hence, mid-ranking leaders play a crucial role in transmitting the norms and information from the top leadership to the rank-and-file fighters and translating the grand strategies planned by top leaders into day-to-day operations by the rank-and-files. As information and knowledge have to be transmitted through the layers of the hierarchical groups' command structure (Jackson et al. 2005, p. 37), the learning process would be impeded without this 'transmitter role' that mid-ranking leaders play. Their acceptance of these new norms and practices is critical for ensuring that the strategic visions of the top leadership are executed on the ground.

Acquisition of New Skill Sets

Organizational learning in militant groups culminates in the acquisition and accumulation of new skill sets by mid-ranking leaders and rank-and-file fighters. This final step in the learning process involves translating acquired norms and knowledge into operational reality. This requires not only understanding, embracing, and forming a collective consciousness around the new mindset but also call for integrating this new mindset and its requisite strategies into concrete skills essential for executing various tasks mandated by the top leadership's new normative and strategic framework.

Militant groups develop expertise at certain tasks (Horowitz 2010, p. 39). For example, the LTTE was not only the most notorious group for utilizing suicide attacks but also developed a specific expertise in deploying women for such missions (Stack-O'Conner 2007). In addition to conducting sophisticated bombing campaigns, the IRA (Irish Republican Army) was unique in its distinctive practice of issuing public warnings before striking (Brown 2020, p. 396), a strategy aimed at maximizing public panic while minimizing casualties. Hamas developed an acute expertise in constructing an extensive tunnel network, as an

innovative approach to urban guerilla warfare (Watkins and James 2016).

The task-specific expertise of militant groups is not limited to military activities of violent nature. For instance, The IRA, beyond its violent activities, was involved in sophisticated counterfeiting operations. The group set up laboratories in Miami for the production of counterfeit drugs (e.g., fake livestock anti-parasite drugs), which required not only extensive ties with criminal networks but also specialized knowledge of laboratory conditions (Lowe 2006, p. 256). The PKK operates a notable international media network, including various print publications and its own independent TV channel, broadcasting twenty-four hours seven days a week. The EZLN (Ejército Zapatista de Liberación Nacional), in Mexico, as early as 1994, developed expertise in digital activism to circumvent government censorship and to complement its insurgency with 'netwar' (Özkula, Reilly and Hayes 2023).

The multitude of these examples illustrates that the specific tasks militant groups choose to engage in can involve very different organizational routines (Horowitz 2010, p. 43). The LTTE's proficiency in executing suicide attacks was the result of complex organizational routines that allowed the group to indoctrinate the psychologically prepare suicide bombers. The IRA, in contrast, had to develop a different set of organizational routines to effectively implement the practice of issuing public warnings: routines that enabled the group to perfect the timing and communication logistics essential for this strategy.

These organizational routines, while assisting groups in implementing relevant strategies, also pose challenges for organizational learning by confining groups into particular "ways of doing business" (Horowitz 2010, p. 39). Different organizational routines require different skill sets. For instance, groups aiming to invest in suicide attacks must first establish 'training' programs that effectively program recruits into self-sacrifice, whereas groups seeking to develop international media networks must train their members in public relations. The stark contrast in skill sets required for training fighters in self-sacrifice versus public relations suggests that skills acquired to perform one task are not directly transferable to another. Furthermore, implementing changes in the kind of tasks that groups perform is both costly and risky; it drains group resources and requires difficult strategic decisions about the allocation and reallocation of those resources. Changes in strategic direction mandated by top leadership may necessitate groups undertaking new tasks, with socialization processes

ensuring that fighters are persuaded to perform these tasks. However, rank-and-file fighters and mid-ranking leaders who oversee operations must still acquire the necessary new skill set to effectively carry out these tasks.

Implications for Inter-Group Learning

The current literature on the diffusion of tactics within militant networks often presents a simplified view of this phenomenon, characterizing it as a direct and instantaneous outcome of alliances between groups. Militant groups are argued to almost automatically learn from their allies, leading to an 'autogamous function' where the adoption of tactics used by allies is a natural extension of the forging of an alliance (Acosta and Childs 2013; Tominaga 2018). Accordingly, militant 'entrepreneurs'—innovative and often ideologically influential organizations that develop new tactics—export these tactics to their smaller allies, which then readily emulate them. For instance, al-Qaeda is widely acknowledged as playing a prominent role in diffusing suicide bombing to allied groups and those with theological affinity (Acosta and Childs 2013; Horowitz 2015). Similarly, Hezbollah and the Haqqani Network are thought to have diffused the use of drones across their alliance networks (Chávez and Swed 2023).

Yet, the adoption of new tactics involves far more than just forming alliances with groups that utilize those tactics; it necessitates comprehensive changes in a group's mindset, socialization patterns, and toolbox—a process that is neither automatic nor instantaneous. This simplified view of inter-group learning in the diffusion literature risks overlooking the organizational learning processes essential for the adoption of new strategies and tactics. Notable exceptions in the literature, which consider how intra-organizational factors may limit inter-group learning, include Horowitz (2010)'s discussion of how organizational change requirements for adopting new tactics affect the likelihood of importing tactics from allies, Gilli and Gilli (2014)'s discussion of the impact of financial intensity and organizational capital requirements of a given tactic on groups' propensity to adopt that tactic, and Braun and Genkin (2014)'s theory of 'cultural resonance' as a precondition for diffusion between groups.

While these studies provide valuable perspectives on the diffusion process, they tend

to focus on the preconditions necessary for adoption rather than on the mechanisms by which, once these preconditions are fulfilled, organizational dynamics drive the adoption of tactics. This leaves open questions about how exactly groups learn from each other and the role alliances play in facilitating this inter-group learning. By weaving in insights from my theory of organizational learning in militant groups, I propose a framework that elucidates the mechanisms underlying the diffusion of tactics.

Diffusion Processes

Given the processes of organizational learning outlined above, I present a framework for how militant groups learn and adopt a new tactic from their allies (see Figure 1). The mechanism of diffusion between groups does not occur tabula rasa. Prior to the adoption of new tactics, groups have already established certain norms around violence, socialized their fighters into these norms, and developed skills to conduct operations within the boundaries of those norms. When an ally that uses a different set of tactics enters the picture, groups are exposed to alternative norms of violence that guide their ally's tactical choices. Simultaneously, groups may be facing environmental factors that precipitate or incentivize change in their norms, strategies, and tactics, such as when they confront militarily more powerful enemies (Gilli and Gilli 2014) or when governments intensify counterinsurgency efforts (Horowitz, Perkoski and Potter 2018). The two catalyzers —exposure to alternative norms and environmental pressure— combined may instigate an elite level change in the group's mindset wherein top leadership examines and revises established norms of the organization and alters the group's normative framework around which practices are justified and believed to be beneficial for the group's objectives.

Yet, as articulated above, elite level change in mindset is insufficient to facilitate the adoption of tactics instantaneously because the group still needs to socialize its mid-ranking leaders and rank-and-file fighters into the new normative framework. Allies can assist the group in normalizing and internalizing new norms around violence and aligning the behavior of their fighters with the top leaders' preferences, thereby precipitating the embracement of a new collective consciousness within the group. On the other hand, for adoption to occur, groups still need to acquire new expertise to integrate this new collective consciousness into

concrete skills essential for performing new tactics. Again, allies can assist the group in acquiring new skill sets by providing support tailored to developing new expertise.

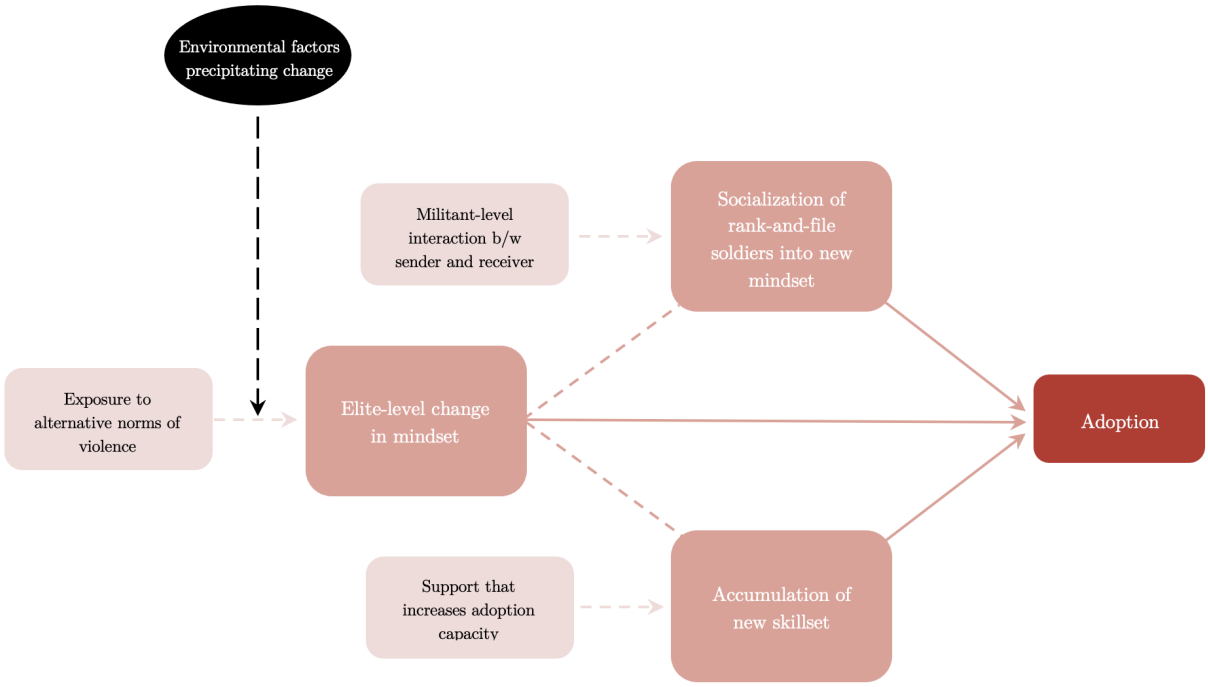


Figure 1. Mechanism of Diffusion

While the study of diffusion between militant groups has traditionally focused on demonstrating how inter-group alliances trigger diffusion processes, incorporating organizational learning theory into the evaluation of inter-group learning, while acknowledging the diverse nature of inter-group cooperation, presents an opportunity to refine our understanding. While existing literature suggests that militant alliances are likely to positively influence the adoption of new tactics by groups, this general expectation overlooks the varied nature and characteristics of different alliances.

Militant alliances vary in their design, scope, depth, level of commitment, magnitude of capability aggregation, and the nature of interactions they enable between groups. While some alliances might only extend to rhetorical support and pledges of allegiance in media (Farrell 2020), others can be more consequential because they involve the exchange of material resources, such as weapons and funds between groups. The most impactful alliances, however, are those that entail the sharing of specialized expertise and technological knowledge, such as those involving joint training and intelligence-sharing between groups

(Horowitz 2010).

When we examine the nature of inter-group cooperation in light of the organizational theory of learning, it becomes clear that not all forms of cooperation are equally effective in facilitating the diffusion of tactics. Limited forms of cooperation, such as mere exchanges of arms, funds, or rhetorical support, often fall short in driving the necessary organizational changes for the adoption of new tactics. These relatively superficial inter-group interactions typically do not go beyond meetings or public displays of support between top leaders. While these elite-level interactions can induce changes in leaders' mindset, they do not contribute to the socialization of mid-ranking leaders and rank-and-file fighters into a new mindset, nor do they significantly assist the fighters with acquisition of new skill sets.

In stark contrast, more synergistic forms of cooperation, such as joint training exercises, create fertile environments for effectively diffusing tactics. These not only foster elite-level interactions but also provide an interactive space where fighters from different groups can engage in direct interaction, share ideas, create shared inter-group understanding and practices, and normalize and internalize each other's belief systems. For example, ULFA (United Liberation Front of Asom) in India established a reciprocal alliance with the KLO (Kamtapur Liberation Organisation), where they provided training in advanced weaponry and explosives to KLO members (Banerjee 1999). In return, following Bhutan's crackdown on ULFA's safe havens, the KLO offered asylum to ULFA members in their camps in Myanmar[3](Banerjee 2002). Consequently, mid-ranking leaders and rank-and-file fighters of the two groups had the opportunity to spend years together in the same camp, socializing into each other's belief systems[4]. Finally, since training that groups impart to their allies fundamentally involves

[3]The processes of elite-level change, socialization, and skill acquisition described here can occur in both patron-client alliances and symmetrical alliances. While hierarchical patron-client alliances may rely primarily on top-down influence, with patrons driving diffusion through elite-level change, symmetrical alliances foster peer-level interactions that facilitate mutual socialization and skill-sharing. For example, the symmetrical alliance between ULFA and KLO demonstrates how symmetrical alliances enable fighters from both groups to engage in direct interaction and joint training, leading to shared norms and practices. These variations suggest that both patron-client and symmetrical alliances involving joint training can serve as vehicles for diffusion, albeit through different pathways.

[4]Similarly, the mechanisms described do not inherently preclude cross-ethnic alliances from facil-

the transfer of expertise, cooperation in the form of training has the capacity to assist in skill acquisition necessary for the adoption of new tactics[5].

We should therefore expect that:

> Hypothesis 1: Receiving training from an ally that frequently resorts to a given tactic will increase the subsequent frequency with which the group employs that tactic.

Contagion Processes

The adoption of new violent and non-violent tactics, strategies, and technologies by militant groups has been previously studied from different angles, with some studies characterizing the rapid proliferation of a phenomenon among groups as a process of diffusion (Braithwaite and Li 2007; Horowitz 2010), and others characterizing it as a process of contagion (Midlarsky, Crenshaw and Yoshida 1980; Bloom 2005; Dugan, Lafree and Piquero 2005). Although the armed conflict literature often does not explicitly justify this difference in naming conventions through conceptual discussions, recent studies in network science, focusing on the mathematical modeling of social diffusion (Min and San Miguel 2018; Sune 2020; Cencetti et al. 2023) and the application of such models to real-world data on the spread

itating diffusion, as exemplified by the cross-ethnic alliance of the Assamese group ULFA and Koch-dominated KLO. While cultural resonance may ease normative alignment, cross-ethnic alliances may require additional normative framing to overcome cultural barriers during socialization. However, joint training exercises offer fighters from diverse backgrounds the chance to engage directly, fostering shared practices and norms while gradually overcoming cultural barriers through repeated interactions.

[5]One might argue that in synergistic alliances, tactical specification—where groups divide labor and specialize in distinct tactics—could be a more efficient strategy than tactical diffusion. While this approach might work in highly institutionalized alliances, such as those among states (e.g., NATO), it is less feasible in the context of militant groups. Tactical specification requires high levels of trust, coordination, and stability, which are often lacking in informal militant alliances. Furthermore, specialization increases reliance on allies, which can be risky in volatile conflict environments where alliances may shift in the near future. Instead, tactical diffusion allows groups to develop versatile repertoires, enhancing their resilience and autonomy while mitigating the risks of dependence. Finally, even in synergistic alliances, competitive dynamics may incentivize groups to adopt similar tactics to signal strength and maintain influence within the alliance network.

of politically-controversial information and protest mobilization on social media (Romero, Meeder and Kleinberg 2011; Steinert-Threlkeld 2017), suggest that the spread of ideas and behavior among actors in a network can either take the form of simple diffusion or complex contagion, two conceptually distinct phenomena.

A simple diffusion occurs when ideas, behaviors, or other phenomena spread from one actor to another only after a single exposure (Min and San Miguel 2018; Cencetti et al. 2023), such as when a disease is transmitted from an infectious individual to a susceptible one following a single interaction. In contrast, complex contagion refers to the spread of ideas or behaviors that require repeated interactions with multiple sources of exposure before adoption occurs (Min and San Miguel 2018). Complex contagion often involves social reinforcement, where observing multiple people in one's peer network adopting a behavior or idea enhances its credibility and legitimacy, thereby making an individual more inclined to adopt it as well (Centola and Macy 2007). Complex contagion processes have been found to increase the likelihood of an individual adopting and expressing controversial political opinions (Romero, Meeder and Kleinberg 2011). Similarly, individuals are more likely to protest when they know many others who are protesting (Steinert-Threlkeld 2017).

The spread of tactics through inter-group learning is likely susceptible to complex contagion processes. The elite level change in the group's mindset becomes more probable if top leadership is repeatedly exposed to alternative norms of violence articulated by leaders of allied groups. Repeated interactions with a peer group that consistently expresses similar normative ideas about using a specific tactic can reinforce the credibility and legitimacy of these norms, subsequently persuading a leader to adopt a similar normative framework. Furthermore, the role of joint training exercises, which provide a space for fighters from different groups to engage directly, share ideas, and socialize into the same normative frameworks, can be enhanced by complex contagion processes. The success of group socialization in establishing uniform preferences among rank-and-file fighters hinges on the repetitive nature of socialization (Grojean 2014). When fighters interact with those from multiple groups, they are repeatedly exposed to the same socialization patterns at different times, reinforcing the 'programming' nature of socialization. Finally, skill acquisition is also likely to benefit from complex contagion processes, as fighters using multiple channels (e.g., receiving training from

multiple allies) to learn new skills should increase their likelihood of developing expertise. We should therefore expect that:

> Hypothesis 2: Aligning oneself with a network of trainers, whose overall levels of use of a given tactic are high, will increase the subsequent frequency with which the group employs that tactic.

Kidnapping

In examining the implications of organizational learning in militant groups on inter-group learning, I focus on kidnappings conducted by these militant groups. Kidnapping stands out as a particularly challenging tactic for militant groups to adopt because it demands substantial organizational adaptation and a departure from traditional approaches to violence. Defined as the "forceful taking of human targets against their will, followed by transporting and holding the hostages in captivity at unknown locations" (Liu and Eisner 2024, p. 4), kidnapping requires not only significant logistical preparation but also shifts in ideological, normative, and operational paradigms within the group. Unlike tactics such as bombings, armed assaults, or assassinations—which rely primarily on combat skills and immediate action—kidnapping necessitates complex non-combat skills, long-term planning, and a fundamental reorientation of the group's approach to violence.

The focus on kidnappings offers a unique opportunity to evaluate the theoretical premises of the study. This is primarily because the adoption of kidnapping as a tactic signifies underlying developments within the group, including: (a) a change in the group's mindset concerning the effectiveness of less-lethal violence in attaining objectives, (b) the successful socialization of fighters into the new norms surrounding such violence, and (c) the acquisition of new skill sets unrelated to combat but crucial for the execution of successful kidnapping operations. These multifaceted requirements set kidnapping apart as a tactic that is inherently more difficult to learn and diffuse across groups than more straightforward forms of violence. Given the extent of organizational change required, kidnapping as a tactic is presumably less likely to diffuse across groups compared to other forms of violence. This makes kidnapping a rigorous test for the study's hypotheses.

Change in Mindset: Effectiveness of Less-Lethal Violence

Kidnapping, in contrast to bombing, armed assault, or assassination, is typically either non-lethal or considerably less lethal than other typical attacks carried out by militant groups[6]. For a militant group whose repertoire previously excluded kidnapping to integrate this tactic into its operational repertoire, top leadership has to develop a new ideological lens with which to evaluate not only the legitimacy of taking civilians as hostages but also the utility of less-lethal forms of violence in helping groups achieve their goals more effectively than alternative forms of more lethal violence.

Kidnapping can be a potent tool for political coercion against governments, as demonstrated by the 2007 abduction of twenty-three Korean citizens by Taliban insurgents, which compelled the Korean government to withdraw all Korean troops from Afghanistan (Kim 2008). Successful kidnapping operations provide groups with an opportunity to reinstate their bargaining capacity after experiencing significant losses (Welsh 2023) and grant even obscure groups that might otherwise be overlooked by governments a platform to exert pressure and secure concessions (Forest 2012).

Kidnapping also serves important functions as a form of social coercion aimed at punishing noncompliant civilians residing in areas under militant control or influence. When militant groups engage in quasi-state activities like compulsory drafting or the regulation of civilians' social and economic lives, kidnapping can function as an equivalent of policing those who fail to adhere to the militants' imposed rules (Liu and Eisner 2024, p. 3). Even when militant influence over civilians is relatively limited, kidnapping can be employed to enforce extortion efforts, serving as a means to punish tax evaders (Gilbert 2022). By demonstrating 'what happens to the noncompliant', kidnapping can effectively deter civilian shirking and ensure collaboration more effectively than alternative forms of more lethal violence (Welsh 2023, p. 25). This efficacy can be attributed to the fact that rescued or released abductees, unlike civilians who perish in lethal attacks, can share their stories with friends and fam-

[6]Of the 14,045 incidents of kidnapping recorded in the Global Terrorism Database between 1970 and 2020, 5,689 incidents (40 percent) were non-lethal, whereas an additional 2,346 incidents (17 percent) claimed only one life. Most lethal kidnappings that claim multiple lives are attributed to the Islamic State during its peak in Syria and Iraq.

ily, effectively disseminating the consequences of noncompliance with militants among local populations.

In addition, kidnapping can help militant groups instill fear among local civilian populations while simultaneously evading the broader domestic and international reputational costs associated with civilian killings. Kidnapping incidents are often underreported in conflict zones (Forest 2012; Gilbert 2022). Unless militants issue public ransom demands[7], it is highly probable that the broader public and the international community will remain unaware of the abduction. For example, in their interviews with business people who were kidnapped by the PKK for not paying extortion money, Koseli et al. (2021) found that most victims never reported their abduction to the police after their release to avoid a negative public image.

Socialization: Norms Surrounding Less-Lethal Violence

The integration of kidnapping into militant groups' repertoire represents another shift, one about how the group socializes fighters into new norms surrounding less-lethal violence. This transition is not merely strategic but also signals a normative and cultural transformation within the organization, requiring significant reprogramming of the fighters' attitudes and behaviors.

Kidnapping demands a high level of restraint and patience from fighters. Unlike in direct combat or lethal attacks where immediate fatal action is valued, kidnapping necessitates a prolonged period of military inaction where hostages have to be kept alive and healthy (Gilbert 2022, p. 1226). If kidnapping is being employed as a tool for political coercion against governments, fighters must understand the strategic value of keeping hostages alive and unharmed until demands are made and negotiations are concluded. If kidnapping is being employed as a tool for social cohesion while simultaneously evading the reputational costs associated with civilian killings, fighters must internalize the idea that kidnapping also

[7]Another potential utility of kidnapping could be revenue generation. However, only a small fraction of kidnappings are associated with a public ransom demand (Forest 2012). The GTD records that only 1,355 out of 14,045 kidnapping incidents (about 10 percent) between 1970 and 2020 involved a ransom demand.

serves as a means of image management, which can only be realized if hostages are safely released after a period of time. This involves a departure from the traditional ethos of lethal violence which prioritizes the destruction of the targets.

This shift from a mindset that promotes the elimination of the targets, to one that values the lives of targets for strategic gains, is a significant psychological leap. The reprogramming necessary for this transformation involves a normative reorientation of fighters. Such normative reorientation cannot occur haphazardly, as militants, through years of ideological training, the social construction of negative impressions of out-groups, and demoralization of the enemy (Parkinson 2021), are taught to kill. Especially when abductees are deemed 'enemies' or 'enemy collaborators', who, under the militants' usual normative framework, are legitimate targets for annihilation, convincing fighters to not only refrain from killing these hostages but also to ensure their safe release after the fulfillment of demands, requires a fundamental reshaping of the fighters' belief system.

New Skill Sets: Non-Combat Operations

In addition to developing a new ideological lens that validates the utility of kidnapping and socializing fighters into the norms and rules of executing successful kidnapping operations, groups need to acquire a broad range of skills that extend beyond combat for these operations. Previous research on civilian hostage-taking highlights the logistical complexities involved in such operations (Sandler and Scott 1987; Wilson 2000; Gaibulloev and Sandler 2009). For instance, successful kidnappings require detailed planning, including scouting and monitoring potential targets, and devising logistical strategies for abducting and transporting them to secure locations (Liu and Eisner 2024).

During the duration of the operation, which in some cases can last for years, groups also need to ensure that hostages remain alive and healthy, which may necessitate medical treatment (Gilbert 2022). Additionally, when kidnapping is utilized as a strategy to pressure the government for concessions, it becomes crucial for groups to develop expertise in conducting successful negotiations as well as managing public relations with the media, which may seek information about the hostages' fate (Liu and Eisner 2024). These non-combat-related skills differ significantly from those typically honed by groups primarily focused on combat

operations or indiscriminate violence against civilians.

Research Design

I evaluate these hypotheses through a quantitative case study that examines the alliances formed and kidnapping incidents perpetrated by 53 ethno-nationalist militant groups active in Northeast India from 1980 to 2021. Kidnappings by ethno-nationalist groups in Northeast India provide an ideal case for studying the relationship between militant alliances and the learning among these groups for several reasons. First, as with many contemporary multi-party conflicts, cooperation between militant groups is a common feature in the civil conflict environment of Northeast India. Yet, as detailed in the Data Collection section below, militant alliances in the region differ significantly in nature and the types of inter-group interactions they enable. This variation allows us to distinguish the impact of alliances involving training from those of a different nature.

Second, militant groups in Northeast India claim to represent a variety of different constituencies and fight for the objective of self-determination for diverse ethnic groups, thus differing in their objectives and ideological programs. The fact that these objectives vary among the groups included in the study diminishes the likelihood of ideological proximity being the sole facilitator of tactical diffusion. Third, as illustrated in Figure 2 (Panel A), kidnapping incidents in the region have been on the rise since the late 2000s, to the extent that Forest (2012, p. 139) identified South Asia as the new global epicenter of kidnappings. This trend raises the question of the extent to which militant alliances have contributed to the popularization of kidnapping.

Finally, the overwhelming majority of the groups included in the study (e.g., over 75 percent) are hierarchically organized with a strong, centralized command structure. Compared to decentralized, cell-structured groups, those that are centrally and hierarchically organized are less likely to innovate in tactical choices (Gill et al. 2013), primarily because their complex bureaucratic structures impede changes in organizational routines (Horowitz 2010). This positions the sample of groups included in the study as a difficult case for the theory that inter-group interactions can facilitate the organizational learning necessary for

the adoption of new tactics. Given the low baseline propensity of hierarchically organized groups to innovate, observing shifts in these groups' tactical choices should be relatively difficult. Therefore, if the hypotheses are supported in the analysis of this particular case, it should be interpreted as strong evidence in favor of the theory.

Data Collection on Militant Alliances

The sample of groups covers all armed non-state organizations, such as rebels, insurgents, and terrorists. This offers a more extensive understanding of interactions among these groups than research focusing only on rebel or terrorist groups. The data collection began with 26 groups from Northeast India listed in the UCDP/PRIO Armed Conflict Dataset version 21.1. Coders used secondary sources to gather basic information about these groups and noted additional groups mentioned in these sources. They then cross-referenced these lists to identify non-UCDP/PRIO groups active in Northeast India from 1981 to 2021, which publicly announced their names and used armed force for political objectives.

The dataset documents the temporal variation in militant alliances throughout the study's time period, enabling us to estimate the impact of alliances on time-variant outcomes, such as annual prevalence of kidnapping incidents. The dataset distinguishes between 8 distinct types of alliances: joint operations, training support, provision of arms and funds, intelligence-sharing and logistical support, joint planning and meetings between leaders, joint public statements, umbrella groups, and rhetorical support.

Finally, since the hypotheses address the impact of receiving training from an ally (H1) and a network of allies (H2) on a group's subsequent frequency of kidnappings, it's essential for the alliance indicators to differentiate between the group receiving the training and the one providing it. Existing public datasets do not make this distinction. Therefore, my original data collection specifies the sender and receiver of support in every type of alliance except for joint operations. Given that the data encompasses 53 groups over 40 years, the dyadic, directional version of the dataset comprises 24,944 group-group dyad-years.

Frequency of Kidnapping

To examine the impact of militant alliances on the use of kidnapping by groups, my main outcome of interest is the prevalence of kidnapping attacks perpetrated by these groups. The data on groups' attack data is derived from the Global Terrorism Database (GTD), which records detailed information on the types of attacks perpetrated by a variety of militant groups. The GTD recorded 1,939 kidnapping incidents perpetrated by one of the groups included in the study period from 1980 to 2018[8].

While there is spatial variation in kidnapping incidents, with some Northeast Indian states witnessing more incidents than others (see Panel B of Figure 2), the overall trends of Northeast Indian groups in their use of kidnapping broadly follow the global trends in kidnappings. For example, only a small minority of kidnappings (23 percent) involved a ransom demand, aligning with the findings of Forest (2012)). Most kidnappings target local civilian populations (43 percent) and business owners (29 percent), while only a fraction target police or military personnel (2 percent), paralleling the argument of Gilbert (2022) that kidnapping is primarily a tool for coercing civilians. The majority of kidnappings result in the rescue or release of the hostages, with only 11 percent leading to the death of hostages, further supporting the assertion that kidnapping is predominantly a form of less-lethal violence.

To measure the prevalence of kidnapping by groups, I constructed a measure -kidnapping score- expressed as a percentage, indicating the proportion of kidnapping attacks relative to the total number of attacks carried out by a given group in a given year[9]. This measure ranges from 0 to 1. As illustrated in Panel C of Figure 2, there is significant variation in the dependent variable across different groups. The mean prevalence of kidnapping for some groups, such as ASAK, NLFT, and KNF, is over 30 percent, whereas other groups like ANVC, BLTF, or UNLF have never engaged in kidnapping, despite being militarily active

[8]These incidents are identified by the GTD's *attacktype1*, *attacktype2*, and *attacktype3* indicators, specifically when coded as 'Kidnapping (Hostage Taking).'

[9]To address the potential zero denominator problem, where a group might not carry out any attacks in a given year, a constant (e.g., 1) was added to the denominator to ensure that the measure is defined even in years with no attacks.

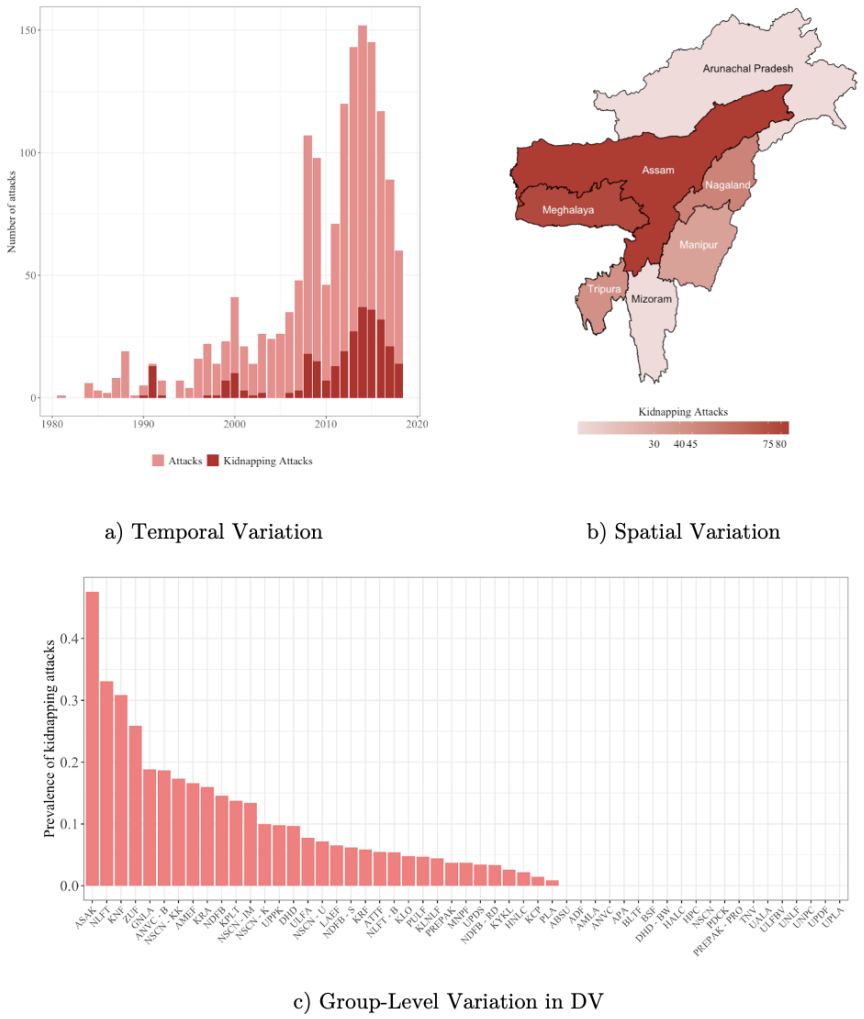
during the study period.

While the GTD's reliance on media reports may introduce potential reporting biases, particularly favoring larger groups with dense networks that attract more media attention, these biases are unlikely to affect the results. First, my measure of kidnapping is expressed as a proportion of total attacks carried out by a group in a given year, rather than as an absolute count. This proportional measure inherently accounts for differences in group visibility by contextualizing kidnapping incidents relative to the overall operational repertoire of each group. Second, any reporting bias would likely influence both kidnapping and other types of attacks by larger groups, leaving the relative emphasis on kidnapping within their repertoires unaffected. As such, the potential reporting bias should not systematically distort the relationships analyzed in this study.

Measuring Militant Alliances

In measuring militant alliances involving joint training, I have constructed two measures. The first, TRAINER THAT USES KIDNAPPING, is designed to test H1, which posits that receiving training from an ally frequently resorting to a specific tactic will increase the likelihood of a group using that tactic. This variable is coded as 1 if a group received training in a given year from a trainer known to employ kidnapping tactics. The second measure, TRAINING NETWORKS' MEAN KIDNAPPING SCORE, aims to test H2, which predicts that aligning with a network of trainers, characterized by high overall levels of a specific tactic, will increase the frequency of a group employing that tactic. Testing H2 requires considering the cumulative frequency of kidnappings committed by groups from which a given group received training. The TRAINING NETWORKS' MEAN KIDNAPPING SCORE represents the average proportion of kidnapping attacks relative to the total number of attacks conducted by a group's trainers in a given year.

As noted earlier, while the GTD data may reflect some reporting biases due to its reliance on media sources, these biases are unlikely to affect the relationships investigated here. Specifically, the relationship examined focuses on the prevalence of kidnapping relative to other tactics within a group's repertoire and its connection to networks of trainers that use kidnapping. Although larger groups with dense networks may attract more media atten-



a) Temporal Variation

b) Spatial Variation

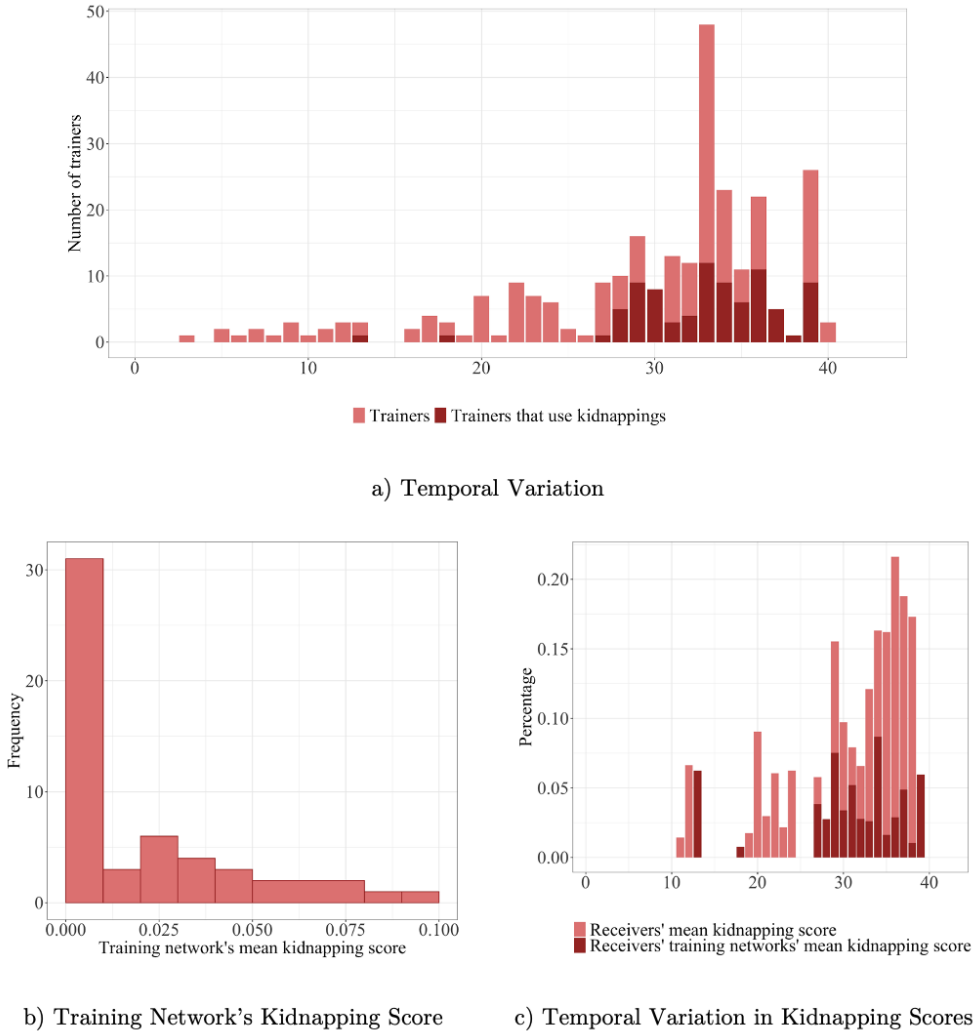
c) Group-Level Variation in DV

Figure 2. Variation in Kidnapping Incidents in Northeast India (1981-2018)

tion overall, there is no evidence to suggest that groups with connections to networks of kidnapping-prone trainers specifically attract more media attention. Any media bias would likely apply uniformly across tactics, leaving the relative emphasis on kidnapping within the networks unaffected.

Both measures of militant alliances exhibit significant temporal variation over the study's time period. As illustrated in Figure 3, Panel A, the number of groups that use kidnapping and impart training to their allies has increased over the years. Similarly, in Panel C, the training networks' mean kidnapping score shows an increasing trend. Regarding variation across groups, Panel B demonstrates that most groups did not have a network of trainers using kidnapping, as indicated by their training networks' mean kidnapping score being 0.

In contrast, some groups had trainers that exclusively resorted to kidnappings in a given year.



a) Temporal Variation

b) Training Network's Kidnapping Score

c) Temporal Variation in Kidnapping Scores

Figure 3. Trends in Training Support and Kidnapping Scores in Northeast India (1981-2018)

Alternative Explanations

Alternative factors could predict groups' use of kidnapping or their adoption of new tactics from an ally. To account for potential alternative explanations, I incorporate several control variables into my models. The first set of controls relates to environmental factors that may precipitate a change in a group's mindset or the need to diversify tactics. First, to control for government pressure, I use annual data on counter-insurgency casualties, collected by Stani-

land and Stommes (2019). Militant groups might evolve, adapt, and diversify their tactics in response to government pressure to ensure their survival (Ackerman 2015; Horowitz, Perkoski and Potter 2018). This pressure can also increase their willingness to form alliances with other groups. Secondly, I control for the inter-group competition experienced by the groups, using original annual data on infighting incidents between groups. Similar to government counter-insurgency operations, inter-group competition may pressure groups to innovate or adopt more attention-grabbing tactics to outperform their rivals (Bloom 2005; Horowitz, Perkoski and Potter 2018). Thirdly, I control for media attention to kidnappings by using original data on the number of news articles published in national media per kidnapping incident in India each year. Increased media focus could encourage groups that previously avoided abductions to consider this tactic, anticipating heightened publicity.

The second set of controls speaks to dyadic-level influencers that may make a group more susceptible to emulating a tactic used by its ally. The inclusion of this set is intended to rule out the possibility that factors other than inter-group interactions facilitated by alliances, particularly those involving training, drive inter-group learning. First, I control for the shared constituency and ideational influence between the group receiving training and the group providing it. This is done using original data on the ethnic groups that militants claim to represent, and assessing whether the training group is the oldest representative of a given ethnic group. Groups might be more inclined to imitate those they share similarities with, as cultural resonance could facilitate the adoption of new tactics (Simmons, Dobbin and Garrett 2006; Braun and Genkin 2014). Secondly, I control for geographical proximity between allied groups, using original data on the districts in which each group operates. Groups may be more likely to emulate those in close proximity due to the similarities in their operational environments (Tominaga 2018).

The third set of controls accounts for other group-level factors that could affect a group's propensity to learn from their allies. Firstly, I control for the presence of foreign bases and the foreign financial or weaponry support of groups, using original data. Groups with foreign bases might more easily conduct kidnapping operations, as they have safe havens for taking hostages. Conversely, groups receiving external financial or weaponry support might be more inclined to learn new tactics from their state allies rather than from militant allies. Secondly,

I control for the organizational capacity of the group providing training, employing a proxy measure based on the logistical complexity of the attacks they perpetrate[10].

Results

Standard approaches to the statistical analysis of time series cross-sectional data, like the one used in this study, are not suitable for testing hypotheses about diffusion for two reasons. First, these approaches assume that the influence (e.g., a given group's impact on its allies' mindset, socialization patterns, or skill acquisition) within a dyad moves only from the training provider to the receiver, and they fail to account for the possibility of reverse influence, which is plausible since inter-group socialization in a dyad likely affects both groups. Second, these approaches do not consider the likelihood that alliance formation between groups exhibits homophily patterns, where groups tend to form alliances with others that share similarities, including tactical choices.

Zhu et al. (2017) argue that a vector autoregressive approach is suitable when dealing with dense networks of ties between actors. Accordingly, an actor's characteristic at a given time point can be modeled as "a linear combination of (a) its previous value, (b) the average of its connected neighbors, (c) a set of node-specific covariates, and (d) independent noise" (p. 1096). Barberá et al. (2019) apply a similar method to examine the bidirectional diffusion of opinions between political elites and their constituents. I adopt a vector autoregressive approach and use Panel Vector Autoregression (PVAR) Models with three lags[11]. The endogenous variables in the PVARs are the receiver groups' kidnapping score and the trainer that uses kidnapping dummy for testing H1, and the receiver groups' kidnapping score and its training networks' mean kidnapping score for testing H2. Additionally, control variables are included as exogenous variables in my extended PVAR models. Although PVARs help

[10]Building on George (2018), I assert that assassinations, bombings, hijackings, and hostage-takings are logistically complex. I utilize the GTD's *attacktype* variables to calculate the weighted percentage of logistically complex attacks executed by a specific group in a given year.

[11]The models were estimated using generalized method of moments (GMM) with STATA's *pvar* command. The lags were selected according to the Hansen's J statistic, MBIC, MAIC, and MQIC values provided by STATA's *pvarsoc* command.

account for diffusion effects in both directions, homophily remains a confounding factor, indicating that this empirical approach does not isolate a causal effect.

Alliances Involving Joint Training

The results of the panel vector autoregression analysis testing H1 are reported in Table 1. The dependent variable is the RECEIVER GROUP'S KIDNAPPING SCORE. The alliance measure included in the models is the TRAINER THAT USES KIDNAPPING DUMMY. In both simple and extended models, the RECEIVER GROUP'S KIDNAPPING SCORE is significantly autoregressive, as indicated by the significant coefficients on this variable's 1^{st}, 2^{nd}, and 3^{rd} lags. This suggests persistence in groups' use of kidnapping, which is intuitive since a group's previous tactical choices are likely strong predictors of their subsequent choices.

Neither the simple nor the extended model provides evidence that receiving training from an ally who resorts to kidnapping leads to a significant increase in the frequency with which the group employs kidnapping. Although the coefficients on the TRAINER THAT USES KIDNAPPING DUMMY and its lags are positive, as expected, they are not significant at conventional levels. This null result challenges the idea that inter-group learning follows a simple diffusion process where a single exposure is sufficient for the spread of a given tactic between allies. Instead, the frequency with which groups employ kidnapping appears to be influenced by factors such as media attention given to kidnapping incidents, competition from rivals, and the presence of foreign bases. In light of this null result and lack of evidence supporting H1, I turn to examine whether inter-group learning might follow a complex contagion process, where the spread of tactics requires repeated interactions with multiple sources of exposure.

The results of the panel vector autoregression analysis testing H2 are reported in Table 2. The dependent variable is the receiver group's kidnapping score. The alliance measure included in the models is the training networks' mean kidnapping score. The receiver group's kidnapping score is again significantly autoregressive. However, in addition to this autoregressive tendency, this second set of PVAR results suggests that the frequency at which the trainer groups in a given group's network employ kidnappings significantly impacts that group's frequency of kidnapping attacks. In both simple and extended models, the positive

Table 1. Alliances with Joint Training and Kidnappings, 1981-2018

	DV: Receiver's Kidnapping Score (t)	
	Simple model	Extended model
Receiver's kidnapping score (t-1)	0.291***	0.358***
	(0.017)	(0.024)
Receiver's kidnapping score (t-2)	0.188***	0.271***
	(0.013)	(0.022)
Receiver's kidnapping score (t-3)	0.090***	0.143***
	(0.011)	(0.018)
Trainer that uses kidnapping (t-1)	0.050*	0.062
	(0.028)	(0.038)
Trainer that uses kidnapping (t-2)	0.018	0.034
	(0.019)	(0.027)
Trainer that uses kidnapping (t-3)	0.020	0.023
	(0.031)	(0.035)
Government pressure		0.001
		(0.003)
Media attention to kidnappings		0.124***
		(0.011)
Inter-group competition (receiver)		0.012**
		(0.006)
Shared constituency with senders		0.662**
		(0.312)
Geographic proximity to senders		-0.077
		(0.054)
Senders' ideational influence		-0.046
		(0.073)
Receiver's foreign state support		-0.006
		(0.013)
Senders' organizational capacity		0.002
		(0.023)
Receiver's foreign bases		0.128***
		(0.020)
Observations	16998	14878

Note 1: *p<0.1; **p<0.05; ***p<0.01
Note 2: Kidnapping and alliance-related variables are treated as endogenous in the models, but only the primary outcome variable of interest, receiver's kidnapping score, is reported in the table.

and significant coefficients on the training network's mean kidnapping score and its lags provide evidence consistent with a process of complex contagion of kidnapping tactics. When the overall level of kidnapping use among a group's network of trainers increases, that group tends to resort to kidnapping more frequently in subsequent periods. This finding supports H2, positing that groups aligned with a network of trainers, characterized by high overall levels of a specific tactic, will subsequently employ that tactic more frequently. Essentially, when groups are trained by multiple allies proficient in kidnapping, they are more likely to use kidnapping as a tactic.

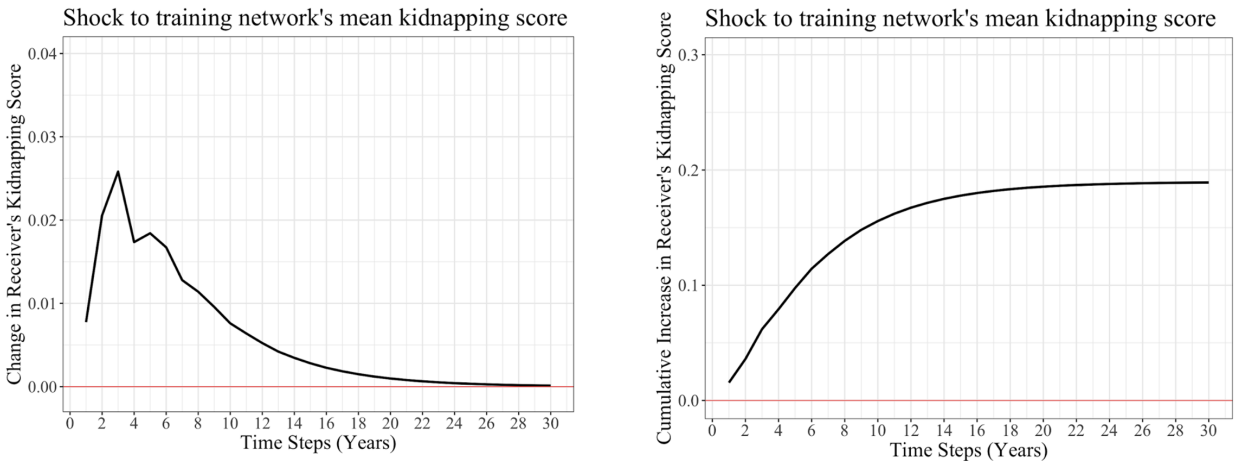
Moreover, the coefficients on the 2nd and 3rd lags of the training network's mean kidnapping score are larger than the one on its 1st lag. These results suggest that the impact of training networks on a group's resort to kidnapping amplifies over time. The fact that the influence of interactions with allies who use kidnapping on a group's own tactical choices is augmented over time is evidence consistent with the concept of complex contagion: the spread of tactics requires repeated interactions with multiple sources of exposure.

To gain a better understanding of the effect sizes and their evolution over time, I examine the impulse response functions of my variables of interest. Figure 4 displays the impulse response function of a one-unit change in the lagged training network's mean kidnapping score on the receiver's contemporaneous kidnapping score. In Panel A, it is shown that a 1 percentage point increase in a group's training network's mean kidnapping score, which ranges from 0 to 100 percent, results in an initial 0.8 percent increase in that group's own kidnapping score. This initial rise is followed by additional increases of 2 percent and 2.5 percent in the group's kidnapping score 2 and 3 years after the initial rise in the training network's mean kidnapping score. Panel B illustrates the cumulative increase in a given group's kidnapping score following sudden increases in its training network's mean score. Over approximately 15 years after an initial rise in a group's trainers' mean kidnapping score, the group's own kidnapping score increases by 18 percent, indicating that the group begins to allocate a significant portion of its activities to kidnapping attacks.

Table 2. Network of Alliances with Joint Training and Kidnappings, 1981-2018

	DV: Receiver's Kidnapping Score (t)	
	Simple model	Extended model
Receiver's kidnapping score (t-1)	0.290***	0.364***
	(0.016)	(0.025)
Receiver's kidnapping score (t-2)	0.189***	0.293***
	(0.013)	(0.023)
Receiver's kidnapping score (t-3)	0.089***	0.104***
	(0.011)	(0.016)
Training network's mean kidnapping score (t-1)	0.053***	0.062***
	(0.014)	(0.022)
Training network's mean kidnapping score (t-2)	0.156***	0.212***
	(0.019)	(0.028)
Training network's mean kidnapping score (t-3)	0.145***	0.121***
	(0.020)	(0.028)
Government pressure		0.005
		(0.004)
Media attention to kidnappings		0.128***
		(0.012)
Inter-group competition (receiver)		0.011**
		(0.005)
Shared constituency with senders		0.582***
		(0.042)
Geographic proximity to senders		-0.089***
		(0.010)
Senders' ideational influence		-0.116***
		(0.019)
Receiver's foreign state support		0.009
		(0.013)
Senders' organizational capacity		0.021***
		(0.005)
Receiver's foreign bases		0.171***
		(0.021)
Observations	16998	14878

Note 1: *p<0.1; **p<0.05; ***p<0.01
Note 2: Kidnapping and alliance-related variables are treated as endogenous in the models, but only the primary outcome variable of interest, receiver's kidnapping score, is reported in the table.



a) Orthogonalized Impulse Response Function

b) Cumulative Impulse Response Function

Figure 4. Impact of Shock to Training Network's Kidnapping Score on Receiver's Score

Other Alliances

I also run similar panel vector autoregression models using groups' alliances that do not involve joint training to determine if other types of alliances facilitate inter-group learning. In one set of PVAR models, I include the mean kidnapping score of the group's allies that provide it with non-training related material support (e.g., weaponry and funds) as the main independent variable of interest. In another set of PVARs, I use the mean kidnapping score of groups' allies that lend rhetorical support to the group (e.g., pledges, public praises). The results of these models are presented in Appendix 1. Neither set of models yields statistically significant results regarding the impact of non-training related alliances on the diffusion of kidnapping as a tactic. This suggests that the complex contagion effect summarized above is unique to alliances involving joint training, as hypothesized.

Conclusion

This study makes a key contribution to understanding the role of alliances in shaping militant groups' tactical choices—an often overlooked but critical aspect of civil wars. Understanding how alliances shape the tactical portfolios of militant groups is an important step in

designing efficacious interventions aimed at disrupting cooperation. Such interventions are of paramount significance because cooperation tends to enhance group longevity and increase lethality (Phillips 2014; Horowitz and Potter 2014). This project is, thus, part of a larger movement in the militant cooperation literature, which calls for exploring the variation in the causes and consequences of different forms of cooperation (Blair et al. 2022, p. 199). While much of the existing work on the relationship between inter-group cooperation and tactical diffusion has focused on how alliances, in general, trigger the diffusion of tactics, scholars have so far overlooked the varied nature of different alliances. This study addresses this gap by demonstrating how the nature of alliances influences groups' ability to adopt and sustain new tactics.

To answer this question, I propose a theoretical framework on how learning occurs in militant organizations, which I then use to discuss which alliances should be more consequential for inter-group learning. By focusing on tactical diffusion as a process requiring organizational adaptation, this framework reveals that not all alliances are equally effective for groups seeking to diversify their tactics. I present initial evidence suggesting that only alliances involving joint training exercises between allied groups facilitate the diffusion of tactics. When groups receive training from allies proficient in kidnapping, they are likely to subsequently increase their use of kidnapping tactics. In contrast, alliances limited to the exchange of weaponry, funds, or rhetorical support do not have a similar impact on inter-group learning. This highlights how alliances enabling deeper operational collaboration foster not only tactical innovation but also long-term changes in militant groups' repertoires. One implication of this finding is that alliances that involve deeper operational collaboration are potentially more dangerous than those based on superficial support. This can lead to a reevaluation of which alliances should be prioritized in security considerations. Policies might need to be developed to specifically monitor and target joint training camps, which are more likely to lead to an increase in the sophistication of militant activities.

However, this study further suggests that the story of inter-group learning and the evolution of militant tactics is more complex than previously understood. In contrast to earlier studies positing that the adoption of new tactics is almost a natural extension of forging an alliance, my findings suggest that inter-group learning is better characterized as a complex

contagion process. Receiving training from a single ally proficient in a certain tactic barely has any discernible impact on a group's own tactical choices. Instead, the spread of tactics among groups requires repeated interactions with multiple allies, creating a community of common practice where repeated social reinforcement is needed to enhance a given tactic's credibility and legitimacy (Centola and Macy 2007). This reframes the dynamics of tactical diffusion, emphasizing the role of sustained inter-group interactions and the collective reinforcement of norms, rather than simple, one-off exchanges. This suggests that breaking down dense networks of multiple groups could be a more effective policy tool than targeting 'entrepreneur' groups, previously thought to be behind the spread of particular tactics.

By revealing how alliances drive the spread of tactics requiring deep organizational changes, this study underscored the importance of alliances as a mechanism for organizational learning in civil wars. At the same time, competition between groups—such as attempts to outbid rivals for support, resources, or influence—may also play a significant role in driving tactical innovation. Competitive dynamics could prompt groups to adopt new tactics independently of alliances, as they seek to maintain relevance or signal strength to their constituencies. Understanding how these competitive pressures interact with or operate alongside cooperative mechanisms like alliances is a promising avenue of future research.

Finally, this study shows that if alliances enable rank-and-file fighter-level interactions among a network of groups, even tactics that require substantial organizational change and norm internalization can proliferate. This argument about socialization and inter-group learning has additional testable implications that could be the subject of future studies. First, it suggests that inter-group socialization can prompt norm alterations. While this study focused on the spread of less-lethal violent tactics, future research could uncover whether norms around non-violence spread among closely-knit militant groups. Second, if tactics necessitating complex organizational changes can be learned from allies, future research could explore the extent to which militant alliances enable groups to learn about non-violent practices related to rebel governance, public relations, diplomacy, or transnational campaigning. By connecting the study of tactical diffusion with broader literatures on organizational learning and cooperation, this work opens new avenues for understanding the strategic behavior of militant groups in civil wars.

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Appendix

Contents

Appendix 1 The Impact of Other Alliances on Inter-Group Learning

Table A.1. Non-Training Support and Kidnappings, 1981-2018

	DV: Receiver's Kidnapping Score (t)	DV: Non-Training Support (t)
Receiver's kidnapping score (t-1)	0.292***	0.042***
	(0.017)	(0.004)
Receiver's kidnapping score (t-2)	0.190***	-0.003*
	(0.013)	(0.002)
Receiver's kidnapping score (t-3)	0.089***	0.009***
	(0.011)	(0.002)
Support network's mean kidnapping score (t-1)	-0.025***	0.094***
	(0.007)	(0.010)
Support network's mean kidnapping score (t-2)	0.004	0.027***
	(0.011)	(0.007)
Support network's mean kidnapping score (t-3)	0.098***	0.088***
	(0.012)	(0.010)
Observations	16998	16998

Note 1: *p<0.1; **p<0.05; ***p<0.01