

(Wartime) Indirect Rule: Armed Groups and Customary Chiefs in Eastern Democratic Republic of the Congo *

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Abstract

Armed actors frequently have to govern civilian populations. To do so they can develop their own administration (direct rule) or enlist pre-existing authorities (indirect rule). To study these configurations, we collect data on 249 episodes of armed group governance in 106 villages in the Democratic Republic of the Congo, spanning the reigns of 306 chiefs over 26 years. We develop multi-dimensional measures of the power of chiefs and of the governance of armed groups. Using variation within armed groups and across villages and chiefs, we document three empirical facts. First, the power of chiefs is multifaceted and includes spiritual, customary, material, and managerial power. Second, wartime indirect rule by armed groups is more likely when chiefs are powerful. Third, over time, armed groups tend to develop direct rule. These results suggest indirect rule is a temporary governance configuration by armed groups to leverage the legitimacy of local leaders.

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1 Introduction

Armed groups who seek to govern civilian populations face a dilemma that military conquerors have faced throughout history, one that goes to the very heart of political science’s age-old question about the relationship between military and political power. Often, they realize that military strength is insufficient to govern, and slowly grasp the central importance of an ingredient that cannot be easily acquired: legitimacy. One of the options at their disposal is to enlist pre-existing authorities to rule on their behalf—a configuration we refer to as wartime indirect rule. This has both advantages and limitations. On the one hand, pre-existing authorities can have better information and resource mobilization capacity, as well as established legitimacy. Co-opting them can reduce the cost of governing populations, and increase the legitimacy of armed groups. On the other hand, pre-existing authorities can resist and curtail compliance to armed group rule. While these questions have been explored through qualitative and historical methods, there is limited quantitative empirical evidence on the causes of direct vs. indirect rule during violent conflict.

Among the pre-existing authorities that can be enlisted by armed groups, some are more powerful and legitimate than others. In many African states, customary chiefs have enduring legitimacy, and have conserved multi-faceted power. In states which haven’t experienced reforms of customary authority, their power derives from their incorporation into the state apparatus, which usually dates back to colonial-era indirect rule, and they continue to exercise administrative responsibilities over rural populations and land (Acemoglu, Reed and Robinson, 2014, Boone, 2014, Henn, 2023). Their power also stems from cultural and religious traditions, customs and beliefs, and has a spiritual dimension (Lowe et al., 2023, Verweijen and Van Bockhaven, 2020). Spiritual authority cannot be easily mimicked or appropriated, yet armed groups deploy significant efforts to inscribe their claims to rule in spiritual, mythical and religious traditions, as a way to gain legitimacy (Hoffmann, 2015). Enlisting customary authorities can be a way of appropriating spiritual authority, but it is rarely a straightforward process. Examining the relationship between armed groups and customary authorities therefore sheds light on the relationship between coercive power, which armed groups typically wield, and customary, religious, and spiritual power.

In this paper, we analyze over twenty years of governance arrangements by armed groups and their relationship with chiefs in eastern DRC, where hundreds of armed groups operated since the 1990s (Vogel et al., 2021), and where customary authority remains an important form of authority

(Hoffmann, Vlassenroot and Mudinga, 2020). The key input into our analysis is a panel dataset on armed groups and chiefs in 106 economically important villages of North Kivu, which contains 249 episodes of armed group control from 1990 to 2016, as well as information on the 306 chiefs that exercised authority in these villages since 1950. We ask the following questions: What are the sources of the power of chiefs? What role does chiefs' power play in determining the types of governance arrangements that emerge in rural entities that come under the control of armed groups? When do armed groups establish direct rule over the entities they control, and when do they rely on indirect rule via local chiefs? How do these governance arrangements change over time? These are challenging questions to answer with quantitative methods, as measuring concepts such as chiefs' power is not straightforward and they only capture a segment of the relationship between armed groups and chiefs.

Our study makes a methodological contribution, by proposing new ways of measuring the power of chiefs, a challenging endeavor given its immaterial and subjective facets, and the governance of armed groups. We combine insights from the recent literature on traditional authority in Africa (Henn, 2023, Logan, 2009, Van der Windt et al., 2019), and develop a multi-dimensional index of chief power, covering several key dimensions whose importance have been documented: power over land (Honig, 2017), customary power (Acemoglu, Reed and Robinson, 2014), administrative power (Balán et al., 2022), and spiritual/supernatural power (Lowes et al., 2023). Households' assessment of chief power could be affected by past events, including armed group governance. To minimize such bias, we use more objective and triangulated information about the chiefs, such as their age, tenure, land rights, customary claims, familial connections, and ethnicity, to create a predicted measure of chief power that does not rely on subjective assessment. Moreover, building on recent literature that has highlighted the multi-layered nature of governance by armed groups (Kasfir, Frerks and Terpstra, 2017), we measure seven dimensions of armed group rule: taxation, recruitment, legitimation, administration, political power, public services, and economic regulations, which allow us to build precise indicators of both direct and indirect rule. These methodological innovations allow us to document fine-grained empirical variation in both armed group governance and chief power in North Kivu and paint a precise picture of their relationship. They demonstrate the value of disaggregated measures of complex concepts, and can be replicated using survey methods in other contexts.

Using our multidimensional measures of chief power and armed group rule, we present the

following results. First, armed groups develop several forms of direct rule in a majority of villages. However, this masks substantial variation across dimensions of governance, and both within and across armed groups. In a significant percentage of cases, armed groups resort to indirect rule, to either supplement or replace direct rule, and in some cases the extent of their rule seems limited. Armed groups can implement direct rule over certain activities while delegating the administration of other activities to local chiefs. Second, we investigate how chief power shapes armed groups' government arrangements by regressing whether or not an armed group deploys direct or indirect rule on the predicted chief power. Using armed group fixed effects and restricting our analysis to the first year of governance by armed groups in order to alleviate concerns of reverse causality, we find that armed groups are less likely to develop direct rule over villages when chiefs are powerful. Third, to further unpack the role of relative authority we then take advantage of the diverse ethnic make-up of the eastern DRC. Ethnic identity correlates with cultural, customary, and spiritual beliefs. Due to historical factors and recent population movements, chiefs in some villages share the same ethnicity as the majority of the population while in others they do not. Having the same ethnicity as the population is correlated with higher chief power and is associated with more use of indirect rule by armed groups. When the armed group is of the same ethnicity as the chief this relative advantage disappears and accordingly the use of indirect rule decreases. Fourth, we investigate this result along the different dimensions of armed group governance. We present evidence that it is the difference in terms of either coercive power (wielded by armed groups) and traditional/spiritual power (wielded by chiefs) that conditions the distribution and allocation of governance responsibilities between armed groups and chiefs. Fifth, we find that, over time, direct rule by armed groups prevails.

Our results have implications that travel beyond the case of eastern DRC, and speak to one of the oldest questions in the study of politics: the relationship between military power and other forms of power. Our study echoes a longstanding literature in history and anthropology that has documented the importance of legitimacy and immaterial forms of power in curbing military power (Fortes and Evans-Pritchard, 2015, Vansina, 1990), and provides empirical quantitative evidence to support it. Quantitative political science has tended to neglect or minimize the role of traditional, religious, and spiritual forms of power, either because they were considered irrelevant to political economy outcomes, or simply because they were considered immeasurable because of their immaterial and subjective nature. This has specifically been the case with customary chiefs,

for whom the spiritual dimension of their power has long been neglected in favour of ‘harder’ dimensions (Lowe et al., 2023, Verweijen and Van Bockhaven, 2020). Our study counters this idea by showing, first, the importance of spiritual power, which we show is correlated to other dimensions of their power but irreducible to these. Second, by showing that spiritual power generates ‘hard’ political economy outcomes, as it conditions a range of aspects of armed group governance, including levels of coercion by armed groups and taxation strategies. Given the prevalence of customary, traditional, and spiritual forms of authority in many conflict-affected contexts, such as Afghanistan, the Philippines, and the Sahel, our results bear relevance to other contexts.

Our study also contributes to the understanding of political order during violent conflict, which has been the subject of a vibrant literature (Arjona, 2016, Arjona, Kasfir and Mampilly, 2015, Kasfir, Frerks and Terpstra, 2017, Mampilly, 2011, Sánchez de la Sierra, 2020, Staniland, 2012, 2021). Specifically, we shed an empirical light on one of the determinants of the emergence of indirect rule in contexts of violent conflict, and complement a large literature that studied this configuration of governance, particularly in the context of colonial rule. Studies have highlighted the role played by the political ideologies of colonizing powers (Crowder, 1964, Müller-Crepon, 2020)—an argument that has also been made in relation to armed movements (Kalyvas, 2015)—as well as the level of pre-existing centralisation of colonized entities (Boone, 2003, Gerring et al., 2011, Müller-Crepon, 2020), in conditioning direct and indirect rule. Both bear relevance to our case. As elsewhere (Sanín and Wood, 2014), ideology plays a role in shaping the governance of armed groups. As in other regions characterized by the geographical fragmentation of political authority and the persisting salience of ethno-linguistic identities (Boone, 2014, Müller-Crepon, 2023), armed groups can occupy regions where they are considered to be illegitimate rulers because of their—real or perceived—identity and origins. Although the centralisation of pre-existing political entities can play a role in such cases, this factor is unlikely to be determining in eastern DRC, which is characterized by low levels of political centralisation (Newbury, 2009). When armed groups are from a different ethno-linguistic background than the population, and when chiefs are powerful, they are more likely to set up indirect rule arrangements involving local chiefs, thus leveraging the legitimacy and authority of chiefs. Our results paint a coherent picture of indirect rule as a temporary solution for governing.

Our study also shows that, over time, direct rule prevails, providing evidence of a reconfigura-

tion of political order. This is consistent with the idea that armed groups develop administrations and forms of authority that allows them to supplant existing authorities, an argument that has been made in relation to colonial rule (Boone, 2003). While they can be short lived, these governance arrangements can potentially have long term consequences. The literature on the legacies of colonial direct and indirect rule, has shown how they have shaped long term political trajectories (Acemoglu et al., 2014, Kohli, 2004, Lange, 2009, Lowes and Montero, 2021, Mahoney, 2010, Mamdani, 1996, Müller-Crepon, 2020), as well as contemporary patterns of violent conflict (Blanton, Mason and Athow, 2001, Mukherjee, 2021, Naseemullah, 2014, Wucherpfennig, Hunziker and Cederman, 2016). While shorter and more fragile governance arrangements are not equivalent to longstanding political orders, the protracted nature of many contemporary violent conflicts entail that such configurations can become durably entrenched, and also have durable effects.

2 Background: Wartime governance in eastern DRC

Hundreds of non-state armed groups operate in eastern DRC and face complex governance dilemmas. Many have deep social roots, having emerged as political projects supported by elite networks or as ‘bottom up’ social movements (Stearns and Botiveau, 2013), and exercise multifaceted influence over rural societies (Hoffmann and Verweijen, 2019, Stys et al., 2020).¹ The fragmented political topography of eastern DRC, owing to a history of decentralized political organization and the fracturing effect of the war, has led to significant variation in governance arrangements by these armed groups. These can be influenced by ideological and political factors, but they are also shaped by military, logistical and organizational constraints. Some groups have been implanted for decades, yet control is often tenuous and limited to the population centers and main roads (Schouten, 2022), and subject to quick change as a result of military challenges. Because of the political salience of ethno-linguistic identities and their close relation to authority (Muchukiwa, 2006, Verweijen and Vlassenroot, 2015), armed groups can find themselves ruling over populations who consider their rule to be illegitimate.

As a result of these constraints, armed groups have at times delegated governance to local intermediaries, and particularly chiefs, a longstanding configuration of rule in eastern DRC.² The

¹See the Usalama projects I and II and the Insecure Livelihoods Series for detailed analysis.

²As developed in Annex A, coercive rule by violent actors as well as indirect rule through local intermediaries are longstanding templates of rule in eastern DRC, dating back at least to the 19th century when the Rwandan

enduring authority and legitimacy of customary chiefs is the result of several factors, from the power conferred to them by their status as custodians of the land in neo-customary land tenure regimes (Boone, 2014), to the enduring recognition of lineage based forms of power, to spiritual dimensions of their power and their leadership role in contexts of acute societal crises (Verweijen and Van Bockhaven, 2020).

Armed groups have relied on both direct and indirect forms of rule. The Rassemblement Congolais pour la Democratie (RCD), one of the largest rebel groups of the Second Congo War (1998-2003), ‘seized’ the state apparatus in eastern DRC and, after purging political opponents, used it to govern over the provincial capitals, without substantially altering it (Tull, 2003). In rural areas where it faced armed resistance, the RCD sought to assert its control through existing elites, by replacing them or intervening in longstanding customary succession conflicts, or by co-opting them through power-sharing agreements. The RCD relied on local chiefs for labour mobilization, for example for conscription into its Local Defense forces (Hoffmann, Vlassenroot and Marchais, 2016, Marchais, 2016). As the RCD was largely perceived as a foreign and illegitimate movement, there was widespread resistance, including by many chiefs, and chiefs who collaborated with the RCD were often considered as traitors. The Mayi-Mayi movement, a popular armed resistance movement that emerged in 1997 and grew in resistance to the RCD’s control over the eastern provinces, was subjected to opposing forces of centralization and fragmentation. One of the largest factions, the Mayi-Mayi Padiri, established the *État-Major Politico-Militaire* (Politico-Military headquarters) and an *administration des Forêts* (Forest Administration) in the region of Bunyakiri, in South Kivu (Hoffmann, 2015, Morvan, 2005). It combined direct and indirect forms of administration through intermediaries, in particular appointed administrators, chiefs, and religious leaders who were selected on the basis of their loyalty and subjected to ideological training (Morvan, 2005, p.57). The group set up a system of taxation to finance its war effort, with some sectors of the economy coming under direct control by the movement, while others were left to more decentralized forms of taxation through intermediaries. For example, the regulation and taxation of the mining sector was highly centralized, with the group deploying soldiers to each mine to collect taxes which were directly channeled back to the headquarters. On the other hand, the collection of compulsory household taxes—known as *effort de guerre* (war effort) or

Kingdom forced eastern Congolese entities into vassalage, and Tippo Tippo relied on local chiefs to raise labour and taxes (Northrup, 1988), a mode of rule that was then institutionalized by the colonial state and partially maintained in the post-independence era (Hoffmann, 2021).

ration—was usually delegated to local chiefs.

Since the end of second Congo War in 2003, several other groups have displayed significant administrative and governance capacity, in particular the (foreign-backed) National Congress for the Defence of the People (CNDP) and the M23 armed movement (Stearns, 2023), but also Congolese armed movements such as the Alliance of Patriots for a Free and Sovereign Congo, or the Nduma Defense of Congo and its offshoot the Nduma Defense of Congo-Rénové (Congo Research Group, 2020), all of which emerged in the province of North Kivu. Alongside these larger armed groups, a myriad of smaller armed groups have been operating in the province and engaging in various forms of—often ad-hoc—control and governance over rural communities, engaging in temporary or more durable arrangements with local authorities, and particularly chiefs. This variation provides the backdrop for our analysis of the relationship between armed group governance and the power of chiefs.

3 Building a dataset of armed group rule and chiefs’ power

The study focuses on 106 randomly selected and economically important villages in the five largest *territoires* (districts) of the province of North Kivu: Masisi, Rutshuru, Walikale, Beni and Lubero. Selecting economically important villages ensures that the availability of resources does not drive the choice of governance arrangements.³ Figure F.1 in the Appendix shows the geographic location of the sample.

Each village was visited for approximately a week by the research teams, composed of experienced researchers (full list).⁴ The research team identified a group of “history experts” in each villages (as in Acemoglu, Reed and Robinson, 2014), individuals who have deep knowledge of local history, usually local authorities, village elders, or local *notables*, such as schoolteachers. The researchers then worked with the history experts, who were compensated for their time and work, to reconstitute the history of the entity. At the end, the researchers held a workshop to triangulate the collected information. The consolidated data from this workshop constitutes the main source of data used in this study.

The researchers also conducted 6 household surveys in each village, which were held in a

³Villages were considered economically important if they had a mine or cash-crop production.

⁴[full list to be added here post review].

private setting, with appropriate compensation, breaks, and adaptations to the schedule of the participants. In a second phase, an additional 10 households were surveyed in each of the study villages, allowing to build a household dataset of 1,654 individuals. In each village, the research team also drafted a qualitative report, summarizing the key information regarding armed group presence and the history of chiefs, based on interviews with key informants.

Collecting data in contexts of violence raises important security, safety, and ethical questions (Marchais, Bazuzi and Amani Lameke, 2020, Shesterinina, 2019, Wood, 2006), which we discuss in Annex B. Special provisions were taken to reduce risks to researchers and participants. The project was reviewed and approved by Congolese administrative authorities at the provincial, territory, and village levels. Security and communication protocols were systematically implemented. In addition to direct exposure to risk, interviews which cover sensitive events, and particularly violent events, can trigger traumatic memories among research participants. In addition to the procedure of informed consent that preceded all interviews, there were additional consent forms preceding the most sensitive sections. The research team had considerable experience and their expertise was crucial to ensure that respondents felt safe to discuss sensitive issues.

This study relies in large part on the use of recall data, which allows to reconstruct past events based on the recollection and memory of respondents. In eastern DRC, where historical and administrative records are scarce—due to the scarcity of historical archiving, but also to the destruction wrought by the war—limited written evidence exists of how the war has unfolded and how it has affected economic, social and political activity. The research team consulted administrative records when these were available, and relied on recall data to fill the gaps. The recall method hinges on the fact that one of the central modes of transmission of knowledge in the region is oral history, and thus follows methods long used by historians, anthropologists and sociologists (Acemoglu, Reed and Robinson, 2014, Newbury, 1992, Scott, 2009, Vansina, 1978, 2004). Recall methods, however, are subject to measurement error (de Nicola and Giné, 2014, Tourangeau, 2000), which we discuss in Annex C. Given the importance of the accurate dating of events for the analysis, we implemented several measures to reduce measurement error in recall data. We used time cues based on common knowledge of regional events (Brown, Shevell and Rips, 1986, Conway and Bekerian, 1987), as well as respondent-specific time cues which were used as temporal reference points by the researchers to date reported events. We also ensured that questions focused on transitions and key events, which are easier to recollect (de Nicola and Giné,

2014). For the key variables, we triangulated the answers reported in the expert survey with those reported in the household survey, as well as with the qualitative reports, and publicly available data. When necessary, we conducted follow-up interviews (in person or via phone) to further verify event dates. These steps considerably reduced measurement error.

We reconstituted the history of the armed groups who exercised control over the study villages for at least one month, dating back to 1990. For each group, we collected data on their characteristics, including their size and capacity, their alleged origins (in particular, whether they originated in the study area), their relationship to the population as well as state and customary authorities, and their majority ethnic composition. We also collected data on the administrations that armed groups set up in the study villages. This included yearly data on the taxes that armed groups levied, including the types of taxes, their amount, their modes of collection. It also included data on whether and how armed groups enforced taxation, whether they intervened in the administration of justice, and whether they set up economic monopolies (of alcohol and cigarettes in particular). We also collected data on how the recruitment of soldiers, porters, and assistants was carried out.

Using the same strategy, we collected information on all of the village chiefs⁵ of the study villages since 1990. The start and end dates of their tenure, the main causes of their appointment and departure, network data and land ownership data, households' perceptions of their power, and the types of arrangements that were set up with armed groups. Notably, the deliverables expected by the group (collection of taxes, labor mobilization, information gathering, spiritual or religious support), the perceived performance of the chiefs on these dimensions, and the threats and sanctions directed at chiefs.

4 Measuring chief power and armed group governance

4.1 The multi-faceted power of chiefs in eastern DRC

There is substantial variation in chief power in eastern DRC, for several reasons. First, not all chiefs are *customary* chiefs. The colonial state incorporated chiefs into the state administration in

⁵Higher levels of traditional authority, such as the *groupement* chiefs and *Mwamis*, also exist in some regions. We focus on village chiefs because they are present in every location and manage daily governance, and often belong to the lineages—and thus customary authority—of higher level chiefs.

order to rule over rural populations, collect taxes, and mobilize labour. When no chiefs existed or when chiefs were reluctant to collaborate, they appointed new chiefs or replaced existing ones. As a result, some administrative chiefs in eastern DRC are not recognized by customary traditions, but have been appointed by the colonial state and have kept their administrative status in the post-colonial era. Moreover, even when chiefs are recognized by customary traditions, they might be unpopular and have lost their legitimacy for a range of reasons, including perceived incompetence or corruption and collaboration with rulers considered to be illegitimate. Capturing the nature and variations in chiefs' power is therefore an important first step in our analysis.

Our expert and household surveys measure several aspects of the nature and sources of chiefs' power. First, customary recognition varies substantially in eastern DRC, and chiefs' tenures are often contested. Political conflicts over customary authority, which are numerous in eastern DRC (Hoffmann, Vlassenroot and Mudinga, 2020), often involve several claimants arguing their customary right to the same position (Acemoglu, Reed and Robinson, 2014). The expert survey establishes whether or not chiefs' tenures are sanctioned by customary traditions and rituals, and the household data gives us the population's perspective on whether a chief is regarded as customarily legitimate. Second, given that chiefs have an administrative role and can have varying levels of competence in that regard, we look at households' perception of chiefs' skills in relation to management, resource mobilization, and advocacy. Third, most customs consider chiefs to be the custodians of the land, entitled to levy contributions in exchange for usufruct over land granted to their subjects (Honig, 2017). Given the incorporation of chiefs into 'neo-customary' land tenure regimes during the colonial era, in which they were used by the colonial state to levy taxes, such rights have been contested by overtaxed populations (Northrup, 1988). Whether the taxes that chiefs levy in relation to land are considered to be legitimate is therefore a good indicator of the legitimacy of these chiefs. A related measure is the percentage of the land of a given village or entity over which a given chief exercises customary authority. Fourth, we look at chiefs' power to protect the population, which has material and spiritual dimensions. In eastern Congo's customary traditions, the role of the chief is to protect the population and guide their fortune. Protection was traditionally done by organizing security and mobilizing soldiers in the event of a threat or attack, but it also had a spiritual dimension, as the chief can intercede with the spiritual world and deploy various forms of spiritual or 'supernatural' protection (Bishikwabo, 1980, Burume, 1993). There are many differences in the spiritual and religious traditions in which

such ‘spiritual’ power is vested and in the types of powers that exist, as well as in chiefs’ capacity to summon and deploy such powers (Lowes et al., 2023). Given the subjective nature of these beliefs, the household data is again useful to get a sense of whether particular chiefs are believed to have the power to protect. On the basis of the qualitative research, we look separately at chiefs’ power to protect from theft, help in hunting, help in mining activities, improve agriculture, control rain and thunder, control bridges, as well as their power to heal.⁶

Table 1 presents summary statistics for the villages (Panel A) and chiefs (Panel B) in our dataset. Panel A gives us the distribution of the number of chiefs recorded in each village since 1950. The median number is 3, with some villages having experienced a high turnover of chiefs—up to 7 successive chiefs—since 1950. In Panel B, we see that the median length of reign of chiefs is 10 years, and ranges between 1 and 80 years.⁷ In Panel A, we can see that chiefs own on average 28 percent of the land in their respective villages and that this ranges from 0 to 100, showing significant variation in the customary land tenure rights held by chiefs. The distribution is bimodal, indicating that chiefs often either own all the land, or very little land. In Panel A, we can also see that 56 percent of respondents attribute the sources of power of chiefs to spiritual/supernatural powers, providing further evidence of the importance of this dimension of chiefs’ power, which is not, as has long been assumed, a manifestation of ‘irrational’ belief systems.⁸ Panel B shows chief specific averages based on the perception of households. For example, respondents were asked to evaluate the supernatural power of chiefs on a scale from 1 to 10. The chiefs in our dataset have a mean power of 4.9, with some chiefs having no power at all and others high levels of power—up to 9.1.

4.2 Operationalizing chiefs’ power

We operationalize the power of chiefs and its different dimensions. We start by looking at some descriptive statistics on supernatural power and its main correlates. In Figure 1, Panel A and B show a steady historical decline in the the perceived supernatural power of chiefs: chiefs who started their reign more recently are considered to have less supernatural power than ‘historical’

⁶Another central part of chiefs’ responsibilities is dispute resolution. For each chief we asked respondents who resolved local disputes about land at the start of the chief’s reign. Respondents always selected the chief. Since there was no variation, we did not include this variable in the factor analysis for chief power.

⁷This number includes the current chiefs that are still in power.

⁸Appendix Section D discusses the correlations between individual characteristics and supernatural beliefs.

Table 1: Summary Statistics

	Mean	Median	St. Dev.	Min	Max
<i>Panel A: Village Level</i>					
Number of households living in village in 2016	201.91	145.00	154.81	32.00	654.00
Num. of community meetings attended past year (Mean)	10.14	8.78	7.54	1.00	66.00
Years with at least one attack	3.31	3.00	1.75	0.00	7.00
Years when the village was under control of an armed group	10.00	11.00	6.62	0.00	27.00
Indirect rule vector	0.12	0.29	1.83	-3.24	4.08
Direct rule vector	0.67	0.96	3.18	-6.16	9.09
Number of chiefs	3.16	3.00	1.38	1.00	7.00
Supernatural source of power/legitimacy of chiefs (Mean)	0.56	0.60	0.37	0.00	1.00
Average supernatural power of chiefs (0–10)	4.78	5.40	2.50	0.00	7.93
Average age of chief	46.09	45.29	11.48	22.50	78.50
Percent of chiefs with same ethnicity as majority of villagers	0.81	1.00	0.37	0.00	1.00
Number of families related to chief	33.45	20.00	53.17	0.00	387.00
Percentage of land that belongs to chief	28.22	10.00	31.66	0.00	100.00
Observations	106				
<i>Panel B: Chief Level</i>					
Birth Year (Mean)	1953	1954	18.45	1882	1988
Start of reign	1989	1997	24.62	1900	2016
End of reign	2003	2009	17.39	1924	2016
Length of reign	15.21	10.00	14.15	1.00	81.00
Related to previous chief (Mode)	0.67	1.00	0.47	0.00	1.00
Related to mwami (Mode)	0.03	0.00	0.18	0.00	1.00
How many witches (Mode)	3.35	0.00	6.88	0.00	47.00
How many years opposition to armed group (Mode)	0.27	0.00	0.96	0.00	6.00
How many years armed group present (Mode)	1.89	0.00	5.45	0.00	41.00
How many years submission to armed group (Mode)	1.23	0.00	4.32	0.00	41.00
Customary authority (Mean)	0.85	1.00	0.30	0.00	1.00
From the ruling family (Mean)	0.82	1.00	0.32	0.00	1.00
Enthronement ceremony (Mean)	0.88	1.00	0.21	0.10	1.00
Supernatural power (Mean)	4.96	5.65	2.70	0.00	9.10
Management skills (Mean)	6.82	7.00	1.35	1.00	9.50
Control of rain (Mean)	0.56	0.67	0.40	0.00	1.00
Liked at start of reign (Mean)	0.90	1.00	0.15	0.00	1.00
Liked at end of reign (Mean)	0.82	0.90	0.24	0.00	1.00
Requests per month at start of reign (Mean)	2.19	1.89	1.77	0.00	12.00
Requests per month at end of reign (Mean)	1.92	1.63	1.46	0.00	6.80
Private conversations per month (Mean)	7.08	6.00	5.32	0.00	21.78
Observations	306				

Notes: This table shows summary statistics for the villages (Panel A) and chiefs (Panel B) in our data. Since some of the variables are generated at the household level we indicate whether we used the mean or mode to aggregate to the village or chief level.

chiefs. There are several potential explanations for this. First, it could be due to a form of secularization, whereby the beliefs on which such supernatural power rests are losing ground in society as a result of the competition of other belief systems, in particular Christianity and atheism. Second, it could be due to the mythification of past chiefs, and nostalgia for these, which is often observed for popular figures—leaders, politicians, celebrities. Third, it might be due to the fact that respondents have directly observed recent chiefs as opposed to historical chiefs, and have thus been able to directly assess their powers—or lack thereof. In Panel C we can see that the perceived supernatural power of chiefs increases with the length of their reign. This might be explained by the fact that chiefs whose tenures are longer are able to achieve more for their constituencies, and that these achievements are ‘converted’ into supernatural power. It might also be that longevity of tenure increases the legitimacy of chiefs and their perceived power, particularly in contexts of crisis. In Panel D, we can see that chiefs’ supernatural power is also correlated to their perceived management skills, though interestingly the inverse-u-shape suggests a negative relationship between management skills and supernatural power for those with very high management skills. These descriptive statistics provide evidence that supernatural power is correlated to other dimensions of power.

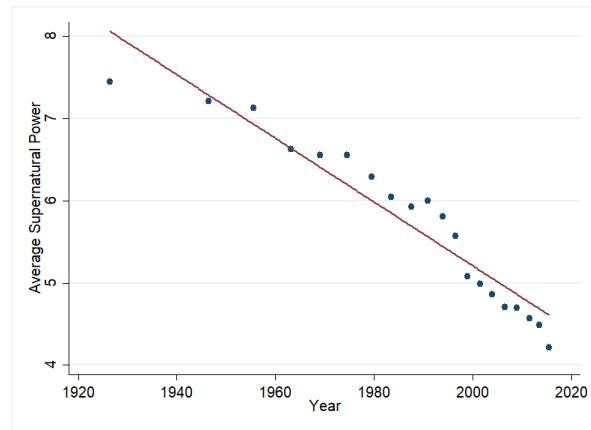
We devise a strategy to operationalize chiefs’ power that allows us to partially address the risk of retroactive bias in the reporting of chiefs’ power, as we have seen that a supernatural power is susceptible to temporal change. We use 23 variables associated with chiefs’ power and conduct a factor analysis, which is reported in Table 2. Panel A shows the factor loading. Panel B regresses the predicted “overall power index” using the factor created in the factor analysis exercise of Panel A, and regresses it on variables which are less amenable to subjective reporting than perceptions of chiefs’ power: These are variables that relate to facts that can be verified and triangulated with the household and specialist surveys, such as the date of the start of a tenure of a chief, rather than beliefs or perceptions. This panel’s objective is to ascertain which ‘objective’ characteristics are best related to “chiefs’ power”, broadly defined. We see that chiefs who are born earlier, start their reign earlier, and are considered to be customary owners of the land are more powerful. Chiefs who share the same ethnicity as the majority of sampled residents of a given entity are also more powerful. We use the coefficients in models (1) and (2) to create two “predicted chief power” variables.

Figure 1: Correlates of Chiefs' Supernatural Power. Chief Characteristics

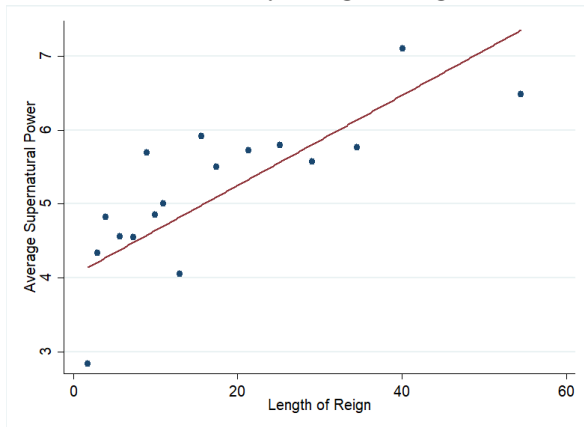
Panel A: By Reign Start



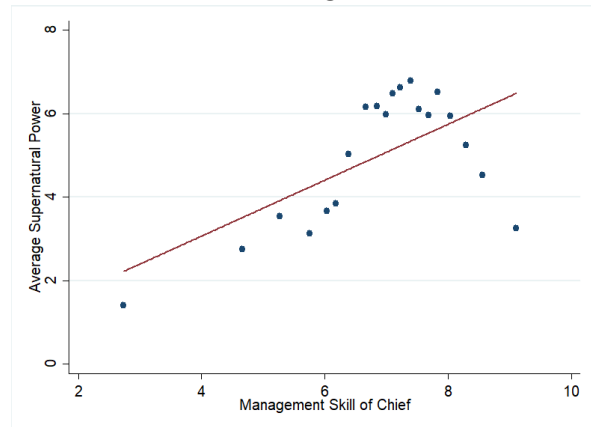
Panel B: Over Time



Panel C: By Reign Length



Panel D: Management Skill



Notes: This figure shows scatter plots of different chief characteristics against the chief's average supernatural power according to villagers. The linear trend is added to the scatter plot.

Table 2: Chief Power

<i>Panel A: Factor Analysis of Chief Power</i>	(1)	(2)
	Factor	Uniqueness
Customary authority (Mean)	0.721	0.480
From the ruling family (Mean)	0.723	0.478
Enthronment ceremony (Mean)	0.658	0.567
Confirmed by spirits (Mean)	0.717	0.486
Was the population consulted (Mean)	0.469	0.780
Mobilizing ability (Mean)	0.625	0.609
Sensibilizing ability (Mean)	0.636	0.595
Supernatural power (Mean)	0.843	0.290
Managment skills (Mean)	0.474	0.775
Threat of force (Mean)	0.679	0.540
Charisma (Mean)	0.590	0.652
Power to control rain (Mean)	0.884	0.218
Power to protect from theft (Mean)	0.885	0.216
Power to help hunt (Mean)	0.880	0.225
Power to help mining (Mean)	0.811	0.343
Power to improve cultivation (Mean)	0.853	0.272
Power to control thunder (Mean)	0.799	0.361
Power to control bridges (Mean)	0.644	0.585
Power to control harvest (Mean)	0.833	0.305
Power to heal (Mean)	0.850	0.278
Liked at start of reign (Mean)	0.344	0.882
Requests per month at start of reign (Mean)	-0.297	0.912
Private conversations per month (Mean)	0.064	0.996
<i>Panel B: Predictors of Chief Power Factor</i>	(1)	(2)
	Chief Power Factor	Chief Power Factor
Start of reign	-0.0104*** (0.00258)	-0.0103 (0.00935)
Length of reign	-0.00250 (0.00332)	-0.00484 (0.0104)
Birth Year (Mean)	-0.00767*** (0.00236)	-0.0127*** (0.00419)
Related to previous chief (Mode)	0.521*** (0.169)	0.513*** (0.191)
Related to mwami (Mode)	-0.717*** (0.216)	-0.790*** (0.165)
Traditional owner of land? (Mode)	1.182*** (0.166)	1.121*** (0.211)
How many witches (Mean)	0.000594 (0.00636)	-0.00267 (0.0140)
Ethnicity of chief same as village		0.625* (0.371)
Proportion of village with same ethnicity as chief		-0.644 (0.431)
Number of households		-0.000175 (0.000610)
Numbers of families related to chief		0.00109 (0.00153)
Observations	265	139
R^2	0.585	0.635
Fixed Effects	No	No
Cluster	Village	Village

Notes: This table creates a factor variable of chief power (Panel A) and predicts the factor variable using chief characteristics (Panel B). In Panel B *, **, *** indicate that the corresponding coefficient is statistically significant at the 10%, 5%, and 1% levels, respectively.

4.3 Armed Groups territorial control

We define an armed group episode as an episode of military control over an entity (village or neighborhood) by an armed actors that lasts for a period of at least one month.⁹ We observe 249 armed group episodes in 106 villages by 41 different armed groups, of varying duration. Regarding armed groups, we distinguish between armed groups that originate in a particular entity (village or neighborhood), and armed groups that have originated outside that entity. Our data shows that the armed groups occupying the study entities of North Kivu almost all originated outside of those entities.¹⁰ Although we collected data on the presence of state security forces, we exclude these from our main analysis, as including them would alter the premises of our analysis which relates to ensuring a degree of ex-ante exogeneity of the armed group.¹¹ We do, however, run a simple regression where we have whether the village is controlled by an armed group as the outcome variable and chief power as the predicted variable. Results are in Table G.7. While the coefficient is negative, that is, villages with more powerful chiefs are less likely to be controlled by armed groups, the effect size is small and not significant at conventional statistical levels. This assuages concerns about reverse causality. Table 3, provides summary statistics for all armed groups with at least 5 governance episodes in our sample.¹² The average number of years of armed group episodes are 4 years, ranging from 1 to 26 years. When looking at the involvement of chiefs in armed group episodes, the variation in their involvement is clearly visible. Columns 6, 7, and 8 respectively show the percentage of episodes where armed groups rely on the village’s chief to collect the head tax, administer the village, and give some political power to chiefs. At least two patterns emerge. There is considerable variation within armed groups on how much they involve chiefs. For example, while groups mostly use chiefs to collect head taxes, there are still a sizable proportion of villages for each armed group in which they do not. Second, chiefs can be involved for one governance dimension but not for another. For example, chiefs are typically used to collect head taxes, but armed groups rarely let chiefs administer the village.

⁹This definition was applied during the data collection. However, we also collected data on armed group episodes of shorter duration.

¹⁰‘Homegrown’ armed groups often have different objectives, making it difficult to include these cases within a framework geared toward external armed groups because indirect rule governance arrangements suppose a degree of exogeneity of the armed group to the entity that is being governed at the onset of the governance episode. Moreover, chiefs are often heavily involved in the organization of homegrown groups. In our dataset, there are 5 episodes where the group originates within the study entity. We therefore exclude these cases from the analysis.

¹¹We reproduce the analysis while including the state forces in Table G.5 of the Appendix.

¹²Table G.1 shows the summary statistics for all armed groups in the sample.

Table 3: Summary of Armed Group Episodes

Armed Group	# Episodes	Average Length	Shortest Control	Longest Control	Chief Tax	Chief Admin	Chief Power	Earliest Control	Latest Control
Mayi-Mayi	62	2.61	1	26	0.81	0.16	0.34	1990	2016
RCD	54	5.35	1	9	0.90	0.09	0.44	1997	2013
Congolese State Forces	47	6.98	1	26	0.19	0.78	0.90	1990	2016
Rwandan AG	8	4.25	1	11	0.69	0.18	0.50	2000	2015
Nyatara	7	2.29	1	4	0.82	0.00	0.14	2010	2015
PARECO	5	3.00	2	4	0.90	0.00	0.20	2003	2010
Others	66	3.23	1	9	0.69	0.18	0.22	1993	2015
	249	4.25	1	26	0.68	0.26	0.43	1990	2016

Notes: This table shows summary statistics of armed group episodes by the six most common armed groups in our data.

4.4 Constructing indices of Direct and Indirect Rule based on dimensions of Rule

Measuring direct and indirect rule is challenging because there is no natural dichotomy in the governance arrangements established by armed groups. We take a systematic approach, that constructs vectors on 7 dimensions of governance: (1) extraction of resources (taxation and tribute), (2) mobilization of labor, (3) legitimization/*sensibilisation*¹³, (4) administration of the village/entity, (5) allocation of political power, (6) provision of public services, and (7) regulation of economic activity. We map a range of variables from our experts survey to these dimensions.

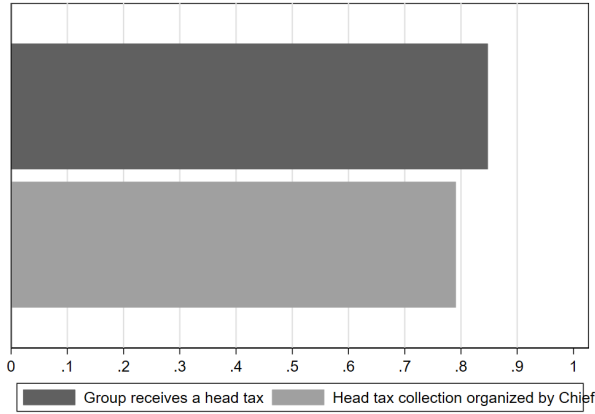
We construct two indices, one for direct rule, and one for indirect rule, because these are not mutually exclusive. Figure 2 and Figure 3 present the breakdown of the Indirect Rule and Direct Rule indicators, respectively, by mapping questions from the specialist survey to the different governance dimensions. The Direct Rule index is constructed on the basis of all 7 dimensions of governance that we presented above, while the Indirect Rule index only uses the first 5 dimensions: extraction of resources, extraction of labor services, legitimization efforts, administration, and political power.

We operationalize this categorization by first projecting all activities onto their respective dimension. We do so by using a principal component analysis. Equipped with one variable for each dimension of direct and indirect rule, we then construct a z-score index for indirect rule, and a second for direct rule, each with a mean zero and standard deviation of one.

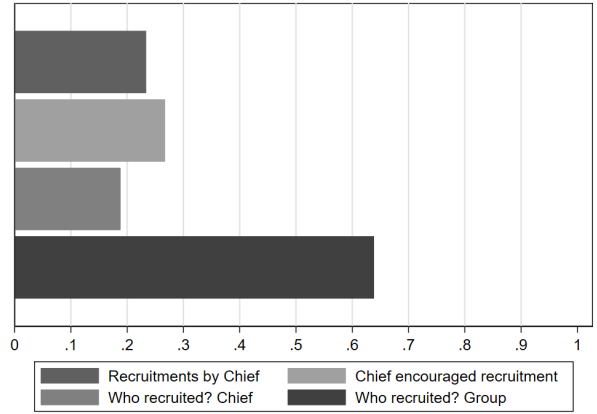
¹³The term *sensibilisation* is used in DRC to designate the consultations which are carried out to generate popular approval of a particular project or idea. In the case of armed groups, *sensibilisation* usually means the discursive efforts, public meetings, and consultations carried out to convince populations of the objectives, ideologies, and legitimacy of armed groups.

Figure 2: Indirect Rule by Group Episode Level

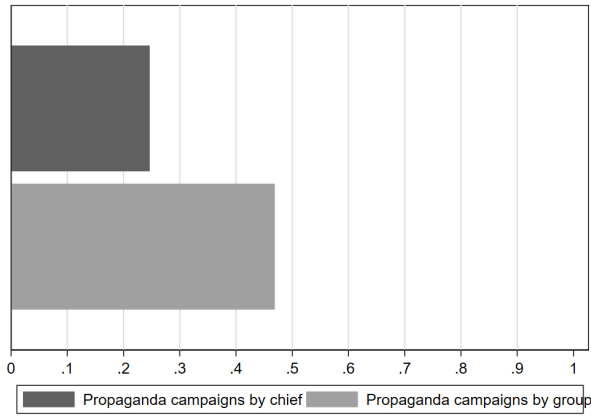
Panel A: Taxation



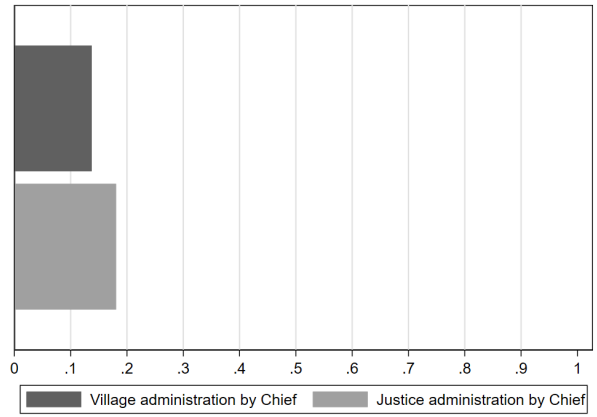
Panel B: Recruitment



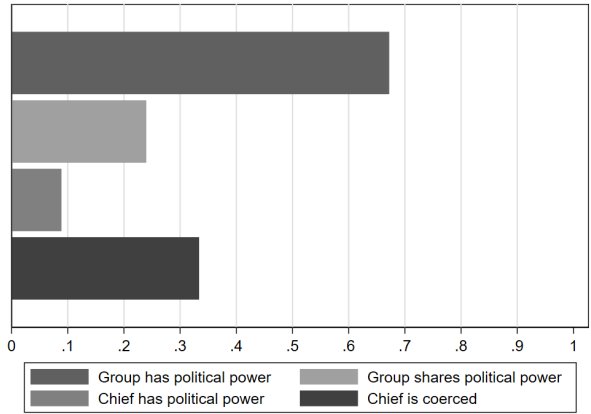
Panel C: Legitimation



Panel D: Administration



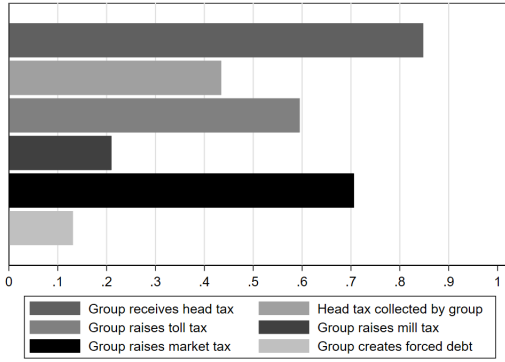
Panel E: Political



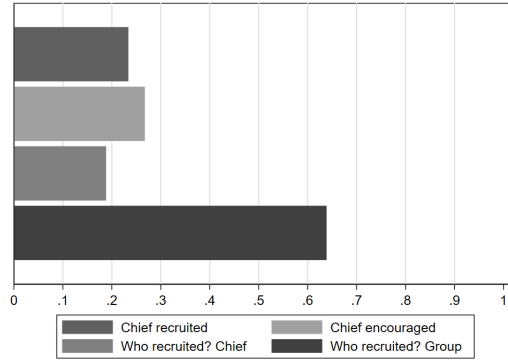
Notes: This figure presents the breakdown of our Indirect Rule indicator. Each Panel is a different dimension of governance and within each Panel we show the mean value for each activity within that dimension. The data is at the group episode level, taking the governance arrangements of the first year of a group's rule.

Figure 3: Direct Rule by Group Episode Level

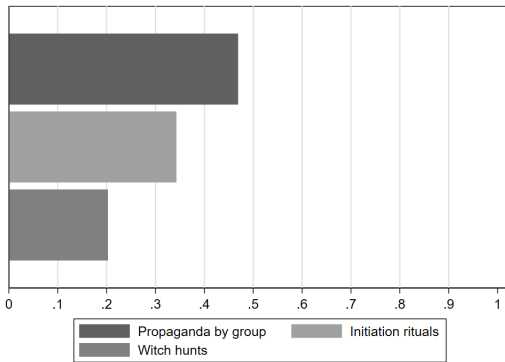
Panel A: Taxation



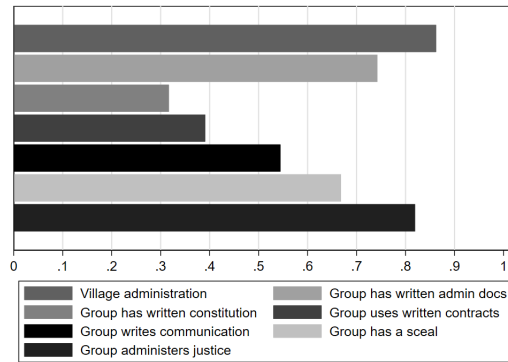
Panel B: Recruitment



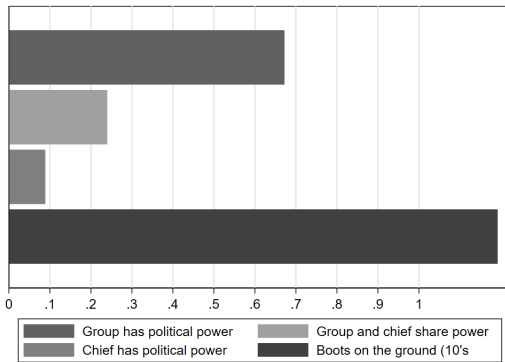
Panel C: Legitimation



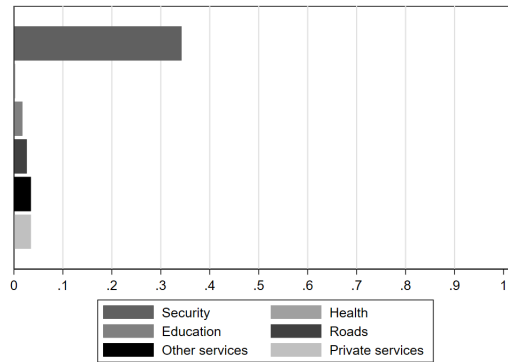
Panel D: Administration



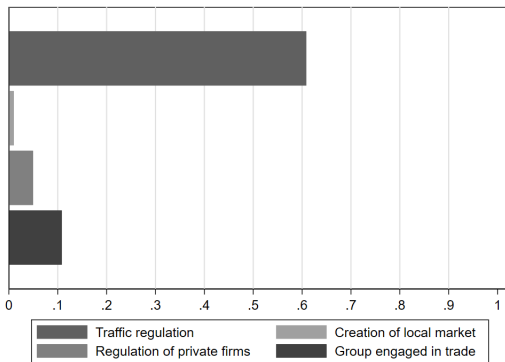
Panel E: Political



Panel F: Services



Panel G: Regulations



Notes: This figure presents the breakdown of our Direct Rule indicator. Each Panel is a different dimension of governance and within each Panel we show the mean value for each activity within that dimension. The data is at the group episode level, taking the governance arrangements of the first year of a group's rule.

5 Chiefs' Power and Direct vs. Indirect Rule

5.1 Empirical strategy

The large number of village level arrangements that armed groups develop allows us to exploit yearly within group variation to explain the formation of indirect rule institutions, of direct rule, and of armed rule in general. In particular, we examine, within armed groups and across villages, how chiefs' power determine the type of arrangements that armed groups establish. We then look at the relationship between armed group's tenure and the propensity to develop direct or indirect rule.

We first use our two values of predicted chief power, which we estimated using more objective chief characteristics, and implement the following OLS regression:

$$IndirectRule_i = \alpha + \beta_1 PredictedPower_i^{C,V} + \theta_{AG} + \eta_t + \epsilon_V \quad (1)$$

The indexes AG, V, C stand respectively for armed group, village, and chief, and $i = 1, \dots, 249$ stands for the armed group's episode. We include armed organization fixed effects (there are 41), θ_{AG} , to account for the fact that certain organizations have systematically different strategies and objectives for their rule. We also include year fixed effects, η_t , and cluster standard errors at the village level. We restrict observations to the year of arrival of the group in the village since the chief power in subsequent years might be affected by the governance arrangements in the preceding years. We estimate this separately for our two predicted chief power variables. Our outcome variables are the overall $DirectRule_i$ index, the overall $IndirectRule_i$ and the index showing the $Difference_i$ between the two.

As previously noted, ethnicity constitutes a criteria in the perceived legitimacy of chiefs' tenure. We therefore replace our predicted chief power variables with various indicators of coethnicity. Table 2 has shown that chiefs who share the same ethnic background as the majority of the villagers in their entity are considered to be more powerful. Similarly, armed groups whose membership is majoritarily of the same ethnicity as the majority of the villagers in the entities they control also enjoy more legitimacy. Importantly, measuring chief-village and armed group-village coethnicity allows us to disentangle an important aspect of how chief authority matters, namely whether it is primarily through their own authority or through their comparative advantage vis-à-vis the armed

group. This leads us to the following OLS specification:

$$IndirectRule_i = \alpha + \beta_1 Coethnic_i^{C,V} + \beta_2 Coethnic_i^{C,AG} + \beta_3 Coethnic_i^{AG,V} + \theta_{AG} + \eta_t + \epsilon_V \quad (2)$$

where $Coethnic_i^{C,V}$ is a binary indicator if chief C is from the same ethnic background as the majority of the population in village V , $Coethnic_i^{C,AG}$ is a binary indicator if chief C is from the same ethnic background as the majority of the members of armed group AG , and $Coethnic_i^{AG,V}$ is a binary indicator if the majority of the members of armed group AG are from the same ethnic background as the majority of the population in village V . We also estimate the effects of each coethnicity indicator without the inclusion of the others, as well as the interaction of $Coethnic_i^{C,V}$ and $Coethnic_i^{C,AG}$.

Further, we are interested in how armed groups' governance strategies evolve over time and especially how they evolve during a group's tenure in a village. To investigate this we look beyond the first year of armed group episodes and run the following OLS specification:

$$IndirectRule_{i,t} = \alpha + \beta_1 GroupTenure_{i,t} + \psi_{AGE} + \eta_t + \epsilon_V \quad (3)$$

where $GroupTenure_{i,t}$ measures how many consecutive years the armed group has controlled the village. Our data allows us to estimate this within armed group episode by including armed group episode fixed effects, ψ_{AGE} .

Finally, we disaggregate the direct and indirect rule variables and run specifications 1–3 separately for different dimensions of direct and indirect rule, and present the results in the appendix.

5.2 Results

5.2.1 Chiefs' power and armed group rule

In Table 4 below, Panel A, we use specification 1 to regress the indices of Direct Rule (1)–(2), Indirect Rule (3)–(4) and Direct Rule-Indirect Rule (relative direct rule, 5–6) on the predicted two indexes of chiefs' power “broadly defined” obtained in the previous exercise. We find that in villages where chiefs are more powerful, armed groups are less likely to develop direct rule in the initial year. This relationship holds when we include year and armed group fixed effects, and cluster

the standard errors at the level of the village, thus indicating that it is not driven by selection of armed groups, nor of years, and that it is robust to serial auto correlation in the type of rule and in the power of chiefs. Columns 3 and 4 show that chiefs' power is negatively correlated to indirect rule, though the coefficients are smaller than the effect on direct rule. The coefficient is only significant when using the first measure of predicted chief power which leverages a larger sample of chiefs for which we have corresponding variables to create the chief power variable. When using the second index of chief power, the coefficient is still negative and sizable on a smaller sample, but is not statistically significant at conventional significance levels ($p=0.101$). This difference in significance and magnitude provides further justification for our distinction between the direct and indirect rule dimensions of rule. What the results therefore suggest is that, while armed groups are less likely to develop direct rule arrangements in villages when chiefs are powerful, they are not necessarily more likely to develop indirect rule to the same degree. This can be interpreted as armed groups choosing not to override the chief's rule in such cases, without necessarily opting for indirect rule either. As this regression concerns the first year of rule, a more dynamic perspective is required.

Table G.3 shows the results for the different dimensions of the Direct and Indirect Rule vectors. It reveals a great deal of heterogeneity in the effect of chief power by governance area. Chief power leads to less direct rule in taxation, administration, justice, and political authority. While chief power leads to more indirect rule in administration, justice, and political authority as well, it actually also leads to less indirect rule in taxation, potentially because armed groups are concerned that powerful chiefs can extract too much rent for themselves.

In Panel B of Table 4, we use one of the more robust predictors of our chiefs' power factor variable, coethnicity, to see whether more 'objective' measures of chiefs' power yield similar or different results and whether we can disentangle the effect of chiefs' authority over the village from their relative advantage vis-a-vis the armed groups. In the fragmented political landscape of eastern DRC, ethnicity is politically salient as a result of the ethno-territorial organisation of the state and the polarizing effects of the violent conflict. Chiefs can find themselves ruling over populations of a different ethnic background, which can at times generate tensions. Thus, in such contexts, coethnicity is usually a marker of higher social proximity between chiefs and their populations. Table 4, Panel B uses specification 2 to regress the main index of the difference of direct-indirect rule on indicators for coethnicity of the chief and the village, of the group and the

chief, and of the group and the villagers. There is a robust negative relationship between whether the chief is coethnic with the villagers and the direct-indirect rule relative index. That is, chiefs who are of the same ethnic group as their population are significantly less likely to be replaced by direct rule, and more likely to develop indirect rule arrangements with armed groups. This relationship holds when controlling for year and armed group fixed effects. Column (2) instead looks at the coethnicity between the armed group and chiefs and finds that armed groups that share the same ethnicity as the chief resort to more direct rule, potentially because the chief does not have an advantage in legitimacy compared to the armed group. Table G.2 in the Appendix shows that these effects are largely driven by the Direct Rule index and not Indirect Rule. Column (3) shows that armed groups are more likely to develop direct rule when they share the ethnicity of the village but the effect is not significant. When including multiple measures of coethnicity as in columns (4) and (5) the effect remains that village-chief coethnicity reduces direct rule while group-chief coethnicity increases it. When including the interaction of village-chief and chief-group coethnicity, column (6) shows no additional effect of the interaction term, suggesting that the effect of village-chief coethnicity is driven by instances where groups do not have the same ethnicity as well and the chief has a comparative advantage in legitimacy. Table G.4 in the appendix looks at other variables that feed into the chief power predictor. Chief supernatural power, the power to make it rain, the percentage of households the chief is related to, and landownership of the chief are all negatively related to relative direct rule, yet only landownership is statistically significant.

In sum, we find that more powerful chiefs are associated with less direct rule and more indirect rule. Our analysis of coethnicity gives us some indication about how the relative advantage of chiefs over armed groups matters. Having a chief that is coethnic with the villagers drastically decreases the likelihood of direct rule compared to indirect rule, and the effect is the largest when the group and the chief are of different ethnic groups (hence when the chief's relative advantage is the largest). This provides further evidence that armed groups are less likely to develop direct rule when chiefs are powerful (or in this case, closer to their populations), and more likely to develop indirect rule.

5.2.2 Armed groups tenure and direct vs. indirect rule

We now look at the effect the duration of armed groups' control over a given entity on the propensity to adopt direct or indirect rule governance arrangements. In order to estimate the

Table 4: Institutional Choice

Panel A: Predicted Chief Power	<i>Dependent Variables:</i>					
	Direct Rule		Indirect Rule		Difference	
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted Chief Power 1	-1.605*** (0.465)		1.179** (0.511)		-2.785*** (0.799)	
Predicted Chief Power 2		-1.970*** (0.661)		1.095 (0.651)		-3.065** (1.177)
Observations	103	63	103	63	103	63
R^2	0.424	0.468	0.455	0.353	0.437	0.415
Year FE	✓	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓	✓
Panel B: Coethnicity	<i>Dependent Variables:</i>					
	Difference Direct-Indirect Rule					
	(1)	(2)	(3)	(4)	(5)	(6)
Coethnic Village-Chief	-2.053** (0.918)			-2.546*** (0.945)	-2.527*** (0.909)	-3.213** (1.290)
Coethnic Group-Chief		1.699** (0.813)		2.498*** (0.867)	2.474*** (0.866)	1.107 (1.154)
Coethnic Village-Group			0.837 (1.120)		0.154 (1.125)	
Coethnic Village-Chief × Group-Chief						-0.217 (0.996)
Observations	136	155	155	136	136	136
R^2	0.394	0.348	0.329	0.443	0.443	0.449
Year FE	✓	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓	✓

Notes: This table shows the effects of chief power on the decision of armed groups to implement direct or indirect rule. The analysis is at the armed group episode level, taking the governance arrangements from the first year of a group's occupation of a village. Panel A implements Specification 1 and has the predicted chief power estimated in Table 2 as the explanatory variable. The Direct Rule (Columns 1–2) and Indirect Rule (Columns 3–4) indicators, as well as their difference (Columns 5–6) are the outcome variables. Panel B implements Specification 2 and has the binary indicators for whether the chief and armed group, chief and majority of village, and armed group and village share the same ethnicity as the explanatory variable. The outcome variable is the difference between the Direct and Indirect Rule indicators. Standard errors, clustered at the village level, are shown in parentheses. *, **, *** indicate that the corresponding coefficient is statistically significant at the 10%, 5%, and 1% levels, respectively.

effect of armed groups' tenure on the institutions they create, we implement specification 3 which uses the data that contains all years for each armed groups' episode, and the evolution of the institutions over time, within each episode. To account for any unobserved constant heterogeneity at the group level that may correlate with institutional choice, we include armed group episode fixed effects. To account for the fact that more tenure correlates with years, we also include calendar year fixed effects. Since an armed group episode is more dis-aggregated than an armed organization, we do not need to include armed organization fixed effects. We also project the institutional variables on group tenure year effects, controlling for year fixed effects as well as episode fixed effects.

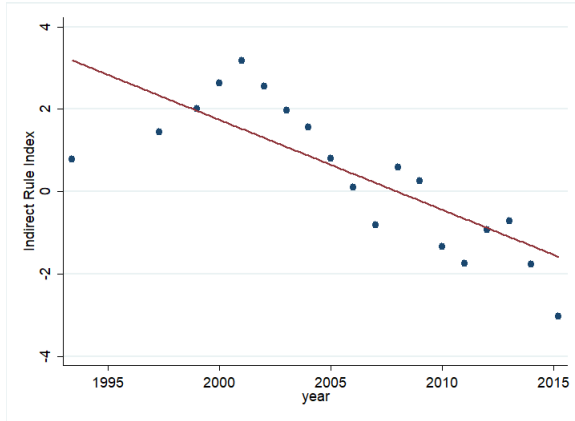
Panels A and B of Figure 4 show that indirect rule has been decreasing on average since the start of the violent conflict, while direct rule has been increasing. While this alone could be a compositional effect (more direct rule-prone groups could be active today), it is also consistent with armed groups acquiring a governing advantage over time: As armed groups acquire better information about the population, develop their organizational capacity, and create social ties with the population, their governance constraints reduce, enabling them to govern directly and circumvent the chiefs, with whom relations are often tense.

Panels C–F of Figure 4 present this result formally. We regress the indirect rule index, direct rule index, direct-indirect rule relative index on years of tenure by an armed group, including year and armed group episode fixed effects. The analysis shows that, consistent with the interpretation of Panels A–B, the longer an armed group governs, the less likely it is to use indirect rule and the more likely it is to use direct rule, and thus the larger the direct-indirect relative index. Panel F shows that the number of armed group episodes with a long tenure is smaller than that with a short tenure. One could thus be concerned that, in the analysis of the effect of tenure, the larger coefficient in larger tenure year could reflect a compositional change. However, as we have included armed group governance episode fixed effects in the analysis, the effect is computed using variation within episodes. Table 5 shows the results of specification 3 in table format.

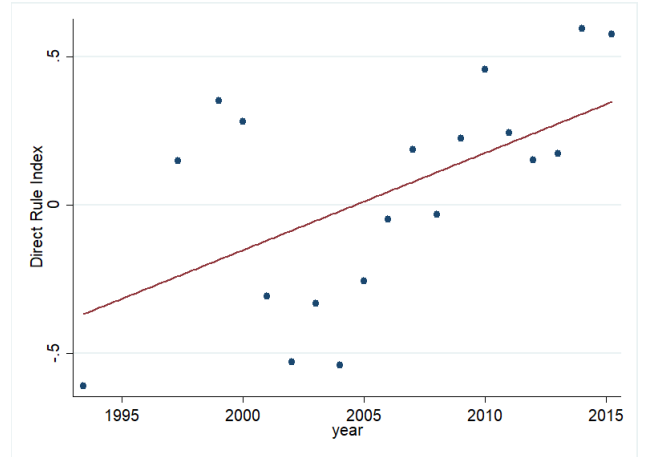
Panel C in Table G.3 in the Appendix show the effect of group tenure separately for the different dimensions of direct and indirect rule. While there is no variation within armed group episodes in the distribution of political power and recruitment by armed groups, over time armed groups are more likely to develop their own tax collection and justice provisions while indirect rule on legitimisation and justice provision decreases.

Figure 4: Indirect and Direct Rule over Time and by Group Tenure

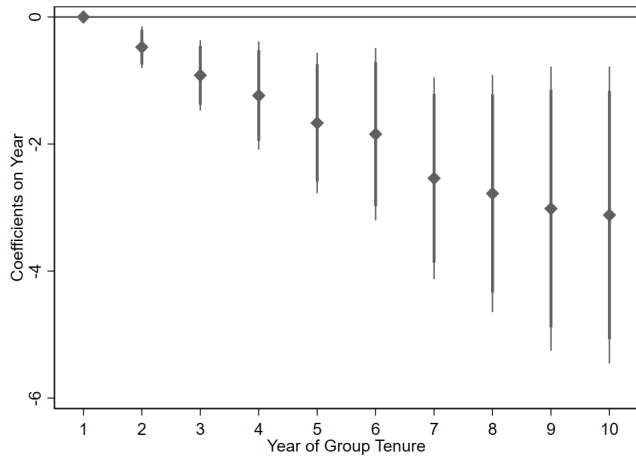
Panel A: Indirect Rule By Year



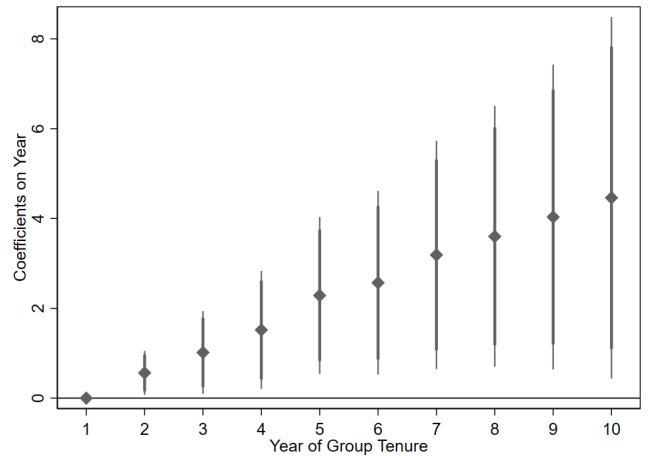
Panel B: Direct Rule By Year



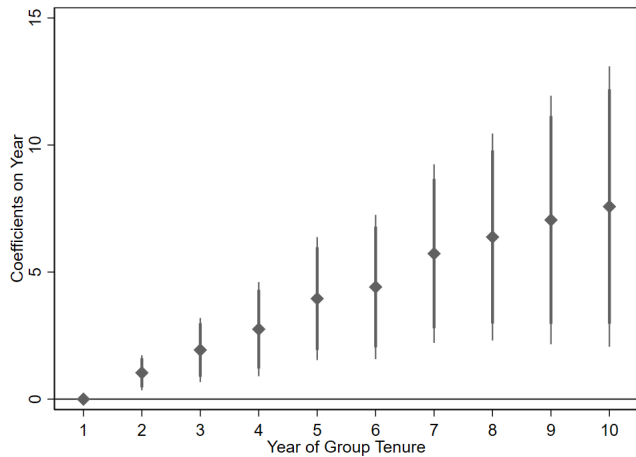
Panel C: Indirect Rule By Tenure



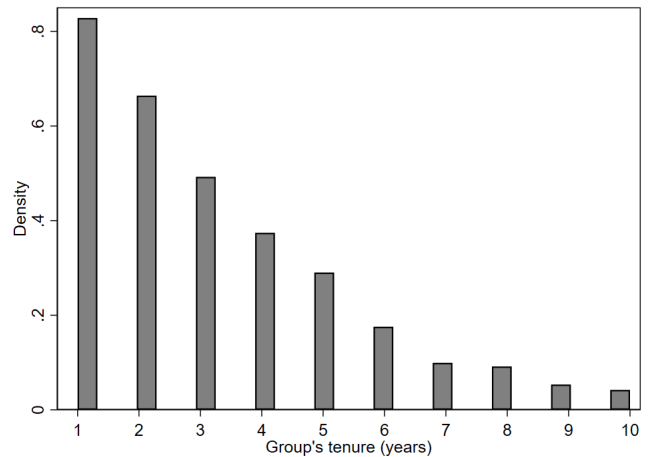
Panel D: Direct Rule By Tenure



Panel E: Direct–Indirect Rule By Tenure



Panel F: Histogram of tenure



Notes: Panel A and B show binscatter graphs of the Indirect (Panel A) and Direct Rule (Panel B) indicators over time. All village-year observations when villages are occupied by armed groups are collapsed to the calendar year. The linear relationship is added to the graphs. Panels C–F show the effects of an armed group’s tenure in a village on the decision of the group to implement direct or indirect rule. The analysis is at the village-year level and all years when a village is occupied by an armed group are included. Panels C–E plot the coefficients of “Year of Group Tenure” from Specification 3. Panel C has the Indirect Rule indicator as the outcome variable, Panel D the Direct Rule indicator and Panel E their difference. Panel F shows a histogram of the explanatory variable.

Table 5: Institutional Choice by Group Tenure

	Direct Rule (1)	Indirect Rule (2)	Difference (3)
Group's tenure (years)	0.439** (0.216)	-0.272* (0.142)	0.710** (0.302)
Observations	641	641	641
R^2	0.891	0.902	0.911
Year FE	✓	✓	✓
AG Episode FE	✓	✓	✓

Notes: This table shows the effects of armed group tenure in a village on the implementation of direct or indirect rule. The analysis is at the village-year level and all years when a village is occupied by an armed group are included. The table implements Specification 3 and has years since the start of the group's occupation of the village as explanatory variable. The Direct Rule (Column 1) and Indirect Rule (Column 2) indicators, as well as their difference (Column 3) are the outcome variables. Standard errors, clustered at the village level, are shown in parentheses. *, **, *** indicate that the corresponding coefficient is statistically significant at the 10%, 5%, and 1% levels, respectively.

6 Conclusion

The results presented in this paper are consistent with the rebel governance literature which has pointed out that armed groups who aim to govern populations cannot rely solely on coercion, and seek to inscribe their governance within legitimate frameworks of authority (Arjona, 2016, Arjona, Kasfir and Mampilly, 2015, Mampilly, 2011). One of the strategies used by armed groups to this end is to enlist customary chiefs into 'wartime indirect rule' configurations, as a temporary solution for governing. This is particularly the case when armed groups are at a comparative disadvantage in terms of legitimacy and spiritual authority vis-à-vis traditional chiefs. Over time, we find, armed groups tend to develop the capacity to implement direct rule.

The methods deployed in this study show that, despite their limitations, survey-based quantitative methods can be used to study elite level arrangements, which are difficult to study given their secretive nature. The literature on eastern DRC has shown that armed groups are part of broader networks of 'power, profit and protection' (Stearns, 2022, Vlassenroot and Raeymaekers, 2004) who are likely to play a role in brokering the governance arrangements that are stricken between chiefs and armed groups. Understanding such politically sensitive arrangements that typically happen behind closed doors would normally require elite interviews, rather than survey methods. However, given that these elite arrangements produce tangible changes to the political,

economic and social environment in which populations live, and that they produce specific allocations of governance-related tasks that are observed—and experienced—by these populations, they can be captured through survey methods, provided that there is sufficient triangulation. Our data consolidation exercise, which included several rounds of triangulation of survey data with expert-based recall methods that have been validated in previous studies (Acemoglu, Reed and Robinson, 2014), revealed a surprising consistency in the reported events, and therefore the basis for confidence regarding the capacity for survey methods to paint a partial yet consistent picture of governance arrangements in war. We believe that these may be of use to further studies of governance in conflict-affected contexts and beyond.

Our results also speak to broader debates on the nature of political order and political change. Armed conflict is often conceived a moment of deep and rapid reconfiguration of political order, a critical juncture (Thaler, 2022). Our results back this idea, by showing how, over time, armed groups supplant pre-existing authorities and establish direct rule, in ways that are similar, albeit not equivalent—given the fundamental differences between armed groups and large states or empires—to the change induced during the colonial era as a result of direct rule (Boone, 2003). In many protracted conflicts around the world, this implantation of armed groups has persistently been conceived as a manifestation of the breakdown of state order and the failure—or reversal—of statebuilding. Yet, as Cramer and Goodhand (2002) argue with regards to Afghanistan, what these dominant narratives of state failure often miss are the *longue durée* historical forces that shape political order, which remain at play during violent conflict. As Lund (2017) has argued, violent conflict is a moment of rupture, but one in which longstanding forms of rule can continue to shape emerging political orders. As we have shown, the enduring authority of customary chiefs means that they continue to play a role in shaping political order, even in the midst of violence conflict. Moreover, while a focus on the ongoing violent conflict in eastern DRC would suggest a radical transformation in political order, a historical perspective reveals that the templates of political order that emerge, in particular rule by armed groups and indirect rule configurations involving local chiefs, date back at least to the 19th century (Hoffmann, 2021, Newbury, 1992, Northrup, 1988). The transformations of political order which we capture in this study are therefore part of longstanding patterns of political order, that also exist in other regions, such as the Sahel, where contemporary armed insurgencies perpetuate forms of military conquest and rule that also date back to the 19th century.

Finally, the prevalence of both direct and indirect rule in contexts of violent conflict begs the question of their broader institutional, political and economic effects, as well as their long term impact. The literature on colonial indirect rule has shown that it has shaped the trajectories of states and societies in Africa and beyond (Acemoglu et al., 2014, Mukherjee, 2021). One of the institutional effects that has been highlighted is the ‘decentralized despotism’ that indirect rule enables, whereby the accountability of chiefs towards their populations is eroded along with the chief’s legitimacy, as Mamdani (1996) has famously shown. Given that the eastern Congolese conflict has lasted for 30 years, the governance configurations that have emerged are entrenched and likely to have effects beyond the end of the violent conflict, which provides avenues for future research.

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Part

Appendix

Table of Contents

A Background: History of Indirect Rule in the Eastern DRC	1
B Research Ethics	2
C Strengths and Limitations of Recall Method	5
C.1 Situating Events in Time: Event Timelines	6
C.2 Cross Checking Event Recollections: Triangulation	6
C.3 Measuring Changes Rather than Levels	7
D Individual Beliefs and Supernatural Beliefs	8
E Constructing Indices of Direct and Indirect Rule	8
F Additional Figures	10
G Additional Tables	12

A Background: History of Indirect Rule in the Eastern DRC

Up until the mid-19th century, Eastern Congo’s political topography was characterized by small kingdoms connected through trade networks, with limited political centralization as compared to the neighboring Kingdom of Rwanda (Chrétien, 2000, Newbury, 1992, 2009). Political authority was centered on the figure of the chief but was elaborately balanced between lineage groups, and political competition revolved around succession to the thrones (Newbury, 1992). From the mid-19th century, the belligerent expansionism of the Rwandan Kingdom forced several kingdoms in the region into vassalage. Concomitantly, the expansion of the East African Slave trade into the region increased violent modes of resource mobilization and labor conscription, as well as governance arrangements akin to indirect rule. Tippu Tip, representative of the Sultanate of Zanzibar, forged a regional empire in which local chiefs were enlisted as intermediaries and charged with mobilizing resources, in particular taxes and labor to serve as soldiers, porters and slaves.

The colonial conquest and colonial rule led to profound changes in the region. In the early days of the Congo Free State, Tippu Tip was appointed governor of the east, spearheading the sub-contracting of rule to powerful intermediaries which would become a hallmark of Belgian colonial rule, from local power brokers to large concessionary companies (Lowe and Montero, 2021).

Colonial rule in eastern Congo was carried out through what Hoffmann has called *ethnogovernmentality*, the organization of mediated state power through the constitution of ethno-territorial entities (Hoffmann, 2021). The creation of the Native authorities, which included an administrative “gridding” of rural areas and the establishment of administrative chiefs and sub-chiefs, as well as mapping efforts and population censuses, served two main functions. On one hand, the native authorities ensured control over rural populations at a low cost. On the other, they served to mobilize taxes and labor destined to a range of activities, from public works for the colonial state—in particular portage—and the various industries, to the staffing of the *Forces Publiques*, the colonial army (Northrup, 1988, p.41). In 1891, a royal decree recognized the institution of the chieftdom, enshrining native chiefs into the colonial state’s administrative apparatus (Hoffmann, 2021, p.254). The land over which indigenous chiefs ruled was given a separate legal status as *Terres Indigenes* (Native Land), instituting a separate land tenure regime governed by customary law, which has continued to this day (Mpoyi, 2013). The creation of the native homelands and the imposition of indirect rule was a messy and violent process, which gave rise to several resistance movements which the colonial state violently repressed. Chiefs found themselves in a difficult position, as they often tried to protect their subjects from the demanding quotas of the state but nevertheless had to comply or face being deposed, imprisoned or even assassinated. As a result of their collusion with the state, their legitimacy and claims to spiritual power could erode, especially as religious and millenarist movements of spiritual resistance to colonial rule emerged and contested their spiritual power, such as the Kitawala movement (Eggers, 2020). From the 1920s, efforts were made to reduce the tax and conscription burden on the populations, but the system nevertheless remained extractive and coercive, leading to several instances of revolts.

After Independence, political turmoil quickly turned into violent conflict with the secession of the provinces of Katanga (1960–1963), Kasai (1960–1962), the rebellions of Kwilu (1964–1965) and rebellion of the eastern provinces (1964–1966) (Kisangani, 2022). Following a *coup d’état*, Mobutu was able to ‘restore order’ through the establishment of an authoritarian and coercive regime. Measures were taken to centralize and streamline the state apparatus in order to exert full control over Congolese society: The objective—clearly stated by Mobutu—was direct rule, supposedly to steer the country towards modernity and development. Customary authorities, whose power had in several areas been extended during colonial rule, represented a direct obstacle to Mobutu’s power and his project of creating a centralized administrative apparatus (Young and Turner, 1985). As a result, Mobutu sought to abolish customary authority through a series of decrees from the late 1960s and early 1970s, only to face widespread resistance which forced him to abandon these reforms. The Congolese state nevertheless maintained a ‘bifurcated’ system of political organization (Mamdani, 1997). Strategic and economically lucrative regions were brought under direct state administration, while in other regions devolved forms of governance, often involving customary chiefs, prevailed.

B Research Ethics

Collecting data in contexts of violence raises important security and ethical questions (Wood, 2006). Beyond the provisions made as a result of the project’s ethics reviews (available upon request), the project set up an extensive set of logistical, material, and communication measures to reduce the security risks associated with navigating the volatile security context of North Kivu.

First, we ensured that the researchers bore all the necessary authorizations to carry out the

study. Given the tense environment, researchers were at risk of being stopped, arrested and detained. In order to reduce this risk, the project was presented to the North Kivu provincial authorities, in particular the *Ministère de l'Intérieur de la province du Nord Kivu* (interior ministry of the province of North Kivu) and the *Agence Nationale pour le Renseignement* (the national intelligence services). Following the official authorization of the project by these authorities, all project members were given an *ordre de mission* (mission statement), which carried the official stamps and signatures of these authorities. This procedure was replicated in each of the administrative units of North Kivu where the study took place. Before arriving in a village, the researchers and project members presented their authorizations to the civilian and military authorities of both the territories and *groupements* in which the villages were situated, and obtained the official stamps authorizing the study by these authorities. This procedure was also replicated at the village level, as the researchers would start by presenting the project and survey in detail to the civilian and military authorities of the village, and obtain their formal authorization (signature and stamp). This considerably reduced the risk of researchers being suspected of being spies or informants, and being arrested or detained.

Second, a number of measures were taken to reduce the exposure of researchers to various forms of threat by criminal or military actors. A tracking, information, and monitoring system was set up to closely follow the movements of researchers. Before going to a study village, the researchers would start by gathering all available information on the security situation of the village. This included the weekly security briefings of the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA Sud Kivu), as well as weekly calls to Congolese civilian and military authorities in Goma. The researchers and project supervisor would also systematically seek information from local military and civilian authorities at the *territoire* and *groupement*. An assessment was then made of the security level of the study villages. Villages that presented a significant security risk were temporarily or permanently dropped from the study.

The researchers also followed strict security protocols for their travel, communications, and accommodation. First, they spent the night in villages/towns that presented an acceptable level of security, and did not travel at night. This meant that, for villages presenting a higher level of risk, the researchers were required commute each day between those villages and a larger and safer center, usually the local town with a national army and/or MONUSCO outpost. Furthermore, a communication system ensured that, each morning and each evening, the research teams would send an SMS to the project supervisor indicating their location, as well as the time and destination of any travel planned in the following days. These SMS went through a Frontline SMS program, which allowed to visualize and track researcher movements in real time. The research supervisor (co-author of this paper) would call each team in the evening to evaluate the security of further displacements, and discuss any problem. All teams were equipped with a Thuraya satellite phone, to use in the case of an emergency or to report their position in areas that lacked phone coverage. Despite these measures, researchers found themselves in difficult situations several times, which were dealt with on a case to case basis, but no major security incidents occurred.

In areas controlled by non-state armed groups, security and access was significantly more complex. Indeed, the institutional safeguards—official authorizations—were no longer effective, and could attract suspicion of collaboration with government forces. As a result, particular efforts were made by the researchers to mitigate risks before entering such areas. Building on the knowledge that armed groups often have deep social and institutional bases, contact was made with the civilian authorities of these areas to first evaluate the level of risk of the zone, and explain that the project members worked neither for the government nor any party involved in the conflict.

When these didn't present sufficient reassurance, the study villages were dropped from the study.

In addition to the safety of the project members and researchers, the safety of the participants in the study was of central concern to the research team. The first measure taken for respondent security was the informed consent of the authorities of the villages in which the survey was carried out. The researchers gave a presentation of the objectives of the study and survey questionnaire and handed a paper copy of these to the civilian and military authorities. The authorities were also informed that the Household Surveys would be carried out in private, and that the answers given by individual households would not be accessible either by the respondents or any other person apart from the project researchers, and never at the implementation site. The survey protocols also stressed that the researchers explain to the authorities that, while sensitive issues were addressed in the survey, none of the armed actors would be named in person, and an anonymization process prevented anyone from tracing back answers to particular respondents.

Second, a range of measures were built into the survey protocols and the survey to both detect and avoid any situation that could lead to the respondent being exposed to risk as a result of her/his participation in the survey. First, the researchers carried out the interviews in private locations, where no-one else than the researcher could hear the answers of the respondents, and where the respondents felt safe. Second, the content of the survey—the different parts, and the different types of questions that would be asked—were presented in detail to the respondent before asking for the informed consent. Furthermore, before each 'sensitive' section of the survey (such as security related questions), the researchers repeated the informed consent respondent and reiterated that the respondent could terminate the survey at any moment, that they had the right to not answer certain questions and that they should report whether any element of the survey or the situation could put them or their relatives at risk. The respondent was also reminded several times during the survey that all the collected information would be anonymized, and that the information provided could not be traced back to them. In order to ensure that the survey answers could not be traced back to any individual person, the names of the respondents were never recorded. Also, the list of village residents that were drawn for the random selection of survey households were systematically destroyed immediately after selection of the respondents, and the list of selected households was destroyed immediately after identification of the selected households by the researchers.

Discussing past experiences of violence, particularly through recall methods, can trigger traumatic memories (Corbelli, 2023). While it is impossible to rule out such occurrences, the project sought to minimize exposure to trauma, first through the repeated rounds of informed consent explained above, and also by explaining to the respondents that the survey might elicit traumatic memories. The research team has considerable experience conducting research on violence in eastern DRC, and they ensured that the respondents felt safe and confident before proceeding, and offered follow up discussions.

Data security and storage was also crucial, as anonymity of the data sources is important to ensure that no-one can be identified by potentially nefarious actors. All data was collected on electronic Tablets (Samsung), and no paper-based surveys were used. Both the devices and the data collection software were password protected to prevent anyone not on the study team from accessing the collected data directly from the devices. The data security and storage chain was the following: Surveys were conducted on the tablet devices in the study villages. After a few villages, the researchers would transfer the data to the project's servers via an internet connection in a larger town. The project computer in the study team's headquarters in the provincial capital with access to the server was kept in a safe and guarded project office. Upon reception and verification of the

data, the data was immediately deleted from the data collection devices. Through this system, it was impossible for any external actor to access the data in the zone of implementation or even in the project office in Goma—barring advanced computer hacking techniques. While there were many instances of lost or faulty data due to collection device problems or computer synchronization problems, there have been no reported incidents where unauthorized project members, or any external actor or individual, accessed or attempted to access the survey data.

C Strengths and Limitations of Recall Method

This study relies in large part on the use of recall data, which allows to reconstruct past events, based on the recollection and memory of respondents. In eastern DRC, where historical and administrative documents and records are scarce—due both to the scarcity of historical archiving, but also to the destruction wrought by the war—very little systematic written evidence exists of how the war has unfolded, how it has affected economic, social and political activity, and how it has been experienced and perceived by local populations. Recall data is one of the ways in which this gap in historical records and empirical data can be partially filled, yet with important limitations.

The prime resource of the recall data method used in this survey is the memory and recollection of the inhabitants of rural South Kivu. The method takes advantage of the fact that one of the central modes of transmission of knowledge in the region is oral history, and thus follows methods long used by historians, anthropologists and sociologists (Acemoglu, Reed and Robinson, 2014, Newbury, 1992, Scott, 2009, Vansina, 1978, 2004). The project has sought to deploy a range of safeguards to address and reduce measurement error due to recall data.

The literature on the use of recall data shows us that measurement error associated with recall data varies with the recall period as well as the nature of the recalled events. The cognitive sciences teach us that, the shorter the recall period, the more self-reported answers converge towards the mean of the real distribution (Clarke, Fiebig and Gerdtham, 2008, Kjellsson, Clarke and Gerdtham, 2014, Tourangeau, 2000). Thus, the more a recollected event dates back in time, the more the magnitude of the measurement error increases. This constitutes the first significant challenge to the quality of recall data. Second, armed conflict usually constitutes a period of significant crisis for individuals, which is likely to affect their recollection of the period. While the literature points to the fact that recalling levels is easier than recalling events (Kjellsson, Clarke and Gerdtham, 2014), crisis events are significantly different than other events, and are likely to have particular effects. The literature points to two possible effects of crisis periods on the recollection of events. On one hand, crisis and the traumatic effects they can produce can distort the recollection of events and produce measurement errors (de Nicola and Giné, 2014, Tourangeau, 2000). On the other hand, the intensity of the events unfolding during violent conflict may also trigger a more vivid recollection of such events, and thus work against measurement error due to the length of the recall period (Brück et al., 2016, p.46, Wood, 2003). Furthermore, in recollecting periods of intense crisis, individuals are more likely to recall events with a better accuracy than attitudes, which are more likely to be affected by the distortive effects of trauma (Schacter, Verfaellie and Pradere, 1996, Viterna, 2006, p.14). While the data is inevitably affected by measurement error due the recall period and distortion of the recollection of traumatic events, the literature points to several ways to reduce it, which have been implemented in this study.

C.1 Situating Events in Time: Event Timelines

One of the methods used in this study to reduce measurement error in recall data, and in particular the measurement due to inaccurate recollection of time periods and years, are time cues and event timelines. Time cues are events of common knowledge that are invoked by the researchers to allow the respondent and researcher to situate the precise period at which a specific event has occurred. The literature in psychology and economics suggests that the use of time cues can substantially reduce measurement error about the timing of events (Brown, Shevell and Rips, 1986, Brück et al., 2016, Conway and Bekerian, 1987, de Nicola and Giné, 2014, Deaton, 2001, Dex, 1995). However, Brück et al. (2016, p.46) note that, while the use of event timelines does increase the accuracy of measurement, the quality of the events timeline is of particular importance, as inaccurate timelines are likely to enhance measurement errors.

This study paid particular attention to developing accurate event timelines and time cues and training researchers to use them effectively. First, national and regional events timelines were prepared, and served as a baseline for the confection of local—territory and grouping level—timelines that were developed by the researchers in the areas of implementation. Before the start of the survey in each village, the researchers would consult village experts to develop these timelines, which were then used as temporal references to situate the events recorded in the household survey. These local events timelines would typically include exceptional events in the village history of which residents were likely to have a vivid recollection, such as attacks on the village by armed group, natural disasters such as floods, the discovery of particular minerals (or the coltan boom), or the opening of a school, hospital, market or telephone line. Pilot studies carried out in the first months of the study showed that using these local events timelines significantly enhanced the accuracy of the recollection of dates and periods of events by respondents.

C.2 Cross Checking Event Recollections: Triangulation

The second method used to address the risk of measurement error due to recall is triangulation. Triangulation allows to partially address measurement error due to faulty memory of the timing of events (Rothbauer, 2008). It also allows to reduce measurement error resulting from the positionality of respondents.

The survey protocol was designed to safeguard against such biases, by multiplying data points and extending the period of data collection and verification as much as possible within the logistical and budgetary constraints. The expert survey was carried out over a period of 7 days in each village, and involved the consultation of between 5 and 10 ‘village experts’, in addition to the village chief. These experts were selected on the basis of their knowledge of the village history, but also the main themes of the survey, in particular security and the economy of the village. In each village, the researchers would start by presenting the survey questions and the data to be collected by the village experts, and then supervise the gathering of information by these village experts during an entire week. On the final day, a day-long meeting with all village experts would allow to verify the collected information and cross-check different sources, before recording the data. This process allowed to eliminate a large part of the false or dubious information before it was recorded.

Furthermore, in order to reduce the risk that the data collected in the village survey could be biased by the positionality of the village experts, all village survey measures were systematically replicated in the household survey, which was carried out with 6 randomly selected village residents,

in complete anonymity. Thus, for all the key variables of the study, there were 7 data points, which were then compiled and compared, allowing to significantly reduce measurement error by triangulation. The qualitative reports, which were compiled during the 7 days of presence of the researchers in each village, also served as an additional source of triangulation. For key variables of the analysis, the data points observed in the datasets were systematically compared to the information contained in the qualitative report. The data was then benchmarked to data collected from other surveys, as a test of the accuracy of dates. The data closely matched both the well known and well documented historical events in the region—the start of the war, the coltan boom, the elections etc.—but also ACLED violent event datasets.

C.3 Measuring Changes Rather than Levels

With regards to those variables that are collected in the Household Survey, measurement error can be particularly acute for variables that bear a certain level of complexity, as well as those that are measured on a yearly basis, as it is particularly difficult to recall levels. However, as de Nicola and Giné (2014) show, recalling changes on complex variables is easier than recalling levels. A similar fact is documented for recalling events vs. levels (?). As a result, the survey was designed to measure events and changes rather than levels, when possible. For example, rather than being asked to report their level of wealth on a yearly basis, the researchers recorded the history of the respondent’s purchase and sale of key assets—cows, pigs, land, bikes. During pilots and then during the study, it became visible that respondents were much more likely to accurately recall the sale, loss or purchase of particular assets—such as a cows—than remembering their stock of cows for each year.

For those variables where levels were measured, the survey and protocols were designed to limit measurement error due to recall. de Nicola and Giné (2014) show that one of the reasons why measurement error in recall data increases with the length of the recall period is that, for longer recall periods, respondents will use inference instead of memory to estimate levels. However, using the example of fisherman’s recollection of their income level, they show that measurement error mostly affects recollection of variations in their income, but not the recollection of their mean income. This is because respondents ‘revert to the mean’ as the length of the recall period extends, and thus recall the mean with much more accuracy than the variations de Nicola and Giné (2014, p.58).

For those variables where levels are measured instead of changes, the questions focus on getting an accurate measure of the mean, rather than seeking to estimate the variations around the mean. Additionally, the protocols and questions were formulated so as to elicit the most accurate response possible for the estimation of the means. For example, for taxation levels by armed actors during a given year, the respondents were first asked to recall the maximum that a specific armed group levied in taxes during a given period, and then the minimum during that same period. This usually prompted a discussion between the researcher and the respondent that allowed to refresh the memory of the respondent. On that basis, the respondent was then asked to estimate the mean level of taxation by the armed group. The comparison of the 6 data points of the Household Survey with the Village Survey showed that these means were estimated with high levels of accuracy.

D Individual Beliefs and Supernatural Beliefs

In order to address some of the stereotypes around the alleged negative relationship between so-called ‘rational intelligence’ and beliefs in spiritual and supernatural forces, which date back to colonial representations of Congolese society, we administered a Raven’s Progressive Matrices test. Raven’s tests are meant to measure ‘rational intelligence’ and ‘abstract thinking’, notions that should be taken with ample critical distance (along with the test itself). In Figure F.2, we can see that respondents who scored higher on a Raven’s test also gave their chiefs higher scores on supernatural power (Panel E), and that respondents scoring higher on a rational-experiential inventory gave lower scores on supernatural power to their chiefs (Panel F). Although we cannot draw conclusions about a question that was not part of our research objectives, and need to remain very cautious with regards to these tests, these results show that the alleged binary opposition between rational intelligence and beliefs in the supernatural is not supported by our data. Additionally, we explored some of the political and social orientations of respondents and their association with respondent’s perception of chiefs’ supernatural powers. Respondents scoring higher on the right-wing authoritarianism scale gave lower supernatural power scores to their chiefs (Panel G). In contrast, respondents scoring higher on social dominance scale give higher supernatural power scores to their chiefs (Panel H).

E Constructing Indices of Direct and Indirect Rule

Measuring direct and indirect rule is challenging because there is no natural dichotomy in the governance arrangements established by armed groups in the areas they control. We take a systematic approach, that constructs vectors on 7 dimensions of governance: (1) extraction of resources (taxation and tribute), (2) mobilization of labor, (3) legitimization/*sensibilisation*¹⁴, (4) administration of the village/entity, (5) allocation of political power, (6) provision of public services, and (7) regulation of economic activity.

We construct two indices, one for direct rule, and one for indirect rule, because direct and indirect rule are not mutually exclusive. Figure 2 and Figure 3 present the breakdown of the Indirect Rule and Direct Rule indicators, respectively. The Direct Rule index is constructed on the basis of all 7 dimensions of governance that we presented above, while the Indirect Rule index only uses the first 5 dimensions: extraction of resources, extraction of labor services, legitimization efforts, administration, and political power.

For the collection of taxes, we observe whether the group receives a head tax, and whether the head tax is collected by the group directly. We also observe whether the group raises a toll tax, a mill tax, a market tax, and whether the group creates forced debt. The collection of all or parts of these taxes can be delegated to intermediaries, which is the variation that we exploit for our analysis. The head tax, which is collected at the level of households, is often delegated to chiefs, as it can generate resentment among the population and requires legitimacy. More than 70% of groups raise a head tax, and about half of them collect the head tax directly. Groups organize toll taxes, mill taxes, market taxes, and forced debt between 10% and 60% of cases, and the toll

¹⁴The term *sensibilisation* is used across eastern DRC to designate the consultations which are carried out to generate popular approval of a particular project or idea. In the case of armed groups, *sensibilisation* usually means the discursive efforts, public meetings, and consultations carried out to convince populations of the objectives, ideologies, and legitimacy of armed groups.

tax and market tax are raised in more than 50% of cases. The chief is involved in the collection of the poll tax in 65% of the village×year observations.

For the mobilization of labor services, we observe the recruitment of combatants or support staff (such as porters) for the group. We also record who carried out the recruitments, and whether chiefs directly encouraged the recruitments. The chief is involved in recruitment in approximately 20% of cases, but the group carry out recruitment directly in 55% of village×year observations of episodes of armed group rule. For legitimization/*sensibilisation*, we look at whether the group itself, or the chief, carried out awareness raising activities and legitimization campaigns to justify the group’s ideology and military control over a given entity. We can see that, in 40% of village×years, the group organized the campaigns themselves, and that in about 20% of village×years the village chief organized campaigns in support of the group. Armed groups also chase away local witchdoctors and witches to replace them with their own witch doctors, in 17% of village×year observations, showing that control over the realm of the supernatural is also an important part of the ruling over an entity.

With regards to armed groups’ administration, we first observe whether an armed group administers the village, and whether there are signs of an institutionalization and formalization of this administration in the form of written documents, a written code of conduct or a rudimentary ‘constitution’, whether or not the group provides written contracts as well as written official communications, and whether or not the group has its own seal for official documents. In a majority of cases, armed groups have written official documents as well as an official seal, indicating a level of institutionalization of their administration. We also observe whether the group administers justice. In 75% of cases, the group administers the village directly and provides justice in the village. Chiefs, in contrast, administers the village and provide justice in 20–25% of cases. We also look at military presence and capacity in the entity, and find that the military presence of the group equals approximately 10 armed men on average per village×year of armed group rule.

Regarding the allocation of political power, we ask respondents who they perceived to hold political power in a village or entity: in 55% of the cases, political power is perceived to be in the hands of the group, while it is either shared with the chief or entirely delegated to the chief in approximately 42% of cases. Of these, the chief has all the political power in 20% of cases, and shares the power with the group in another 22% of cases.

Regarding the provision of public services, armed groups provide security in approximately 50% of the village×year observations, but rarely provide health, education, roads, or other public or private services (approximately 5% of the cases).

Finally, regarding economic regulation, armed groups set up roadblocks to tax trade and population movement in 50% of the village×year observations, create a local market only 8 times in the sample, regulate private firms 7% of the time, and are directly engaged in trade in 10% of cases.

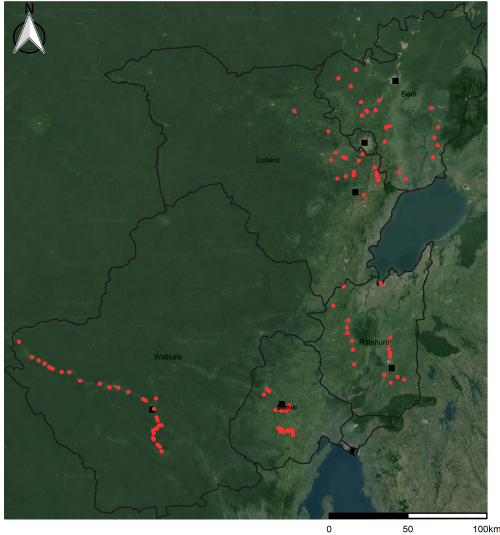
We operationalize this categorization by first projecting all activities onto their respective dimension. We do so by using a principal component analysis. Equipped with one variable for each dimension of direct and indirect rule, we then construct a z-score index for indirect rule, and a second for direct rule.¹⁵ We can thus interpret regression results as increases in one standard deviation of the normalized score. We present the results on each of the indirect rule, and direct rule, dimensions, in addition to the standardized scores.

¹⁵We end up with one normalized variable for indirect rule, and another for direct rule, whose interpretation in a regression is straightforward, since it has mean zero and standard deviation of one.

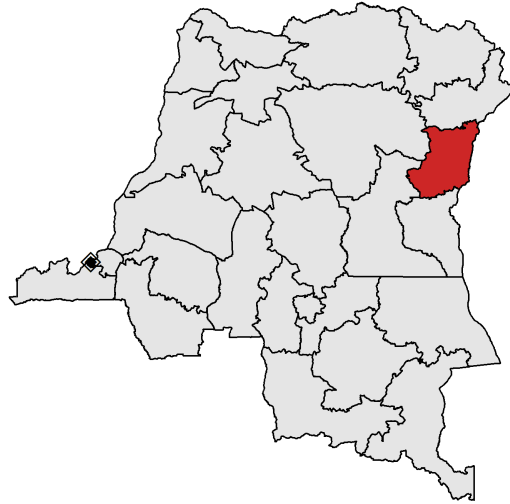
F Additional Figures

Figure F.1: Map of Sample and DRC

Panel A: Map of Sample Villages



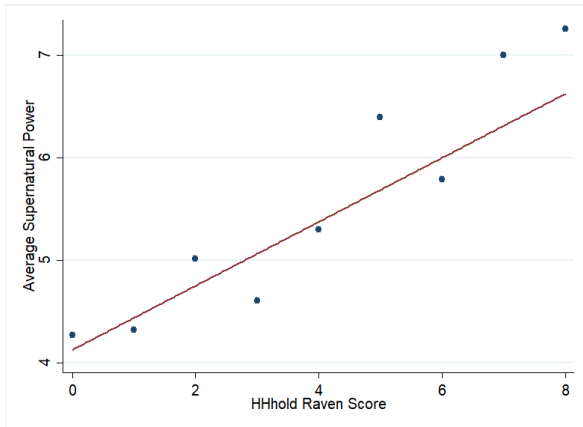
Panel B: Location of North Kivu



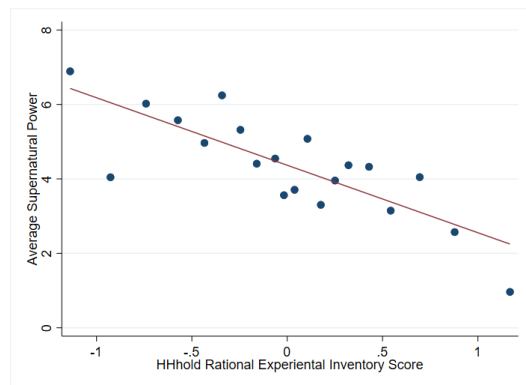
Notes: This figure shows our study locations. Panel A shows the coordinates of the villages in our data and Panel B shows the location of North Kivu, shaded red, in the Democratic Republic of the Congo. The diamond shape indicates the location of the capital Kinshasa.

Figure F.2: Correlates of Chiefs' Supernatural Power. Respondent Characteristics.

Panel E: Raven



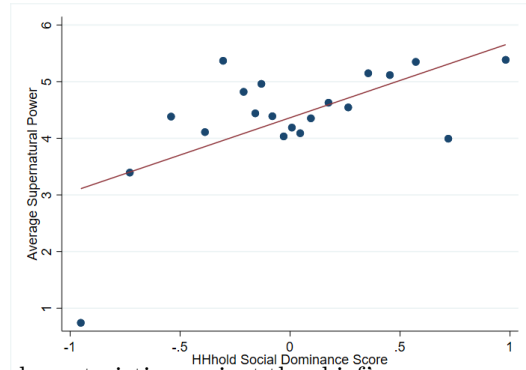
Panel F: Rational Experiential Inventory



Panel G: Right-Wing Authoritarianism



Panel H: Social Dominance



Notes: This figure shows scatter plots of different respondent characteristics against the chief's average supernatural power according to villagers. Panel A shows the respondents score on the Raven's test on the x-axis, Panel B the Rational Experiential Inventory score, Panel C the Right Wing Authoritarianism score, and Panel D the Social Dominance score. The linear trend is added to the scatter plot.

G Additional Tables

Table G.1: Summary of Armed Group Episodes Using Detailed Group Breakdown

Armed Group	# Episodes	Average Length	Shortest Control	Longest Control	Chief Tax	Chief Admin	Chief Power	Earliest Control	Latest Control
RCD-Goma	49	5.51	1	9	0.92	0.07	0.45	1998	2013
Congolese Army	32	6.69	1	26	0.25	0.70	0.89	1990	2016
CNDP	25	4.08	2	9	0.85	0.09	0.16	1998	2011
Mayi-Mayi	23	2.26	1	6	0.89	0.30	0.39	1994	2015
Congolese Security Agencies	15	7.60	1	12	0.08	0.93	0.93	1990	2016
Mayi-Mayi Mudohu	12	2.58	1	5	0.79	0.04	0.09	2000	2005
FDLR	9	4.00	2	8	0.89	0.10	0.44	1993	2015
Rwandan Group	8	4.25	1	11	0.69	0.18	0.50	2000	2015
Nyatura	7	2.29	1	4	0.82	0.00	0.14	2010	2015
Mayi-Mayi Lulwako	7	5.00	1	26	0.43	0.06	0.43	1990	2016
AFDL	5	2.40	2	4	0.20	0.20	0.50	1996	2000
M23	5	2.80	2	3	0.80	0.00	0.00	2008	2014
PARECO	5	3.00	2	4	0.90	0.00	0.20	2003	2010
ADF	4	1.75	1	4	0.00	0.75	0.00	1997	1999
Mongore	3	1.00	1	1	0.67	0.33	0.00	2003	2005
Mayi-Mayi Kifuafua	3	2.67	1	4	0.67	0.00	0.33	1994	1997
Raia Mutomboki Eyadema	3	2.00	1	4	0.83	0.50	0.33	2001	2013
RCD-Kisangani	2	2.00	1	3	0.50	0.50	0.50	1999	2002
RCD-Mongore	2	4.50	4	5	1.00	0.00	0.00	2001	2005
Mayi-Mayi Kaganga	2	1.50	1	2	0.50	0.50	0.50	1996	1997
Mayi-Mayi Kasingie	2	4.00	2	6	1.00	0.00	0.00	1992	1997
Mayi-Mayi Samy-Mze wa meno	2	2.00	2	2	0.50	0.00	0.00	2004	2006
Mayi-Mayi Simba	2	1.50	1	2	1.00	0.00	0.50	1999	2000
Mayi-Mayi Simba-Samy	2	3.50	3	4	1.00	0.00	0.50	1999	2007
Janvier	2	3.50	3	4	0.50	0.00	0.50	2008	2011
Banyamulenge	2	1.00	1	1	0.00	0.50	.	1997	1997
Mayi-Mayi Kabuchibuchi	1	1.00	1	1	1.00	0.00	1.00	2002	2002
Mayi-Mayi La Fontaine	1	1.00	1	1	1.00	0.00	0.00	2011	2011
Mayi-Mayi Werrason Mbusa	1	1.00	1	1	1.00	1.00	1.00	2007	2007
Mayi-Mayi Kifuafua-Padiri	1	2.00	2	2	1.00	0.00	0.00	2001	2002
Mayi-Mayi Surambaya	1	1.00	1	1	1.00	0.00	0.00	2002	2002
Mayi-Mayi Samy-Kabuchibuchi	1	2.00	2	2	1.00	0.00	1.00	2006	2007
Mayi-Mayi Padiri Karendo	1	3.00	3	3	1.00	0.00	1.00	1997	1999
Raia Mutomboki	1	1.00	1	1	1.00	0.00	1.00	2012	2012
Deserters	1	1.00	1	1	0.00	0.00	1.00	1998	1998
Foreigners	1	3.00	3	3	0.00	0.00	0.00	2012	2014
Kasidiens	1	3.00	3	3	1.00	0.00	0.00	1998	2000
Mbairwe	1	4.00	4	4	1.00	0.00	0.00	1993	1996
Batiri	1	5.00	5	5	1.00	0.00	0.00	1993	1997
RCD-KML	1	6.00	6	6	0.50	0.33	1.00	1997	2002
Hutu Group	1	5.00	5	5	1.00	0.00	0.00	1993	1997
	249	4.25	1	26	0.68	0.26	0.43	1990	2016

Notes: This table shows summary statistics of armed group episodes by all armed groups in our data.

Table G.2: Institutional Choice by Ethnic Match: Direct and Indirect Rule

<i>Panel A: Direct Rule</i>						
	Direct Rule Index					
	(1)	(2)	(3)	(4)	(5)	(6)
Coethnic Village-Chief	-1.578*** (0.590)			-1.852*** (0.633)	-1.847*** (0.628)	-2.479*** (0.867)
Coethnic Group-Chief		0.968* (0.495)		1.385** (0.554)	1.379** (0.532)	0.0777 (0.565)
Coethnic Village-Group			0.446 (0.662)		0.0386 (0.629)	
Coethnic Village-Chief × Group-Chief						-0.625 (0.636)
Observations	136	155	155	136	136	136
R^2	0.447	0.400	0.386	0.477	0.477	0.488
Year FE	✓	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓	✓
<i>Panel B: Indirect Rule</i>						
	Indirect Rule Index					
	(1)	(2)	(3)	(4)	(5)	(6)
Ethnicity of chief same as village	0.475 (0.592)			0.694 (0.571)	0.681 (0.559)	0.735 (0.751)
Coethnic Group-Chief		-0.732 (0.474)		-1.113** (0.493)	-1.095** (0.525)	-1.029 (1.051)
Coethnic Village-Group			-0.391 (0.610)		-0.115 (0.675)	
Coethnic Village-Chief × Group-Chief						-0.408 (0.755)
Observations	136	155	155	136	136	136
R^2	0.287	0.287	0.274	0.326	0.326	0.326
Year FE	✓	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓	✓

Notes: This table repeats the analysis of Table 4 but instead of using the difference between Indirect and Direct Rule indicators as the outcome variable, Panel A uses the Indirect Rule indicator and Panel B the direct Rule indicator. The analysis is at the armed group episode level, taking the governance arrangements from the first year of a group's occupation of a village. It implements Specification 2 and has the binary indicators for whether the chief and armed group, chief and majority of village, and armed group and village share the same ethnicity as the explanatory variable. Standard errors, clustered at the village level, are shown in parentheses. *, **, *** indicate that the corresponding coefficient is statistically significant at the 10%, 5%, and 1% levels, respectively.

Table G.3: Institutional Choice For Different Dimensions of Rule

<i>Panel A: Predictor 1</i>	Taxation		Recruitment		Legitimation		Administration		Justice		Political	
	Direct (1)	Indirect (2)	Direct (3)	Indirect (4)	Direct (5)	Indirect (6)	Direct (7)	Indirect (8)	Direct (9)	Indirect (10)	Direct (11)	Indirect (12)
Predicted Chief Power 1	-0.203 (0.124)	-0.243 (0.172)	-0.0642 (0.101)	-0.108 (0.217)	-0.114 (0.140)	0.245 (0.240)	-0.118 (0.224)	0.381** (0.179)	-0.540*** (0.194)	0.540*** (0.194)	-0.455** (0.193)	0.215 (0.151)
Observations	116	116	116	116	116	116	116	116	116	116	114	114
R^2	0.696	0.548	0.462	0.438	0.691	0.460	0.582	0.454	0.463	0.463	0.463	0.526
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Panel B: Predictor 2</i>	Taxation		Recruitment		Legitimation		Administration		Justice		Political	
	Direct (1)	Indirect (2)	Direct (3)	Indirect (4)	Direct (5)	Indirect (6)	Direct (7)	Indirect (8)	Direct (9)	Indirect (10)	Direct (11)	Indirect (12)
Predicted Chief Power 2	-0.344** (0.138)	-0.366** (0.174)	-0.0213 (0.112)	-0.197 (0.295)	-0.185 (0.151)	0.124 (0.346)	-0.0275 (0.272)	0.468** (0.181)	-0.501** (0.213)	0.501** (0.213)	-0.422** (0.204)	0.351 (0.210)
Observations	73	73	73	73	73	73	73	73	73	73	70	70
R^2	0.681	0.630	0.406	0.446	0.669	0.481	0.577	0.451	0.512	0.512	0.520	0.587
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Panel C: Group Tenure</i>	Taxation		Recruitment		Legitimation		Administration		Justice		Political	
	Direct (1)	Indirect (2)	Direct (3)	Indirect (4)	Direct (5)	Indirect (6)	Direct (7)	Indirect (8)	Direct (9)	Indirect (10)	Direct (11)	Indirect (12)
Group's tenure (years)	0.169** (0.0664)	0.0831 (0.0562)	0 (.)	0.00587 (0.0174)	-0.0283 (0.0354)	-0.244*** (0.0915)	0.00524 (0.00627)	-0.0432 (0.0517)	0.187** (0.0796)	-0.187** (0.0796)	0 (.)	0 (.)
Observations	772	772	772	772	772	772	772	772	772	772	749	749
R^2	0.919	0.904	1.000	0.975	0.844	0.750	0.998	0.889	0.845	0.845	1.000	1.000
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Village-level clustered standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table G.4: Institutional Choice by Different Measure of Chief Power

	Difference Direct-Indirect Rule				
	(1)	(2)	(3)	(4)	(5)
Supernatural power (Mean)	-0.274 (0.285)				
Power to control rain (Mean)		-2.537 (2.057)			
Managment skills (Mean)			0.0161 (0.450)		
Related to previous chief (Mode)				-0.767 (1.348)	
Traditional owner of land? (Mode)					-4.298** (1.878)
Observations	108	108	108	108	105
R^2	0.364	0.372	0.354	0.357	0.413
Year FE	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓

Village-level clustered standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table G.5: Institutional Choice including Congolese Army

<i>Panel A: Predicted Chief Power</i>	<i>Dependent Variables:</i>					
	Direct Rule		Indirect Rule		Difference	
	(1)	(2)	(3)	(4)	(5)	(6)
Predicted Chief Power 1	-1.436*** (0.446)		0.613 (0.464)		-2.049** (0.775)	
Predicted Chief Power 2		-1.475** (0.631)		0.276 (0.651)		-1.751 (1.182)
Observations	138	85	138	85	138	85
R ²	0.608	0.643	0.480	0.452	0.591	0.572
Year FE	✓	✓	Yes	✓	✓	Yes
AG FE	✓	✓	✓	✓	✓	✓

<i>Panel B: Coethnicity</i>	<i>Dependent Variables:</i>				
	Difference Direct-Indirect Rule				
	(1)	(2)	(3)	(4)	(5)
Coethnic Village-Chief	-2.398** (0.971)		-2.724*** (1.013)	-2.814*** (0.996)	-3.291*** (1.295)
Coethnic Group-Chief		0.370 (0.807)	1.669* (0.916)	1.815** (0.891)	0.389 (1.234)
Coethnic Group-Villagers				-0.618 (1.134)	
Coethnic Village-Chief × Group-Chief					-1.221 (1.093)
Observations	170	193	170	170	170
R ²	0.570	0.510	0.585	0.586	0.588
Year FE	✓	✓	✓	✓	✓
AG FE	✓	✓	✓	✓	✓

Village-level clustered standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table G.6: Institutional Choice by Predicted Chief Power and Group Tenure including Congolese Army

	Difference			
	(1)	(2)	(3)	(4)
Group's tenure (years)	0.878*** (0.297)		0.222* (0.119)	0.296** (0.128)
Predicted Chief Power 2		-0.291 (0.750)	-0.590 (0.769)	-0.813 (0.761)
Predicted Chief Power 2 \times Group's tenure (years)				0.0778* (0.0444)
Observations	885	475	451	451
R^2	0.948	0.948	0.957	0.957
Year FE	✓	✓	✓	✓
AG Episode FE	✓	✓	✓	✓

Village-level clustered standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table G.7: Armed Group Control by Chief Power

	Village Controlled by Armed Group			
	Any (1)	excluding Army (2)	Any (3)	excluding Army (4)
Predicted Chief Power 1	-0.0305 (0.0560)	-0.0575 (0.0421)		
Predicted Chief Power 2			-0.0303 (0.0618)	-0.0628 (0.0486)
Observations	2069	2069	1321	1321
R^2	0.153	0.296	0.141	0.339
Year FE	✓	✓	✓	✓
District FE	✓	✓	✓	✓

Notes: This table shows the effects of chief power on whether a village is occupied by an armed group. The analysis is at the village-year level. Standard errors, clustered at the village level, are shown in parentheses. *, **, *** indicate that the corresponding coefficient is statistically significant at the 10%, 5%, and 1% levels, respectively.

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