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Frontier rule and conflict

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Abstract: We examine whether frontier rule, which disallows frontier residents from a recourse to formal institutions of conflict management and disproportionately empowers tribal elites, provides a more fragile basis for maintaining social order in the face of shocks. Combining a historical border separating frontier from non-frontier regions in north-western Pakistan with 10km-by-10km grid cell-level data on conflict in a spatial regression discontinuity design framework, we show that areas that historically fell under frontier rule experienced significantly higher violence against the state after 9/11. We argue that the 9/11 tragedy represented a shock to grievances against the state which, in the absence of formal avenues of conflict management, led to a sharp surge in attacks against state targets in frontier areas. We show that the surge in 'sovereignty-contesting' forms of violence in these regions was partly carried out through the systematic assassination of tribal elites who were the main pillar of frontier rule that guaranteed social order. In our empirical analysis we rule out several important competing explanations behind the post-9/11 rise in violence in frontier areas, including the possibility of conflict spilling over from Afghanistan, income shocks (proxied by military operations), and drone attacks.

Key words: institutions, historical frontiers, conflict

JEL classification: D02, D74, N45, P48

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Note: tables at the end of the paper, before the appendix

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> 'To speak of frontier governmentality in the modern world, then, is to speak of a long history of violence.' (Benjamin Hopkins, *Ruling the Savage Periphery: Frontier Governance and the Making of the Modern State,* 2020: 194)

1 Introduction

The great imperial powers ruled their frontier territories differently from the rest of their colonial domains, creating a 'rule of difference' that was manifested in distinct administrative, legal, and institutional practices. Described as 'frontier governmentality', these practices 'constituted a discrete form of rule unique to frontier spaces' (Hopkins 2020: 17).[1] In these regions, described by historians as 'liminal spaces' or 'edges of empires', the state had a relatively thin presence, and social order was almost entirely predicated on elite intermediation. Frontier residents were thus treated as 'imperial objects' who remained susceptible to arbitrary state action, which contrasted sharply with non-frontier regions where colonial subjects had access to a full panoply of state institutions. The upshot was that frontier communities were 'encapsulated' in their own local traditions and 'enclosed', in institutional terms, from the rest of the colony (Hopkins 2020). Originally introduced in the late nineteenth and earlier twentieth centuries, frontier governance quickly became 'an administrative archetype, widely replicated the world over' (Hopkins 2020: 3–4). In his magnum opus, *Ruling the Savage Periphery: Frontier Governance and the Making of the Modern State*, Hopkins (2020: 6) alludes to the 'near simultaneous construction of a system of frontier administration on a cosmopolitan canvas'.[2]

Frontier governmentality persisted long after the end of colonial rule and served as a powerful, yet understudied, institutional legacy.[3] It resulted in long-term economic and political marginalization of frontier territories and shaped the conditions for social order (Hopkins 2015, 2020; Naseemullah 2022). Recent work by historians and political scientists shows that the 'highly uneven territorialisation of power' (Naseemullah 2022: xi) through which the frontier was created as a 'spatial, political, and administrative category' (p. 384) left a profound historical legacy for explaining conflict against the state (Kolsky 2015; Hopkins 2020; Tripodi 2020).[4] Three inter-related features of frontier rule make it prone to conflict. First, given that state authority was imperfectly penetrated in frontier regions, local populations had, at best, only a tenuous and indirect link with the state, thereby shaping state–society relationships in profound ways. Second, frontier residents did not have recourse to institutions of conflict management (e.g., courts, electoral politics) that were typically available to other colonial subjects. Instead, traditional modes of dispute resolution supervised by local elites (chiefs and tribal elders) were officially sanctioned and adopted by the imperial administration. Third, frontier rule represented a highly personalized

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[1] Such institutional heterogeneity is rooted in different colonial motivations. In regions where i) colonizers faced serious external threats, ii) the ability to extract resources was limited, and iii) the relative costs of extending state authority were high, they tended to delegate greater authority to local elites and established more exceptional institutional arrangements (Naseemullah 2022).

[2] There are several prominent historical illustrations of this exceptional frontier rule in colonial territories, such as the North-West Frontier of British India (Frontier Crimes Regulation 1887), Kenya's northern frontier with Somaliland (Special Districts Administrative Ordinance of 1934), India's North-East (Chin Hill Regulations of 1896), and Iraq's Basra Vilayet (Tribal Civil and Criminal Disputes Regulation of 1915).

[3] Modern states have continued to follow the colonial practice of governing their frontier regions through exceptional institutional arrangements (e.g., negotiated security guarantees with local elites, reliance on non-state security actors, legal adjudication through tribal elites rather than courts, dependence on local norms, and informal institutions).

[4] As Naseemullah (2022: 17) argues, the 'spatial framework of governance diversity, with roots in colonial rule and post-colonial politics, represents the key to understanding the politics of conflict'.

form of rule that empowered the 'man on the spot' (Hopkins 2020: 23). While colonial authorities routinely used local leaders and chiefs as 'mediators' and 'conduits', frontier governmentality constituted a specific 'sub-category' of indirect rule that delegated even greater power to local elites, sharing with them the state's power over coercion and social control (Mamdani 1999; Naseemullah 2022; Naseemullah and Staniland 2016).[5]

In this paper we argue that, while this elite-negotiated frontier rule can ensure social order for extended periods of time, it is more susceptible to violence in the face of disruptive shocks. The lower resilience of frontier rule in the face of shocks stems from there being fewer avenues for conflict management, lower trust in the state, and disproportionately greater reliance on elite intermediation.[6] An intrinsic feature of frontier governmentality is its 'fluid and unstable character', which is 'subject to constant processes of bargaining between different parties'. Even the very idea of 'statehood' is 'negotiable' and typically 'mediated' through local elites (Cuvelier et al. 2014: 346). When elites face a threat of elimination in the face of shocks, the entire social order begins to unravel, leading to what Naseemullah (2022) describes as 'sovereignty-contesting' forms of violence manifested in local insurgencies in frontier regions. Such violence is more likely to:

> […] arise and persist when there are fewer institutionalized resources that might draw different groups into competition over them, and the relative absence of interpenetration between society and the state that would institutionalize this competition. Instead, groups violently reject the legitimacy of the state and its ability to organize relations. (Naseemullah 2022: 20–21)

To examine the impact of frontier governmentality on conflict, we study a setting in British India's North-West Frontier that has long been considered as an archetypical case of exceptional frontier rule. Here, the British imperial administration devised radically different institutional arrangements for governing the frontier tribes as opposed to the settled regions. While colonial subjects in settled regions had access to a full panoply of institutions, including courts, police, civil bureaucracy, and electoral institutions, frontier tribes were enclosed in a state of institutional 'exception' where the routine institutions of conflict management were absent. Pursuing what was essentially a 'laissez faire policy of administration', the colonial state delegated its sovereignty to local elites who were crucial to both dispute resolution and securing the frontier (Tripodi 2009). Conflict resolution depended on the intervention of the council of tribal elders, popularly known as the *jirga*, and operated under the direct oversight of colonial bureaucracy. Alongside, tribal elites were used to recruit a local militia (known as *khassadars*) for securing the border. In return for their support, elites received a subsidy from the colonial state. This 'markedly different' colonial rule had a 'defining effect' on state–society relationship, laying the basis for legal and political marginalization in frontier regions (Hopkins 2015: 380). Frontier residents existed on the 'margins of the state, excluded from the national body politics and defined by an era of colonial governance with limited rights and access to judicial systems' (Siddiqui 2018).[7] This exceptional rule had a 'lasting post-colonial afterlife' as it remained in operation from 1901 to 2018 when Pakistan's tribal agencies in Federally Administered Tribal Areas (FATA) were officially merged with neighbouring settled districts (Hopkins 2015: 385).

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[5] This entailed, among others, the power to recruit local militias and maintain security in their local jurisdictions.

[6] We are partly motivated here by Rodrik (1999) who demonstrated the importance of formal 'institutions of conflict management' in stabilizing economic growth in the face of external shocks.

[7] From the perspective of frontier populations, frontier rule resulted in both exclusion and dependence. It not only excluded local populations from having recourse to formal institutions under colonial rule (e.g., bureaucracy and courts) but also subjected them to a tight 'economic squeeze', which made them dependent on the colonial economy.

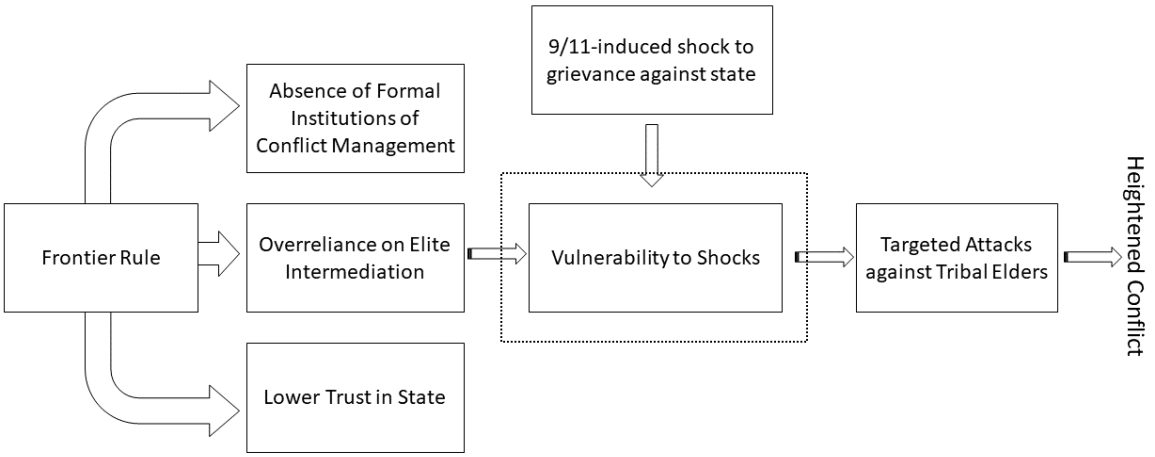
The legacies of this frontier rule (henceforth, FR) in what is now Pakistan's north-west, has been extensively studied by historians and anthropologists (Allen 2012; Beattie 2013; Kolsky 2015; Hopkins 2015, 2020; Pant 2018). In this paper, we provide the first systematic attempt at probing its impact on conflict against the state. To do so, we exploit a highly fine-grained database on conflict incidents for the period, 1970–2018, at the 10km-by-10km grid cell level. We then utilize historical sources to construct the frontier border demarcating the sharp institutional discontinuity between FR and non-FR areas that has remained in force since 1901. Combining these two elements in a spatial regression discontinuity (SRD) design, we compare observations on both sides of the border to test whether historical exposure to frontier rule predicts contemporary conflict. Our results show that, on average, between 1970 and 2018 areas that fell just inside the FR border witnessed a significantly higher incidence of conflict against the state than areas just outside the FR border. Concretely, individuals in grid cells just inside the FR border were 57 per cent more exposed to conflict incidents against the state than similar individuals just outside the FR border.

We recognize potential threats to our identification strategy, including the possibility of discontinuities in key environmental and structural characteristics in closely situated spatial units that are omitted from our analysis. These could be potentially correlated with the emergence of FR and have influenced the post-FR trajectory of conflict. Reassuringly, we do not find any statistically significant discontinuity across a wide array of geographic and climatic factors, including ruggedness, slope, topography, precipitation, temperature, and wheat suitability. We also demonstrate that historical factors, such as pre-colonial conflict and population density, also vary smoothly across the FR border. To ensure that our results are not simply capturing a pure *border effect*, we successively exclude grid cells located close to the FR border and show that our core empirical discontinuity remains.

Our findings emanate from a relatively stringent identification strategy that restricts the sample to grid cells within a 50-km buffer zone of the FR border and controls for 20-km border segment fixed effects. This effectively means that we compare observations within a 50-km buffer zone along the FR border within the same 20-km border segment. Our results hold up to a battery of robustness checks, which we report in the appendix. These include: changing the size of the buffer zone (40 km and 60 km instead of 50 km); altering the size of the border segments (18 km and 15 km instead of 20 km); using an alternative database on conflict; using alternative functional forms for the running variable; choosing other manually chosen bandwidths; applying a different kernel weighting strategy for observations close to the FR border; and shifting the original FR border south-westward (i.e. further inland) as a placebo exercise.

Probing the temporal dimension, we show that the effect of frontier rule on conflict was only activated after the invasion of Afghanistan by the United States (US) in 2001. We show that prior to 2001 there were no systematic differences in conflict against the state between FR and non-FR regions. However, FR regions witnessed a sharper spike in conflict shortly after 2001 relative to geographically proximate non-FR regions. We argue that the year 2001 represented a universal shock to the Pakistani population's grievance against the state for its decision to lend support to the US-led 'war on terror' in the aftermath of 9/11. However, this rise in anti-state sentiment was particularly pronounced in FR areas where, in addition to the state's support for the war on terror, the Pakistani military increased its presence under US pressure for the purposes of patrolling the Pak-Afghan border and 'dominating the space' (Nawaz 2011: 8). In our causal chain, this led to a discontinuous rise in sovereignty-contesting forms of violence in FR areas where formal institutions of conflict management were largely absent, there was an overreliance on elites for dispute resolution, and trust in the state was historically low. Figure 1 provides a brief sketch of our argument and the mechanisms at work.

Figure 1: The transmission mechanism from frontier rule to conflict



Source: authors' construction.

To understand why 9/11 evoked a discontinuous response in FR areas, we provide several pieces of evidence that are consistent with our mechanism. First, we estimate linear probability models using data from a representative household-level survey and demonstrate that individuals residing in FR areas were less likely to consider members of the national legislature as the main recourse for dispute resolution. Instead, frontier residents were significantly more reliant on the assembly of tribal leaders (*jirga*) for adjudicating disputes. Second, we show that frontier residents also had a significantly lower trust in formal state institutions (e.g. parliament and courts). Finally, we document the unravelling of social order through the systematic targeting of tribal leaders in FR regions, which was a key component of the local insurgents' strategy in perpetrating violence against the state. Moving across the border from non-FR to FR areas, we find a discontinuous rise in attacks against tribal elders. In a context where the local social order primarily hinged on elite intermediation, elimination of these elites represented an important strategy adopted by non-state actors, which created an institutional vacuum and exposed the FR areas to greater violence against the state.

Our findings on the greater vulnerability of FR-governed areas to conflict in the wake of external shocks are consistent with prior qualitative research (Naseemullah 2014, 2022). Specifically, our results shed empirical light on the claim in Naseemullah (2014: 519) that 'the destruction of the regular means through which social elites were able to negotiate with the agents of the state was a significant enabling factor for insurgent conflict in the tribal northwest'. We also engage with other competing explanations and rule out the potential role of conflict spillover from neighbouring Afghanistan, the post-9/11 income shock induced by military operations, US drone strikes, and the differential provision of public infrastructure (roads, railroads, waterways, and health centres).

Our paper contributes to a well-traversed academic terrain on the long-run determinants of conflict, especially the role of institutions (Bang and Mitra 2017; Bellows and Miguel 2006; Chauvin 2016; Ciccone 2008; Collier and Hoeffler 1998, 2004, 2007; Fearon 2007; Fearon and Laitin 2003; Heldring 2021; Herbst 2000; La Ferrara and Bates 2001; Miguel et al. 2004; Sambanis 2005; Skaperdas 2008; Voors and Bulte 2014) (see Blattman and Miguel (2010) for a detailed review).[8] Our work differs from existing literature in several important respects.

[8] Conflict is typically described as the result of bargaining failure and commitment problems. To enforce commitments over time, it is important to have strong government institutions and checks and balances on executive power. Weak

First, while prior scholarship has begun to characterize the effect of broad institutional characteristics, we have limited knowledge of the role of 'specific political and legal institutions' in driving conflict (Blattman and Miguel 2010).[9] A related challenge emanating from the overwhelmingly cross-country focus of prior work is that institutional heterogeneity within countries remains understudied. To this end our contribution is to focus on a specific form of indirect rule which created distinct institutional arrangements for governing frontier regions and whose effects remain largely unexplored. By doing so our study addresses an important research question highlighted by Sambanis (2005): Does the extent to which a state exercises control over its peripheral territories impact conflict? While there is a vibrant literature analysing frontier governance arrangements in political science, international relations, anthropology, and area studies (Colona and Jaffe 2016; Meagher 2012; Meagher et al. 2014; Roitman 2005), their role in driving conflict is largely ignored in the mainstream economics literature. As Cuvelier et al. (2014: 346–47) note, the 'evidence base' for past studies is limited, and, while the literature offers 'new analytical tools', there are few notable attempts to 'systematically gather empirical evidence'.

Second, as Blattman and Miguel (2010: 30) argue, 'an important limitation' of prior work is that it mainly focuses on domestic drivers of conflict. The role of international factors has only recently come under closer intellectual scrutiny with studies probing the impact of global institutional transformations (Wimmer and Min 2006), terms of trade shocks (Frankema et al. 2018), conflict spillovers from neighbouring countries (Hegre and Sambanis 2006), presence of transboundary ethnic groups (Gleditsch 2007), refugee flows (Salehyan and Gleditsch 2006), foreign aid (Nielsen et al. 2011; Savun and Tirone 2011), and foreign interventions (Aydin 2012). However, barring these exceptions, the salience of international issues has been insufficiently explored. We contribute to this literature by adding an important nuance which revolves around the role of geo-political shocks (i.e. the post-9/11 war on terror) in shaping the relationship between institutions and conflict. In this regard, our work provides confirmatory evidence on two important insights in Blattman and Miguel (2010: 18), namely that: (a) the impact of institutions on conflict can be conditional on other factors and (b) 'non-economic explanations' such as citizen's 'emotional and ideological outrage' can shape grievances that underpin violent action.

Third, a key empirical challenge for conflict studies is to isolate the impact of institutions from other powerful drivers of conflict, such as geography, climate, and income shocks. While prior work is mostly cross-country in nature, Blattman and Miguel (2010: 26) recommend that 'future empirical work should achieve more credible causal inference by focusing on a single, or a small number of, exogenous conflict determinants'. In this spirit our paper is situated within a growing genre of studies that exploit sub-national (or sub-regional) variations in conflict while focusing on a core conflict driver and using a robust empirical strategy. For example, Dell and Querubin (2018) exploit discontinuities in US military strategies across neighbouring regions in Vietnam to study their differential impact on insurgency and local governance. Moscona et al. (2020) exploit ethnic boundaries in sub-Saharan Africa to empirically demonstrate a connection between segmentary lineage organization and conflict across ethnic groups. Similarly, Michalopolous and Pappaioannou (2016) investigate the impact of the colonial-era border-making which partitioned ethnicities in Africa on contemporary conflict.[10] An advantage of our empirical setting is that many of the

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state capacity has also emerged as an important correlate of violence (Herbst 2000; Bates 2008; Besley and Persson 2008, 2010).

[9] In fact, as Blattman and Miguel (2010: 28) argue, 'several of the institutional characteristics have yet to be carefully defined and measured', and there is a need to 'disaggregate' and unpack the institutional effect.

[10] Using a carefully crafted identification strategy, they find that ethnicities whose traditional homelands were partitioned as a consequence of drawing up colonial borders during the 'Scramble for Africa' experienced significantly

dimensions traditionally considered as important for explaining conflict, such as ethnicity, religion, and segmentary lineage, are naturally controlled for in the case of our frontier border.

Finally, our work is situated within the expanding literature on the long-run impact of history on development—see Nunn (2009, 2021) for exhaustive reviews—especially the persistent impact of colonial-era institutions (Acemoglu et al. 2001; Acemoglu and Robinson 2012; Engerman and Sokoloff 1994). Our paper contributes to this literature by highlighting that colonialism was not a 'singular treatment', as colonizers tended to build diverse institutional arrangements even within the same territory (Mamdani 2018; Boone 2003). Furthermore, besides showing that historical institutions matter for development, we also demonstrate 'why' and 'when' they matter. Our work thus feeds into a select literature in historical political economy that emphasizes the role of 'time-varying persistence', which suggests that the impact of history can remain latent for a long time until it is activated through interaction with other factors or shocks (Belmonte and Rochlitz 2019; Cantoni et al. 2019; Fouka and Voth 2013; Ochsner and Roesel 2017).

Within the broader genre of historical work, we contribute more directly to two key sub-strands. The first is the work by Acemoglu et al. (2014), which probes the impact of the power and authority of African chiefs on development. While tribal elites are a central part of our story, our story is not one of extractive elites but their role within the larger architecture of frontier governance. We show how the oversized role of local elites can render the underlying institutional order more vulnerable to violence in the face of shocks. Second, we complement prior scholarship on the impact of historical borders (Becker et al. 2016; Dell 2010). In particular, our paper connects more directly with an emerging strand of scholarship probing the impact of historical frontiers on long-run inequality (Oto-Peralías and Romero-Ávila 2017), economic geography (Chronopoulos et al. 2021), and individual and gender norms (Bazzi, Fiszbein, and Gebresilasse 2020; Bazzi, Brodeur, Fiszbein, and Haddad 2023). Our work complements this scholarship by treating frontiers not just as a purely geographic dimension or distinctive norm-creating spaces but as a profound institutional category. To this end, our paper is closer in spirit to Popescu (2023) that examines the developmental legacy of a military buffer zone in Hapsburg Empire. We differ from this work in two key respects. Firstly, the nature of our institutional treatment is different. While Popescu (2023) focuses on the state's limited provision of infrastructure and institutional arrangements for property and labour markets, we highlight the role of institutions of conflict management.[11] Secondly, we focus on a different outcome of interest (i.e. conflict against the state). We thus bring fresh insights to a highly niche literature on historical frontiers by providing what is, in our humble assessment, the first empirical attempt at examining the impact of historically embedded institutional differences in frontier regions on contemporary conflict.[12]

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higher levels of civil conflict in the long run. They attribute the persistently higher levels of civil conflict associated with partitioned ethnic groups to the greater likelihood of these groups engaging in armed conflict to counter the state's repression.

[11] In fact, we demonstrate that there are no statistically significant differences in the provision of public infrastructure in closely situated spatial units in FR and non-FR areas (see Section 5.4). Another point of difference is the role of elites. In Popescu's frontier setting the task of securing the frontier was delegated to peasants and refugees while in our context, there was a greater delegation of power to local elites.

[12] Our paper complements Callen et al. (2020) who study Pakistan's north-western frontier as a case study to explain why states leave their territories ungoverned. Our research also feeds into an expanding literature in political science and development studies on hybrid governance in fragile states (Arnaut et al. 2008; Boege et al. 2008; Cleaver 2002; Garrett et al. 2009; Hagmann and Péclard 2010; Lund 2006; Menkhaus 2006; Raeymaekers et al. 2008). While this literature offers useful typologies, thick descriptions, and contextual analysis, our work provides a more rigorous empirical focus.

The remainder of this paper is structured as follows. Section 2 sets out the historical background of this study. Section 3 describes the data and methods. Section 4 presents the main findings of our empirical analysis. Section 5 identifies plausible mechanisms. Section 6 concludes.

2 Context

In this section we discuss the emergence of frontier rule (FR) in the north-western frontier of British India, highlighting both its salient features and the imperial rationale behind its introduction. We also discuss the salience of the 9/11 shock for explaining violence against the state in frontier regions.

2.1 Frontier rule in British India

The north-western frontier of British India was carved out of Punjab as a separate province in 1901 by Lord Curzon, the viceroy of British India (1898–1905). The newly created North-West Frontier Province was bifurcated into settled regions and the frontier tracts. The latter were populated by tribes adjacent to Afghanistan.[13] While the two regions shared the same ethnicity, religion, and social structure, they were subjected to a sharply distinctive category of institutional rule by the British.[14] The cartographic divide between frontier and non-frontier areas signified a sharp institutional discontinuity. As Sir Olaf Caroe, a colonial-era governor of the frontier province, aptly noted: 'the line of administration stopped like a tide almost at the first contour' of frontier territories (Caroe 1958: 239). In frontier tracts, this was manifested in relatively thin state presence and more exceptional institutional arrangements that excluded frontier inhabitants from the paraphernalia of colonial institutions that were otherwise available to colonial subjects in settled districts. For example, while the inhabitants of British India in non-frontier regions had at least some modicum of judicial protection through divisional and district courts along with the universal application of the Indian Penal Code, frontier dwellers were 'legally disenfranchised' (Hopkins 2020).

An important manifestation of this was the creation of an alternative judicial system for frontier tribes which relied on local elite intermediation (and adjudication) rather than formal colonial institutions, such as the courts and judiciary.[15] Local tribal elites (e.g., *Maliks* and *Khans*) were empowered to adjudicate disputes through customary practices and informal institutions known as the *jirga* (a traditional congregation of tribal elders where decisions were made by consensus). While *jirgas* were informal consultative bodies that historically varied in form and purpose, the British standardized the modes of tribal governance and made *jirgas* the principal avenue for

[13] Initially, the NWFP province consisted of the following five settled districts: Peshawar, Kohat, Hazara, Bannu, and Dera Ismail Khan. Frontier areas consisted of the tribal agencies that lied in the liminal spaces between the settled districts and Durand line boundary with Afghanistan agreed in 1893. These were: Dir, Swat, Chitral, Bajaur, Mohmand, Khyber, Kurram, Orakzai, North Waziristan, and South Waziristan tribal agencies.

[14] It is important to note that Pashtun tribes existed on both sides of the frontier rule border. The difference between frontier and non-frontier areas was thus not merely a distinction between tribal and non-tribal. The emphasis on border tribes was more a part of colonial rhetoric and imagination. As Scott (2009: 30) argues, there is a tendency for centralized state to view 'all those who had a reason to flee state power for whatever reason' as 'tribalizing themselves'. As Scott further argues: 'Ethnicity and tribe began, by definition, where sovereignty and taxes ended'.

[15] An important legal instrument associated with this exceptional legal regime was the Frontier Crimes Regulation (FCR), which was first introduced in 1872. The FCR codified pre-existing practices of collective punishments and has consistently been described as 'draconian' and discriminatory, as it gave the accused in frontier areas neither a right to appeal nor equality before law (Mahsud et al. 2021).

dispute resolution. The tribal judiciary, described as the 'Council of Elders' in the 1887 regulation, was typically composed of a handful of appointed tribal leaders. Importantly, these leaders did not necessarily act as extractive elites and operated within an inherently egalitarian and non-hierarchical Pashtun society.[16]

Frontier tribes also had distinct security and policing arrangements. Compared to the elaborate structure of policing in place for settled districts, the British administration relied on locally recruited militias (*khassadars* and levies) for maintaining law and order in tribal jurisdictions. The *khassadars* possessed the powers to arrest and, if needed, refer the offenders to tribal councils for dispensing justice. From 1915 they were also assisted by a paramilitary force known as the Frontier Constabulary (FC) that was also responsible for guarding and patrolling the border between the tribal agencies and settled districts and watching over foreign threats. However, the FC only had the power to monitor, sanction, and keep a general watch. It neither had traditional policing powers nor full coercive monopoly (Hopkins and Marsden 2012; Naseemullah 2014). Instead, army officials could be attached to local paramilitary forces and support from regular Army troops stationed in neighbouring cantonments could also be sought. The British Indian Army also maintained garrisons in strategic locations in tribal areas, such as Khyber and Waziristan.

Frontier areas were also weakly penetrated by state bureaucracy. While the settled districts were administered through a well-developed bureaucratic system that included deputy commissioners and revenue officials, colonial interests in frontier areas were primarily overseen by political agents. These were officers of the British Raj who helped to maintain relations with tribes on behalf of the colonial state, gathered intelligence, and provided financial subsidies to tribal elites.[17] Lastly, a key feature of frontier rule was the complete absence of political representation. Under the British rule, restricted enfranchisement was gradually extended to residents of settled districts through legislative councils, assemblies, and district and municipal boards. However, even this nominal and limited electoral representation remained unavailable to frontier residents. These historically embedded institutional differences are summarized in Table 1.

The fundamental architecture of frontier rule survived long after the British departed from India. After gaining independence in 1947, frontier residents benefited from better provision of infrastructure and job opportunities in the public sector.[18] However, the colonially sanctioned 'rule of difference' continued unabated. Frontier regions remained legally and politically marginalized. The 1956 Constitution of Pakistan maintained the application of Frontier Crimes Regulations in FR areas. This effectively meant that neither the Supreme Court nor High Courts were able to exercise their jurisdiction in frontier regions. Furthermore, the parliamentary laws that governed the operation of political parties did not extend to frontier areas. Consequently, neither of Pakistan's mainstream political parties were able to operate and field candidates in these regions. Limited adult franchise was extended in 1997 whereby tribal leaders were given the right to vote in a non-party-based election. While the exclusionary legal and political restrictions applied to these

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[16] Colonial archives consistently describe the border tribes as 'exceedingly democratic' with 'no recognized headmen' (Ibbetson 1881: 10). In this context, the basis of authority rests on consensual legitimacy. As Ibbetson (1881: 201) notes: 'Each section of a tribe, however small, has its leading Khan Khel or Chief House, usually the eldest branch of the tribe, whose Malik is known as Khan, and acts as chief of the whole tribe. But he is seldom more than their leader in war and their agent in dealings with others; he possesses influence rather than power; and the real authority rests with the *jirgah*, a democratic council composed of all the Maliks'.

[17] Naseemullah (2014: 511) describes the role of political agents as 'part military commander, part diplomat, and part spy'. Financial inducements to tribal elites typically consisted of annual allowances paid by the colonial administration to tribal chiefs (Maliks) and stipends to recruit armed militias (Naseemullah 2014; Hopkins 2015).

[18] As per the most recent census conducted in 2017, the frontier tribal agencies consist of around 3,000 villages with a total population of roughly three million people.

frontier regions were finally withdrawn in 2018, this has thus far only existed on paper as little has substantially changed on the ground (Mahsud et al. 2021).[19]

Historians have long argued that the markedly different institutional arrangements that have governed frontier tribes represent both a profound and persistent colonial inheritance of British rule in India (Embree 1977; Nichols 2001; Tanguay-Renaud 2002; Stewart 2007; Hopkins 2020). This set the two regions on very different paths of state–society relationships, with the state being a more distant and alien construct in frontier areas. According to Naseemullah (2022), it is precisely these pre-configured and historically embedded differences in state capacities and state–society relationships that are important predictors of contemporary conflict, especially insurgency-based violence at the local level.

Imperial rationale for frontier rule

In extending 'exceptional' legal, administrative, and political arrangements in frontier territories, colonial rulers were influenced by three factors: fear, greed, and frugality (Naseemullah 2022). In their frontier domains, colonizers typically faced an external threat, had limited prospects for resource extraction, and faced relatively high costs of extending state authority. The north-west frontier of British India has historically acted as a strategic frontier nestled between Afghanistan, Central Asia, China, and present-day Pakistan (formerly British India). The frontier areas effectively represented a buffer zone for the British Empire against possible external threats from Tsarist Russia in the context of the geo-political competition between great powers, often referred to as the 'Great Game' (Becker 2012; Davis 1926; Hopkirk 2001).[20] However, the possibility of a Russian over-stretch became less likely over time, thereby reducing the seriousness of the Russian threat. Instead, as Tripodi (2009: 3) has argued, the 'true threat to British India was perceived to lie within'. Regular skirmishes between colonial forces and frontier tribes posed continuing challenges to state authority in frontier areas, which could have potentially generated a more 'popular uprising' and undermined British rule in the rest of India.

Another important consideration was the relatively limited tax potential in frontier agencies. Compared to settled districts, frontier areas had on average different climate and topography, potentially resulting in more limited agricultural surplus.[21] Consequently, for a more frugal colonial dispensation, it was relatively costly to extend state authority by establishing formal institutional structures (Callen et al. 2020). Frontier institutional arrangements might also have been shaped by other factors, such as the differential experience of conflict and development in pre-colonial times. Our spatial regression discontinuity (SRD) design will therefore explicitly account for such historic, geographic, and environmental factors by showing that these features vary smoothly across the border.

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[19] While various official commissions were set up to review FR after independence, they only resulted in minor amendments. Similarly, senior members of the judiciary repeatedly passed critical judgements against FR in several high-profile cases. Prominent efforts in this regard include: the Quetta and Kalat Laws Commission, the Law Reform Commissions of 1958 and 1967–70, and the FATA Reforms Commission of 2005. None of these resulted in a substantive change.

[20] The 'Great Game' signifies the geo-political competition during the nineteenth and early twentieth centuries between the Russian and British Empires for the control of Afghanistan, Central Asia, and neighbouring South Asian territories.

[21] The settled or non-frontier districts consisted of fertile valleys, low hills, and plains. By contrast, the frontier tracts were mostly hilly terrains interspersed with small basins and valleys.

2.2 The 9/11 shock to grievance against the state

The year 2001 represents a major turning point in international relations that had grave implications for localized conflict in Pakistan's frontier areas. The tragedy of 9/11 prompted United States (US) to initiate a major military response in the guise of the war on terror, triggering an attack against Afghanistan. As a pivotal neighbouring state, the US sought Pakistan's intelligence and logistical support to facilitate the Afghan war operations and persuaded the Pakistani military to move its troops close to the Afghan border. This entailed a major policy shift. Two decades earlier Pakistan's support was similarly critical in the Afghan Mujahideen's armed resistance against the Soviet Union, which was tacitly backed by the US and allied Western powers (Coll 2004; Dorril 2002; Khan 2013; Pentz 1987; Riedel 2014; Weinbaum 1991). At that time, the main objective was to free Afghanistan from Soviet occupation. Militant Islamic groups were mobilized and used as proxies against the Soviets, then considered as an anti-Islamic force. There was a broader convergence at the time between Pakistani state and frontier tribesmen in their opposition to Russian invasion. However, when in 2001 the US demanded renewed cooperation from Pakistan, it essentially entailed a major reversal of policy that the Pakistani establishment had pursued for the previous 20 years. Specifically, Pakistan was made to relinquish ties with the Taliban, many of whom had previously fought against the Soviets, and to support US war efforts against the group in Afghanistan. This was a 180-degree shift in Pakistan's Afghan policy, which had a deep institutional and ideological support base in the country.

In this context, the US attack on Afghanistan and the almost-overnight foreign policy shift by Pakistan's military ruler Parvez Musharraf were deeply unpopular.[22] The resentment against General Musharraf's decision to join the US-led war was both universal, affecting all regions in Pakistan, and persistent. This is reflected in a series of surveys and opinion polls. Opinion data from a Pew survey indicates that, while a majority of the Pakistani population (58 per cent) maintained an 'unfavourable' view of the US in 2000, this proportion increased to 82 per cent after 9/11.[23] Similarly, a Gallup poll conducted on 18 June 2002 showed that 62 per cent of Pakistanis were opposed to the government's decision to lend support to the US-led war on Afghanistan. Eleven years later results from a similar poll indicated that 71 per cent of respondents disapproved of cooperation with the US in its war on terror. The 9/11-induced grievance against the state was noticeably higher among residents of FR areas where, in response to the US demand, the military substantially increased its presence for securing the Afghan border.[24] While initially the military only 'dominated the space' without conducting 'aggressive operations', its mere presence was seen as an 'alien force doing the bidding of a foreign power' which fuelled a 'local uprising' (Nawaz 2011:6–8).[25]

The year 2001 thus represented a universal shock to grievance against the state, which disproportionately affected the frontier areas. This external shock was relatively exogenous to local conflict intensity along Pakistan's North-West Frontier. While recognizing that these regions had

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[22] The US attack on Afghanistan was perceived as an aggression by the world's dominant superpower against one of the poorest states. General Musharraf's regime tried to justify this policy shift on grounds of necessity and a survival option in the face of the shifting tide of global opinion and intense US pressure. For further details, see Reuters (2006).

[23] *Global Attitudes Survey*, Pew Research Center. The data can be accessed at: https://www.pewresearch.org/global/datasets/.

[24] A survey report showed that some 85 per cent of respondents in frontier areas opposed the presence of the US military in the region (Shinwari 2012: 86). In 2011 around 58 per cent of survey respondents viewed the US in 'very unfavourable terms' (Shinwari 2012: 129).

[25] Nawaz (2011: 10) describes this policy of 'dominating space' as 'sitzkrieg', which meant 'sitting in camps without any aggressive actions'.

hosted many fighters involved in the armed struggle against the Soviets in the 1980s and that militants in Afghanistan might have maintained some links across the border in Pakistan after the Soviet withdrawal in 1989, the 9/11 attacks were part of a broader global phenomenon of Islamic Jihad that cannot be conceivably linked to the potential for conflict in frontier areas. Specifically, both the timing and location of the 9/11 shock are orthogonal to the prospects for localized conflict in frontier regions.

Pakistan witnessed a substantial surge in violence in the post-9/11 period. Around 12,891 attacks were conducted against the state and civilian targets after 2001, a noticeable increase compared to the 1,845 attacks in the entire pre-9/11 era stretching from 1970 to 2000 (GTD 2021). The intensity of such violence was considerably higher in frontier regions. While militant outfits involved in this violence primarily emerged after 9/11 (e.g. TTP and TNSM[26]), they benefited from the organizational infrastructure put together during the 1980s Afghan Jihad against the Soviets. Their recruits enjoyed deep social and ethnic ties with local populations and were overwhelmingly drawn from disenchanted segments of local tribes. These included, for example, the Alizai clan of Mehsuds, Ibrahim Khel clan of Utmanzai Waziris, Kaka Khel subtribe of Ahmadzai Waziris, and Mezi sub-tribe of the Zadranis (Jones and Fair 2010).

The post-9/11 acceleration of violence triggered a domestic and global policy response. Specifically, the FR areas witnessed military offensives, both by Pakistani and US forces, against alleged sanctuaries of terrorist outfits. From 2004 onwards, the US also carried out drone strikes against alleged Al-Qaeda-linked affiliates in Pakistan's North-West (Ahmed et al. 2019; Mahmood and Jetter 2019). These attacks increased after 2008, reached their peak in 2010, and declined precipitously thereafter until they were phased out by the Obama administration in 2016 (see Figure B1 in Appendix B). Drone attacks further intensified anti-US sentiment and have remained deeply unpopular across Pakistan.

Growing violence in frontier areas also prompted the military to launch selected offensives against local insurgents. However, trained in conventional warfare, the Pakistani military found itself unprepared for counter-insurgency operations after 2001. This had two key implications. First, the Pakistani military had to rely on the US for technical and financial assistance to carry out these offensives. This was seen as yet more evidence of collaboration with a foreign power and therefore further ignited local grievances. Second, earlier military operations were met with limited success. Described as achieving 'low' levels of success, these operations were inconclusive in that they only 'temporarily' cleared the violence-hit areas (Jones and Fair 2010: 68). The 'short-term successes' meant that military operations did not decisively hurt the insurgents' 'ability to attack the government' (Jones and Fair 2010: 70). However, successive operations did increase the military's capability, as reflected in the more effective *Zarb-e-Azb* military offensive in the North Waziristan Agency in 2014. The operation overlapped with the attack on Army Public School in Peshawar city in December 2014, which generated a nation-wide political resolve to fight terrorism. *Zarb-e-Azb* has been described as 'biggest and most well-coordinated operation' against local insurgents to date (Rehman et al. 2017).

[26] TTP stands for 'Tehreek-e-Taliban Pakistan' and TNSM denotes 'Tehreek-e-Nifaze-Shariate Mohammdi'.

3 Data and variables

This section describes the data used to construct the main variables used in our empirical analysis. The unit of observation for our analysis is the 10km-by-10km grid cell.

3.1 Conflict data

The main source of our conflict data is the Global Terrorism Database (GTD 2021) that provides information on more than 200,000 conflict incidents across the world since 1970. For each incident, information is provided on the time (day, month, and year), location (latitude and longitude), fatalities (wounded and killed), type (assassination, explosion, suicide, hijacking, etc.), target (military, civilians, businesses, government officials, religious institutions, non-governmental organizations, etc.), the source (militant outfit that carried out the attack), and the motivation for the attack (political, religious, etc.). The GTD reports more than 14,500 conflict incidents in Pakistan from 1 January 1970 to 31 December 2018. Given our interest in explaining sovereignty-contesting forms of violence, our main outcome of interest captures attacks against military personnel and installations.[27] We describe these as attacks against the state. Using the GTD, we construct three measures of attacks against the state: (a) the number of incidents, (b) the number of deaths, and (c) the number of injuries in a 10km-by-10km grid cell for the period, 1970–2018. In the extended analysis, we also use a broader measure of state targets that also includes attacks against police, government officials, and state utility installations.[28]

3.2 Frontier rule border

We use primary sources, principally colonial-era archives, to construct the historic border that separates frontier agencies from settled districts. The border effectively separated the five settled districts of Peshawar, Kohat, Hazara, Bannu, and Dera Ismail Khan from the seven frontier agencies of Dir, Swat, Chitral, Khyber, Kurram, North Waziristan, and South Waziristan. Originally coming into force in 1901 on the direction of the then governor general of India, Lord Curzon, this was more than just a 'cartographic distinction' and represented a sharply distinct category of institutional rule that consistently remained in force till 2018 (Kolsky 2015: 1225). To construct this historic border, we imported the shapefile for an administrative map of British India in 1901 into the Quantum Geographical Information Systems (QGIS) application and used its map making tools to extract the frontier border.[29]

3.3 Controls

The validity of our SRD estimation method requires that other relevant dimensions apart from the treatment vary smoothly across the FR border. While we are not able to rule out discontinuities in every conceivable dimension, we do present evidence that a whole range of factors that could plausibly be linked to conflict vary smoothly across the FR border. In this regard we compile data on the following geographic, climatic, and historic factors.

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[27] Our focus on military targets is motivated by the well-accepted fact that the Pakistani military is the locus of state power and is therefore the primary target for 'sovereignty-contesting' forms of violence. Other coercive actors of the state, such as the police, levies, and *khassadars*, are locally recruited and are therefore viewed less as an alien force and more as part of local society.

[28] Further details on the 'broader' measure of attacks against the state are provided in Appendix A.

[29] The shapefile for the 1901 administrative map of British India was obtained from Professor James Fenske's website: https://warwick.ac.uk/fac/soc/economics/staff/jefenske/data/.

3.3.1 Geographic characteristics

Data on elevation is provided by the Shuttle Radar Topography Mission (version 2018). The elevation information is recorded in metres at the resolution of 30 arc seconds, which is approximately equivalent to a 1km^2 level near the equator. Using these data, we calculate the terrain ruggedness index, average slope index, and topographic position index at the 10km-by-10km grid cell level.[30] We use the terrain ruggedness index (TRI) which was originally devised by Riley et al. (1999) and further developed by Nunn and Puga (2012). This TRI is calculated as the square root of the sum of the squared differences in elevation between a central point and the eight adjacent points on a grid of 30 arc seconds. For this study we construct the average terrain ruggedness for each 10km-by-10km grid cell, with higher values indicating higher terrain ruggedness.

Our measure of slope is a measure of change in elevation across space. The slope index is the weighted average of differences between adjacent 30 arc-second elevation points, with the weights being the inverse of distances between the points. The topographic position index (TPI) is another measure of an area's elevation relative to its surroundings. It is calculated by subtracting the mean elevation of eight surrounding 30 arc-second elevation points from a central elevation point. Using this procedure, we construct the average TPI for each grid cell in our dataset, with higher values indicating more extreme topography. The data on wheat suitability comes from the Food and Agriculture Organization's Global Agro-Ecological Zones (FAO-GAEZ) dataset, which is available from GAEZ Data Portal (2012). We compute grid cell-level measures by averaging over raster points within each 10km-by-10km grid cell. Note that the wheat suitability data is based on the 'low-input' and 'rain-fed' parameters that closely proxy the historical conditions under which wheat was grown in Pakistan.

3.3.2 Climate

Data on precipitation is provided by the Global Climate Database created by Hijmans et al. (2005), which is available from WorldClim (2020). Along with monthly average rainfall the database also provides the long-run average for the years 1970–2000 in millimetres. We match the average rainfall between 1970 and 2000 to each 10km-by-10km grid cell to construct a measure of long-term average difference in precipitation levels on either side of the FR border. For temperature data we again use the Global Climate Database by Hijmans et al. (2005), which also contains information on average temperature in °C, both on a monthly basis and as the long-term average for the period 1970—2000. We merge each grid cell with the average temperature between 1970 and 2000 to capture the long-run effects of temperature on both sides of the FR border.

3.3.3 Historical factors

We account for several key historical dimensions that could have potentially shaped the institutional discontinuity around the FR border and the trajectory of conflict against the state. The first is the pre-colonial population density. Data on pre-FR (i.e. before 1901) population density is extracted from the HYDE (2006) database, which provides internally consistent 30 arc second (1km^2) grid cell-level estimates of population density at 100-year intervals for the last 12,000 years. The second dimension is pre-colonial conflict. For this we utilize a dataset compiled by Dincecco et al. (2022) that draws on information on historical conflicts, organized alphabetically by individual conflict names, in a celebrated volume from Jaques (2007). For each individual conflict, Jaques provides a paragraph-length description on the type of conflict (e.g., land, sea,

[30] Grid cell-level aggregates are extracted using the QGIS *Zonal Statistics* command which calculates various statistics like average, median, standard deviation, etc., for raster datasets in defined zones.

etc.), its date, approximate duration (e.g. single day), approximate location, and major participants of the conflict. For other dimensions like Mughal-era roads and Islamic trade and pilgrimage routes, we use geo-referenced data from the Old World Trade Routes Project (Ciolek 1999).

3.4 Attacks on tribal elders (*Maliks*)

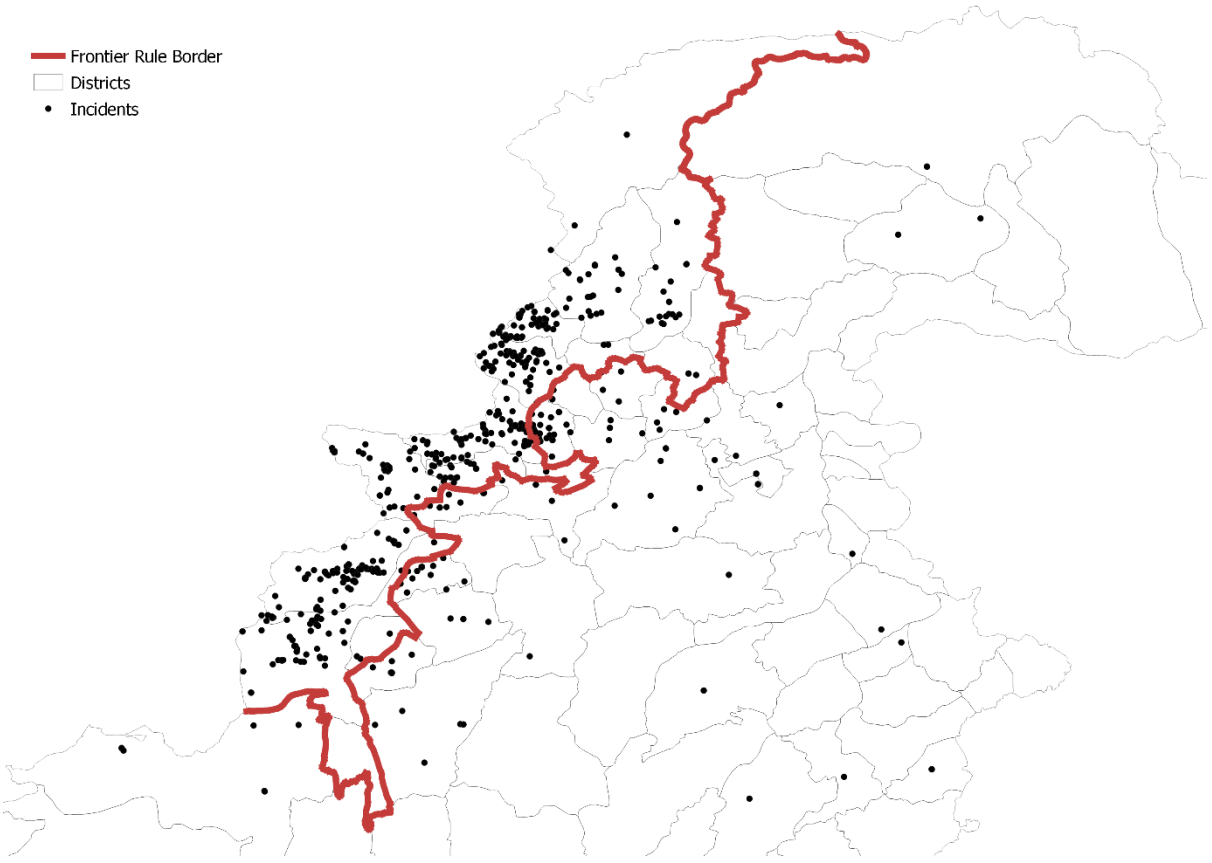
To probe the mechanism through which FR affects conflict against the state in the post-9/11 period, we construct different measures of violence against tribal chiefs. We use geocoded information in the GTD database to construct a variable aggregating the number of attacks against tribal chiefs in each grid cell.[31] We also construct measures aggregating the number of deaths and number of injuries in attacks against tribal elders, both calculated at the grid cell-level.

3.5 Descriptive evidence

Table 2 reports average differences in each of the three measures of conflict against the state on either side of the FR border. The means for FR and non-FR areas are followed by the estimated difference between the two values for each of the measures. Columns 1–3 report averages for the whole sample, whereas columns 4–6 restrict the sample to a 50-km buffer zone on either side of the FR border. The latter of these is the main sample we use for our empirical analysis. Across all measures, and regardless of whether we use the full or restricted sample, the intensity of conflict against the state is statistically significantly higher in FR areas relative to non-FR areas. In particular, the FR areas have between 36 per cent and 57 per cent more conflict intensity than the non-FR areas based on the specific measure that is used. Figure 2 plots each conflict event between 1970 and 2018 on a district-level map of Pakistan's North-West Frontier using the latitude and longitude coordinates. As the figure shows, the density of attacks against the state is noticeably higher inside the FR boundary (left of the border). We will show later in this paper that this difference in the density of attacks primarily emerges during the post-9/11 period.

[31] The first ever attack against a tribal elder in the GTD occurred in 2006. This means that the data on violent incidents against tribal elders comes entirely from the post-9/11 period.

Figure 2: Spread of conflict incidents against the state across the FR border (1970–2018)



Note: the map shows the spread of conflict incidents against the state from 1970 to 2018. Each black dot represents an attack against the state (defined here as military personnel or installations) and the red line denotes the historical border (as of 1901) separating frontier agencies (left side of the border) from settled districts (right side of the border).

Source: authors' compilation. This map is created from GTD (2021) data through the QGIS application.

4 Spatial regression discontinuity estimates

4.1 Identification strategy

Utilizing the sharp institutional discontinuity between areas that historically fell under frontier rule (FR areas) and settled regions (non-FR areas), we estimate a spatial regression discontinuity (SRD) specification that takes the following form:

$$y_{i,j} = \alpha_0 + \phi_j + \alpha_1 \cdot Frontier\_Rule_i + X_i'\beta + f(geographic\_location_i) + \epsilon_{i,j} \quad (1)$$

where $y_{i,j}$ is a measure of conflict against the state in a 10km-by-10km grid cell i along the border segment j. $Frontier\_Rule_i$ is a dummy variable indicating that grid cell i is inside the FR boundary. X_i' is a vector of covariates that includes the following set of grid-cell-level geographic, climatic, and historic controls: terrain ruggedness, slope, topography, wheat suitability, temperature, precipitation, pre-FR conflict incidence, and pre-FR population density. $f(geographic\_location_i)$ is a polynomial that controls for a smooth function of the geographic location of grid cells. In our main analysis, we use a grid cell's Euclidean distance from the FR border as the running variable and, following Gelman and Imbens (2019), use a local linear specification which is estimated separately on both sides of the border. We also experiment with several other functional forms in

our robustness analysis. We divide the FR boundary into fixed 20-km segments to which grid cells are then matched; ϕ_j are the associated border segment fixed effects which ensure that grid cells are compared across the same segment of the border.[32] Finally, to account for spatial correlation, we cluster the standard errors at the FR border segment level. Our parameter of interest is α_1, the SRD estimate of the impact of frontier rule on conflict against the state. As long as the determinants of unobservable traits (e.g., geography, climate, and history) vary smoothly across the FR border, this estimate can be interpreted as causal.

The unit of observation in our empirical analysis is a 10km-by-10km grid cell, and the sample is restricted to grid cells falling within a 50-km buffer zone around the FR border. Figure 3 illustrates our SRD set-up, showing contiguous 10km-by-10km grid cells on either side of a specific segment of the FR border (red line), with some areas falling under frontier rule (grey cells) and others outside it (white cells). It also displays the precise location of conflict incidents against the state (black dots) along the specific segment. Figure 4 shows the 50-km buffer zone (shaded in grey) within which our analysis is restricted.

4.2 Validity of the SRD design

The SRD approach allows us to compare conflict incidence in areas that are geographically sufficiently close to each other, but where one area is subject to frontier rule and the other is not.[33] A key assumption of the SRD approach is that unobservable factors vary smoothly across the FR border. If frontier areas had some innate unobservable characteristics that both increased their propensity for violence and determined the emergence of frontier rule during the colonial era, this could potentially bias our results. Such unobservable characteristics can originate from different sources grounded in the history, geography, and climate of the frontier areas. While it is impossible to directly test for this assumption, we can nevertheless provide strong evidence in favour of its validity by showing the absence of discontinuity at the FR border for a variety of geographic, climatic, and historic correlates of conflict. In doing so we closely follow prior literature relating conflict with such dimensions as ruggedness (Fearon and Laitin 2003; Nunn and Puga 2012), climate and topography (Miguel et al. 2004; Burke et al. 2015; Iyigun et al. 2017; Chambru 2019), historical population density (Herbst 2000; Reid 2012), and historical exposure to conflict (Fearon and Laitin 2014; Dincecco et al. 2022). These dimensions are either directly correlated with conflict or serve as proxies for conflict determinants that are difficult to observe. For example, low per capita income, negative income shocks, and poverty are consistently flagged as important correlates of conflict (Blattman and Miguel 2010). While historical (especially pre-colonial) data on income are unavailable, climatic factors (e.g. rainfall) and historical population density act as useful proxies. Similarly, state authority and capacity have been identified as important determinants of conflict (Besley and Reynal-Querol 2014; Depetris-Chauvin 2015; Wig 2016). Geographic factors that constrain the reach of the state (Scott 2009) can thus act as proxies for state authority and capacity, dimensions that are otherwise hard to measure.

To rule out such conflict determinants, we estimate Equation 1 with each of the relevant dimensions as the dependent variable and demonstrate that the resulting SRD estimates are statistically insignificant and do not highlight a discontinuity across the FR border. We show this for the following dimensions: terrain ruggedness, slope, topography, wheat suitability, temperature, precipitation (mean and standard deviation), pre-colonial conflict intensity, and population density.

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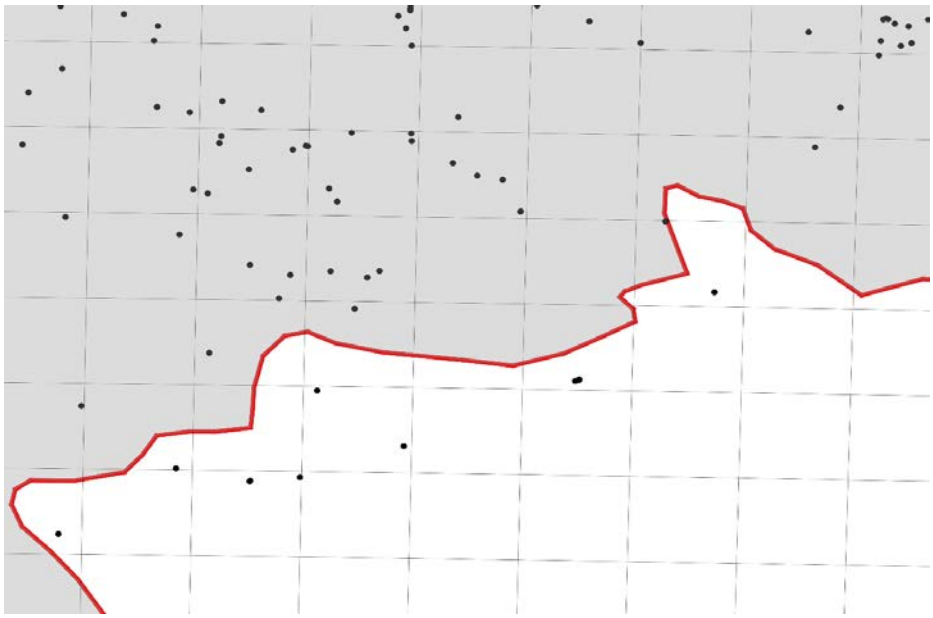
[32] Other key studies that incorporate border segment fixed effects in an SRD specification include Dell (2010), Dell et al. (2018), and Asher et al. (2022).

[33] Our approach is therefore akin to past studies that have leveraged a similar spatial focus on a small sub-region (see, for example, Lee and Schultz 2012; Dell and Olken 2020; Lowes and Montero 2021; Popescu 2023).

Table 3 reports the estimates from a variant of Equation 1 which only includes the border segment fixed effects. For each of the eight factors, the coefficient estimate on the FR indicator variable is consistently small in magnitude and never statistically different from 0. Additionally, in Appendix B (Figure B2), we present visual evidence showing binscatter plots of the unconditional relationship between each of the six main factors and the distance from the FR border. Even in these raw data, no discontinuity is apparent in any of these factors. In fact, there is a substantial overlap in the 95 per cent confidence intervals on either side of the distance to the border cut-off.

Besides discontinuities in geographic, climatic, and historical factors, another potential concern is that other characteristics, such as social structure, ethnic composition, and religious identity can vary discontinuously at the FR border. For instance, prior work on conflict in Africa has shown that ethnic groups organized around segmentary lineages are more likely to engage in violent conflict that is both larger in scale and more prolonged in duration (Moscona et al. 2020). However, an advantage of focusing our empirical analysis on a narrow strip of North-West Pakistan is that the social structure and associated features are similar across both sides of the FR border and therefore naturally controlled for.

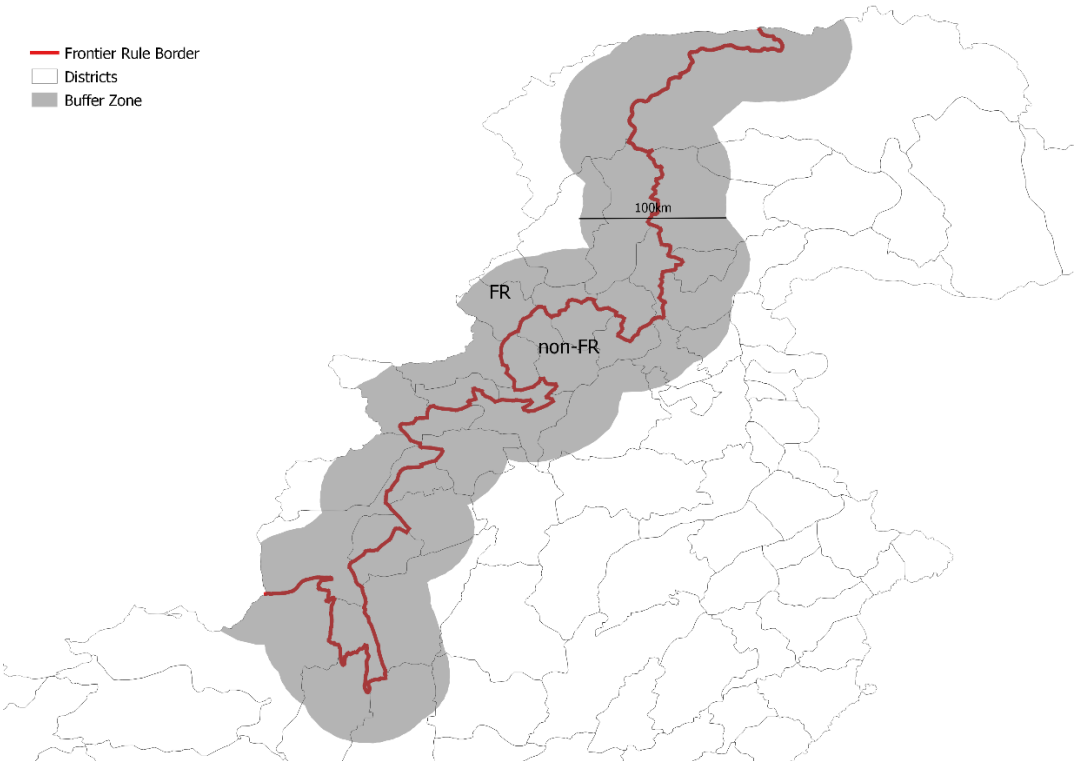
Figure 3: Illustration of the SRD set-up



Note: this figure illustrates the SRD set-up. Every square is a 10km-by-10km grid cell. The red line is the FR border. The grey shade represents the area inside the FR border, whereas the white shade represents area outside the FR border. The black dots represent geocoded locations of conflict incidents against the state.

Source: authors' construction. The map is created from GTD (2021) data through QGIS software.

Figure 4: Area of study for the SRD set-up



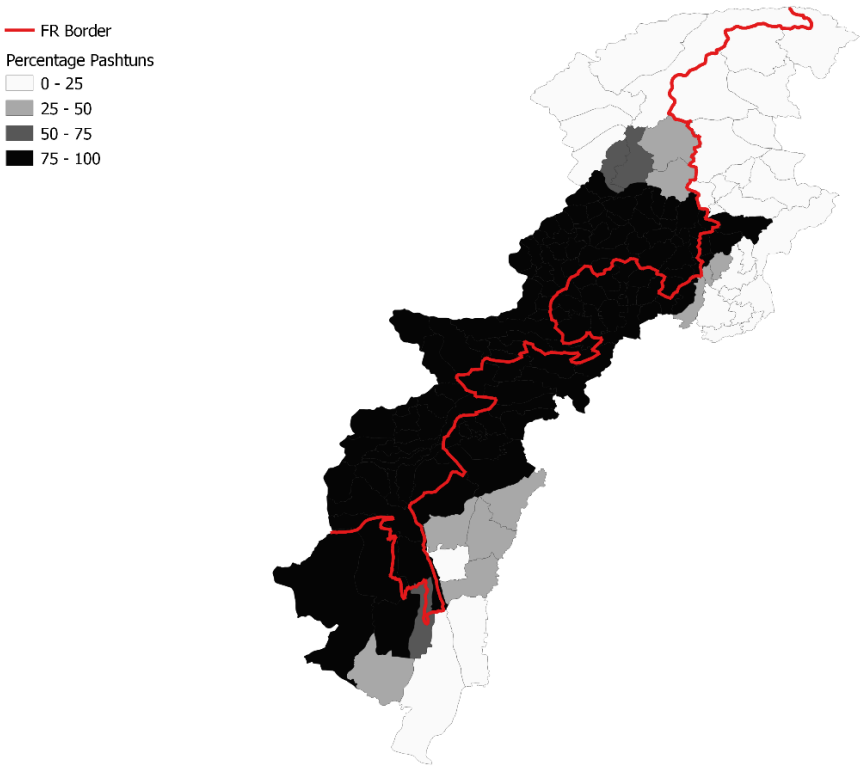
Note: this figure shows the area of study within which our sample is restricted. It encompasses all those grid cells that lie within a 50-km buffer zone around the FR boundary.

Source: authors' construction. The map is created through QGIS software.

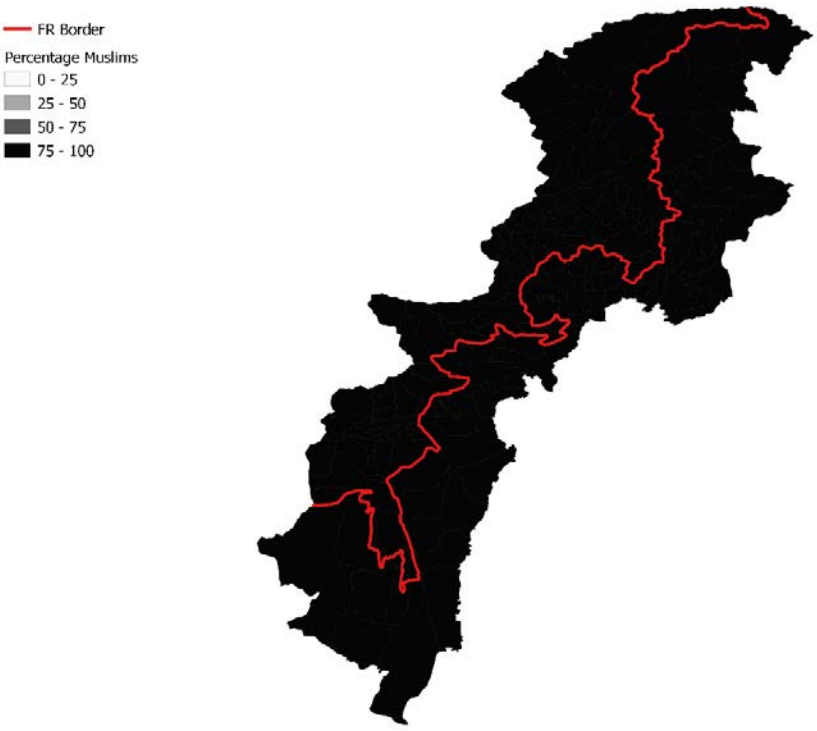
Social structure is thus unlikely to be a concern in our context for two reasons. First, prior work in history and anthropology clearly suggests that, while segmentary lineage was prevalent among frontier tribes, it was a less predictable force for collective organization. Tribes could organize differently at different times and 'demonstrated an ability to coalesce and dissolve in a way that was extremely difficult to predict' (Beattie 2013: 24). In this regard, Appendix A offers further details using specific illustrations and quotes. Second, tribes on both sides of the FR border predominantly belong to the same ethnic and religious group. Figure 5 compares sub-district (i.e. *tehsil*) level data on ethnicity and religion on both sides of the FR border. Panel A of the figure shows the percentage of the population that belongs to the major ethnicity in our area of study (Pashtuns). For most of the sub-districts either side of the FR border, between 75 and 100 per cent of the population belong to the major ethnic group. The remaining sub-districts are also quite evenly balanced in terms of their ethnic make-up, with the difference in the percentage of Pashtuns on either side of the border exceeding 25 percentage points in only a handful of cases. In panel B we show the almost perfect balance in the religious make-up of the population on either side of the FR border. Remarkably, for each of the sub-districts on either side of the FR border, the percentage of the population that belongs to the majority religion (Islam) is always between 75 and 100 per cent.

Figure 5: Balance across the FR border in ethnicity and religion

Panel A: Percentage of Pashtuns at sub-district level



Panel B: Percentage of Muslims at sub-district level



Note: this figure shows the distribution of the majority ethnic and religious groups on either side of the FR border at the sub-district level. Panel A shows the balance between the majority ethnic group (Pashtuns) across the border, whereas panel B shows the balance for the majority religious group (Muslims).

Source: authors' compilation.

4.3 Baseline estimates

We now present the SRD estimates of the relationship between frontier rule and the incidence of conflict against the state. We first examine the raw relationships in our SRD sample using three measures of conflict against the state: number of incidents, number of deaths, and number of injuries. Figure 6 shows the binscatter plots of the unconditional relationship between each of the three measures of conflict against the state and distance from the FR border. Following the best practices of visual inference proposed in Korting et al (2023), we use small bins (19 bins of size 5km each) and default y-axis scaling.[34] As the three plots in Figure 6 show, even in the raw data, a strong discontinuity in conflict is visible at the FR border. In Appendix B, Figure B3, we show pretty much the same pattern exists for smaller bins (of size 2.5km each). Specifically, moving from just outside to just inside the FR border, there is a clear discontinuous increase in conflict against the state.

Additionally, in Appendix B, Table B1, we extend our analysis and re-estimate our baseline SRD specification represented by Equation 1 for a broader measure of violence against the state that includes targets such as police, government officials, roads, bridges, etc., in addition to the military. As alluded in Section 3.1, details of this broader measure of state-directed violence are given in Appendix A. What Table B1 shows is that even if we were to use this broader measure of violence against the state that includes a whole range of state-affiliated institutions and infrastructure, our results essentially remain unchanged. Whether we consider models with controls (columns 2, 4, and 6) or without (columns 1, 3, and 5), the estimates show that FR still leads to a discontinuous rise in violence against the state. Figure B4 in Appendix B shows the binscatter plots associated with the broader measure, and even here the rise in state-directed violence just as one moves inside the FR border is quite clear.[35]

4.4 Robustness checks

We now conduct a battery of robustness checks to test the sensitivity of our baseline results in Section 4.3. We begin by showing in Table 5 the robustness of our baseline estimates to restricting the sample to grid cells that lie within two alternative buffer zones around the FR border—one broader at 60 km from the border and the other narrower at 40 km from the border. In Panel A of Table 5, we report estimates from the sample within the 60-km buffer zone. Panel B reports results for the sample restricted to a 40-km buffer zone on both sides of the FR border. As the results show, regardless of these restrictions imposed on the sample, the effect on conflict of moving from just outside to just inside the FR border is both positive and statistically significant. Furthermore, the estimated SRD effect is consistently positive and statistically significant in both models with controls (columns 2, 4, and 6) and without controls (columns 1, 3, and 5).

In Table 6 we test for the sensitivity of our baseline estimates to the inclusion of fixed effects for shorter border segments (i.e. 18 km and 15 km instead of 20 km). As border segment fixed effects account for treatment effect heterogeneity along the FR border, this sensitivity analysis is important to the robustness of our findings. Whether we restrict the length of the border segments to 18 km (Panel A) or 15 km (Panel B), we find a positive and statistically significant effect of frontier rule on conflict against the state. Next, we replicate our results using an alternative source

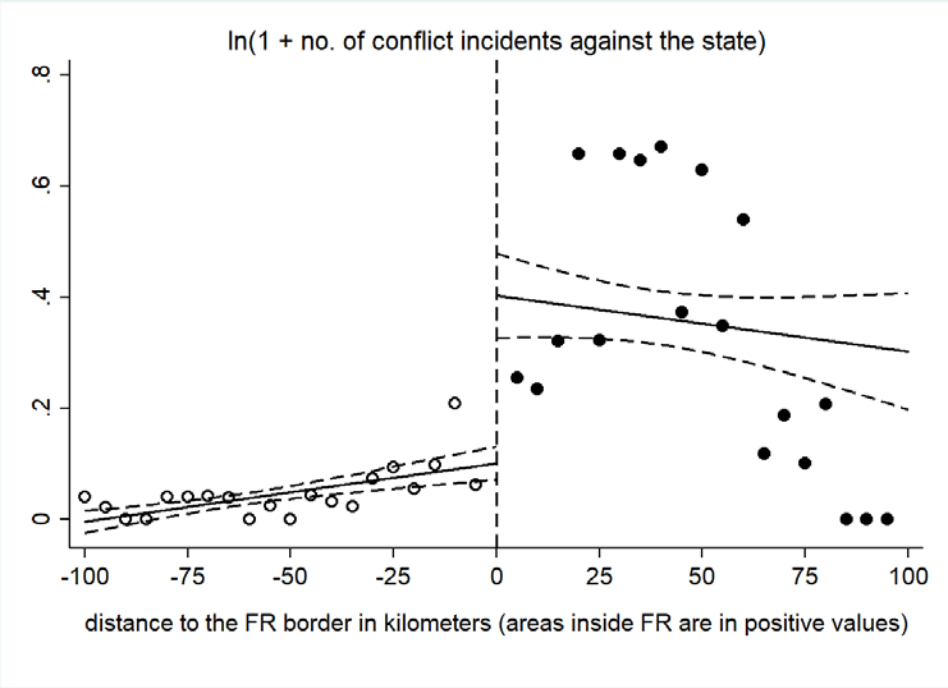
[34] As Korting et al. (2023) show, the size and spacing of bins along with other recommended conditions perform better on several econometric criteria. Selection of smaller bins, in particular, leads to lower type-I error rates.

[35] The visual discontinuities using the broader measure in Figure B4 appear somewhat localized around the actual FR border itself. However, this is clearly not the case for our preferred narrower measure that only focuses on military attacks (see Figure 6).

for conflict data. Our baseline estimates are based on conflict events recorded in the GTD (2021). A potential concern is the existence of measurement error in the recording of conflict events, especially in the earlier time period covered by the GTD. This is unlikely to be a serious concern in our case. The underlying data is based on reports from a variety of open media sources that have been independently verified as being credible. Also, the frontier areas of Pakistan are some of the most intensely studied border areas in the world by historians, anthropologists, and international relations scholars. A systematic omission of conflict events is thus highly improbable. Nevertheless, to allay potential concerns about the source of the data, we re-estimate the baseline specification using an alternative source of geocoded information on conflict events: the Uppsala Conflict Dataset (UCD) (UCD 2023). The main advantage of the UCD is that it is the 'oldest ongoing data collection project for civil war, with a history of almost 40 years'.[36] Unlike the GTD, however, the UCD does not disaggregate conflict events by target types, which means that we cannot create like-for-like measures of conflict between the two data sources.

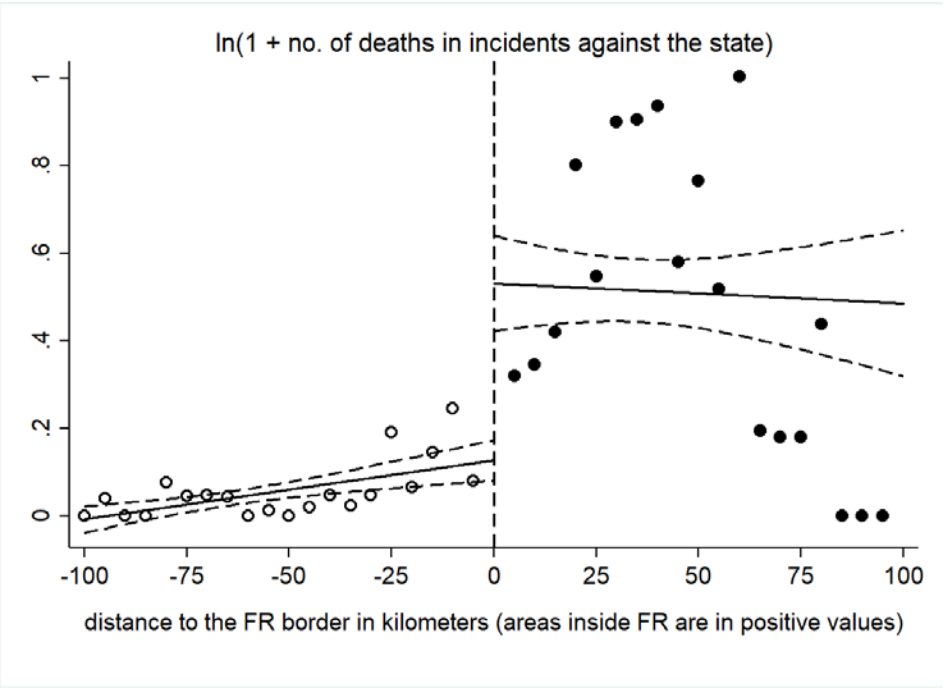
Figure 6: Conflict against the state and distance to FR border (the raw relationship)

(a) Number of incidents

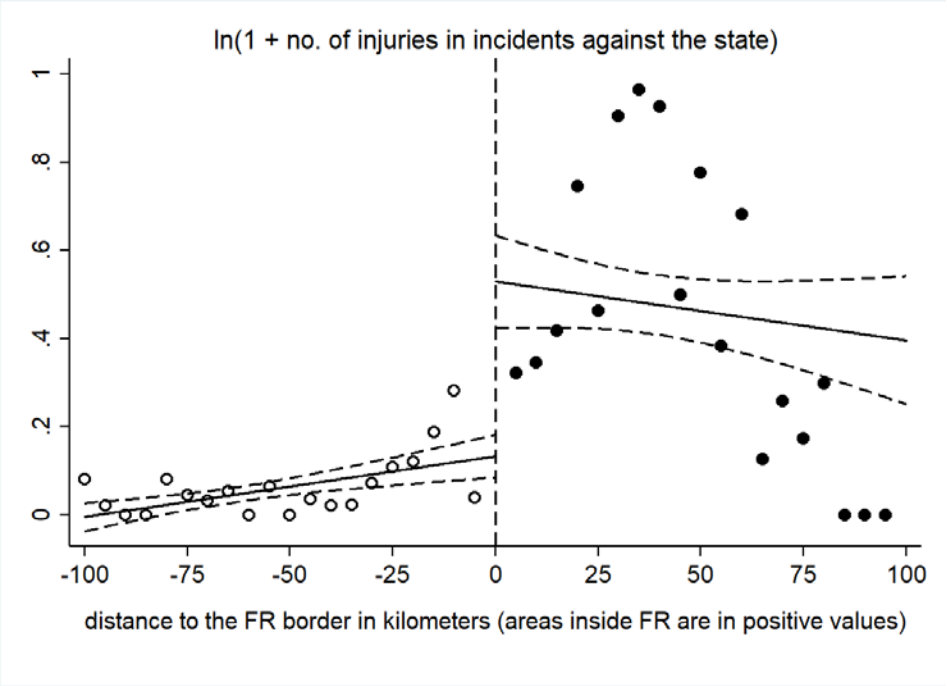


[36] The link to Uppsala Conflict Dataset (UCD) website is here: https://www.pcr.uu.se/research/ucdp/about-ucdp/.

(b) Number of deaths in incidents



(c) Number of injuries in incidents



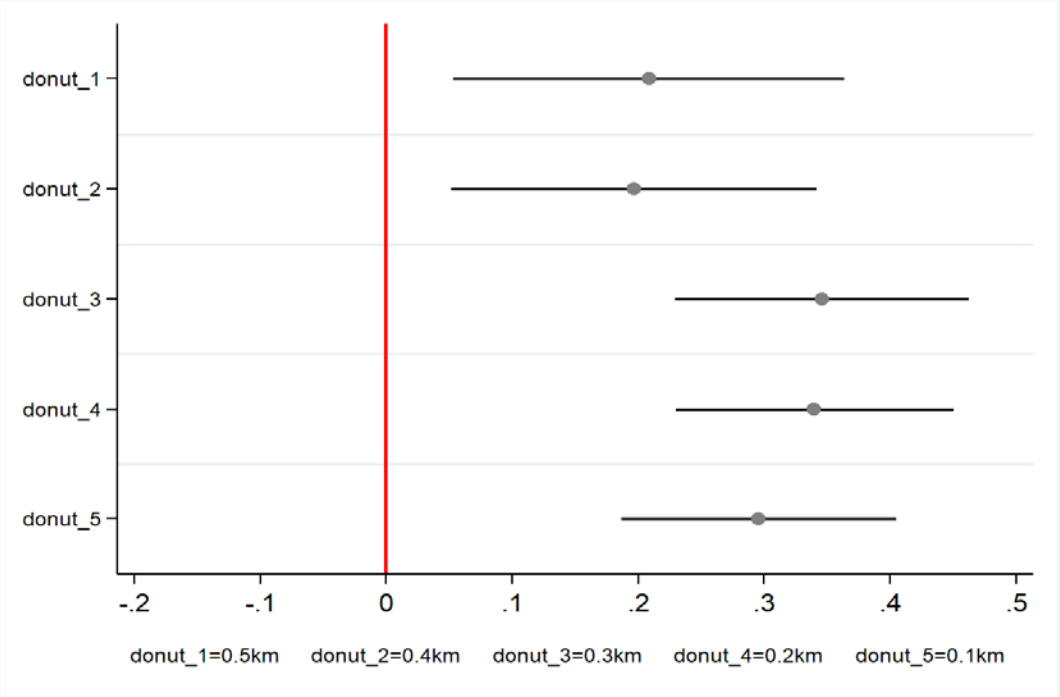
Note: binned scatterplots (19 bins of size 5km each) of the unconditional relationship between conflict against the state and distance to the FR border. The y-axis reports the natural log of 1 plus the incidence of conflict against the state for each of our three measures. The x-axis reports the distance (in km) from the FR border for areas under FR and non-FR. The border itself is at km 0 with positive values indicating km inside the FR territory.

Source: authors' construction.

Notwithstanding this limitation, in Table 7 we present the SRD estimates of frontier rule on the two measures of *overall* conflict (number of conflict incidents and number of deaths in conflict incidents) for which information is available in the UCD. For both measures, and regardless of whether controls are included in the specification (columns 2 and 4) or not (columns 1 and 3), our baseline results are strongly validated by the UCD data.

Another concern is that our results might be capturing the effect of a *border* rather than the effect of *being inside the border* that emanates from an institutional discontinuity. Such a concern is important to address as recent literature demonstrates that violence is systematically higher in closer proximity to the border (Michalopoulos and Papaioannou 2016; Depetris-Chauvin and Özak 2020). A related concern is that our SRD estimates could be potentially susceptible to some ambiguity in the treatment status. This could happen if, for instance, grid cells very close to the border have some of their area outside FR (and are therefore not treated) and some inside FR (and thus treated). Including such grid cells in our sample would bias our estimates. To rule out both concerns, we exclude all grid-cells from our sample that are close to the FR border. Following standard practice in the literature, we conduct donut-hole analysis whereby grid cells within 0.5 km of the FR border in either direction are excluded. As Table 8 shows, our results for all three measures of conflict against the state continue to hold despite this exclusion. As a further robustness exercise, we successively reduce the radius of donut hole even further from 0.5km to 0.1km. The resulting SRD estimates and their confidence intervals for the main measure based on conflict incidents are visually displayed in Figure 7. As the figure shows, despite the successive deletion of contiguous grid cells, our regression discontinuity (RD) estimates remain positive and statistically significant (see Figure B5 in Appendix B for similar plots for the other two conflict measures).

Figure 7: SRD estimates after excluding spatial units close to the FR border



Note: this figure shows estimated coefficients and confidence intervals for SRD specifications run on different restricted samples that successively exclude observations very close to the FR border. For example, 'donut_1' excludes observations that are within 0.5km of the border, 'donut_2' excludes observations within 0.4km of the border, etc.

Source: author's construction.

Next, we conduct several additional robustness tests and report the results in Tables B2–B5 of Appendix B. To assess the robustness of our findings to alternative functional forms, we first increase the order of the polynomial of our running variable (distance to the FR border). As Cattaneo et al. (2019) argue, this can reduce the approximation error in estimating the RD effect. Accordingly, we use a 'quadratic' polynomial as the functional form for the running variable in Table B2 and show that our estimates remain consistent both in terms of sign and statistical significance. Next, in Table B3, we report the SRD estimates that use latitude, longitude, and their interactions as the running variables rather than the Euclidean distance. An advantage of this approach is that it helps to account more directly for features that vary over a two-dimensional space (Dell 2018; Moscona et al. 2020). We report estimates for specifications with a linear (Panel A) and quadratic polynomial (Panel B) in latitude and longitude. Following Dell (2018), we include fixed effects for four broadly defined segments of the frontier rule border and use Conley standard errors to account for spatial correlation. As Table B3 shows, the main results remain unchanged.

As another robustness exercise, we choose a manual approach towards bandwidth selection as opposed to the data-driven approach employed in our baseline estimation. Reassuringly, whether we impose a bandwidth of 15, 12, or 10 km on either side of the FR border, our SRD estimates remain consistent both in terms of sign and statistical significance (see Table B4). We also test the robustness of our findings to the use of a different kernel weighting strategy for observations close to the FR border. Rather than using a triangular kernel, which assigns a *linear* decaying weight to observations as one gets further away from the border cut-off, we use an Epanechnikov kernel, which gives a *quadratic* decaying weight.[37] Reassuringly, the results are strongly consistent with our baseline estimates (see Table B5).

Finally, we address the potential concern that, rather than capturing the genuine institutional effect of the border demarcating frontier rule, our results could simply be reflecting structural differences in the northeast–southwest dimension. Accordingly, in Table B6 we apply a falsification test that consists in shifting the original FR border south-westward and seeing whether our results still hold up (see Figure B6 in Appendix B for a map showing both the original and the shifted FR borders). As the table shows, there are no statistically significant differences in violence against the state between grid cells on either side of this placebo border, thereby confirming that our results cannot be attributed to structural characteristics that vary in a northeast–southwest dimension.

5 Mechanisms

We have thus far shown that FR areas were more predisposed to sovereignty-contesting forms of violence in the long run. In this section we furnish additional evidence, both quantitative and qualitative, to elaborate our causal narrative and the proposed mechanism. We begin with an assertion repeatedly made in the qualitative literature that the post-9/11 landscape is crucial to understanding the rise of violence in Pakistan's north-western frontier (Tripodi 2009; Nawaz 2011; Naseemullah 2014). Our results lend credence to this. Utilizing the temporal dimension of our dataset, we first show that the difference in conflict incidence between FR and non-FR areas only emerged after 9/11 when the military moved into frontier regions on US insistence. It is important to note that the Pakistani military initially moved *only* to guard the border with Afghanistan and

[37] Both kernels assign zero weight to observations that are strictly outside the bandwidth over which the SRD estimates are computed.

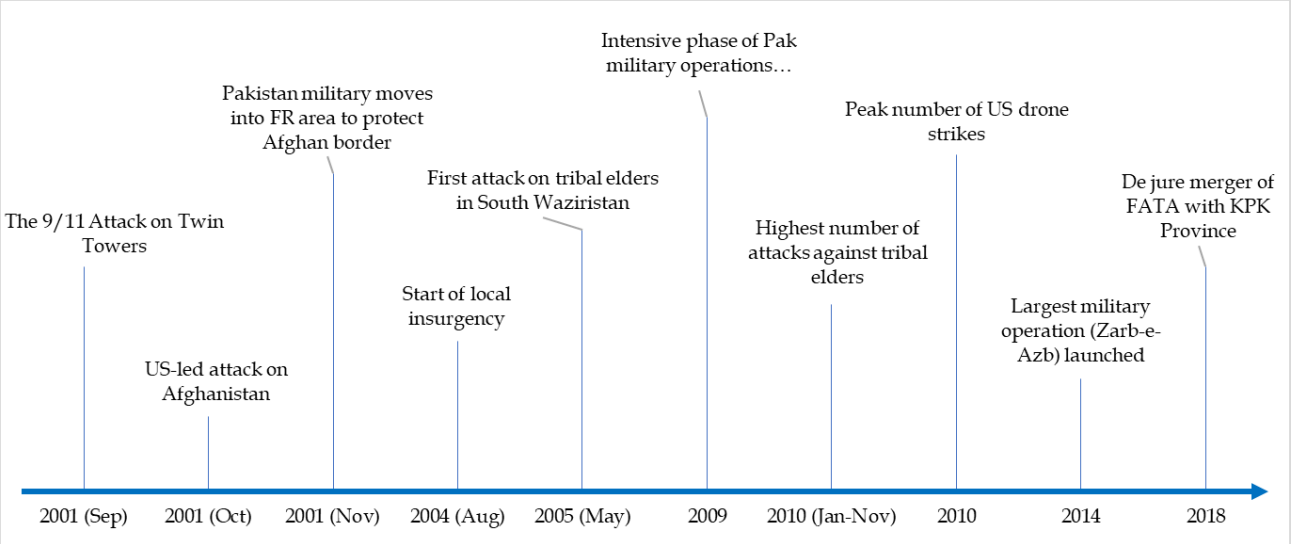
prevent possible infiltration. In military jargon, this was an effort to 'dominate the space' without carrying out any operations. However, as Nawaz (2011: 6) argues:

> when the Pakistan Army rolled into FATA after 9/11, they faced a wall of resentment as an 'alien force' doing the bidding of a foreign power, the United States.

The extension of coercive authority in frontier regions, along with the Pakistani state's decision to join the US-led war on Afghanistan, was deeply unpopular. This led to a sudden rise in local grievances and exposed the institutional fragility of frontier rule. As argued before, social order in frontier regions was maintained through an elite-negotiated rule, which is more negotiable and fluid in character. Three features of this rule made it particularly vulnerable to the 9/11 shock: (a) absence of formal institutions of conflict management; (b) overwhelming reliance on local elites; and (c) low trust in the state. We furnish concrete evidence on all three dimensions. Furthermore, we show that as a local insurgency took hold around 2004, tribal elites became an important casualty. Their strategic targeting and assassination effectively removed the main pillar of frontier rule, thereby intensifying conflict and unravelling social order. Our evidence is consistent with the prediction in Naseemullah (2014: 507) that when frontier rule is 'marginalized or disrupted […] channels of communication are weakened and commitments become less credible. Consequently, tensions are much more likely to explode into large-scale social disorder'.

To foreground our analysis, Figure 8 provides a timeline of major developments in frontier areas in the post-9/11 period. These include the endogenous military response to local insurgency in the guise of counterinsurgency operations conducted by the Pakistani military and selected US drone strikes, both of which intensified after 2009 and further escalated violence in a mutually reinforcing manner. This is consistent with prior evidence in the literature showing that the use of 'indiscriminate violence' and 'overwhelming fire power' can be counter-effective and can intensify insurgency (Kocher et al. 2011; Cederman and Vogt 2017; Dell and Querubin 2018). As the foregoing discussion will show, the timing and sequencing of these events form a crucial part of our causal narrative. We organize our discussion in three inter-related steps. First, we parse our analysis into the pre- and post-9/11 periods and show that our headline finding is driven by the latter period. Second, we furnish evidence on the institutional fragility of frontier rule and the targeting of tribal leaders. Finally, we rule out potential competing explanations for our results.

Figure 8: A timeline of major developments in the frontier region in the post-9/11 period

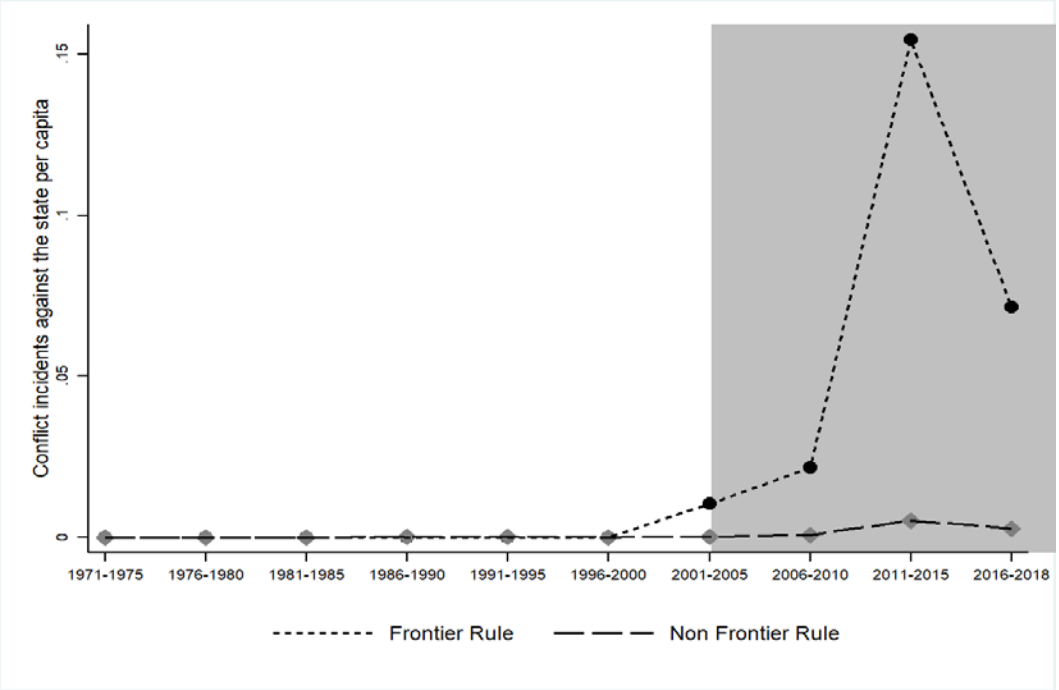


Source: authors' construction based on secondary literature.

5.1 The 9/11 shock and conflict in FR areas

We begin by visually inspecting the trajectory of conflict incidents against the state, measured on a per capita basis and averaged over five-year windows during the period 1971–2018. We chart the evolution of these conflict incidents separately for FR and non-FR regions in an unrestricted sample covering all sub-districts (*tehsils*) of Pakistan. As expected, Figure 9 shows no noticeable difference in the evolution of conflict against the state between FR and non-FR areas in the period preceding 2001. However, the conflict trajectory of FR regions begins to diverge from that of non-FR areas after 2001. There is a noticeable rise in violent attacks against the state in FR areas from 2001 onwards. After a steady increase till 2010, there is a steep rise in violence during the 2011–15 period. The attacks in FR areas then begin to subside after an important phase of military operations between 2014 and 2017 (code-named *Zarb-e-Azab*), which represented the state's most concerted response to the local insurgency. However, there is still a discernible difference in conflict incidence between FR and non-FR regions in the 2016–18 period, indicating that by no means did the violence revert to its pre-2001 levels.

Figure 9: The evolution of conflict incidents in Pakistan, pre- and post-9/11



Note: this figure charts the evolution of conflict incidents between the FR and non-FR areas averaged over five-year windows during the period 1971–2018. The unit of observation is the sub-district (i.e. *tehsil*). The variable on the y-axis is the number of conflict incidents against the state per capita.

Source: authors' construction using GTD (2021).

To formally test the salience of the 9/11 shock for our causal narrative, we separately re-estimate the SRD specification for the pre- and post–2001 period. As before, the unit of observation is a 10km-by-10km grid cell, and the sample is restricted to a buffer zone of 50 km around the FR border. The results, reported in Table 9, reveal a clear pattern. There is no statistically significant discontinuity in the pre-9/11 period in violent conflict against the state, whether measured by number of conflict incidents against the state (columns 1–2), number of deaths in incidents against the state (columns 3–4), or number of injuries in incidents against the state (columns 5–6). The discontinuity emerges only after 9/11, when areas just inside the FR border witnessed a significantly higher level of conflict against the state than areas just outside it, as manifested in consistently positive and statistically significant coefficient estimates in columns 7–12. The results

also hold when we consider conflict against the state within a wider 60-km buffer zone around the FR border (see Appendix B, Table B7).

5.2 Institutional fragility of frontier rule

We next present evidence on the three inter-related features of frontier rule that made it vulnerable to the 9/11 shock: (a) the significantly lower reliance of frontier residents on formal institutions of conflict management (b) the greater role of tribal elites in local dispute resolution, and (c) lower trust in the formal institutions of the state. We utilize data from a nationally representative survey of individuals carried out by the Free and Fair Election Network (FAFEN) in 2016 and estimate linear probability models to probe whether residents in FR areas had less reliance on elected members of parliament and greater recourse to tribal *jirga* (consultative assembly of elders). As argued in Section 2, frontier residents remained practically disenfranchised till 1997, when legislators from the region were directly elected to the National Assembly of Pakistan. Nevertheless, adult enfranchisement remained limited as elections were held on a non-party basis and political parties were not allowed to function in these regions. Consequently, tribal *Maliks* maintained their de facto control over all aspects of local society (Anwar and Cheema 2017; Ullah and Hayat 2017).

We construct three binary dependent variables: (a) whether an individual had recourse to a member of the national assembly (MNA) for dispute resolution; (b) whether the individual had no contact with an MNA in the last two months; and (c) whether the individual had recourse to a tribal assembly (*jirga*). Our main explanatory variable is a dummy variable that is equal to one when the surveyed individual resides in an FR area. The control variables, when included, are age (in natural log), locality-level fixed effects, and dummy variables for gender, educational status, source of income, and household income range. The results are reported in Table 10. The evidence is consistent with our priors. Surveyed individuals in FR areas had limited recourse to their elected representatives (i.e. MNAs) for dispute resolution (columns 1–2). They were also systematically less likely to have established contact with the MNA during the previous two months at the time of the survey (columns 3–4). Importantly, FR residents were significantly more likely to resort to the tribal *jirga* for dispute resolution (columns 5–6). The FR status dummy, which picks out individual respondents residing in FR areas, is statistically significant in all specifications including those with controls (columns 2, 4, and 6).

Overall, this evidence is consistent with findings from other independent surveys that highlight the significance of *jirga* as the principal dispute resolution mechanism in FR regions. For example, findings from a detailed survey conducted in tribal areas showed that nearly three quarters (74.40 per cent) of respondents were aware of the *jirga* (Shinwari 2011: 66). As Shinwari (2011: 66) argues, this 'high level of awareness is due to the fact that the jirga is the only justice dispensing mechanism in FATA both accessible and trusted by many'. Further evidence of the high level of trust in traditional modes of dispute resolution can be gleaned by the fact that the majority of respondents (91 per cent) were satisfied with the delivery of justice through the *jirga* (Shinwari 2011: 81). When asked in the same survey in 2011, tribal elders were considered as the most trusted institution (20 per cent). By contrast, elected representatives (i.e. MNAs) received the lowest rating on trust (1 per cent) (see Shinwari 2012: 50). Survey evidence also supports the claim that tribal leaders serve as the main link between local populations and the state. About 43 per cent of survey respondents had approached the *jirga* to resolve their disputes; another 31 per cent initially took their disputes

to local leaders (*Khans* or *Maliks*), while only 6 per cent of respondents resorted to courts in adjoining districts of Khyber Pakhtunkhwa (Shinwari 2011: 80).[38]

To formally investigate whether FR residents have systematically lower levels of trust in state institutions, we again use the 2016 FAFEN survey and report the results for linear probability models in Table 11 where the dependent variable is a binary indicator that is equal to one when a respondent expresses 'very little or no trust' in state institutions. As before, our main explanatory variable is a dummy for whether an individual resides in a household that lies inside the FR boundary. For each indicator we report estimates with and without controls (described earlier). The results confirm our priors and are consistent with the empirical patterns presented so far. As is evident from Table 11, the coefficients on the FR status dummy are consistently positive, statistically significant at the 1 per cent level, and robust to the inclusion of controls. Residents in FR areas are significantly more likely to have 'very little or no trust' in the parliament (columns 1–2), the district court (columns 3–4), the high court (columns 5–6), and the supreme court (columns 7–8).

5.3 Assassinations of tribal leaders

We have so far demonstrated that the primary (and preferred) mode for conflict resolution in FR areas remains the *jirga* system that is overseen by tribal elders. We have also shown that FR residents have limited access to formal institutions of conflict management and exhibit less faith in state institutions. We next show that the disruption to frontier rule in the wake of the 9/11–induced shock primarily took place through the systematic and strategic targeting of tribal elders.[39] To demonstrate this we return to our SRD design which uses 10km-by-10km grid cell-level data on conflict incidence and restricts the sample within a 50-km buffer zone around the FR border. As our main focus here is on explaining post–9/11 violence, we also restrict the sample to the period after 2001. However, we now replace our dependent variable with the number of attacks against tribal elders, the number of deaths in attacks against tribal elders, and the number of injuries in attacks against tribal elders, respectively. The overall empirical set-up remains the same as before.

The results, reported in Table 12, reveal a statistically significant discontinuity whereby regions just inside the FR border witnessed a systematically higher number of attacks against tribal elders than areas just outside the FR border (columns 1–2). The same pattern holds for the number of deaths in attacks against tribal elders (columns 3–4) and the number of injuries in attacks against tribal elders (columns 5–6). These results suggest a discontinuous rise in targeted attacks against tribal elites in the post-9/11 period as we move from just outside to just inside the FR border. Next, we provide a specific test of whether such a strategic targeting of tribal elders led to a significant escalation of violence. Specifically, we ask whether spatial units in the FR region that witnessed an attack on a tribal elder for the first time experienced more intensified conflict in subsequent years relative to spatial units that did not witness such an attack. To investigate whether the first-ever attack on a tribal elite preceded the intensification of conflict, we estimate a version of the difference-in-differences regression specification that uses leads and lags to estimate the effects of before, during, and after a tribal elder is first targeted:

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[38] As per rules, residents of FR regions can appeal in the court of the commissioner of the adjoining district against the verdict of the *jirga*.

[39] Figure B7 in Appendix B provides a clear spatial discontinuity in the targeted assassinations of tribal elders in the post-9/11 period. More attacks against tribal elders are observed in the FR region relative to the non-FR region.

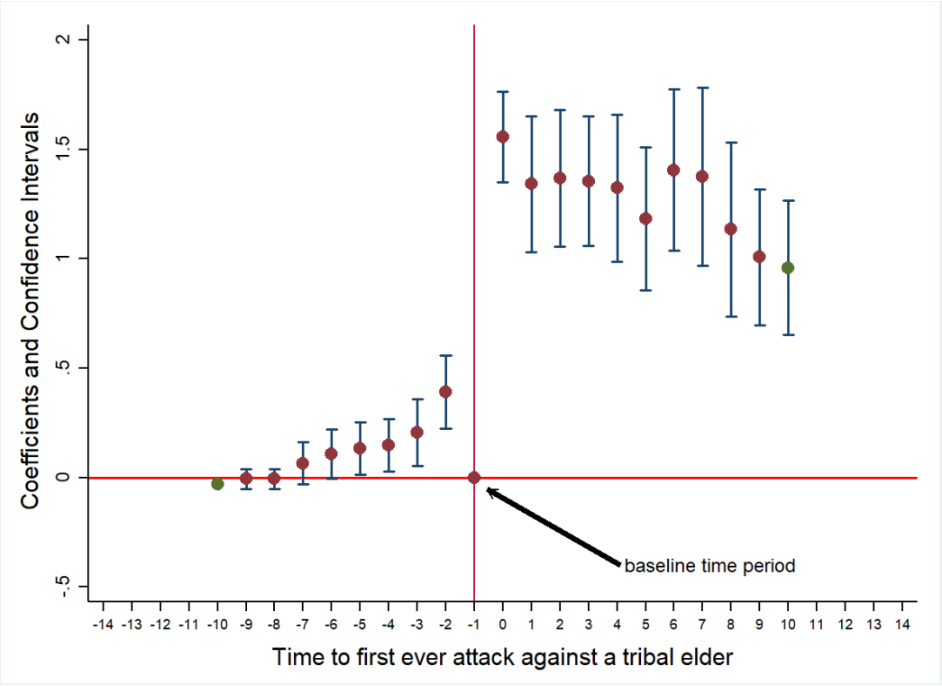
$$y_{i,s,t} = \nu_s + \gamma_t + \sum_{\tau=0}^{m} \delta_{-\tau} * D_{i,s,t-\tau} + \sum_{\tau=1}^{q} \delta_{+\tau} * D_{i,s,t+\tau} + \epsilon_{i,s,t} \quad (2)$$

where $y_{i,s,t}$ is a measure of overall conflict incidence (i.e. ln (1 + *all* conflict incidents)) in grid cell i within district s in year t. $D_{i,s,t}$ is an indicator for when an attack against a tribal elder takes place for the first time in grid cell i in district s. ν_s are district fixed effects that control for time-invariant characteristics at the district level. γ_t are year fixed effects that control for shocks common to all districts in any given year. $\sum_{\tau=0}^{m} \delta_{-\tau} * D_{i,s,t-\tau}$ allow for m lags $(\delta_{-1}, \delta_{-2}, \dots, \delta_{-m})$ or 'post–tribal elders attack effects' and $\sum_{\tau=1}^{q} \delta_{+\tau} * D_{i,s,t+\tau}$ allow for q leads $(\delta_{+1}, \delta_{+2}, \dots, \delta_{+q})$ or 'pre–tribal elders attack effects'. The former is referred to as 'post-treatment effects' and the later as 'anticipatory effects' in the standard treatment effects literature.[40] The estimated leads and lags, with respective coefficients and confidence intervals, are plotted in Figure 10. The estimated effects reveal an interesting pattern. Although there is a gradual uptick in violence several years before a tribal elder is first attacked in a grid cell, there is a noticeable jump in violence after such an attack. The sharply increasing effects persist even ten years after the attack first took place. This clearly suggests that targeted attacks on tribal elders led to a subsequent escalation of violence.

Taken together, these results suggest that the strategic elimination of tribal elders removed the main pillar of social order and, in the absence of any formal avenues for conflict management, created an institutional void that served as a fertile breeding ground for conflict against the state. Our evidence is consistent with both factual and qualitative research accounts, including the argument made by Naseemullah (2014: 515) that 'the disruption of the frontier rule that lay at the heart of political order in FATA is responsible for the nature and extent of conflict following the exogenous shock of the war'. It has been noted that attacks on tribal leaders resulted in more than 90 per cent of tribal elders being either killed or wounded in FR areas (GTD 2021; SATP 2021). Around 150 *Maliks* were killed in 2008 alone (Fair and Jones 2009; Zahab 2013). As Naseemullah (2014: 518) argues, 'this struck a serious blow against the structures within tribal society that were successful interlocutors with the state' and helped to maintain political order.

[40] See Chapter 5 of Angrist and Pischke (2009).

Figure 10: The estimated impact of targeted attacks on tribal elders on conflict escalation



Note: this figure plots the coefficients and confidence intervals for the estimated relationship between the first ever attack on a tribal elder and the overall level of conflict in the same grid cell. The dependent variable is ln (1 + *all* conflict incidents). Estimates are from the model in Equation 2 that allows for effects before, during and after the first ever time a tribal elder is attacked and includes district and year fixed effects.

Source: authors' construction using GTD (2021).

5.4 Competing explanations

Thus far we have attributed the discontinuous rise of violence against the state in the post-9/11 period to the in-built vulnerability of frontier rule to external shocks. In this section, we rule out some important competing explanations for our empirical findings. Specifically, we try to address four alternative explanations built around: (a) the potential conflict spillover from Afghanistan; (b) income shocks; (c) US drone strikes; and (c) pre-9/11 differences in economic development.

Spillover from Afghanistan

A potential concern is that the relative uptick in violence in FR areas after 9/11 may have been caused by the spillover of conflict from Afghanistan rather than the fragility of underlying institutional arrangements. Such spillover is possible for several reasons. Afghanistan shares a long border with Pakistan (1,640 miles), a sizeable portion of which is with frontier areas (i.e. 373 miles). Following the US invasion in 2001, Afghanistan witnessed an active phase of conflict. Given the presence of Taliban sympathizers in Pakistan, this conflict might have spilled over into FR areas. Pakistan has also historically hosted millions of Afghan refugees since the Soviet invasion in December 1979. While these refugees settled in different parts of Pakistan, including major urban centres such as Lahore and Karachi, and were predominantly civilians fleeing from war and instability, it is possible that some militants may have retreated into north-western Pakistan in the guise of refugees and launched attacks against state installations in Pakistan as a retribution for the country's support for the US-led war.

While it is difficult to completely rule out the conflict spillover from Afghanistan, we present several pieces of evidence to suggest that the post-9/11 disruption of frontier rule in Pakistan

cannot be entirely attributed to such spillover. We begin by showing in Figure 11 the spatial distribution of conflict incidents in Afghanistan and Pakistan. As Figure 11 shows, there is a high concentration of attacks against the state on the Afghan side of the Durand line, the international border separating Afghanistan and Pakistan. It is important to highlight that the Afghan border, especially the segment adjacent to FR area, has been tightly monitored and surveilled in the post-9/11 period. Soon after 2001 attack on Afghanistan, the US sponsored the Border Security Program to secure the FR border through strict aerial and on-the-ground oversight. It entailed the construction of 137 border outposts and provision of surveillance aircrafts, helicopters, night vision goggles, and binoculars.[41] Despite such tight border surveillance, it is still possible that some militants from Afghanistan might have slipped through the border into Pakistan's frontier areas and instigated violent actions against the state.

In what follows, we provide an array of evidence to argue that this possibility, although remote, is unlikely to systematically explain our results. Firstly, to rule out spatial spillover from Afghanistan, we compute the distance of the centroid of each grid cell from the *Durand line* border and include it as an additional covariate in our SRD specification. As Table 13 shows, the results survive. In a second related exercise, we exclude all grid cells in our 50km buffer zone that are contiguous to the Afghan border. These grid cells can be most worrisome in terms of potential spillover. As Table 14 reveals, our results remain unchanged on this restricted sample. As a third strategy, we utilize the information in the GTD to identify the perpetrators or originators of attacks against state targets. In Table 15 we categorize these attacks by type of militant outfits, distinguishing between local, foreign, and unknown organizations. Information is provided for the whole sample period, 1970–2018 (columns 1–2), the pre-2001 period (columns 3–4), and the post-9/11 era (columns 5–6). Regardless of whether we restrict this exercise to the whole period or to the post-9/11 era, more than 95 per cent of the *known* attacks were claimed by local outfits rather than Afghan-based militants.[42] This includes Pakistan-based outfits, such as the *Tehreek-i-Taliban Pakistan* (TTP), *Lashkar-e-Jhangvi, Tehreek-i-Nifaz-e-Shariat-e-Mohammadi*, and *Sipah-e-Sahaba*, among others.

These results are consistent with extensive qualitative literature highlighting the local roots of the insurgency in FR areas (Jones and Fair 2010; Nawaz 2011; Naseemullah 2014; Watts et al. 2014). There are essentially two main reasons why Afghan militants may have desisted from launching widespread attacks against the Pakistani state in FR regions. First, it is generally difficult for cross-border militants to develop and sustain an organized network in another country. In addition to requiring grassroots support from the local populace, they need a clandestine military architecture which keeps fighters supplied with both weapons and rations. While there is plenty of evidence that local insurgent groups like the TTP developed such an architecture in Pakistan's tribal areas along the Afghan border, the same is not true for Afghan groups (Elahi 2019). Instead, the Afghan factions were more likely to have used Pakistan's FR areas as a sanctuary from where they could launch cross-border attacks against US forces inside Afghanistan.

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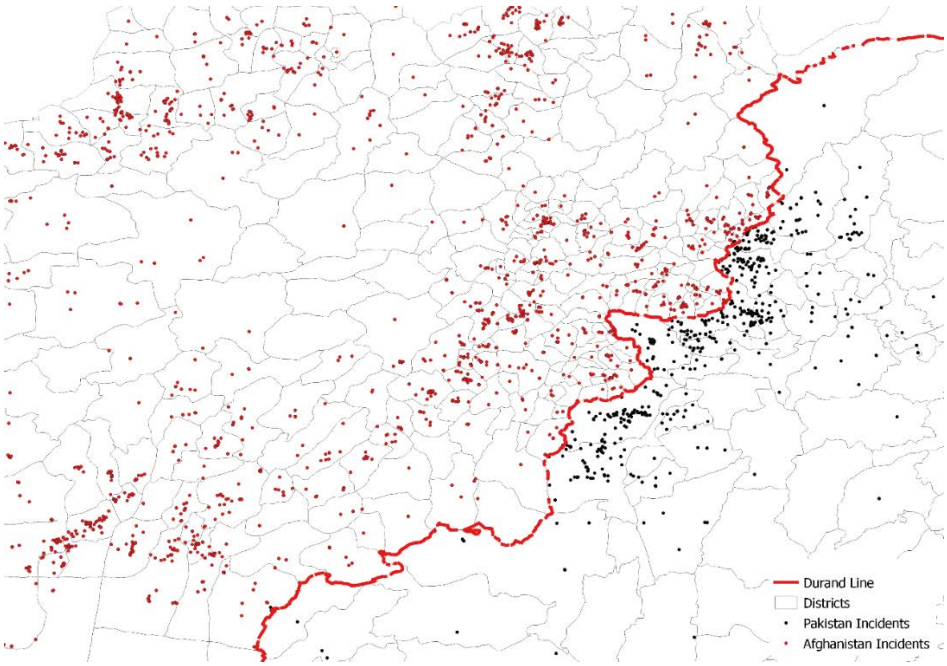
[41] For further details, see the report submitted to the US Government Accountability Office (GAO), report number GAO-09-263SP entitled *Securing, Stabilizing, and Developing Pakistan's Border Area with Afghanistan: Key Issues for Congressional Oversight.* Available at: https://www.gao.gov/assets/a286308.html.

[42] Table B8 in Appendix B provides details of attacks by various militant groups, offering a broader definition of 'sovereignty-contesting' forms of violence. This table encompasses attacks against law enforcement personnel (including military, police, and their sub-branches), educational institutions, healthcare facilities, politicians, civil servants (such as teachers, doctors, lawyers, judges), diplomats, roads, bridges, railroads, airports, utilities installations, and more.

The second reason is related to the Pakistani state's nuanced strategy for dealing with militant outfits within its borders. In the wake of 9/11 the deep state, primarily comprising Pakistan's military and intelligence services, 'established a differentiated framework for dealing with divergent outfits' (Lynch III 2018: 68). As part of this, any group that 'remained supportive or neutral in its approach to the Pakistani state' would often be overlooked and left to its own devices (Lynch III 2018: 68). By contrast, groups that 'threatened the Pakistan state or viewed international Islamist jihad as the highest order priority' would be dealt with severely (Fair et al. 2010; Hussain 2005; Rana 2004). Faced with this differentiated approach, Afghan groups were less likely to engage in systemic violence against the Pakistani state.

Figure 11: Post-9/11 conflict incidents in Afghanistan and Pakistan



Note: this figure shows the distribution of conflict incidents in Afghanistan and Pakistan. The dark red line represents the Durand line, the international border between Afghanistan and Pakistan. Each dot represents an attack against the state. The black dots (on the right of border) are attacks against the state in Pakistan whereas the red dots on the left of the border denote similar attacks in Afghanistan.

Source: authors' construction using GTD (2021).

Even if we were to admit the possibility of a cross-border spillover of violence, it is not easy to understand why the Afghan attackers would stop at the FR border and not engage in higher-profile targets in settled regions. Indeed, after Musharraf's decision to join the US-led war in Afghanistan, major Pakistani cities (e.g., Peshawar, Lahore, Rawalpindi, Karachi) witnessed a spate of violent attacks which became important national incidents and key pressure points for public policy. Finally, if conflict did indeed spill over from Afghanistan to FR areas, why do we not see a similar spillover in the lower half of the Afghanistan-Pakistan border (see Figure 11)? Taken together, both the quantitative and contextual evidence reassure us that the potential overflow of conflict from Afghanistan was not the main driver of the post-9/11 trajectory of violence against the state in FR areas.

Income shocks

Another concern is that the post-9/11 spike in conflict in frontier areas may have been caused by a possible disruption to local economy after 2001 rather than the underlying fragility of frontier rule. This is an important concern as we know from prior work that income shocks are an

important driver of conflict (Blattman and Miguel 2010). The main economic shock that frontier areas witnessed after 2001 was the disruption of local economic activity induced by military operations (Jones and Fair 2010; Nawaz 2011). Even if concentrated and targeted, these military operations did to some extent displace populations, disrupt local economic activities, and therefore represented a shock to incomes. However, we can immediately rule out such a concern by showing that the rise of local insurgency in the FR areas pre-dates the military operations, which were in fact an endogenous response to the uptick in violence.

To do so, we estimate a basic event study specification that charts the differential evolution of conflict incidence between FR and non-FR areas before and after 2001:

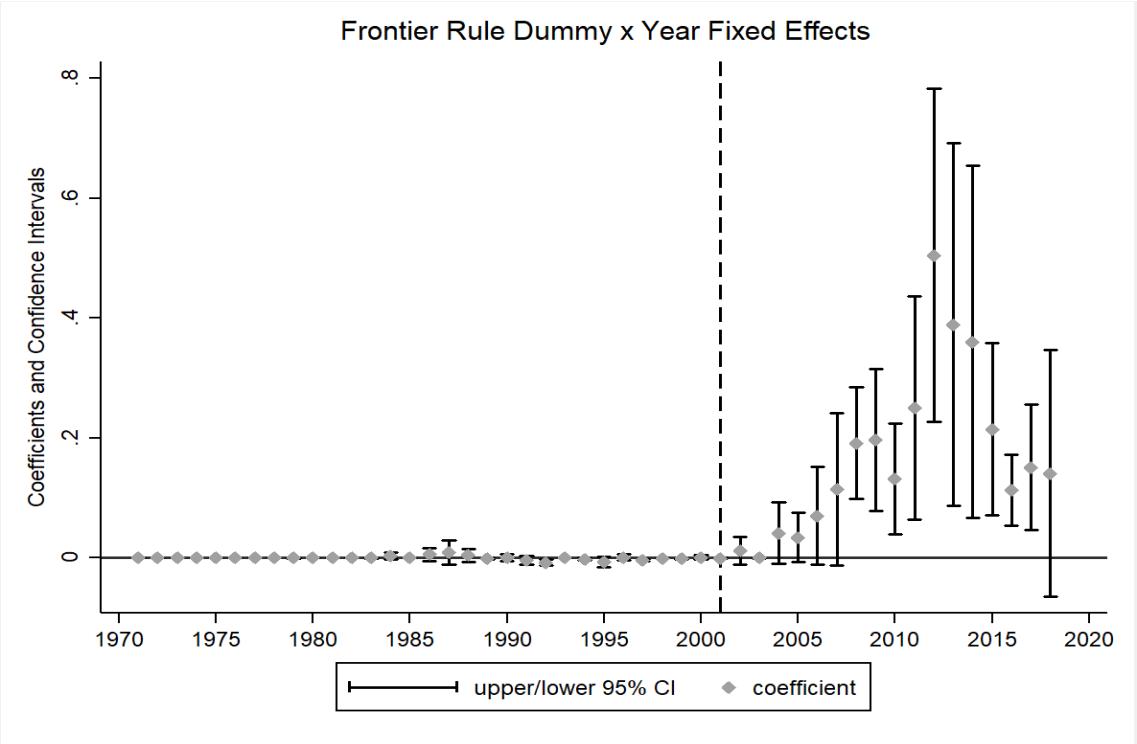
$$y_{i,d,t} = \nu_d + \gamma_t + \Gamma_t(Frontier\_Rule_{i,d} \times Year_t) + \epsilon_{i,d,t} \quad (3)$$

Here, $y_{i,d,t}$ is a measure of overall conflict incidence (i.e. ln(1 + *all* conflict incidents)) in sub-district i within district d in year t. ν_d and γ_t are district and year fixed effects, respectively. The term $(Frontier\_Rule_{i,d} \times Year_t)$ is the interaction between the indicator for whether sub-district i is exposed to historic frontier rule and the full set of year fixed effects. Finally, the vector of estimated interaction coefficients, Γ_t, shows the relationship between frontier rule and conflict over time. Specifically, it charts the evolution of conflict in FR areas relative to non-FR areas in each year of our conflict panel from 1970 to 2018.[43]

The main result for the specification in Equation 3 is displayed in Figure 12, which plots the point estimates and corresponding confidence intervals on the dummy for frontier rule interacted with year fixed effects. As the figure shows, the conflict trajectory of FR areas begins to diverge from non-FR areas soon after 2001. There is a clear increase in the coefficient of interest in 2004. This coincides with the year when local insurgency begins to gain momentum. The coefficient on FR interaction dummy progressively increases until it becomes statistically significant in 2008 and reaches its peak in 2012. This is the period during which a concerted endogenous response to local insurgency appears via targeted military operations and drone strikes. Importantly, this period also witnessed the highest number of attacks against tribal elders, which forms a key part of our mechanism (see Section 5.3). Finally, there is a noticeable drop in the coefficient capturing the differential FR effect in 2014. This coincides with the launch of the *Zarb-e-Azb* in 2014, the most serious and effective military operation to date (see Section 2.2). However, even if the FR interaction coefficient declines after 2014, it remains considerably higher in magnitude relative to the pre-2001 period, suggesting that by no means does the overall conflict incidence in FR areas revert to its pre-9/11 levels even after the 2014 military operation.

[43] The estimated interaction coefficients in Γ_t have to be measured relative to a base time period, which we take to be the first year in our conflict panel: 1970.

Figure 12: The frontier rule effect over time



Note: this figure plots the point estimates and confidence intervals of the frontier rule (FR) dummy interacted with year fixed effects for the specification in Equation 3. The coefficient for the base time period (1970) was set to zero and is not shown in the figure. The dependent variable is the log of (1 + *all* conflict incidents). The FR dummy takes the value of 1 for areas that are exposed to historic frontier rule. Analysis is carried out at the sub-district (*tehsil*) level, and district and year fixed effects are controlled for. Sample includes all sub-districts of Pakistan.

Source: authors' construction based on data from GTD (2021).

Taken together, the timeline in Figure 8 and the event study specification plot in Figure 12 clearly show that the uptick in violence in the FR areas (in 2004) pre-dates the intensive phase of military operations (2009–14), thereby offering conclusive evidence against income shocks being the primary explanation for our results. What these results also highlight is the salience of timing and sequencing of key events in our causal story. This closely follows the spirit of Pierson (2004: 67) who argued that 'long-term outcomes of interest depend on the relative timing of important processes […] A variable's impact cannot be predicted without an appreciation for when it appears within a sequence unfolding over time'. This is especially important in the context of insurgency-based violence where several mutually reinforcing factors are triggered in a sequence that is drawn out over time.

Drone strikes

An important part of the US war on terror was the use of unmanned drones to take out specific insurgent targets in Afghanistan and north-west Pakistan, including frontier areas which are the focus of this study. While drone strikes specifically targeted the militants, their collateral damage sometimes included the deaths of innocent civilians. This might have led to a rise in local grievances. In a survey in frontier areas, 63 per cent of respondents considered drone attacks as

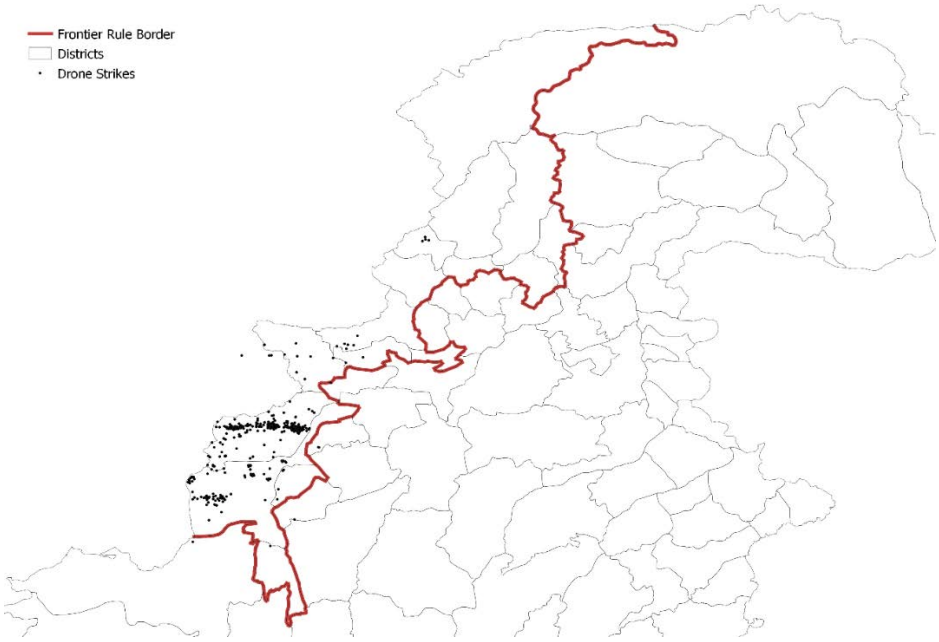
'never justified' (Shinwari 2012: xvi and 88).[44] Such grievances can trigger further conflict. Recent studies offer mixed evidence on the possible impact of drone strikes on violence, with some authors establishing a decrease in militant violence in the wake of drone strikes (Johnston and Sarbahi 2016) and others documenting a positive impact of such strikes on terrorist violence (Mahmood and Jetter 2019). The latter use a novel instrumental variable strategy to show that drone strikes increased anti-US sentiment amongst both insiders (members of terrorist organizations) and outsiders (the Pakistani populace), thereby translating into greater violence. Other more general work in the area has argued that drone strikes could heighten local grievances and provide ideological fodder to local insurgencies (Hudson et al. 2011).

This raises the possibility that the post-9/11 rise in state-directed violence in FR areas can potentially be a result of unpopular drone strikes rather than, as we argue, the institutional fragility of frontier rule in the face of external shocks. It is easy to rule out such a concern. As we argued before, drone strikes were an endogenous response to the rise in localized violence that had already begun in 2004 (see Figures 8 and 12). As such, these strikes might have fed into the ongoing conflict. But they were not the cause of the original rise in violence in FR areas. However, to the extent that drone strikes might interfere with our explanation of the core results, we devise a novel test whereby we exclude from our sample all the grid cells that witnessed such attacks and re-estimate the SRD specification. To do so, we leverage a geo-coded dataset on the location of drone strikes compiled by Usmani (2017). The dataset provides extensive information on the 397 drone attacks in Pakistan, including those in FR regions, during the 2004–16 period.

Figure 13 provides a visual representation of these attacks in our area of study. Using the longitude and latitude of these attacks, we systematically drop those 10-by-10km grid cells where a drone attack had ever taken place from our regression sample. In Table 16 we report the estimates for this restricted sample and show that our results continue to hold despite the exclusion of drone-exposed grid cells. A residual concern is that drone attacks might displace or divert violence into proximate regions (i.e. neighbouring grid cells). However, as the empirical analysis in Johnston and Sarbahi (2016: Table 5) shows, there is no evidence of the spillover of such drone-induced violence into neighbouring areas. Overall, our evidence is consistent with the interpretation that drone attacks were not the primary driver for the original uptick in violence post 9/11.

[44] US drone strikes typically relied on some tacit collaboration between the US and Pakistani military. To highlight the sort of grievances this gave rise to, Jones and Fair (2010: 70) cite a local religious leader as remarking that US 'attacks were carried out in the presence of the Pakistan Army; we cannot ignore our army's cooperation with foreign forces in actions that kill innocent people'.

Figure 13: Drone strikes in Pakistan's North-West Frontier



Note: this figure shows the distribution of drone attacks in Pakistan's north-western frontier. The dark red line represents the FR border separating FR and non-FR areas. Each black dot represents a drone strike.

Source: authors' construction based on data from Usmani (2017).

Public goods provision

Geographic peripheries have historically suffered from a more deficient provision of infrastructure. An important historical legacy of border buffer zones is the systematically lower investment in infrastructure (Popescu 2023). Such differential infrastructural provision can cumulatively set regions on different economic trajectories by shaping trade costs, inter-regional price differences, and real incomes (Donaldson 2018; Dell and Olken 2020). These, in turn, are important correlates of conflict. Accordingly, if there were systematic differences in public goods provision between FR and non-FR areas, this could be an alternative mechanism behind the frontier regions' greater proclivity towards conflict after 2001.

To consider this possibility, we examine discontinuity across the FR border in an array of contemporary and historical measures of public infrastructure, measured at the 10km-by-10km grid-cell level. The SRD estimates are reported in Table 17. We begin with contemporary measures of infrastructure. In column 1 we use the number of health sites per 10,000 persons in 2017 as the main outcome. In columns 2–3, we examine discontinuity in the length of roads and the length of waterways (in km), both in kilometres and measured in a pre-9/11 year (1992). Subsequently, we sequentially examine relevant measures of historical infrastructure and underdevelopment covering both the colonial and pre-colonial periods. In doing so, we are motivated by prior work on the long-run impact of British railroads (Donaldson 2018) and early Roman roads on contemporary infrastructure provision and economic prosperity (Dalgaard et al. 2022). Similarly, ancient trade routes are an important predictor of the spread of Islam (Michalopoulos et al. 2018), urban growth and prosperity (Blaydes and Paik 2021a, 2021b; Paik and Shahi 2023). In this spirit, we investigate in columns 4–6, respectively, potential discontinuities in railroad coverage in the British colonial era (in km), distance to major roads in the Mughal Empire (c.1556–1707), and distance to Islamic trade and pilgrimage routes (c.1300–1600). As the results in Table 17 show, there is no statistically significant discontinuity at the FR border in any of these infrastructure measures.

6 Conclusion

Our central argument in this paper is that exceptional institutional arrangements in frontier regions, which were typically established during colonial rule and persisted into the post-colonial era, form a more fragile basis for peace in the face of shocks. The fragility of exceptional frontier rule stems from its greater reliance on elite intermediation, lower trust in the state, and the absence of formal institutions of conflict management that can channelize grievances. We argue that, when faced with shocks, such institutional fragility is likely to manifest in 'sovereignty-contesting' forms of violence. To empirically probe this argument, we combined spatially granular data on conflict with a historical frontier that demarcated a 'rule of difference' by the British Empire in Pakistan's North-West. Our results, based on a spatial RD design, show that regions just inside the historical boundary of frontier rule experienced a significant increase in attacks against the state after 9/11 when compared with regions just outside the boundary.

We argue that 9/11 was a shock to grievances against the state caused by the Pakistani state's unpopular decision to join the US-led war on terror and the extension of coercive state authority into frontier areas on US insistence. In frontier areas that had historically suffered from an institutional void, these local grievances translated into heightened conflict. We demonstrate that the 9/11-induced disruption to frontier rule seems to have taken place through the systematic targeting of tribal leaders who were the main interlocutors between the frontier residents and the state. Their removal, especially in the absence of any alternative formal avenues of conflict resolution, intensified local conflict. We rule out multiple competing explanations behind the post-9/11 rise in violence in FR areas. These include the role of civil conflict spilling over from Afghanistan, income shocks (proxied by military operations), drone attacks, and differences in public goods provision.

Our paper has important implications for the study of conflict, especially the role of institutions in driving conflict. As Kolsky (2015: 1244) noted, 'frontiers have historically been spaces with greater potential for extreme violence'. Yet, we have limited knowledge of the factors that feed into the greater proclivity of frontier spaces to violence. Evidence presented in this paper echoes the important insight in Hopkins (2020: 2) that any study of the deep drivers of violence must contend with the legacies of how imperial powers 'defined' and 'governed' their frontier territories in the nineteenth and earlier twentieth centuries. While the legacy of frontier governance has received some scholarly attention in other disciplines—notably history, anthropology, and international relations—this paper offers the first systematic empirical enquiry of its impact on contemporary conflict. In doing so, we also contribute to the literature on conflict by showing how a *specific* historically embedded institutional arrangement shaped conflict in the face of a geo-political shock. Our analysis underscores the importance of accounting for the interplay between domestic and external factors in driving conflict.

Not only do we offer a novel institutional explanation for the greater susceptibility of peripheries to conflict, but our results also shed light on why the extension of coercive authority in areas of limited statehood often triggers more violence. Specifically, we offer a plausible explanation as to why counter-insurgency campaigns carried out after 9/11 in Asia, Africa, and the Middle East have been met with limited success. As Comfort Ero, President of the International Crisis Group, argues, a 'military-only' response without addressing the underlying institutional deficits makes for a weak strategy.[45] Our results also bear relevance for understanding the rise of 'Islamic militancy'

[45] 'Negotiating a Violent Terrain: Political Engagement in the Sahel and Somalia', Keith Griffin Lecture, Oxford Centre for Islamic Studies. 8 June 2023.

in the wake of 9/11. The rise of Boko Haram in Nigeria, Al-Shabab in Kenya, and Al Qaeda in Pakistan has been spatially concentrated in regions that were once the frontiers of global empires. Our evidence on the strategic targeting of tribal elites, a key mechanism behind the escalation of violence post 9/11, has huge relevance for understanding the spectacular growth of militancy in Africa and the Middle East. An investigative report on militancy in Africa, published by Reuters in 2021, describes such assassinations as a common pattern in the conflict playbook. In the heartland of Islamic militancy in Niger, Mali, and Burkina Faso, hundreds of village elders and community leaders were abducted or assassinated. Similar patterns of assassinations have been observed in Somalia, Nigeria, and Iraq. These local leaders typically 'settled local disputes, collected taxes, and registered births and deaths' (McAllister and Marsh 2021). Their killings created a huge power vacuum, breaking the local population's link with the state and bringing life to a grinding halt. Indeed, as a political scientist quoted in Reuters (2021), argues: 'If you want maximum disorder, you kill the chief […] If the agenda is to replace the state, killing the village chief is just the beginning of the process'.

The relevance of frontier governance extends beyond the actual physical frontiers of countries. Frontier governmentality is about 'practice' rather than 'place'; it is a conceptual category and a 'social construct' rather than an 'objective reality' (Hopkins 2020: 14–15). The frontier signifies an institutional enclosure where the claims and authority of the state are severely limited or constrained. As the examples of native American reservations, Indian princely states, and African tribal reserves show, such enclosures can also exist in the interior. Indeed, as Hopkins (2020: 15) notes, 'for many states of the modern world, the most important and extensive frontiers demarcate their interior, rather than their exterior'. To the extent that such spaces of exceptional governance are a pervasive feature of conflict-prone states, our work has a direct bearing for state fragility, which is an emerging policy concern.

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Tables

Table 1: Historical institutional discontinuity—key illustrations

Frontier agencies	Settled districts	
Political agent as the sole official representative of the colonial administration. These were often ex-military officials who were responsible for managing the relationship between the colonial state and tribes	Each district with a Deputy Commissioner supported by *Tahsildars* and *Naib Tahsildars* invested with criminal, civil and revenue powers	Bureaucratic administration
	Field Kanungos (revenue officials) responsible for supervising *Patwaris* (accountants)	
	Patwaris (accountants) responsible for maintaining revenue records of between 4 to 5 villages	
	Chaukidars (village headmen) responsible for collective revenue	
Jirga system (council of tribal elders) used for dispute resolution	Divisional Courts established under regulation VII of 1901	Justice system
Criminal justice was governed through the Frontier Crimes Regulation (FCR), introduced in 1872.	District Courts established under regulation VII of 1901	

	Rural District Boards constituted under Act XX of 1883	Representative institutions
No electoral representation allowed until 1997 when only local elites (Maliks) were allowed to vote.	Municipal Boards constituted under Act XV of 1867	
	Provincial legislature constituted under the Government of India Act 1935. Elections to the legislature held in 1937 on a restricted franchise basis with separate electorates for Muslims and Non-Muslims. The main political parties contesting was the Congress, the Muslim Nationalist party, the Hindu–Sikh Nationalist Party (HSNP), and the Muslim Independent Party (MIP).	
From 1890s onwards *Khassadars* working under *Maliks* for border protection	Administration of the civil police force in the settled districts vested in an Inspector-General	Policing & security
Power to 'arrest', 'call for tribal jirgahs' (councils) and 'dispense justice on the spot'	Each district under a Superintendent working under the general control of the Deputy Commissioner	
From 1915 onwards *Khassadars* supported by the Frontier Constabulary, responsible for patrolling the border between Frontier Agencies and Settled Districts	Police jurisdiction based on *thanas* (units of civil police administration), each under the control of a sub-inspector	

Source: authors' elaboration based on Imperial Gazetteer of India: Provincial series, North-west Frontier Province, 1908; Nichols (2001); Kolsky (2015).

Table 2: Frontier rule—analysis of mean differences

	Whole sample			Within 50km of FR border		
	FR	Non-FR	Mean difference	FR	Non-FR	Mean difference
	Mean values			Mean values		
	(1)	(2)	(3)	(4)	(5)	(6)
Conflict incidents against the state	1.460	0.098	1.362***	1.779	0.177	1.602***
	656	*8567*	(0.223)	*484*	*634*	(0.301)
ln(1+Conflict incidents against the state)	0.367	0.033	0.335***	0.417	0.074	0.343***
	656	*8567*	(0.030)	*484*	*634*	(0.039)
Deaths in incidents against the state	4.212	0.178	4.034***	4.911	0.538	4.373***
	656	*8567*	(0.595)	*484*	*634*	(0.791)
ln(1+Deaths in incidents against the state)	0.511	0.031	0.480***	0.568	0.091	0.476***
	656	*8567*	(0.044)	*484*	*634*	(0.056)
Injuries in incidents against the state	3.848	0.261	3.586***	4.789	0.661	4.128*
	656	*8567*	(0.601)	*484*	*634*	(0.834)
ln(1+Injuries in incidents against the state)	0.482	0.034	0.447***	0.555	0.095	0.460***
	656	*8567*	(0.042)	*484*	*634*	(0.056)

Note:the unit of observation is a 10km-by-10km grid cell. Columns 1–3 are based on the full sample of grid cells that comprise Pakistan, whereas columns 4–6 restrict the sample to a 50 km buffer zone either side of the FR border. Columns 1–2 report the mean of each conflict measure between the FR and non-FR grid cells for the full sample. Columns 4 and 5 report the mean of each conflict measure between the FR and non-FR grid cells for the sample restricted to a 50 km buffer zone around the FR border. Finally, columns 3 and 6 show the result for a two-sample t-test for difference in means in each of the conflict measure between the FR and non-FR grid cells. The number of observations is in italics. The standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 3: Balance on geographic, climatic, and historic characteristics

	Sample: observations within 50 km from FR border								
	Linear running variable in Euclidean distance to the border								
Dependent variable:	Ruggedness	Slope	Topography	Precipitation (mean)	Precipitation (std dev)	Temperature	Pre-FR conflict	Pre-FR pop density	Wheat suitability
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Inside FR border	-19.150	-0.028	2.375	-7.722	1.154	0.059	-0.001	0.023	83.215
	(16.183)	(0.255)	(1.875)	(5.133)	(1.715)	(0.245)	(0.013)	(0.060)	(99.891)
Observations	1,106	1,106	1,106	1,118	1,118	1,118	1,118	1,118	1,109
95% C.I.	[-59.184 ; 17.125]	[-.648 ; .520]	[-1.902 ; 6.765]	[-22.022 ; 1.872]	[-2.842 ; 4.986]	[-.405 ; .696]	[-.030 ; .023]	[-.125 ; .135]	[-111.365 ; 336.41]
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	Cerrd	Cerrd	Cerrd	Cerrd	Cerrd	Cerrd	Cerrd	Cerrd	Cerrd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. Columns 1–8 report the RD estimates for geographic, climatic, agricultural, and historic variables within a 50 km buffer zone of the FR border. All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. The standard errors are reported in parentheses and are clustered at the 20 km border segment level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 4: Frontier rule and conflict against the state

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.297***	0.318***	0.312***	0.210***	0.708***	0.684***
	(0.054)	(0.054)	(0.076)	(0.081)	(0.078)	(0.078)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.228 ; .471]	[.249 ; .501]	[.194 ; .536]	[.078 ; .437]	[.599 ; .963]	[.579 ; .947]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. In columns 1 and 2, the outcome variable is the number of conflict incidents against the state; in columns 3 and 4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5 and 6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 5: Frontier rule and conflict against the state using alternative buffer zones

Dependent variable:	Linear running variable in Euclidean distance to the border					
	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: observations within 60 km from FR border					
Inside FR border	0.281***	0.298***	0.299***	0.189**	0.612***	0.565***
	(0.053)	(0.053)	(0.077)	(0.084)	(0.071)	(0.071)
Observations	1,288	1,271	1,288	1,271	1,288	1,271
95% C.I.	[.207 ; .438]	[.230 ; .466]	[.178 ; .514]	[.033 ; .409]	[.520 ; .833]	[.472 ; .788]
	Panel B: observations within 40 km from FR border					
Inside FR border	0.331***	0.347***	0.439***	0.315***	0.676***	0.715***
	(0.056)	(0.056)	(0.080)	(0.075)	(0.077)	(0.079)
Observations	933	924	933	924	933	924
95% C.I.	[.231 ; .499]	[.250 ; .524]	[.313 ; .695]	[.197 ; .543]	[.561 ; .929]	[.591 ; .972]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. In Panel A the regression sample is restricted to within 60 km of the FR border. Panel B restricts the sample to within 40 km of the FR border. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 6: Frontier rule and conflict against the state using alternative border segments

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: 18 km border segments					
Inside FR border	0.228***	0.307***	0.400***	0.416***	0.520***	0.578***
	(0.060)	(0.056)	(0.087)	(0.086)	(0.079)	(0.084)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.136 ; .400]	[.222 ; .487]	[.266 ; .655]	[.286 ; .675]	[.400 ; .751]	[.440 ; .834]
	Panel B: 15 km border segments					
Inside FCR border	0.114**	0.120**	0.139*	0.222***	0.434***	0.461***
	(0.054)	(0.054)	(0.084)	(0.079)	(0.071)	(0.072)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.012 ; .268]	[.006 ; .274]	[-.012 ; .366]	[.074 ; .453]	[.312 ; .665]	[.344 ; .703]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. In Panel A the regressions use 18 km border segment fixed effects. The regressions in Panel B use 15 km border segment fixed effects. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 7: Frontier rule and conflict against the state using Uppsala Conflict Data

	Sample: observations within 50 km from FR border			
	Linear running variable in Euclidean distance to the border			
Dependent variable:	ln(1+conflict incidents)		ln(1+deaths in conflict incidents)	
	(1)	(2)	(3)	(4)
Inside FR border	0.219**	0.336***	0.376***	0.505***
	(0.088)	(0.082)	(0.144)	(0.138)
Observations	1,118	1,105	1,118	1,105
95% C.I.	[.038 ; .463]	[.184 ; .587]	[.069 ; .774]	[.227 ; .913]
Controls	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. In columns 1–2, the outcome variable is the number of conflict incidents; and in columns 3–4, the dependent variable is the number of deaths in conflict incidents, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2 and 4 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 8: Frontier rule and conflict against the state after excluding grid cells very close to the FR boundary

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.181***	0.165***	0.320***	0.239***	0.543***	0.436***
	(0.060)	(0.058)	(0.093)	(0.087)	(0.089)	(0.086)
Observations	1,099	1,086	1,099	1,086	1,099	1,086
95% C.I.	[.053 ; .364]	[.034 ; .343]	[.162 ; .610]	[.089 ; .514]	[.402 ; .850]	[.294 ; .739]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. The regression sample for columns 1–6 drops grid cells that are very close (i.e. <= 0.5 km) to the FR border. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 9: Frontier rule and conflict against the state in the Pre- and Post-9/11 era

	Sample: observations within 50 km from FR border											
	Linear running variable in Euclidean distance to the border											
	Pre-9/11						Post-9/11					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)		ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Inside FR border	0.000	-0.000	0.000	-0.001	0.000	-0.000	0.298***	0.318***	0.311***	0.210***	0.708***	0.684***
	(0.000)	(0.007)	(0.000)	(0.009)	(0.000)	(0.006)	(0.054)	(0.054)	(0.076)	(0.081)	(0.078)	(0.078)
Obs.	1,118	1,105	1,118	1,105	1,118	1,105	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[-.002 ; .005]	[-.017 ; .022]	[-.002 ; .007]	[-.022 ; .027]	[-.001 ; .004]	[-.014 ; .018]	[.229 ; .472]	[.248 ; .501]	[.193 ; .535]	[.078 ; .437]	[.599 ; .964]	[.579 ; .947]
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. Columns 1–6 restrict the sample to the period prior to 9/11 from 1970 to 2000 and columns 7–12 restrict the sample to the period after 9/11 from 2001 to 2018. In columns 1–2 and 7–8, the outcome variable is the number of conflict incidents against the state; in columns 3–4 and 9–10, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6 and 11–12, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, 6, 8, 10, and 12 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 10: Frontier rule and avenues of conflict management

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Recourse to MNA		No contact with MNA in last 2 months		Recourse to jirga	
FR status dummy	-0.016***	-0.019***	0.027***	0.011***	0.601***	0.542***
	(0.002)	(0.003)	(0.003)	(0.004)	(0.020)	(0.021)
Observations	6,030	6,030	6,030	6,030	6,030	6,030
95% C.I.	[-.0198; -.0132]	[-.0248; -.0126]	[.0210; .0334]	[.0035; .0191]	[.5612; .6411]	[.5002; .5838]
Controls	No	Yes	No	Yes	No	Yes
Adjusted R-squared	0.00108	0.00471	0.00175	0.02180	0.14700	0.20100

Note: the unit of observation is an individual. The explanatory variable is a dummy for whether an individual resides in a household that is inside the FR boundary. Dependent variables are a dummy for MNA being the main recourse for dispute resolution (columns 1–2), a dummy for contact with MNA in last two months (columns 3–4) and a dummy for Jirga being main recourse for dispute resolution (columns 5–6). The control variables are a dummy for gender, a dummy for educational status, ln(age), a dummy for hh source of income, a dummy for hh monthly income range and a locality fixed effects. Robust standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 11: Frontier rule and trust in state institutions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Low trust in parliament		Low trust in district court		Low trust in high court		Low trust in supreme court	
FR status dummy	0.116***	0.152***	0.123***	0.161***	0.195***	0.207***	0.196***	0.206***
	(0.021)	(0.022)	(0.021)	(0.023)	(0.022)	(0.024)	(0.022)	(0.024)
Observations	6,030	6,030	6,030	6,030	6,030	6,030	6,030	6,030
95% C.I.	[.0754; .1559]	[.1077; .1959]	[.0814; .1648]	[.1158; .2064]	[.1528; .2380]	[.1608; .2536]	[.1511; .2310]	[.1587; .2539]
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Adjusted R-squared	0.00403	0.0249	0.00439	0.0262	0.0105	0.0312	0.0105	0.0307

Note: the unit of observation is an individual. The explanatory variable is a dummy for whether an individual resides in a household that is inside the FR boundary. Dependent variables are a dummy for very little to no trust in parliament (columns 1–2), a dummy for very little to no trust in the district court (columns 3–4), a dummy for very little to no trust in the high court (columns 5–6) and a dummy for very little to no trust in the supreme court (columns 7–8). The control variables are a dummy for gender, a dummy for educational status, ln(age), a dummy for hh source of income, a dummy for hh monthly income range and a locality fixed effects. Robust standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 12: Frontier rule and targeting of tribal elders

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against elders)		ln(1+deaths in incidents against elders)		ln(1+injuries in incidents against elders)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.112***	0.098***	0.082**	0.071*	0.078**	0.072*
	(0.033)	(0.032)	(0.038)	(0.037)	(0.039)	(0.039)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.059 ; .211]	[.043 ; .188]	[.018 ; .201]	[-.001 ; .178]	[.001 ; .197]	[-.008 ; .187]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. In columns 1–2, the outcome variable is the number of conflict incidents targeting tribal elders; in columns 3–4, the dependent variable is the number of deaths in incidents targeting tribal elders; and in columns 5–6, the dependent variable is the number of injuries in incidents against the tribal elders, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat sutability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 13: Frontier rule and conflict against the state *including distance to Durand Line as an additional control*

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.297***	0.316***	0.312***	0.219***	0.708***	0.686***
	(0.054)	(0.054)	(0.076)	(0.081)	(0.078)	(0.078)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.228 ; .471]	[.246 ; .498]	[.194 ; .536]	[.086 ; .445]	[.599 ; .963]	[.579 ; .948]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: **distance to the *Durand Line***, ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 14: Frontier rule and conflict against the state *excluding grid cells contiguous to the Durand Line*

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.272***	0.279***	0.387***	0.299***	0.612***	0.562***
	(0.053)	(0.053)	(0.075)	(0.075)	(0.071)	(0.070)
Observations	1,070	1,065	1,070	1,065	1,070	1,065
95% C.I.	[.200 ; .435]	[.210 ; .448]	[.277 ; .625]	[.176 ; .535]	[.521 ; .838]	[.469 ; .785]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. The regression sample for columns 1–6 **drops grid cells that are contiguous to the Afghan Border (*Durand Line*)**. The sample, therefore, excludes areas where local spillovers of conflict from the Afghan side is most likely to have happened. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat sutability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table 15: Conflict incidents against the state by specific origin

	1970–2018		1970–2000		2001–18	
Militant outfit	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
			Local			
Tehrik-i-Taliban Pakistan (TTP)	326	17.87	0	0.00	326	18.26
Baluchistan-based militants	216	11.84	0	0.00	216	12.10
Political militants wings	12	0.66	5	12.82	7	0.39
Lashkar-e-Jhangvi	9	0.49	0	0.00	9	0.50
Different local jihadi organization	79	4.33	5	12.82	74	4.15
Other militant organizations	27	1.48	2	5.13	25	1.40
			Foreign			
Haqqani network	0	0.00	0	0.00	0	0.00
Al-Qaida	11	0.60	0	0.00	11	0.62
			Unknown			
Unknown	1144	62.72	27	69.23	1117	62.58
Total	**1824**	**100**	**39**	**100**	**1785**	**100**

Note: the **Different local jihadi organizations** category includes groups like the Sipah-e-Sahaba, Hizb-I-Islami, Tehrik-e-Nafaz-e-Shariat-e-Mohammadi, Lashkar-e-Islam, Ansarul Islam, Jaish-e-Islam, Jaish al-Umar, Jamaat-ul-Ahrar, Harkatul Jihad-e-Islami, and so forth. Similarly, the **Other militant organizations** category consists of groups like Abdullah Azzam Brigades, Qari Kamran Group, Jundallah, Halqa-e-Mehsud, Hafiz Gul Bahadur Group, Khorasan, etc. **Unknown** includes those attacks that were not claimed by any terrorist organization.

Source: based on authors' estimations.

Table 16: Frontier rule and conflict against the state *excluding grid cells where there has been a drone strike*

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.179***	0.172***	0.320***	0.271***	0.481***	0.393***
	(0.053)	(0.053)	(0.072)	(0.073)	(0.064)	(0.063)
Observations	1,059	1,046	1,059	1,046	1,059	1,046
95% C.I.	[.096 ; .330]	[.089 ; .323]	[.202 ; .539]	[.144 ; .493]	[.387 ; .675]	[.294 ; .579]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. The regression sample for columns 1–6 **drops grid cells where there has ever been a drone strike**. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, pre-FR population density, and road density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' calculations.

Table 17: Frontier rule and public infrastructure provision

	Sample: observations within 60 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	health sites per 10000 persons	ln(1+road length in km)	ln(1+waterway length in km)	ln(1+colonial rail length in km)	ln(1+distance to mughal roads in km)	ln(1+distance to islamic trade and pilgrimage routes in km)
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	-0.103	-0.073	-0.200	0.009	-0.026	0.020
	(0.168)	(0.141)	(0.130)	(0.038)	(0.017)	(0.022)
Observations	1,288	1,288	1,288	1,288	1,288	1,288
95% C.I.	[-.473 ; .251]	[-.328 ; .302]	[-.467 ; .110]	[-.077 ; .096]	[-.064 ; .010]	[-.029 ; .066]
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	cerrd	cerrd	cerrd	cerrd	cerrd	cerrd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. The outcome in column 1 is the number of health sites per 10,000 persons in a contemporary year (2017). In columns 2–3, the outcomes are the length of roads in km and the length of waterways in km, both measured in a pre-9/11 year (1992). Column 4 includes the length of colonial era railroads in km. Finally, in columns 5–6 we include historical (pre-FR rule) measures of underdevelopment: distance to major mughal era roads (1556–1707) and distance to islamic trade and pilgrimage routes (1300–1600). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Appendix A

Conflict variables definition and data sources

Terrorism

The Global Terrorism Database (GTD) (2021) defines 'a terrorist incident if it fulfils the following three criteria: (i) the incident must be intentional; (ii) the incident must entail some level of violence or threat of violence; and (iii) the perpetrators of the incidents must be sub-national actors. In addition, at least two of the following three criteria must be present for an incident to be included in the GTD: (i) the act must be aimed at attaining a political, economic, religious, or social goal; (ii) there must be evidence of an intention to coerce, intimidate or convey some other message to a larger audience (or audiences) than the immediate victims; and (iii) the action must be outside the context of legitimate warfare activities'.

State attacks (the broader measure)

It consists of terrorist incidents targeting government officials and property, including attacks against civil servants, teachers, doctors, judges, police, military personnel, parliamentarians, educational institutions, healthcare facilities, courts, roads, bridges, airports, electricity grids, and gas installations.

Non-state attacks (the broader measure)

It comprises attacks directed at both private property and individuals. This encompasses attacks on private individuals, including men, women, and children, as well as private residences, businessmen, businesses, religious figures and institutions, journalists, tourists, minorities, and more.

Role of segmentary lineage in Pashtun tribal society

Prior historical and ethnographic accounts of Pashtun society provide important clues on the relative importance of segmentary lineage as a form of social organization. Here, we present some relevant discussion based on Beattie (2013).

Pervasive rivalry between patrilateral parallel male cousins (*taburwali*) offers an important reason why despite possessing some segmentary features, 'segmentary lineage theory is not in itself sufficient to explain political processes among the Mehsuds' (Beattie 2013: 11).

Beattie (2013: 22) goes on to note that:

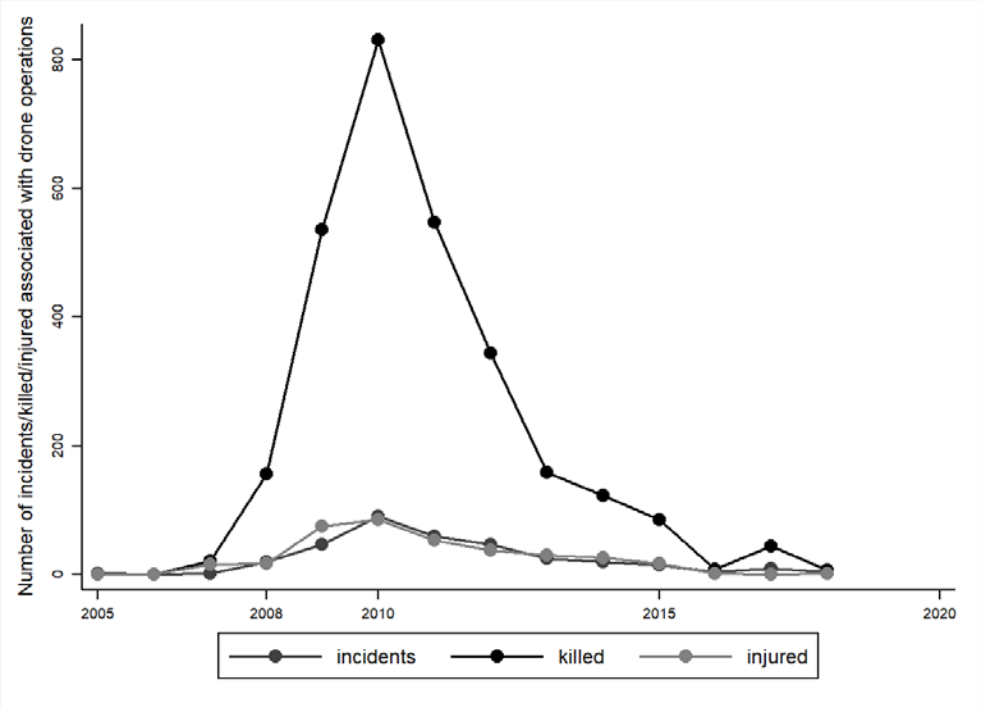
> From the point of view of social organization, one of the critical features shared by all the tribes, but exemplified by the Mehsuds in particular, included the weakness or virtual absence of political authority, and the fact that although they all possessed the framework of a segmentary lineage organization, they often did not organize themselves politically on segmentary lines. Instead, the prevalence of tarburwali tended to lead, it appears, to the emergence of small factional groups or 'alliance networks', membership of which crossed agnatic boundaries.

He further highlights how colonial administration found segmentary lineage as a poor predictor of tribal organization (Beattie 2013: 24):

the difficulty for the government officer was that both the segmentary lineage model and the factional model (and sometimes even the chiefly one) to some extent corresponded to reality […] Sometimes tribal politics were shaped by clan and lineage membership, at other times they revolved around factional nuclei or even maliks; occasionally they expressed some kind of territorial identity.

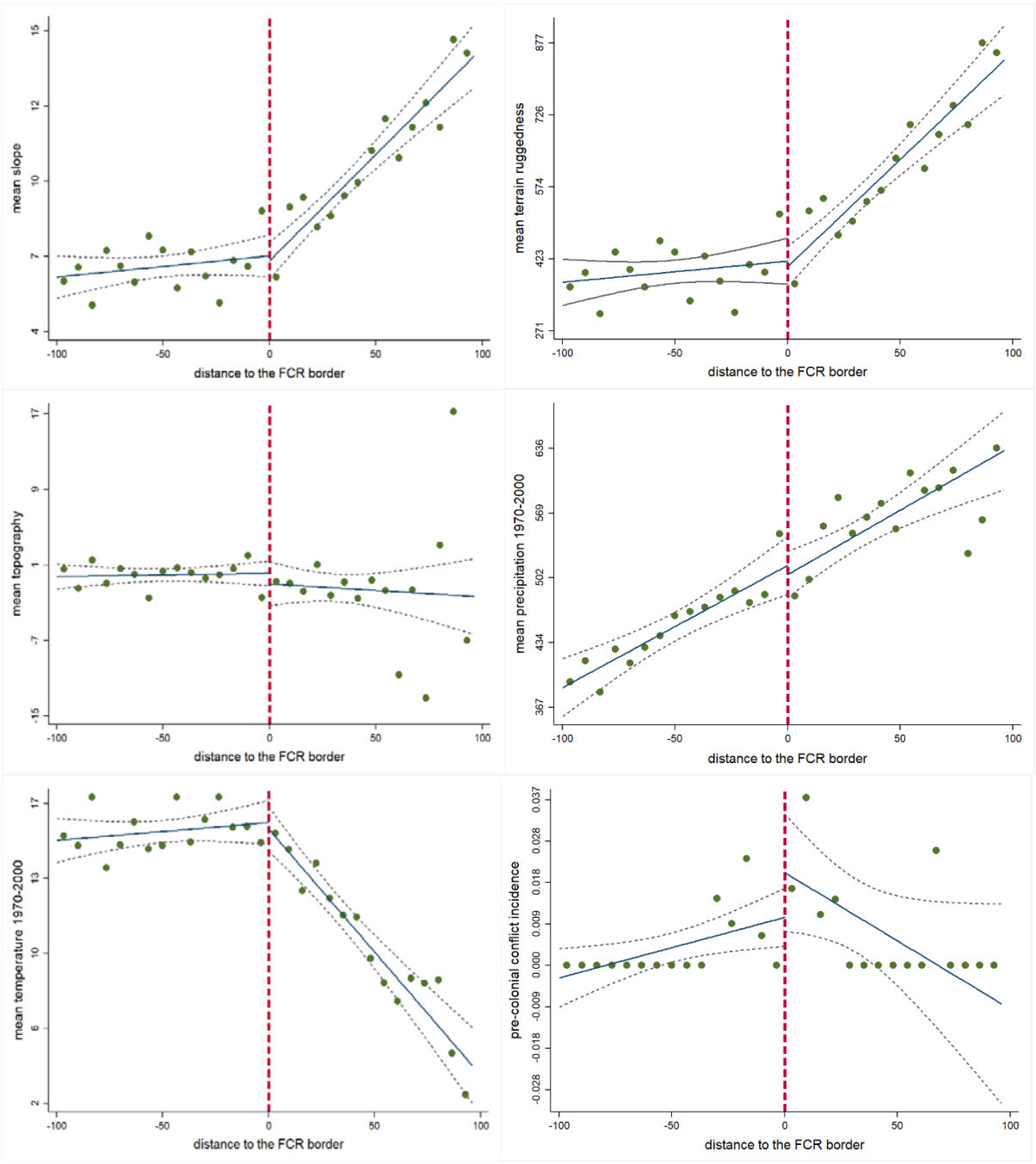
Appendix B: Appendix figures

Figure B1: Drone strikes in Pakistan (2005–18)



Source: authors' construction based on data from New America (2021).

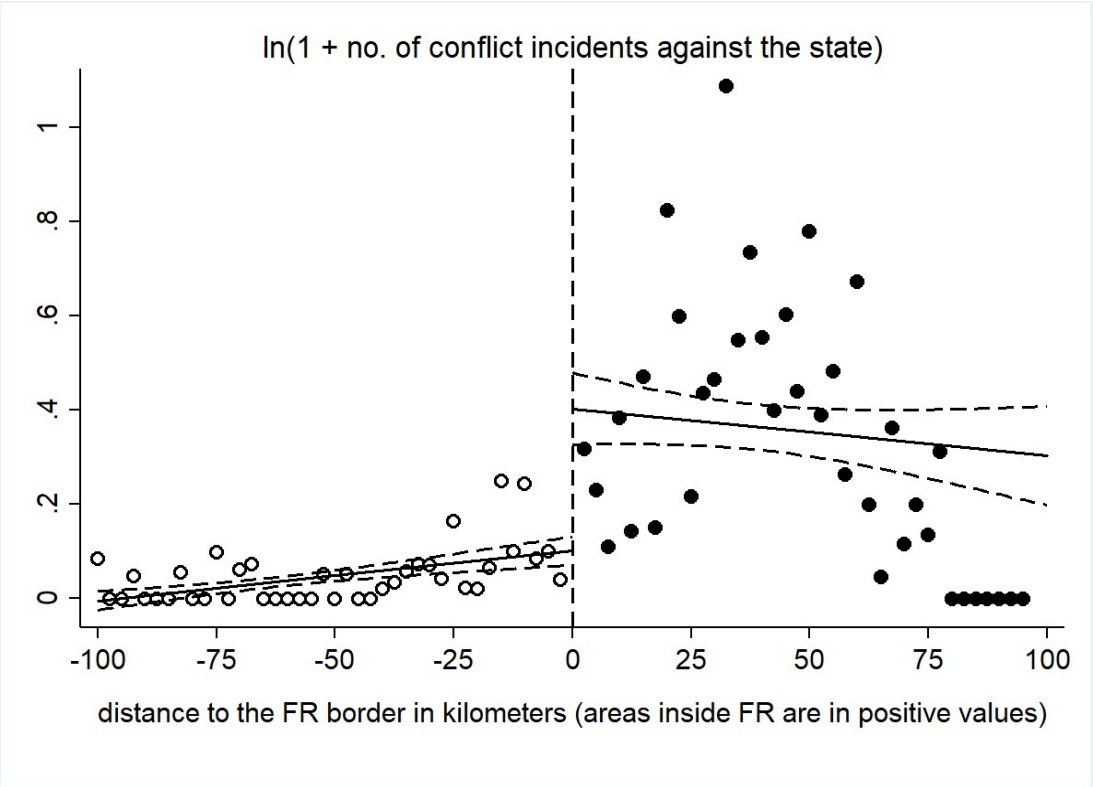
Figure B2: Visual lack of discontinuity in geographic, climatic, and historic factors



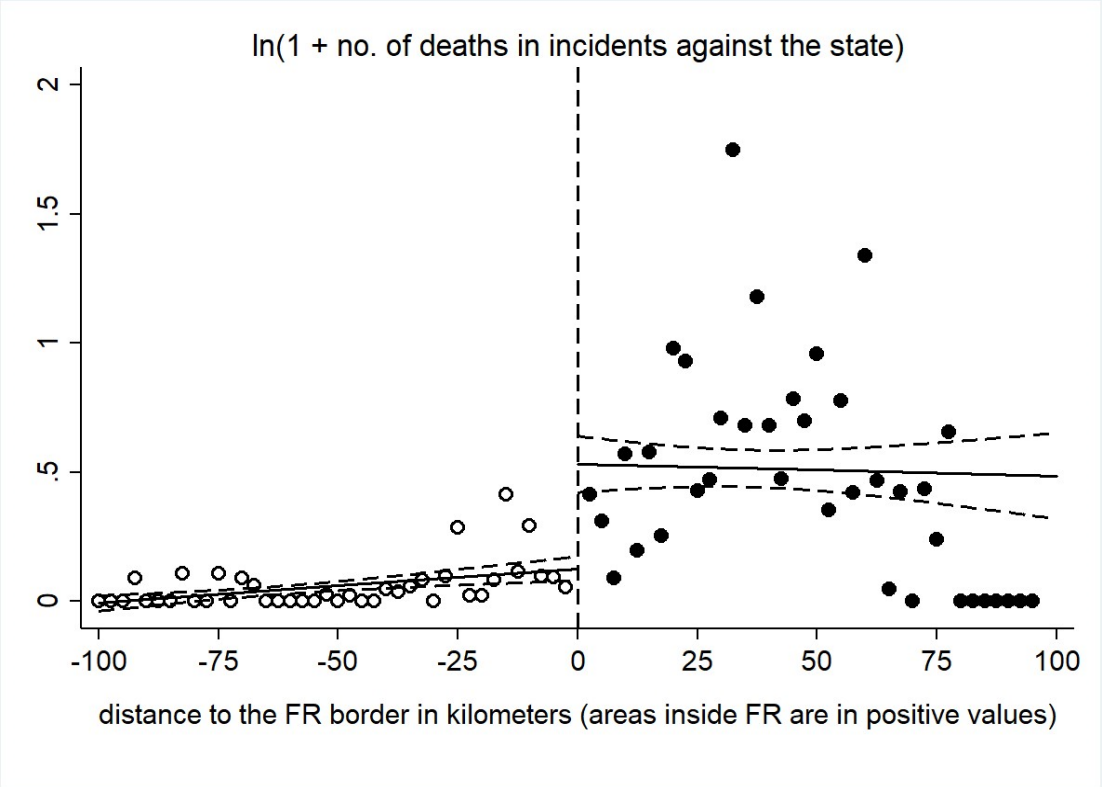
Source: authors' construction.

Figure B3: Conflict against the state and distance to FR border (smaller bins of size 2.5km each)

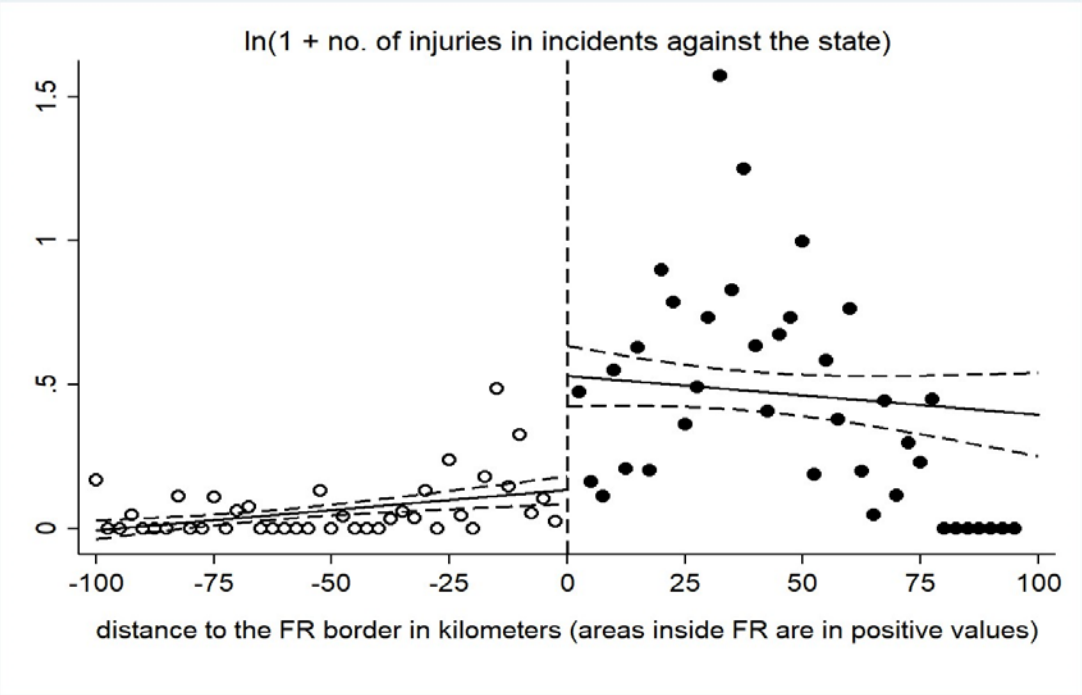
(a) Number of incidents



(b) Number of deaths in incidents



(c) Number of injuries in incidents

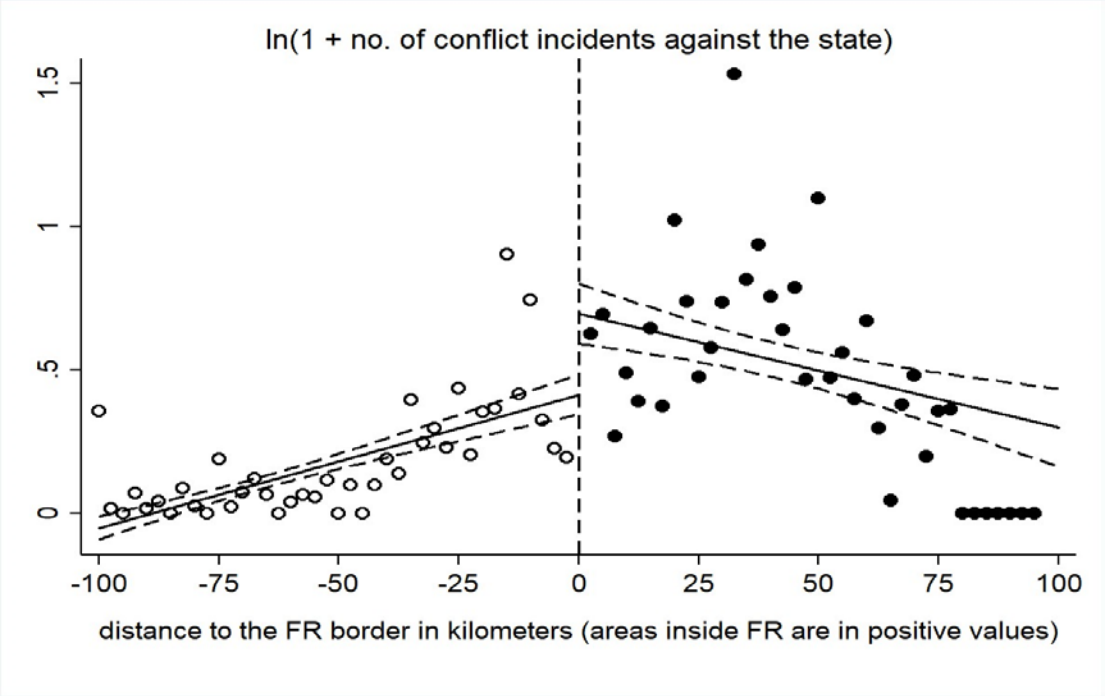


Note: binned scatterplots (38 bins of size 2.5km each) of the unconditional relationship between conflict against the state and distance to the FR border. The y-axis reports the natural log of 1 plus the incidence of conflict against the state for each of our three measures. The x-axis reports the distance (in km) from the FR border for areas under FR and non-FR. The border itself is at km 0 with positive values indicating km inside the FR territory.

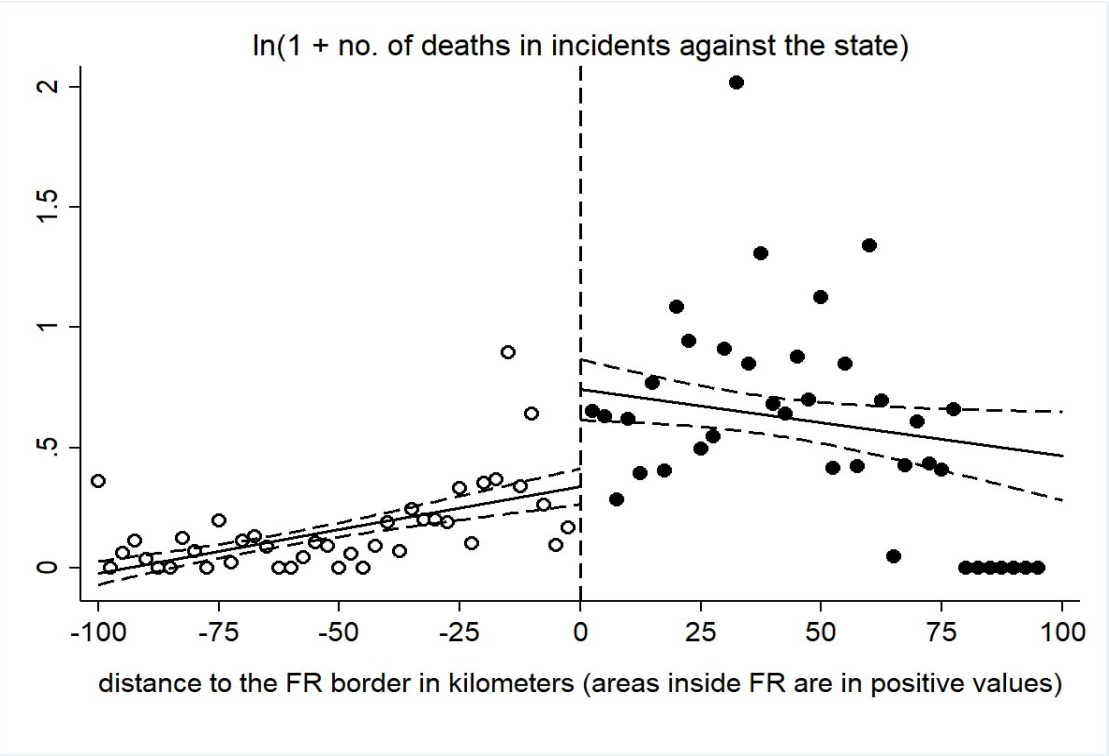
Source: authors' construction.

Figure B4: Conflict against the state (broader measure) and distance to FR border

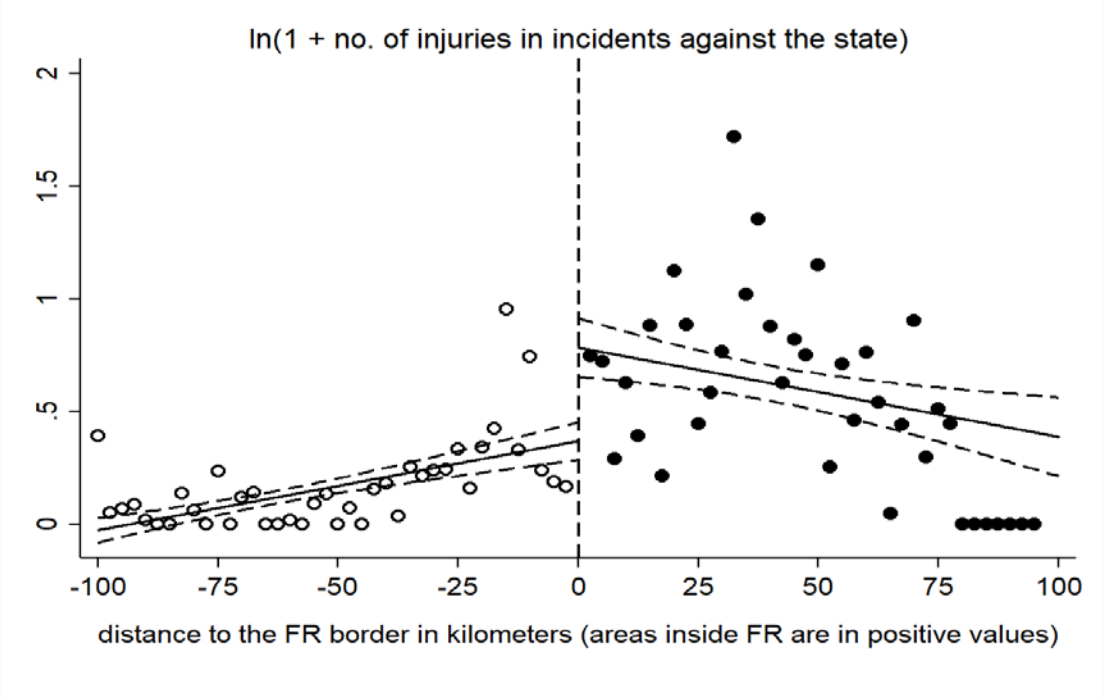
(a) Number of incidents



(b) Number of deaths in incidents



(c) Number of injuries in incidents

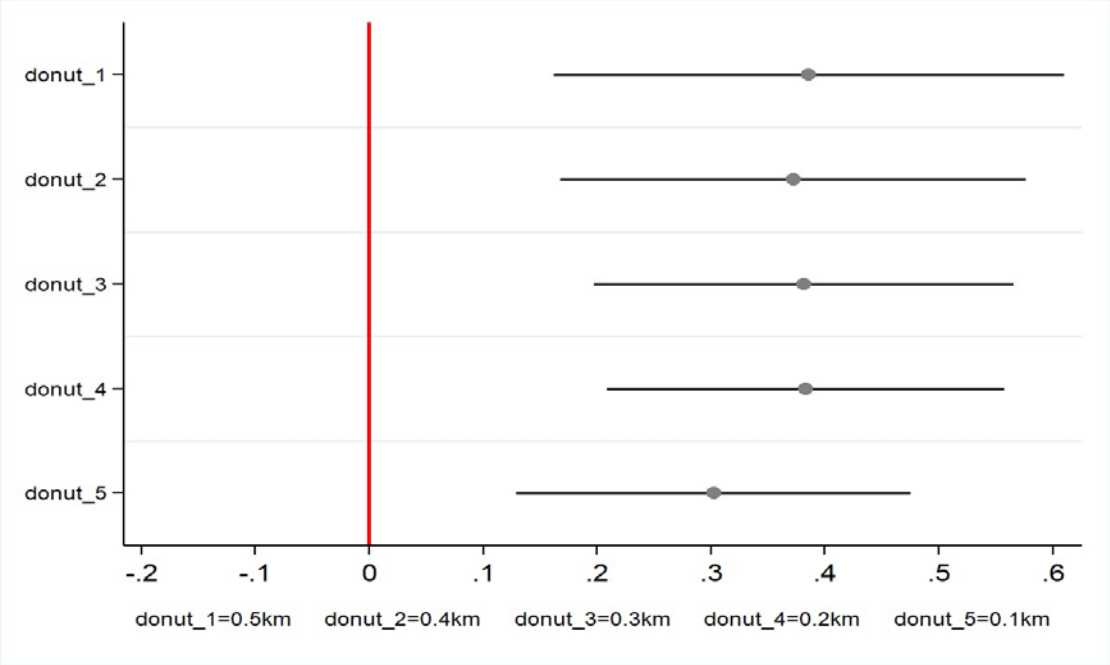


Note: binned scatterplots (38 bins of size 2.5km each) of the unconditional relationship between conflict against the state and distance to the FR border. The y-axis reports the natural log of 1 plus the incidence of conflict against the state for each of our three measures. The x-axis reports the distance (in km) from the FR border for areas under FR and non-FR. The border itself is at km 0 with positive values indicating km inside the FR territory.

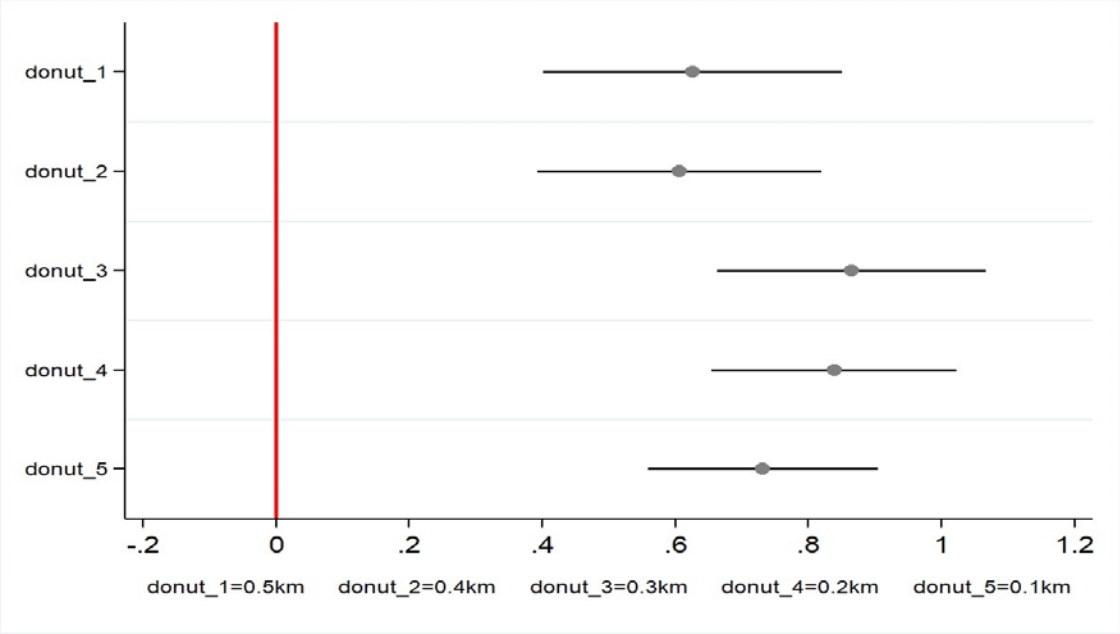
Source: authors' construction.

Figure B5: SRD estimates for deaths and injuries after excluding spatial units close to the FR border

(a) Number of deaths in incidents



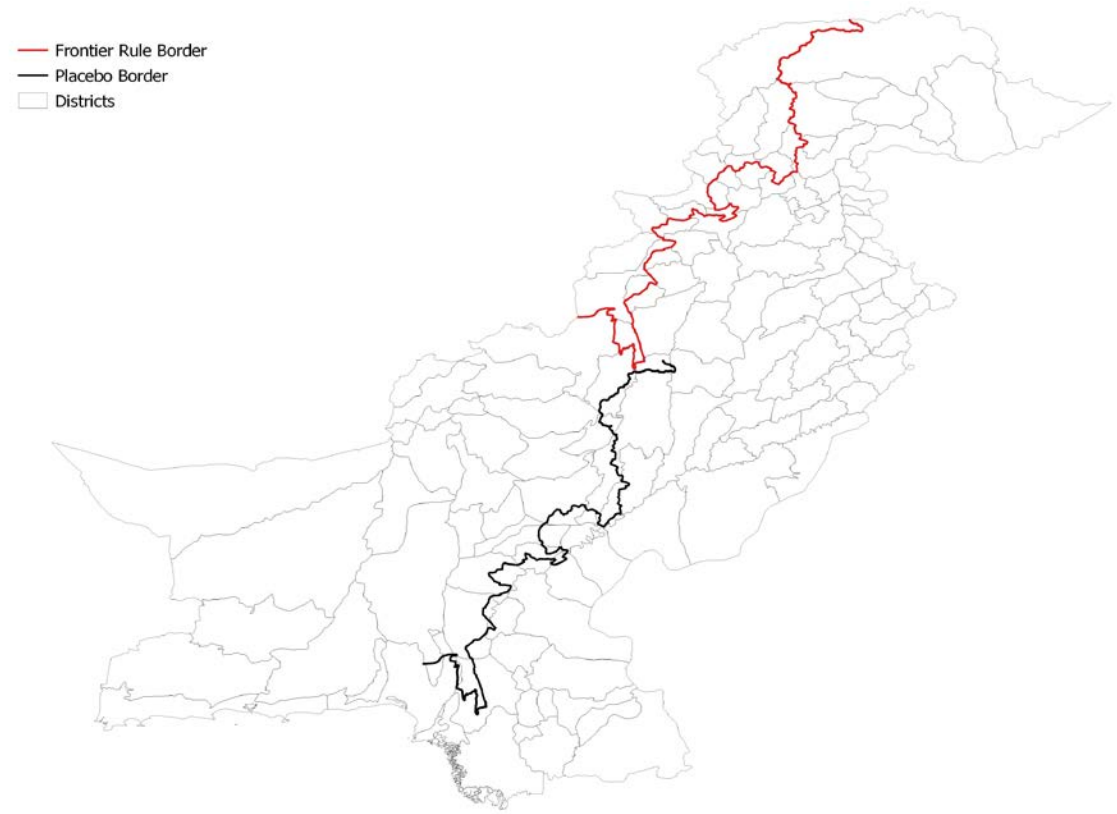
(b) Number of injuries in incidents



Note: this figure shows estimated coefficients and confidence intervals for SRD specifications run on different restricted samples that successively exclude observations very close to the FR border. For example, 'donut_1' excludes observations that are within 0.5km of the border, 'donut_2' excludes observations within 0.4km of the border, etc.

Source: authors' construction.

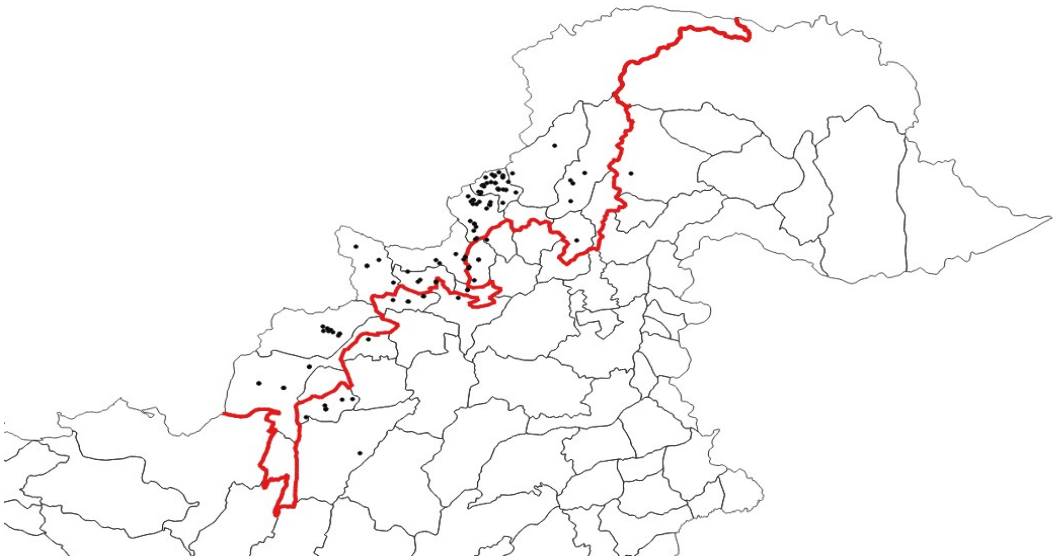
Figure B6: Falsification test: moving the frontier rule border southwestward



Note: this figure shows the placebo FR border (black) that is based on moving the original border (red) 400km-by-550km in a southwest direction. Since Pakistan has a northeast-to-southwest orientation, this is equivalent to shifting the original FR border further inland into the country.

Source: authors' construction. The map is created through QGIS software.

Figure B7: Targeted attacks on tribal elders (Maliks)



Note: the map shows the attacks on tribal elders for the post-9/11 period (2006–18). Each black dot represents an attack against the tribal elders and the red line denotes the historical border (as of 1901) separating frontier agencies (left side of the border) from settled districts (right side of the border).

Source: authors' compilation. This map is created from GTD (2021) data through the QGIS application.

Appendix C: Appendix tables

Table B1: Frontier rule and conflict against the state using a broader definition of state targets

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.567***	0.563***	0.651***	0.609***	0.864***	0.850***
	(0.088)	(0.086)	(0.101)	(0.099)	(0.101)	(0.100)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.427 ; .844]	[.427 ; .842]	[.512 ; .974]	[.473 ; .921]	[.72 ; 1.198]	[.722 ; 1.188]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: this table shows results using a measure of violence against the state that is based on a **broader definition** of state targets beyond military installations and personnel. The **broader definition** also includes the following list of additional state affiliated targets: civil servants, teachers, doctors, judges, police, military personnel, parliamentarians, educational institutions, healthcare facilities, courts, roads, bridges, airports, electricity grids, and gas installations. The unit of observation is a 10km-by-10km grid cell. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table B2: Frontier rule and conflict against the state using quadratic running variable

	Sample: observations within 50 km from FR border					
	Quadratic running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.229***	0.245***	0.321***	0.315***	0.672***	0.743***
	(0.083)	(0.084)	(0.122)	(0.120)	(0.157)	(0.155)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.050 ; .420]	[.067 ; .441]	[.054 ; .598]	[.058 ; .600]	[.311 ; .830]	[.331 ; .862]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a quadratic polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table B3: Frontier rule and conflict against the state using alternative functional forms for the running variable

Dependent variable:	Sample: observations within 50 km from FR border					
	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Linear polynomial in latitude and longitude					
Inside FR border	0.128	0.091	0.202	0.131	0.187	0.118
	(0.039)***	(0.044)**	(0.059)***	(0.067)*	(0.061)***	(0.067)*
	[0.060]**	[0.058]	[0.088]**	[0.081]	[0.087]**	[0.076]
Observations	1,118	1,105	1,118	1,105	1,118	1,105
R^2	0.188	0.221	0.162	0.189	0.155	0.181
	Panel B: Quadratic polynomial in latitude and longitude					
Inside FR border	0.130	0.126	0.200	0.180	0.182	0.158
	(0.042)***	(0.047)***	(0.063)***	(0.070)**	(0.064)***	(0.070)**
	[0.063]**	[0.058]**	[0.089]**	[0.081]**	[0.087]**	[0.078]**
Observations	1,118	1,105	1,118	1,105	1,118	1,105
R^2	0.198	0.237	0.174	0.203	0.166	0.191
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: the unit of observation is a 10km-by-10km grid cell. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). Panel A includes a linear polynomial in latitude and longitude as the running variable. Panel B includes a quadratic polynomial in latitude and longitude as the running variable. All regressions include border segment fixed effects that divide the FR border into four equal size segments. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Robust standard errors are in parentheses, and standard errors corrected for spatial dependence are in brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table B4: Frontier rule and conflict against the state using alternative manually chosen bandwidths

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: 15 km bandwidth used for RD estimate					
Inside FR border	0.136**	0.139**	0.194**	0.186**	0.277***	0.272***
	(0.056)	(0.055)	(0.087)	(0.084)	(0.074)	(0.072)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.04 ; .366]	[.049 ; .373]	[.039 ; .519]	[.037 ; .505]	[.203 ; .626]	[.202 ; .618]
	Panel B: 12 km bandwidth used for RD'estimate					
Inside FR border	0.162***	0.170***	0.230***	0.209**	0.340***	0.329***
	(0.055)	(0.055)	(0.083)	(0.081)	(0.072)	(0.070)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.063 ; .403]	[.073 ; .412]	[.072 ; .566]	[.063 ; .552]	[.265 ; .722]	[.259 ; .716]
	Panel C: 10 km bandwidth used for RD estimate					
Inside FR border	0.250***	0.260***	0.372***	0.346***	0.501***	0.486***
	(0.053)	(0.052)	(0.075)	(0.076)	(0.067)	(0.067)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.156 ; .503]	[.165 ; .511]	[.168 ; .702]	[.160 ; .695]	[.410 ; .903]	[.397 ; .902]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	manual	manual	manual	manual	manual	manual
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. Panel A manually imposes a bandwidth of 15 km either side of the FR border for the RD estimate. Panel B uses a bandwidth of 12 km either side of the FR border for the RD estimate. Finally, Panel C imposes a bandwidth of 10 km either side of the FR border for the RD estimate. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and border segment fixed effects. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations

Table B5: Frontier rule and conflict against the state using alternative kernel weights

	Sample: observations within 50 km from FR border					
	Linear running variable in Euclidean distance to the border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside FR border	0.254***	0.267***	0.275***	0.181**	0.568***	0.526***
	(0.056)	(0.057)	(0.082)	(0.087)	(0.075)	(0.075)
Observations	1,118	1,105	1,118	1,105	1,118	1,105
95% C.I.	[.178 ; .422]	[.193 ; .444]	[.146 ; .513]	[.035 ; .426]	[.469 ; .805]	[.425 ; .759]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Epanechnikov	Epanechnikov	Epanechnikov	Epanechnikov	Epanechnikov	Epanechnikov
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. They also use Epanechikov kernel weights (as opposed to Triangular kernel weights) for weighting observations closer to the running variable cutoff. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table B6: Falsification test based on moving the frontier rule border in a southwest direction

	Sample: observations within 50 km from the **placebo** FR border Linear running variable in Euclidean distance to the **placebo** border					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)
Inside **placebo** FR border	-0.789	-0.839	-1.303	-1.257	-0.049	0.308
	(0.760)	(0.806)	(1.261)	(1.197)	(0.106)	(0.775)
Observations	1,216	1,216	1,216	1,216	1,216	1,216
95% C.I.	[-2.439 ; .675]	[-2.567 ; .717]	[-4.181 ; 1.290]	[-4.025 ; 1.194]	[-.259 ; .191]	[-1.187 ; 1.832]
Controls	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: this table shows the results for a **placebo** FR border that is based on moving the original border 400km-by-550km in a Southwest direction. Since Pakistan has a Northeast to Southwest orientation, this is equivalent to shifting the original FR border further inland into the country. The unit of observation is a 10km-by-10km grid cell. In columns 1–2, the outcome variable is the number of conflict incidents against the state; in columns 3–4, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5–6, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Since there is ambiguity in the treatment status of grid cells very close to the **placebo** border, all regressions also exclude grid cells that are within a distance of 0.5km from it. Columns 2, 4, and 6 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table B7: Frontier rule and conflict against the state in the pre- and post-9/11 era

	Sample: observations within 60 km from FR border											
	Linear running variable in Euclidean distance to the border											
	Pre-9/11						Post-9/11					
Dependent variable:	ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)		ln(1+incidents against state)		ln(1+deaths in incidents against state)		ln(1+injuries in incidents against state)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Inside FR border	-0.008	-0.010	-0.011	-0.012	-0.007	-0.008	0.281***	0.297***	0.302***	0.191**	0.611***	0.564***
	(0.006)	(0.006)	(0.008)	(0.008)	(0.005)	(0.005)	(0.053)	(0.053)	(0.077)	(0.084)	(0.071)	(0.071)
Obs.	1,288	1,271	1,288	1,271	1,288	1,271	1,288	1,271	1,288	1,271	1,288	1,271
95% C.I.	[-.021 ; .006]	[-.023 ; .005]	[-.027 ; .007]	[-.030 ; .006]	[-.018 ; .005]	[-.019 ; .004]	[.208 ; .438]	[.229 ; .465]	[.182 ; .517]	[.034 ; .410]	[.520 ; .832]	[.472 ; .788]
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Segment FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BW-type	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd	mserd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: the unit of observation is a 10km-by-10km grid cell. Columns 1–6 restrict the sample to the period prior to 9/11 from 1970 to 2000 and columns 7–12 restrict the sample to the period after 9/11 from 2001 to 2018. In columns 1–2 and 7–8, the outcome variable is the number of conflict incidents against the state; in columns 3–4 and 9–10, the dependent variable is the number of deaths in conflict incidents against the state; and in columns 5-6 and 11-12, the dependent variable is the number of injuries in conflict incidents against the state, all parameterized as ln(1 + x). All regressions include a linear polynomial in distance to the border and 20 km border segment fixed effects. Columns 2, 4, 6, 8, 10, and 12 also include the following set of controls: ruggedness, topography, slope, precipitation, temperature, wheat suitability, pre-FR major conflict incidence, and pre-FR population density. Standard errors, clustered at the border segment ID level, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Source: based on authors' estimations.

Table B8: Conflict incidents against the state by specific origin

	1970–2018		1970–2000		2001–18	
Militant outfit	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Local						
Tehrik-i-Taliban Pakistan (TTP)	875	12.04	0	0.00	875	12.87
Baluchistan-based militants	610	8.40	49	10.45	561	8.25
Political militants wings	175	2.41	34	7.25	141	2.07
Lashkar-e-Jhangvi	294	4.05	1	0.21	293	4.31
Different local jihadi organization	1378	18.97	104	22.17	1274	18.74
Other militant organizations	1874	25.79	101	21.54	1773	26.09
Foreign						
Haqqani network	2	0.03	0	0.00	2	0.03
Al-Qaida	31	0.43	0	0.00	31	0.46
Unknown						
Unknown	2027	27.90	180	38.38	1847	27.17
Total	**7266**	**100**	**469**	**100**	**6797**	**100**

Note: the **Different local jihadi organizations** category includes groups like the Sipah-e-Sahaba, Hizb-I-Islami, Tehrik-e-Nafaz-e-Shariat-e-Mohammadi, Lashkar-e-Islam, Ansarul Islam, Jaish-e-Islam, Jaish al-Umar, Jamaat-ul-Ahrar, Harkatul Jihad-e-Islami, and so forth. Similarly, the **Other militant organizations** category consists of groups like Abdullah Azzam Brigades, Qari Kamran Group, Jundullah, Halqa-e-Mehsud, Hafiz Gul Bahadur Group, Khorasan, etc. **Unknown** includes those attacks that were not claimed by any terrorist organization.

Source: based on authors' calculations.