

Hybrid Governance and Conflict in Pakistan's North-West Frontier

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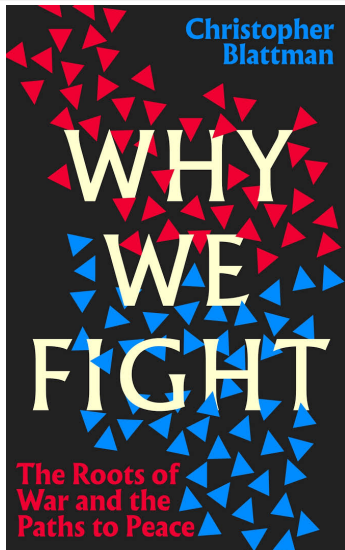
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Motivation: Two strains of scholarly consensus

- Conflict matters for development
 - According to the World Bank, 80 percent of global humanitarian needs arise due to conflict.
 - Conflict-affected countries witness substantial growth retardation (ranging between 2 to 8.4 percent loss in annual GDP growth).
- Weak institutions drive conflict
 - Societies with weak institutions are more likely to experience conflict (Collier and Hoeffler 1998, 2004; Fearon and Laitin 2003; Eliana La Ferrara and Bates 2001; Skaperdas 2008, Miguel et al. 2004; and Ciccone 2008).
 - Weak state capacity has been described as a particularly important correlate of violence (Herbst 2000, Bates 2008, Besley and Persson 2010 and 2014).

The study of conflict is now a well-traversed field



BUT the role of institutions still needs to be unpacked

- Despite the salience of weak institutions as a determinant of conflict, our knowledge of the role of “specific political and legal institutions” is limited.
- As Blattman and Miguel (2010) argue, “several of the institutional characteristics have yet to be carefully defined and measured”
- Prior empirical work mainly focuses on cross-country differences in the quality of institutions, which are typically inherited from the past (i.e. shaped by colonialism).

Significant institutional heterogeneity *within* countries

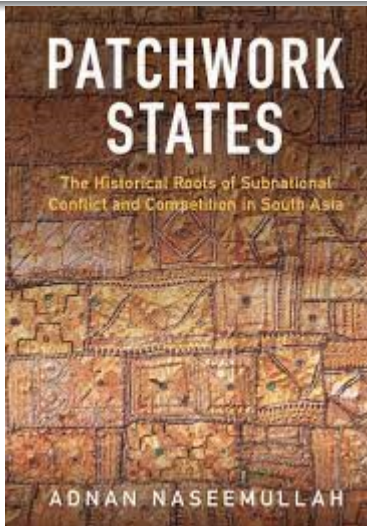
- Colonialism was not a "singular" treatment as colonizers tended to build diverse institutions even within the same territory.
- Such institutional heterogeneity is most visible between *frontier* and *non-frontier* regions. The frontiers of empires presented a common set of challenges for imperial administration.
- To deal with these, colonizers devised more "exceptional" legal and administrative arrangements in frontier territories that created a complex overlay of informal and formal institutions, resulting in hybrid forms of governance.
- Colonizers were more likely to establish these exceptional institutional arrangements in territories where: (a) they faced grave external threat (b) the potential to extract resources was limited and (c) costs of extending state authority were high (Naseemullah 2022).

Borderlands as sites for exceptional imperial rule

- Peripheral regions of European and neo-European empires.
- Kenya's northern frontier with Somaliland (Special Districts Administrative Ordinance, 1934).
- Pakistan's North-west (Frontier Crime Regulations 1872)
- India's North-east (Chin Hill Regulations of 1896)
- The colonial-era hybrid institutions have tended to persist over time.

Hybrid rule and conflict

- The idea that state authority and capacities are inherited from the past and varied even within colonial territories has important implications for the study of conflict.
- Institutional hybridity in frontier regions meant limited state authority, less recourse to formal institutions of conflict management (elected govts, courts, police, etc.), and greater delegation of power to local tribal elites.
- The distinct mode of governance in frontier regions created different state-society relations, producing “sovereignty-contesting” forms of violence.
- By contrast, conflict in non-frontier regions is more likely to be mediated through formal institutions (e.g. electoral politics).



- Naseemullah (2022, p. 22): “spatial framework of governance diversity, with roots in colonial rule and post-colonial politics, represent the key to understanding the politics of conflict”
- Naseemullah (2022, p. xi): violence “occurs across uneven landscapes of state authority”

Hybrid institutions are less resilient to shocks

- An intrinsic feature of hybrid forms of governance is their “fluid and unstable character”
- They are “subject to constant processes of bargaining between different parties” (Cuvelier, Vlassenroot, and Olin, 2014, p. 346).
- Such institutional orders are consequently more vulnerable to shocks, partly because the “statehood” is more “negotiable” and typically “mediated” through elites.

This paper

- We utilize a historical boundary in Pakistan's north-west frontier that separated areas governed by Frontier Crimes Regulation (FCR) from non-FCR regions
- We use a spatial regression discontinuity design framework to test how historical exposure to hybrid governance structures (i.e. FCR) affects the contemporary incidence of conflict against the state
 - We find that areas that fall just inside the FCR border experience greater conflict than areas just outside the FCR border
 - Our results hold up to a battery of robustness checks
- To offer a plausible mechanism, we argue that:
 - Regions under FCR rule are more prone to external shocks
 - This effect is mainly activated after the geo-political shock of 9/11
 - It happens largely through the elimination of tribal elites; their erasure led to a large-scale break-down of state-society relations

The FCR created a domain of legal and administrative exception

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The Frontier Crimes Regulation and Frontier Governmentality

BENJAMIN D. HOPKINS

From the invention of imperial authority along the North-West Frontier of British India, subjects were divided between the “civilized” inhabitants populating the cultivated plains and the “wild tribes” living in the hills. The problem of governing this latter group, the “independent tribes,” proved a vexed one for the British Raj. The mechanism developed by imperial administrators to manage the frontier inhabitants was the Frontier Crimes Regulation (FCR), first promulgated in 1872 and still in effect today. The FCR was designed to exclude the Frontier’s inhabitants from the colonial judiciary, and more broadly the colonial sphere, encapsulating them in their own colonially sanctioned “tradition.” Exploring the use of the FCR as an instrument of governance from its first inception into the twentieth century, this article argues that it was key to shaping the nature of frontier rule, which in turn shaped the very nature of the colonial state itself.

The FCR created a domain of legal and administrative exception

- Inhabitants of FCR regions were deprived access to formal institutions of conflict management, such as courts and police
- FCR regions were subjected to a different system of conflict resolution that depended on the intervention of the council of tribal elders (*jirga*), that operated under the direct oversight of colonial bureaucracy
- A tribal militia, consisting of local recruits and funded by colonial government through tribal elites, was raised for securing the frontier
- This contrasted sharply from non-FCR regions where the colonial subjects had recourse to the full array of administrative institutions, including courts and police

RD Specification

$$y_{i,s} = \beta_0 + \beta_1 1\{FCR_DIST_{i,s} < 0\} + \beta_2 FCR_DIST_{i,s} + \beta_3 FCR_DIST_{i,s} * 1\{FCR_DIST_{i,s} > 0\} + \beta_4 X_{i,s} + \nu_s + \epsilon_{i,s} \quad (1)$$

- Here:
 - $y_{i,s}$ is the outcome variable of interest (incidence of attacks against the state) in a 10 by 10 km grid cell i and border segment s
 - $FCR_DIST_{i,s}$ is the distance between the grid cell i and the FCR boundary, defining it negatively inside the FCR area
 - $1\{FCR_DIST_{i,s} < 0\}$, $1\{FCR_DIST_{i,s} > 0\}$ are indicators for grid cell i being inside or outside the FCR area
 - $X_{i,s}$ is a vector of geographic and climatic controls
 - ν_s is a 20 km border segment fixed effect
 - We cluster standard errors at the FCR border-segment level to account for spatial correlation
 - Following Gelman and Imbens (2014), we use a local linear specification, estimated separately on both sides of the border

Main Variables

- FCR Border:
 - We use administrative maps alongside historical information on changes to the governance status of districts to construct the FCR border.
 - Our version of the FCR border covers areas that have consistently been under FCR rule for the longest period (i.e. 1901 to 1978).
- Conflict:
 - Conflict data are extracted from the Global Terrorism Database (GTD) (2021). The GTD reported more than **15,000** conflict incidents in Pakistan from January 1, 1970, to December 31, 2019.
 - For each incident, information is provided on the time (day, month, and year), location (latitude & longitude), fatalities (wounded & killed), type (assassination, explosion, suicide, hijacking, etc.) target (civilians, businesses, government officials, religious institutions, NGOs, etc.), the terrorist group which carried out the attack, and the motivation of the attack (political or religious).

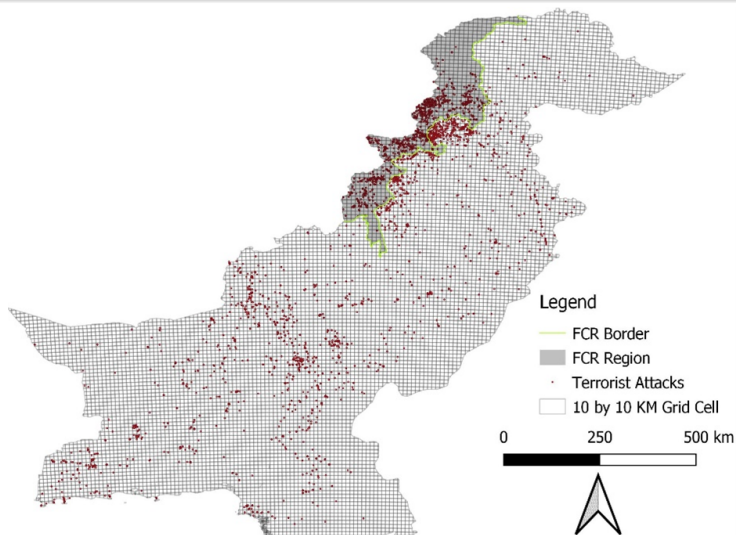
Geographic Controls

- Slope: The slope is a measure of change in elevation. The average slope is calculated while dividing the difference between the elevations of two points by the distance between them in a 10 by 10 km grid cell.
- Ruggedness: We use the terrain ruggedness index (TRI) which is originally devised by Riley et al. (1999) and further developed by Nunn and Puga (2012). For this study, we construct the average terrain ruggedness for each 10 by 10 km grid cell, with higher values indicating higher terrain ruggedness.
- Topography: The topographic position index (TPI) is another measure about a grid cell's elevation relative to its surroundings. It is calculated by subtracting the mean elevation of the eight neighborhood cells from the elevation of the central cell.

Climatic Controls

- Precipitation: The data on Precipitation is provided by the Global Climate Database created by Hijmans et al. (2005), which is available at <http://www.worldclim.org/>. Along with monthly average rainfall, the database also provides the average for the years 1970-2000 in millimeters. We match the average rainfall between 1970-2000 to each 10 by 10 km grid cell to get the grid cell precipitation measure.
- Temperature: Hijmans et al. (2005) also provide data on the average temperature in °C both on a monthly basis as well as the long-term average for 1970-2000. We construct a 10 by 10 km grid cell with long-term average temperature to capture the effects of climate on both sides of the FCR boundary.

There is variation in conflict intensity across FCR border



Summary statistics within a 50km buffer zone

Summary Statistics for 50 km Radius Around the FCR Border				
VARIABLES	(1)	(2)	(3)	(4)
	Mean	S.D.	Min	Max
Panel A: Conflict Variables				
Terrorist Attacks	5.44	31.43	0	822.00
log(1+Terrorist Attacks)	0.62	1.09	0	6.71
Attacks on State Targets	2.78	15.30	0	382.00
log(1+Attacks on State Targets)	0.46	0.90	0	5.95
Killed in State Targets	4.75	27.95	0	717.00
log(1+Killed in State Targets)	0.46	1.06	0	6.58
Wounded in State Targets	6.66	52.17	0	1535.00
log(1+Wounded in State Targets)	0.48	1.12	0	7.34
Tribal Elders Casualties	0.44	4.62	0	122.00
log(1+Tribal Elders Casualties)	0.07	0.41	0	4.81
Panel B: Geographic Variables				
Terrain Ruggedness (Mean)	442.34	398.11	2.04	1547.69
Terrain Slope (Mean)	13.02	11.74	0.04	44.90
Topographic Position (Mean)	-0.36	11.56	-93.85	141.22
Panel C: Climatic Variables				
Mean Temperature (Degrees C)	14.78	9.74	-11.10	25.44
Mean Precipitation (Millimeters)	504.47	250.80	143.39	1413.92

Notes: The unit of observation is a 10 by 10 km grid cell. The table reports summary statistics for the sample used in the baseline regression discontinuity analysis, consisting of all grid cells (N=1118) within 50 km of a border.

Difference in means within a 50km buffer zone

Balance Statistics, average differences between FCR and Non-FCR regions for 50 km radius

VARIABLES	(1)	(2)	(3)	(4)
	Overall Mean	Non-FCR Mean	FCR Mean	FCR vs. Non-FCR Mean
Panel A: Conflict Variables				
Terrorist Attacks	5.44	3.44	8.07	4.624**
log(1+Terrorist Attacks)	0.62	[1.34]	[1.27]	[1.893]
Attacks on State Targets	2.78	0.42	0.88	0.460***
log(1+Attacks on State Targets)	0.46	[0.04]	[0.06]	[0.064]
Killed in State Targets	4.75	1.70	4.19	2.485***
log(1+Killed in State Targets)	0.46	[0.63]	[0.66]	[0.921]
Wounded in State Targets	6.66	0.30	0.66	0.357***
log(1+Wounded in State Targets)	0.48	[0.03]	[0.05]	[0.053]
Tribal Elders Casualties	0.44	2.69	7.45	4.760***
log(1+Tribal Elders Casualties)	0.07	[1.19]	[1.13]	[1.682]
		0.25	0.73	0.481***
		[0.03]	[0.06]	[0.062]
		4.86	9.02	4.16
		[2.50]	[1.50]	[3.148]
		0.27	0.75	0.481***
		[0.03]	[0.06]	[0.066]
		0.12	0.85	0.730***
		[0.07]	[0.31]	[0.278]
		0.02	0.14	0.117***
		[0.01]	[0.03]	[0.025]
Panel B: Geographic Variables				
Terrain Ruggedness (Mean)	442.3389	403.78	493.56	89.771***
Terrain Slope (Mean)	13.02432	[17.08]	[15.91]	[24.043]
Topographic Position (Mean)	-0.3610148	11.87	14.56	2.699***
		[0.50]	[0.47]	[0.709]
		0.21	-1.11	-1.321*
		[0.45]	[0.54]	[0.701]
Panel C: Climatic Variables				
Mean Temperature (Degrees C)	14.77603	15.87	13.35	-2.516***
Mean Precipitation (Millimeters)	504.4659	[0.39]	[0.43]	[0.583]
		483.93	531.36	47.431***
		[0.97]	[9.57]	[15.079]

Note: The unit of observation is a 10 by 10 km grid cell (N=1118). Panel A reports different measures of conflict variables, panel B presents geographic characteristics, and panel C provides information on climatic variables. Column 2 reports the overall sample mean of each variable, Columns 3 and 4 present the estimated sample mean in the Non-FCR region and FCR region, respectively. Finally, column 5 shows the difference in the estimated means in the reported variables in the FCR and Non-FCR regions. The standard errors are reported in parentheses and *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

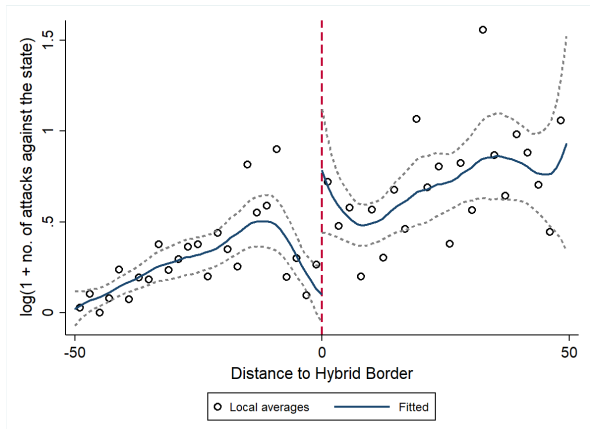
Hybrid Rule and Conflict Against the State

Hybrid Governance and Conflict in a 50 km Radius around the FCR Boundary

VARIABLES	(1)	(2)
	log(1+Attacks on State Targets)	log(1+Attacks on State Targets)
Inside FCR border	0.567*** (0.107)	0.521*** (0.105)
Observations	1,118	1,106
95% C.I.	[.427 ; .844]	[.384 ; .795]
Controls	No	Yes
Segment FE	Yes	Yes
BW-type	mserd	mserd
Kernel	Triangular	Triangular
Clustering	Segment_ID	Segment_ID

Notes: The unit of observation is a 10 by 10 km grid cell. Dependent variable is the logarithmic values of terrorist attacks which are carried out against the state from 1970-2018 in a 50 km buffer zone around the FCR boundary. Column (1) specification does not control for geographic and climatic covariates, while column (2) specification does control for them. Both columns include 20 km border segment fixed effects. Standard errors are clustered at the border segment ID level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Visual Discontinuity

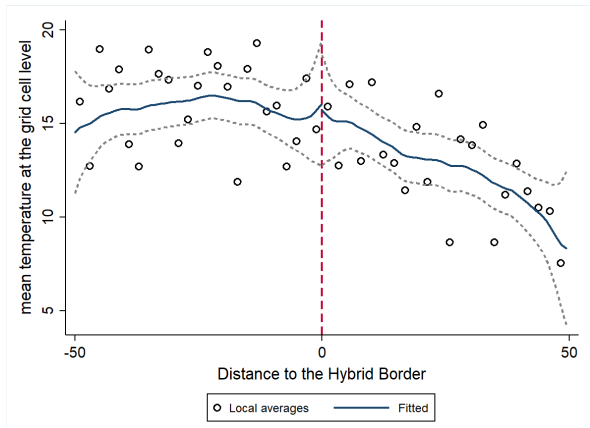


Balanced Geographic & Climatic Characteristics

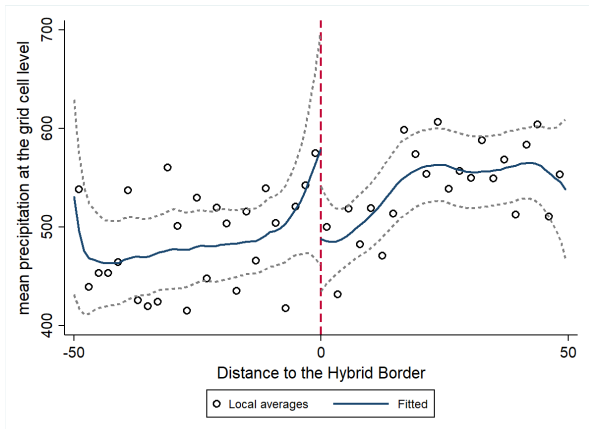
Balance on Geographic and Climatic Characteristics					
VARIABLES	(1)	(2)	(3)	(4)	(5)
	Ruggedness	Slope	Topography	Precipitation	Temperature
Panel A: <50 km of FCR Bondary					
Inside FCR border	-19.150 (19.467)	-0.150 (0.562)	2.375 (2.211)	-7.722 (6.095)	0.059 (0.281)
Observations	1,106	1,106	1,106	1,118	1,118
95% C.I.	[-59.184 ; 17.125]	[-1.311 ; .892]	[-1.902 ; 6.765]	[-22.022 ; 1.872]	[-.405 ; .696]
Panel B: <60 km of FCR Bondary					
Inside FCR border	-18.055 (19.926)	-0.118 (0.574)	2.929 (2.049)	1.771 (6.137)	0.039 (0.286)
Observations	1,274	1,274	1,274	1,288	1,288
95% C.I.	[-56.71 ; 21.399]	[-1.224 ; 1.027]	[-.673 ; 7.357]	[-10.89 ; 13.166]	[-.458 ; .662]
Segment FE	Yes	Yes	Yes	Yes	Yes
BW-type	Cerrd	Cerrd	Cerrd	Cerrd	Cerrd
Kernel	Triangular	Triangular	Triangular	Triangular	Triangular
Clustering	Segment_ID	Segment_ID	Segment_ID	Segment_ID	Segment_ID

Note: The unit of observation is a 10 by 10 km grid cell. Panel A reports RD estimates for geographic and climatic variables within a 50 km buffer zone of the FCR border while panel B repeats the same exercise for a 60 km buffer zone. 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.

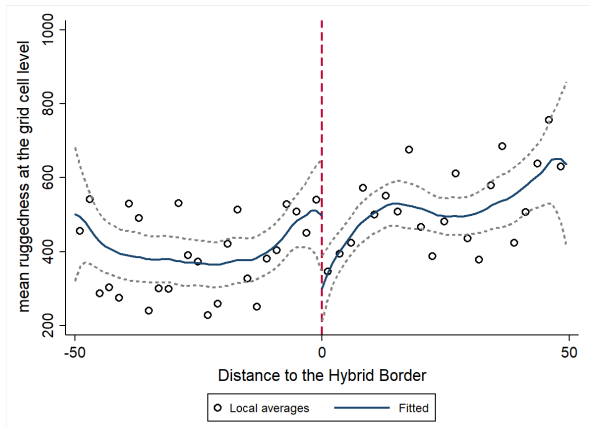
Temperature



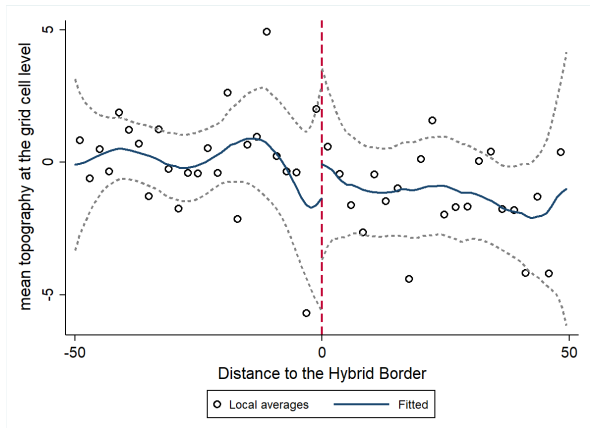
Precipitation



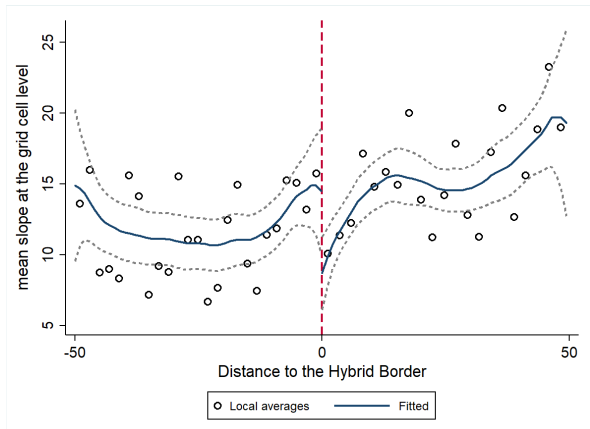
Ruggedness



Topography



Slope



Sensitivity to size of buffer zone

Hybrid Governance and Conflict in a 60 km Radius around the FCR Boundary		
VARIABLES	(1) log(1+Attacks on State Targets)	(2) log(1+Attacks on State Targets)
Inside FCR border	0.535*** (0.100)	0.460*** (0.097)
Observations	1,288	1,274
95% C.I.	[.417 ; .808]	[.342 ; .724]
Controls	No	Yes
Segment FE	Yes	Yes
BW-type	mserd	mserd
Kernel	Triangular	Triangular
Clustering	Segment_ID	Segment_ID

Notes: The unit of observation is a 10 by 10 km grid cell. Dependent variable is the logarithmic values of terrorist attacks which are carried out against the state from 1970-2018 in a 60 km buffer zone around the FCR boundary. Column (1) specification does not control for geographic and climatic covariates, while column (2) specification does control for them. Both columns include 20 km border segment fixed effects. Standard errors are clustered at the border segment ID level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Alternative measures of conflict against the state

Hybrid Governance and Conflict in a 50km Radius around the FCR Boundary		
	(1)	(2)
	Panel A: Casualties (Killed) in State Attacks	
VARIABLES	log(1+Attacks on State Targets)	log(1+Attacks on State Targets)
Inside FCR border	0.299*** (0.115)	0.187* (0.123)
95% C.I.	[.183 ; .632]	[.039 ; .521]
	Panel B: Casualties (Wounded) in State Attacks	
	log(1+Wounded in State Targets)	log(1+Wounded in State Targets)
Inside FCR border	0.452*** (0.184)	0.380*** (0.193)
95% C.I.	[.239 ; .96]	[.098 ; .856]
Observations	1,077	1,065
Controls	No	Yes
Segment FE	Yes	Yes
BW-type	mserd	mserd
Kernel	Triangular	Triangular
Clustering	Segment_ID	Segment_ID

Notes: The unit of observation is a 10 by 10 km grid cell. Dependent variable is the logarithmic values of number of killed (Panel A), and wounded (Panel B) in attacks which are carried out against the state from 1970-2018 in a 50 km buffer zone around the FCR boundary. Column (1) specification does not control for geographic and

Donut-Hole analysis

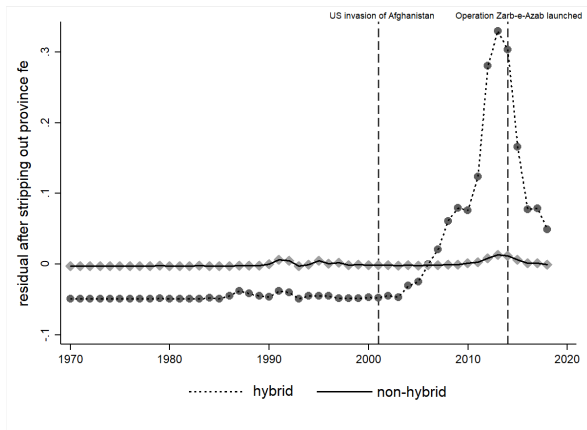
Donut Hole: Hybrid Governance and Conflict in a 50 km Radius around the FCR Boundary		
	(1)	(2)
Panel A: Attacks Against State Targets		
VARIABLES	log(1+Attacks on State Targets)	log(1+Attacks on State Targets)
Inside FCR border	0.299*** (0.115)	0.187* (0.123)
95% C.I.	[.183 ; .632]	[.039 ; .521]
Panel B: Casualties (Killed) in State Attacks		
	log(1+Killed in State Targets)	log(1+Killed in State Targets)
Inside FCR border	0.483*** (0.167)	0.453*** (0.171)
95% C.I.	[.294 ; .947]	[.253 ; .924]
Panel C: Casualties (Wounded) in State Attacks		
	log(1+Wounded in State Targets)	log(1+Wounded in State Targets)
Inside FCR border	0.452*** (0.184)	0.380*** (0.193)
95% C.I.	[.239 ; .96]	[.098 ; .856]
Observations	1,077	1,065
Controls	No	Yes
Segment FE	Yes	Yes
BW-type	mserd	mserd
Kernel	Triangular	Triangular
Clustering	Segment_ID	Segment_ID

Notes: The unit of observation is a 10 by 10 km grid cell. Dependent variables are the logarithmic values of the number of attacks against the state (Panel A), the number of killed in attacks against the state (Panel B) and the number of wounded in attacks against the state (Panel C) from 1970-2018 in a 50 km buffer zone around the FCR boundary. Column (1) specification does not control for geographic and climatic covariates, while column (2) specification does control for them. Both columns **drop observations that are very close (≤ 1 km) to the FCR border** and include 20 km border segment fixed effects. Standard errors are clustered at the border segment ID

Mechanism

- Hybrid areas less resilient to external shocks when it comes to 'sovereignty contesting' violence
- Important reason for why this is the case:
- There is an absence of formal institutions of conflict management (courts, police, civil bureaucracy etc.)
- This creates greater dependence on elite inter-mediation when it comes to maintaining order
- If elites are eliminated then the whole social order collapses and is followed by violence

Differences in conflict incidence between FCR and non-FCR regions emerges only after 9/11



Difference only emerges in the post-9/11 era

Hybrid Governance and Conflict in Pre and Post-9/11 era in 50 km Radius				
VARIABLES	(1)	(2)	(3)	(4)
	Pre-9/11		Post-9/11	
Panel A: log(1+Attacks on State Targets)				
Inside FCR border	-0.005 (0.016)	-0.010 (0.017)	0.561*** (0.107)	0.515*** (0.105)
95% C.I.	[-.035 ; .029]	[-.041 ; .025]	[.421 ; .839]	[.378 ; .789]
Panel B: log(1+Killed in State Targets)				
Inside FCR border	-0.015 (0.031)	-0.014 (0.031)	0.641*** (0.117)	0.562*** (0.113)
95% C.I.	[-.067 ; .056]	[-.071 ; .052]	[.504 ; .962]	[.423 ; .867]
Panel C: log(1+Wounded in State Targets)				
Inside FCR border	0.038 (0.042)	0.007 (0.046)	0.841*** (0.121)	0.764*** (0.116)
95% C.I.	[-.033 ; .13]	[-.077 ; .105]	[.698 ; 1.17]	[.632 ; 1.086]
Observations	1,118	1,106	1,118	1,106
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

Notes: The unit of observation is a 10 by 10 km grid cell. Dependent variables are the logarithmic values of the number of attacks against the state (Panel A), the number of killed in attacks against the state (Panel B) and the number of wounded in attacks against the state (Panel C) from 1970-2018 in a 50 km buffer zone around the FCR boundary. Columns (1) & (3) specifications do not control for geographic and climatic covariates, while columns (2) & (4) specifications do control for them. **Columns (1) & (2) restrict the sample to the pre-9/11 era and columns (3) & (4) restrict the sample to the post-9/11 era.** All columns include 20

Difference driven by assassination of tribal elders

Hybrid Governance and Targetting of Tribal Elders in 50 km Radius		
	(1)	(2)
Panel A: Attacks on Tribal Elders		
VARIABLES	log(1+Attacks on Tribal Elders)	log(1+Attacks on Tribal Elders)
Inside FCR border	0.112*** (0.039)	0.084*** (0.038)
95% C.I.	[.059 ; .211]	[.029 ; .179]
Panel B: Tribal Elders Casualties (Killed)		
	log(1+Tribal Elders Killed)	log(1+Tribal Elders Killed)
Inside FCR border	0.082** (0.047)	0.069* (0.045)
95% C.I.	[.018 ; .201]	[.004 ; .182]
Panel C: Tribal Elders Casualties (Wounded)		
	log(1+Tribal Elders Wounded)	log(1+Tribal Elders Wounded)
Inside FCR border	0.078** (0.050)	0.073* (0.050)
95% C.I.	[.001 ; .197]	[-.005 ; .192]
Observations	1,118	1,106
Controls	No	Yes
Segment FE	Yes	Yes
BW-type	mserd	mserd
Kernel	Triangular	Triangular
Clustering	Segment_ID	Segment_ID

Notes: The unit of observation is a 10 by 10 km grid cell. Dependent variables are the logarithmic values of the number of attacks against tribal elders (Panel A), the number of killed in attacks against tribal elders (Panel B) and the number of wounded in attacks against tribal elders (Panel C) from 1970-2018 in a 50 km buffer zone around the FCR boundary. Column (1) specification does not control for geographic and climatic covariates, while column (2) specification does control for them. Both columns include 20 km border segment fixed effects. Standard errors

Conclusion

- We provide one of the first systematic sub-national empirical evidence on the role of historically-embedded hybrid governance arrangements in driving contemporary conflict
- We provide an important illustration of time-varying persistence by demonstrating that the impact of historical legacy can remain latent until activated by a shock
- The larger implication of our results is that conflict incidence is likely to be higher in regions where state authority is weakly penetrated, state-society relations are predominantly mediated through local elites, and local inhabitants have limited recourse to formal institutions of conflict management