Complements or Substitutes? How Institutional Arrangements Bind Traditional Authorities and the State in Africa

Soeren J. Henn*

October 2021

Abstract

How does the central state affect public good provision by local actors? I study the effect of state capacity on local governance in sub-Saharan Africa, which I argue depends on whether traditional authorities are integrated in the country's constitution. I use distance to administrative headquarters as a measure of state capacity and estimate a regression discontinuity design around administrative boundaries. If traditional authorities are not integrated then the state and traditional authorities compete with each other, working as substitutes. That is, a stronger state undermines the power of traditional authorities. If traditional authorities are integrated, then the two work as complements. A stronger state then increases the power of traditional authorities. I show that these relationships are crucial to understand the effect of state capacity on local economic development.

*IPA and University of Chicago, sjhenn@uchicago.edu. I am grateful to Alberto Alesina, Kate Baldwin, Robert Bates, Abhit Bhandari, Emily Breza, Peter Buisseret, Filipe Campante, Raj Chetty, Anne Degrave, Oeindrila Dube, Jeff Frieden, Guy Grossman, Jonathan Homola, Laura Honig, Connor Huff, Torben Iversen, Asim Khwaja, Horacio Larreguy, Chris Lucas, Gauthier Marchais, John Marshall, Rebecca Martin, Gwyneth McClendon, Carl Müller-Crepon, Nathan Nunn, Pia Raffler, Gautam Rao, James Robinson, Cyrus Samii, Raul Sanchez de la Sierra, Priya Shanmugam, Michelle Torres, and seminar participants at Harvard, APSA, ASA, BREAD, Gothenburg, Harris, LSE, MPSA, NEUDC, NEWEPS, and WGAPE for helpful comments and suggestions; and Aimable Amani, Simeon Lukeno, Christian Mastaki, and Marakuja Kivu Research for invaluable research assistance. Research funding was provided by the Institute for Quantitative Social Science at Harvard.

I Introduction

One of the fundamental issues of politics is how political power is distributed between the national center and local actors. In many developing countries this issue takes the form of a central state confronting traditional local governance institutions, such as village elders in South Asia (Chaudhary, 1999), lineages in China (Tsai, 2007), or caciques in Latin America (Díaz-Cayeros, Magaloni and Ruiz-Euler, 2014). In Africa, local governance is dominated by traditional authorities or chiefs that interact with the state in a myriad of ways (Logan, 2013; Baldwin, 2016; de Kadt and Larreguy, 2018). Who holds power, and whether these actors act as complements or substitutes plays an essential role in determining whether and how services are provided at the local level.

In this paper, I investigate how variation in state capacity affects the power, legitimacy, and effectiveness of traditional authorities (village chiefs) across different institutional settings in sub-Saharan Africa. Both the state and traditional authorities produce public goods. They rely on the population for resources, which they can mobilize with their authority: taxation in the case of the state, contributions and labor in the case of traditional authorities. State capacity, that is, the ability of the state to mobilize resources and provide public goods, varies across and within countries. To understand the consequences of such variation in state capacity for local public good provision, it is important to understand whether traditional authorities act as complements or substitutes to the state. Does higher state capacity increase or decrease the ability of traditional authorities to provide local governance?

I provide a framework that outlines how state capacity interacts with the influence of traditional authorities to produce local public goods when the two are substitutes or complements. If they are complements, state capacity will increase service provision by the traditional leader (Van der Windt et al., 2019). Conversely, if they are substitutes, service provision by the traditional leader will decrease with greater state capacity. Additionally, as substitutes, traditional authorities would be able to better step in and compensate when the state is not providing public goods. Traditional authorities across the continent vary in

terms of their historical context, their traditional structures, and current political realities. I identify one important source of variation that shapes their relation to the state: their institutional role (Baldwin, 2016; Mustasilta, 2019). I argue that whether traditional authorities and the state are complements or substitutes is shaped by whether the state integrates traditional authorities into its institutional structure, which I measure by whether they are given a role in the country's constitution. If they are integrated into the institutional structure traditional authorities become complements. If they are not integrated they are substitutes. I test this hypothesis by comparing the effect of local state capacity on the the influence of traditional authorities and development when they are integrated in the constitution to when they are not. Holding other variation (such as historical context) fixed, local variation in state capacity within a country will affect traditional leaders differently in countries where they are institutionalized as opposed to where they are not.

Studying the effect of differences in state capacity is challenging for at least two reasons. Measures of state capacity are not widely available, and differences in state capacity are typically correlated with other factors. This paper addresses these concerns with a spatial regression discontinuity design that exploits plausibly exogenous variation in distance to the state within countries. I consider the distance of villages to their administrative headquarters (e.g., provincial capitals and district headquarters) as a measure for *local* state capacity. Administrators, who are tasked by the national state to administer the administrative division and are more likely to be located at the administrative headquarters, provide more public services, collect more taxes, etc. in villages closer to the headquarters. I then use administrative borders within countries to obtain exogenous variation in villages' distance to administrative headquarters and implement a regression discontinuity design. Whereas people, goods, and services can move across internal administrative borders with relative ease, the state — in the form of state administrators — is unlikely to cross it, thus creating a sharp discontinuity of local state capacity at the administrative border.

The implementation of this empirical strategy requires precise geo-coded information on

the boundaries and headquarters of administrative divisions. I created an original dataset of 5,700 administrative unit boundaries and headquarters in 28 African countries and tracked changes to them over the last 20 years. I merge this data with locations of *Afrobarometer* and *Demographics and Health Survey* respondents and calculate each respondent's distance to their national, provincial, and district capitals as well as administrative boundaries. Distance to administrative headquarters reduces outcomes related to local state capacity in both datasets. Further, the spatial regression discontinuity design successfully identifies jumps in local state capacity. Observations on the side of the boundary closer to the state consistently report higher levels of state capacity while geographical and historical controls vary smoothly.

Using data from the Afrobarometer survey, I then investigate how traditional authorities are affected by different levels of state capacity. I find that the effect of proximity to the state on traditional authorities hinges critically on whether or not a country's constitution recognizes traditional authorities. In countries in which traditional authorities are integrated into national institutions, stronger capacity of the state causes traditional authorities to be more influential and to provide more public goods. By contrast, in countries in which traditional authorities are not integrated, more state capacity actually causes traditional authorities to be *less* influential and to provide *fewer* public goods. That is, if traditional authorities are not integrated nationally, then national and local institutions actually work as substitutes rather than complements.

Using data from the DHS, I next show that whether traditional authorities are complements or substitutes to the national state matters for how state capacity impacts development. Villages on the side of the boundary closer to headquarters have considerably better development outcomes, as measured by literacy rates, wealth measures, and water access. I find that the integration of traditional authorities makes economic development *more* dependent on the capacity of the nation state. The coefficient of state capacity on development is 3 times larger in countries in which traditional authorities are integrated into national institutions compared to countries where they are not integrated.

The empirical strategy raises two questions about the causal interpretation of the results: Whether the institutional setup is endogenous to underlying factors that also determine whether traditional authorities are complements or substitutes to state capacity and whether the location of administrative headquarters is endogenous. I show that possible determinants of the institutionalization of traditional authorities neither confound these heterogeneous findings nor independently explain whether traditional authorities are complements or substitutes. To deal with endogeneity concerns about the location of the administrative headquarters, I instrument their location with the most populated place in a given district in 1960, and show no effects of distance to randomly drawn placebo headquarters.

This paper contributes to the growing literature on traditional authorities in Africa (for an overview see Holzinger, Kern and Kromrey (2016); Honig (2017); Baldwin and Raffler (2018)). How these influential actors interact with the state remains contested. Modernization theorists have argued that the traditional authority of chiefs stands in competition to that of the modern state (Migdal, 1988; Mamdani, 1996). Recent work has presented traditional authorities as modern actors that cooperate with the state and can be beneficial for accountability (e.g.Baldwin (2016)). Van der Windt et al. (2019) specifically ask the question whether attitudes towards traditional and state authorities are complements or substitutes in the DRC and determine that they are complements. However, scholars have shown that institutional structures around traditional authorities vary which has far reaching consequences for development and peace (Baldwin, 2016; Mustasilta, 2019). This paper builds on this insight and suggests institutionalization as the key moderating factor for the state-chief relationship, thus resolving the apparent tension between the two strands of literature that respectively argue chiefs are complements or substitutes.

The paper also contributes to the literature on state capacity and limited statehood. Scholars have proposed a variety of definitions and measurement strategies to study state capacity (Hendrix, 2010; Soifer, 2012; Lee and Zhang, 2017; Fergusson, Larreguy and Riaño, 2018). This paper provides a novel approach by using distance to administrative headquar-

ters as a measure of local state capacity and using a regression discontinuity design around administrative boundaries to obtain exogenous variation. Scholars have long been interested how state building affects areas of limited statehood, especially with regards to the legitimacy of state institutions (Englebert, 2002; Karim, 2019) and informal actors (Bratton, 2007; Krasner and Risse, 2014; Risse and Stollenwerk, 2018). The findings of this paper suggest that constitutional choices have important consequences for how state building efforts affect non-state actors and local development.

The paper also speaks to a large literature on the importance of institutions and institutional arrangements, both formal and informal (Helmke and Levitsky, 2004). Traditional institutions with authority independent of the state exist not only in Africa but across the developing world. Even in many federal countries in the developed world, local governments originally possessed local authority that predated the nation state, such as states in the United States or kingdoms in the German Empire. In Africa, this process was used intensively during the colonial period in the form of indirect rule (Mamdani, 1996; Müller-Crepon, 2020). The paper provides a new lens to look at the important post-independence institutional decisions of institutionalizing traditional authorities. Studies that vary institutional arrangements at the micro-level allow scholars an in-depth look into the effects of institutions while holding important contextual factors fixed (Baldwin, Muyengwa and Mvukiyehe, 2017; Karim, 2019). However, they do not allow cross-country comparison. This paper allows us to draw conclusions about variation in institutional arrangements across African countries while also providing an identification strategy that controls for contextual factors within country. The paper thereby also makes a new contribution to the literature on African constitutions. The previous literature has largely concluded that institutional arrangements in Africa have little de-facto impact (Okoth-Ogendo, 1991; Green, 1996) whereas this paper shows that institutional arrangements crucially shape the relationship between the state and traditional authorities.

II Theoretical Framework

Political institutions operate at multiple levels. Below, I first distinguish between the central and the local state. I will then discuss the role of traditional leaders as local elites and provide a theoretical framework to explain how the state and traditional leaders interact in the production of public goods. I will consider how local effects of state capacity on local political power and public good provision are shaped by the institutional integration of traditional leaders.

The *state* can be separated into the central and the local state. The central state is the government. It is based in the capital of the country and is concerned with staying in power. This requires the central state to project power locally. It uses the local state to achieve its objectives. The local state consists of bureaucrats who are hired and paid by the central government in order to establish and maintain a security apparatus, levy taxes, and provide public goods.

I consider state capacity as the ability of the central state to govern and implement policies through its local state apparatus. Considerable variation in local state capacity exists both within and across African countries and several scholars have noted an under-provision of the state in rural Africa (Herbst, 2000). Such local variation in state capacity affects local public good provision and ultimately local economic development.

State institutions are not the only political institutions important for local development. In many developing countries local non-state actors play a crucial governance role. One such actor in Africa are *traditional authorities*, "rulers who have power by virtue of their association with the customary mode of governing a place-based community" (Baldwin, 2016, 21). Across Africa (and often even within a country), this definition will encompass a variety of traditional leaders who vary in their historical origins and local power. Many traditional authorities are part of lineages that have been in power locally since before colonial occupations. Others were instituted, replaced, or propped up by colonial administrators (Mamdani, 1996). Conceptually and empirically, I focus on the most local level of traditional authorities,

namely village chiefs or headmen. These traditional authorities possess authority independent of the state, even if their office was created or modified by the colonial government.

Traditional leaders are highly influential in their communities. Through their association with customs and traditions, they are endowed with local authority over the population (Zartman, 2000). They control resources, most importantly land (Boone, 2014; Honig, 2017), and their standing allows them to impose social sanctions (Zartman, 2000). Whilst they might use their authority for their own benefit, this authority also enables them to provide services and public goods to the community such as allocating land and providing justice. Additionally, traditional leaders can convince the population to contribute labor to public construction works such as schools or boreholes (Baldwin, 2016). Figure A2 in the Appendix shows pictures of public goods provided by village chiefs in the DRC collected by the author.

Both the local state and traditional authorities are involved in local governance and public good provision. The state and traditional authorities have an interest in providing public goods if they care about local social welfare or if citizens reward them with votes or rents. While promotion or removal of traditional leaders is rare, there are other avenues of accountability between the population and citizens. Many traditional leaders rely on contributions by the population for their own income. Less capable traditional leaders may encounter lower tax morale (De Herdt and Titeca, 2019). Traditional leaders also care about their status in the community, which depends on their performance. Lastly, succession is not always within the same family but potentially among a number of "ruling families." Traditional leaders could thus be incentivized to perform by dynastic concerns (Acemoglu, Reed and Robinson, 2014).

The state and traditional leaders perform similar functions and both rely on the population for resources and authority. Do they act as complements or substitutes to each other? If they act as complements, low state capacity would lead to traditional leaders also providing less. Alternatively, if they act as substitutes, they would provide more when state capacity is low. This has clear implications for public good provision. If the two are complements,

public good provision will be highly correlated with state capacity. If they are substitutes, public good provision will be less dependent on state capacity since traditional leaders can compensate state weakness. Furthermore, whether they are substitutes or complements matters for political authority and whether traditional authorities lose or gain influence when the state is weak.

I argue that whether traditional authorities act as complements or substitutes to the state depends on whether they are institutionally integrated into the state apparatus. When they are institutionally integrated they act as complements, when they are not institutionally integrated they act as substitutes.

When traditional authorities are not institutionally integrated, it is easy for citizens to distinguish between inputs of the state and those of the traditional leader. Traditional leaders do not have access to state resources and lack formal channels to interact with the local state. Because of their competing claims of authority, traditional leaders and the state are particularly careful in clearly signaling the inputs they provide. Citizens are then able to reward each separately for their public good provision. Local traditional leaders and state officials or politicians might still be able to find mutual agreeable ways to cooperate on public good provision or elections. Yet, the lack of institutionalization makes cooperation less likely by precluding a formal relationship and increases competition through rival claims of local authority (Bierschenk and Olivier de Sardan, 2003). Researchers have identified several areas such as land, justice provision, or taxation, where traditional leaders directly compete with the state and offer alternative solutions (Herbst, 2000; De Herdt and Titeca, 2019). Sometimes this conflict between the state and traditional authority can even lead to violence such as in Burkina Faso (Hagberg, 2007).

When state capacity is low, the state is unable to provide public services. In the absence of provision by the state, citizens look to traditional leaders to provide (Logan, 2013). Since the traditional leader knows that he will be reap the benefits of organizing public good provision he will do so. Thus, when state capacity is low, there will still be some public good provision

and traditional authorities are held in high esteem. In contrast, when state capacity is high, the state can contribute more resources and citizens can observe the state's contribution. Since traditional leaders have less to gain in this scenario, they will not contribute much. Thus when state capacity is high, there will be medium levels of public good provision and traditional authorities are held in lower esteem. This leads to the first Hypothesis:

Hypothesis 1.A. *When the nation state and traditional authorities are institutionally separated, the influence of traditional authorities is negatively affected by state capacity. They are substitutes.*

When traditional authorities are institutionally integrated, they come to rely on the state for resources and citizens have difficulties distinguishing between public goods provided by the state and those provided by the traditional leader. Institutionalized traditional authorities receive salaries and funds or materials from the state to implement local projects. In South Africa, traditional rulers acting as electoral brokers rely on the funds provided by the government (Williams, 2010). Similarly, in Zambia, chiefs co-produce local public goods as development brokers (Baldwin, 2016) but are dependent on the state to also contribute resources. Just as traditional leaders became more responsive to the state than to the population during colonial rule (Mamdani, 1996), formalization of traditional authorities makes the state a principal of the traditional leaders, thus weakening their responsiveness to the population (Carlson and Seim, 2017). Institutionalization of traditional leaders thereby also links their legitimacy to the state and vice versa (Englebert, 2002). In many instances, traditional leaders are considered part of the state apparatus, and they try to use their formal role to increase local authority (Lund, 2003). Due to this linkage, cooperation with the state makes the proper attribution of credit for accomplishments (or blame for failures) more difficult. Accordingly, in a sample of countries where traditional authorities are institutionalized, Logan (2009) finds that trust in traditional leaders is positively correlated with perceptions of the performance of the local government. Citizens view traditional leaders and the local officials as part of the same system and evaluate them together. In the DRC, where chiefs

are institutionalized, citizens' positive attitudes towards chiefs are correlated with support for the government (Van der Windt et al., 2019).

When state capacity is low, the state is unable to provide much resources to public good provision. Citizens, cannot clearly distinguish between the resources from the state and traditional leaders. The traditional leader, knowing that he will be blamed for the shortcomings of the state is less willing to organize public good provision. Traditional leaders might still attempt to substitute for the weak state as they would when they are institutionally separated. In that case, they may gain influence as the only actor providing locally. Yet, institutionalization reduces their ability to substitute when the state is weak, even if they attempt to do so, by reducing their available resources and legitimacy. Thus, when state capacity is low, there will be low public good provision and traditional authorities are held in low esteem. In contrast, when state capacity is high, the state can contribute more resources. Since the involvement of the traditional leader will make the citizens' inputs more productive and since the traditional leader will get the full credit for the successful public good provision he contributes as well. Thus when state capacity is high, there will be high public good provision and traditional authorities are held in high esteem. Hypothesis 1.B follows:

Hypothesis 1.B. *When the state and chiefs are institutionally linked, the influence of traditional authorities is positively affected by state capacity. They are complements.*

We can combine Hypotheses 1.A and 1.B into Hypothesis 1:

Hypothesis 1. *Institutionalization of traditional authorities shapes their relationship with the state. When they are institutionalized they act as complements to state capacity. When they are not institutionalized they act as substitutes.*

Whether traditional authorities are complements or substitutes has implications for public good provision. As outlined above, when not institutionalized traditional leaders will try to compensate for state weakness and provide public goods but have little incentive to

provide when the state is strong. When institutionalized, traditional leaders will be less able to substitute for the state and provide when the state is weak, but there are synergies when state capacity is higher. We can thus expect the gap in public good provision between high state capacity localities and low state capacity localities to be larger when traditional authorities are institutionalized.

Hypothesis 2. *When the state and traditional authorities are institutionally linked, public good provision is more strongly affected by state capacity than when they are separated.*

Institutional integration can be understood as states giving traditional leaders a formalized role in local governance. Such integration can happen in the form of development brokers and/or administrative brokers. In the developmental broker setting, traditional leaders act as an intermediary between politicians and the population. They use their superior information of local needs to advocate for the provision of public goods. Once development projects are allocated, traditional leaders' ability to mobilize resources is put into action (Baldwin, 2016). In the administrative setting, traditional leaders take over low-level administrative functions typically associated with the state, such as justice provision, land allocation, and titling (Miles, 1993). The relationship between the state and traditional leaders is both nuanced and dynamic (Helmke and Levitsky, 2004). Not all interactions will neatly fit into binary institutionalized or not-institutionalized categories. The state might decide to cooperate with some traditional leaders while pushing aside others. Furthermore, the relationship could be reevaluated and changed over time.

The nuanced and dynamic aspect of institutionalization makes examining the effects of institutional integration empirically challenging. First, institutional integration is the outcome of a decision-making process determined by a variety of factors making institutional integration endogenous. Second, it is difficult to measure. I overcome these challenges by focusing on the national level variation of integration of traditional authorities via a country's constitution. While some *de facto* variation in local institutional integration might exist, national-level decisions create meaningful structures for cooperation and send important

signals. Constitutionally, the decision to incorporate traditional authorities can only be made at the national or regional level. For example, whether or not traditional leaders are legally recognized as local governance actors, sit on development boards, or can allocate land titles has to be decided uniformly for the whole country or province. Constitutional integration is also easy to observe and measure. More importantly, it addresses endogeneity concerns. Since it is determined at the national level, this integration is independent of the local-level variation in state capacity and influence of traditional authorities this paper is measuring. This reduces the risk of reverse causality.

While citizens are often not well-informed about the details of their constitution, the integration of traditional authorities manifests itself in ways that are quite visible. When traditional leaders have an administrative role, many state resources and formalities can only be accessed through the traditional leader (e.g., obtaining a birth, marriage, or death certificate). In many countries the constitution created national or regional "House of Chiefs" (e.g., Ghana) that are frequently in the news, and formalized the enumeration of traditional authorities by the state which is a frequent source of conflict and debate.

Previous research has identified democracy, colonial background, economic resources, state capacity, and decentralization as factors determining this decision (Herbst, 2000; Boone, 2003; Baldwin, 2016). I argue that while these determinants might lead to differences on the national level they are unlikely to affect the local relationship between the state and traditional authorities. This leads to Hypothesis 3 which will be tested in Section V:

Hypothesis 3. *Determinants of constitutional integration (democracy, colonial background, etc.) do not independently explain whether traditional leaders act as substitutes or complements to the state.*

Baldwin (2016) identifies a traditional leader's embeddedness as a key determinant of their influence and impact. Traditional authorities that live in the community they are responsible for, and that have social and economic interest in its development, have more information about the community and higher incentives to provide governance. Conceptually,

traditional authorities in both institutionalized and non-institutionalized settings need to be embedded to remain effective and influential. When institutionalized, traditional authorities work closely with the state and obtain resources from it, but their contribution comes from local knowledge and influence which will be higher when embedded as discussed in the Zambian case by Baldwin (2016). When not institutionalized traditional authorities rely predominately on the population for contributions and support, which creates incentives to be embedded. The framework presented above adds an additional component to understanding the power and effectiveness of traditional authorities. In situations where embeddedness can be plausibly expected to be the same, I offer institutional integration as a key determining factor of whether traditional authorities are complements or substitutes to the state. State capacity and its interaction with institutional integration are thus two additional key determinants in the influence of traditional authorities alongside embeddedness.

This paper examines several implications from the framework presented above. First, the theory predicts that traditional authorities integrated via a country's constitution will be held in higher esteem when state capacity is high compared to when state capacity is low. Second, and conversely, when traditional authorities are not integrated in a country's constitution, they will be held in lower esteem when state capacity is high compared to when state capacity is low. In other words, the direction of the relationship between local state capacity and the local influence of traditional authorities depends on institutional integration. State capacity *increases* the influence of traditional authorities when they are institutionalized but *decreases* the influence of traditional authorities when they are not institutionalized.[1] Third, whether the two are complements or substitutes matters for local development. If institutional integration does indeed determine whether traditional authorities are complements or substitutes of the state, then we would expect the coefficient of state capacity on development to be *larger* when traditional authorities are institutionally integrated.

[1]Following the insights of Van der Windt et al. (2019), to determine the direction of the relationship one needs to look at causal estimates and not correlations of attitudes.

III Data and Empirical Strategy

To tests the presented hypotheses this study requires measures of the local influence of chiefs, development, constitutional integration, and state capacity as well as an identification strategy to identify changes in state capacity.

Outcome Variables

How can we measure the key outcome variable of the conceptual framework, the local influence of traditional authorities? The Afrobarometer survey offers the most promising approach to compare attitudes towards traditional authorities in a large number of countries. It contains questions on how much influence traditional authorities have in the community, whether they are seen as corrupt or trustworthy, and how many times the respondent has been in contact with their traditional leader. I combine these into a z-score of the *perceptions of traditional authorities* in the community. This is the main outcome variable which operationalizes how much influence a traditional leader has in their community.[2] It does not include direct measures of the traditional leaders' input into local public good provision, since they are not part of the Afrobarometer. I assume that traditional leaders who are influential in their community and active in local public good provision will be perceived more positively by the population as measured in the z-score. A list with the exact question wording can be found in Appendix A.I. I also show robustness to using the individual variables instead of the index and leaving out individual components. Specifically, I use the third, fourth, fifth, and sixth rounds of Afrobarometer (Afrobarometer, 2017) conducted between 2005 and 2015. For each respondent, Afrobarometer data contains the town or village of residence, which have been geo-coded by AidData (BenYishay et al., 2017).[3]

[2]Not every location may have a traditional leader. Logan (2009) for example finds that not all Afrobarometer respondent in round 1 report "having a traditional leader, chief or headman." However, with the exception of South Africa, most respondents do have a traditional leader with the proportion varying from 55 to 99% by country. An absence of a village chief could clearly impact the component "Contact with Traditional Leader" but is less likely to affect the other components.

[3]I restrict my sample to the respondents geo-coded at the town/village level, as opposed to the administrative level.

Additionally, Hypothesis 2 predicts that state capacity will have a larger impact on service delivery when traditional authorities are institutionalized. A measure of service delivery comparable across countries comes from the Demographic and Health Surveys (DHS). The DHS data contains demographic information on households and data on the provision and utilization of health services. I construct a development index described in detail in Appendix A.I. I use all geo-coded data available for the time period (2002-2015) in 17 countries, those surveyed by the Afrobarometer plus the DRC.[4] The Afrobarometer and DHS surveys are both designed to be representative at the regional level and are similar in their sampling strategies, survey design, and enumeration strategy. Since, due to data availability, the samples for the Afrobarometer and DHS analysis are not identical, I check robustness to using a sample of only the countries for which I have both Afrobarometer and DHS geo-coded data.

Institutional Variation

Data on institutional variation is obtained by examining the constitutional role of traditional authorities in every country in the sample. The text of all constitutions comes from the Constitute Project.[5] For each country, I have coded a binary variable, *Recognized*, whether the constitutions give traditional authorities an official role e.g., by establishing a House of Chiefs, recognizing traditional courts, or recognizing the role of chiefs in local governance. Such passages in a country's constitution are evidence for institutional linkages between the state and traditional authorities. Panel B in Figure 1 shows which countries have institutionalized traditional authorities via their constitution.[6] Moreover, as an alternative measure I assess whether village chiefs receive a salary from the state and also use a dataset of constitutional chief inclusion compiled by Baldwin (2016) as robustness.

[4]The exact location of respondents is scrambled (up to 5 km in most cases and up to 10 km in rare cases). While the majority of respondents is scrambled within their administrative division, I run a conservative robustness check where I weigh observations by the inverse probability that they are misassigned in Column (7) of Table A17.

[5]https://www.constituteproject.org

[6]For each constitution I noted the year of its creation and the date of recent amendments. No country in the sample experienced changes to the institutionalization of traditional authorities during the study period.

Measuring State Capacity

To compare the effect of within country variation in state capacity, this study requires a measure that (i) is available (and comparable) for multiple countries in Africa; and (ii) varies at a subnational level.

I approximate state capacity by the physical distance to state institutions (Fergusson, Larreguy and Riaño, 2018). The ability of state agents to govern and implement policies in a given location decreases the farther away they are (Stasavage, 2010; Brinkerhoff, Wetterberg and Wibbels, 2018). This paper posits that the relationship between distance and capacity is at work for most state agents, such as the tax collector, or officials tasked with overseeing infrastructure and service delivery. It works via at least three mechanisms: First, the cost of implementing policies and administrating increases farther away from the local state headquarters; second, overseeing the work of state agents becomes more difficult; and third, areas farther away from the local headquarters are typically less populated and have lower economic activity, which decreases the state's interest.

The relationship between distance and state capacity is especially relevant in the African context, where governments are heavily resource constrained and historically struggle to exercise power across their territory (Mamdani, 1996; Herbst, 2000). However, simply using the distance to the national capital as a measure of state capacity would limit this study and leave out important variation. The national capital is not the only location of state institutions. Aware of the difficulty of governing from afar, central states outsource many functions to lower-level administrative divisions such as provinces or districts, either in the form of decentralization or deconcentration. The local governments of these units are located at the administrative headquarters, which also house local branches of state institutions such as national ministries or the police. The administrative headquarters are thus an important seat of state capacity.

I constructed a dataset with the administrative units and their headquarters for 28

African countries surveyed in the Afrobarometer and DHS.[7] The sample is visualized in Panel A of Figure 1. I identified the two administrative divisions most involved in public good provision and created a list of all units, their headquarters, size, and population at the last census. This produces over 5,700 headquarters in 51 administrative divisions. I then geo-coded the location of all headquarters using GoogleMaps, GeoNames.org, OpenstreetMap, Statoids.com, and Wikipedia. I use satellite imagery from GoogleMaps to verify that the coordinates fall on a settlement. To determine which administrative unit a given village belongs to, I obtained shapefiles of all 51 administrative divisions in the 28 countries using GADM.org, Humanitarian Data Exchange, and the countries' statistical offices. I tracked all changes to the administrative boundaries and headquarters since 2000. I calculated a village's distance to its administrative headquarter as well as the distance to the closest administrative boundary. Table A1 in the Appendix provides a list of the countries in my sample and the administrative units that are used. The data of geo-coded headquarters and shapefiles, as well as the code to calculate the distances, is available on the author's website. An example of the data can be seen in Figure A6 in the Appendix which maps the administrative headquarters, boundaries, and Afrobarometer observations in the regression sample in Burundi.

To validate distance to administrative headquarters as a measure of state capacity, I create a *State Presence Index* using outcomes typically associated with state presence or capacity from the Afrobarometer and DHS.[8] Table A2 and Figure A3 in the Appendix show a consistent negative relationship between state presence outcomes and distance to the administrative headquarter.

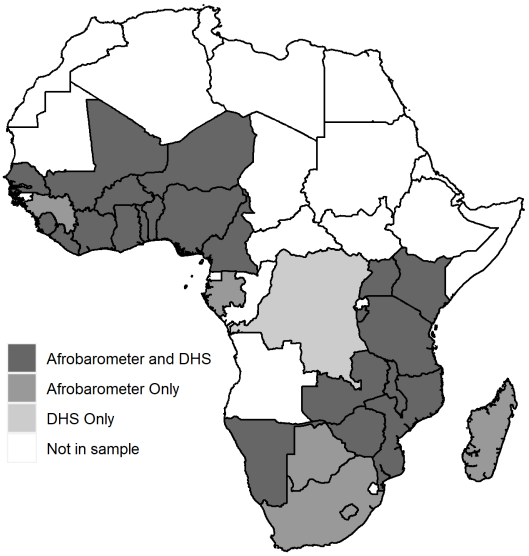
Still, using distance does not solve the endogeneity problem as it is also correlated with other confounding variables and village locations are not random.

[7] I omitted North African countries, the kingdom of Eswatini, and island nations (Cape Verde, Mauritius, Sao Tome)

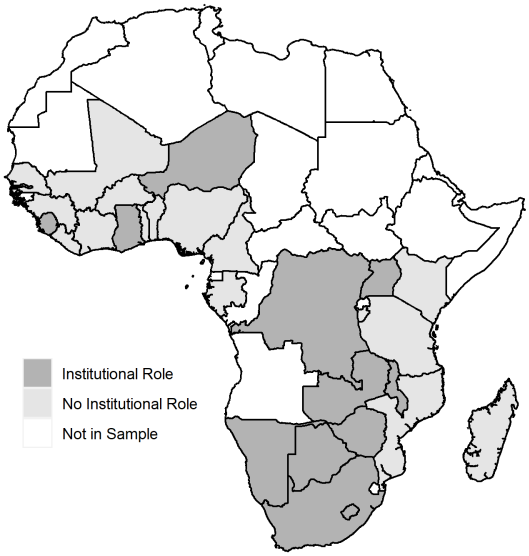
[8] The exact variables used are explained in Appendix A.I

Figure 1: Map of Sample

Panel A: Countries in the Sample



Panel B: Institutional Variation



Using Administrative Borders as Identification

I identify the effect of variation in state capacity using a spatial regression discontinuity design (RDD) around internal administrative borders (Keele and Titiunik, 2015). A spatial RDD measures the local treatment effect at a geographic boundary that splits observations into treated and control areas. RDDs offer a precise causal estimate at the cutoff if two assumptions are satisfied: no sorting of observations around the boundary and all other relevant factors vary smoothly at the boundary. Given that the effect is only estimated at the boundary, it is important to consider how results translate to the rest of the sample. Implementing a spatial RDD requires restricting the sample to observations close the boundary, defining the treatment at boundary, and measuring a running variable that indicates each observation's distance to the boundary.

The central idea of the identification strategy is to compare villages on both sides of administrative boundaries within a country. Figure A4 in the Appendix, which shows state boundaries in Nigeria, visualizes the design. While people, goods, and services move freely

across these administrative borders, government officials, tasked with administrating specific units usually do not. Using distance to administrative headquarters as a measure of state capacity, we observe a discrete change in the distance to the state at the administrative border since the responsible administrative headquarter changes. At the same time, the distance to relevant non-state locations does not change at the border. People can cross the internal border to go to the market, find employment, or travel. In fact, most of these internal boundaries are barely noticeable on the ground. Therefore, administrative boundaries will create a discontinuity in state capacity, while other observable and unobservable confounder should vary smoothly across the border.[9]

I restrict the sample to villages close to the internal administrative border (within 5 km for the main specification) *within* a country. Villages are then assigned to "border regions", an area on both sides of an internal administrative boundary. A village in Nigeria for example is assigned to the border region 'Yobe-Borno' if it is in 'Yobe' state and within 5 km of the 'Borno' state or if it is in 'Borno' state and within 5 km of 'Yobe' state. By including border region fixed effect, I only compare villages at the same internal border. In Section VI, I show that the exact choice of bandwidth does not drive the results by replicating the findings using bandwidths ranging from 3 km to 20 km.

Next, I create a *remoteness treatment* variable by assigning villages as being treated if they are on the side of a border region farther from their respective administrative headquarter than the villages on the other side of the border are from their headquarter, as measured by the mean distance of villages on each side. Using the mean assigns the same treatment to all villages on one side which allows a cleaner implementation of the RD specification.[10]

[9]Not all local state services will respect every internal boundary. Some jurisdictions are based on higher level administrative boundaries. For other public services (hospitals, for example) people can cross internal boundaries to use them. If there are spillover effects across the boundary (similar to those considered by Keele and Titiunik (2015)), villages on the side far away from the state could receive slightly more state capacity. They would thus be "treated" less than the treatment variable suggests. This would lead to the estimates being downward biased. In addition, I test directly for spillovers and I restrict to the first administrative division which should be less affected by this concern.

[10]This could induce some measurement error as villages could be classified as treated based on the mean distance even if their own distance is smaller than the distance of observations on the other side of the border region. Less than 7% of observations in the final sample have such misclassification issues. Section VI shows

Treatment: (Mean Distance of Villages on Own Side of Border Region − Mean Distance of Villages on Other Side of Border Region) > 0

Such a binary treatment variable, however, disregards important variation. It treats border regions where the distance to the state is only slightly different on each side the same way as border regions with a big change in distance from one side to the other. Therefore, I also create an intensive treatment measure that measures by how much the log-distance to the administrative headquarter is bigger on one side than on the other.

Intensive Treatment: Treatment × (Mean Distance Own Side − Mean Distance Other Side)

In Section VI, I show robustness to using only the binary treatment variable. An alternative would be to not create a treatment indicator and simply use each village's distance to its headquarter. Results in Section VI indicate that this method generates qualitatively similar findings to the main specification. However, using the treatment indicator described above estimates the exogenous jump at the border more precisely by following the standard regression discontinuity structure.

Specification

The identification strategy leads to the following main specification:

$$Y_{v,s,r} = \beta_0 + \beta_1 Tint_s + \beta_2 DB_v + \beta_3 T_s \times DB_v + \beta_4 \chi_v + \beta_5 BR_r + \epsilon_{v,s,r} \tag{1}$$

where the dependent variable $Y_{v,s,r}$ is the outcome of interest in village v situated on side s of the border region r; $Tint_s$ is the treatment intensity indicating by how much distance to administrative headquarters increases on side s of border region r; to account for a village's location relative to the boundary DB_v is the distance of village v to the administrative border; the distance to the border is interacted with a binary treatment variable T_s to control for the

robustness to removing these observations.

linear effect of distance to the border on the treated side; χ_v is a vector of geographical and historical controls for village v which are pre-treatment (a full list and detailed descriptions of the methodology and sources of the controls can be found in the Appendix); and BR_r are the border region fixed effects. Standard errors are clustered at the administrative unit level. The coefficient of interest is β_1. It signifies the jump at the border. The coefficient β_2 on DB_v controls for the effect of distance to the border on the side close to the state, while the coefficient β_3 on $T_s \times DB_v$ controls for the effect of distance to the border on the side farther from the state.

Distance to an administrative headquarter is likely to have a different impact on state capacity depending on the country and administrative division. Some countries assign different responsibilities and resources to the province or district level, resulting in a different distance-state capacity relationship. Figure 2 illustrates these differences by showing the different coefficients of distance on an index of state presence related outcomes by country and administrative division. Treatment at the boundary will differ across cases. After first showing the result using the intensive treatment variable outlined above, I account for such heterogeneity in the main specification by scaling the intensive treatment measure by the inverse of these coefficients. In other words, state capacity at an administrative border changes based on how much farther the administrative headquarter is on one side than on the other side multiplied by how much distance matters in the given country and administrative division.[11]

Scaled Treatment: Intensive Treatment × (Coefficient of Distance on State Presence)[12]

This spatial discontinuity design relies on two key assumptions: other covariates vary smoothly at the boundary and no selective sorting of individuals around the boundary. Looking at internal administrative boundaries provides a good setup for this design. Other factors — for example, market access — are not influenced by these borders and thus should

[11]Since this country and administrative unit specific gradient of state presence might be endogenous to country-level decisions, I run the specification without scaling of the treatment in Section VI.

[12]The coefficient is estimated separately for each administrative division in each country using the following equation: $StatePresence_v = \beta_0 + \beta_1 LogDistance_v + \beta_2 SurveyRound_v + \epsilon$

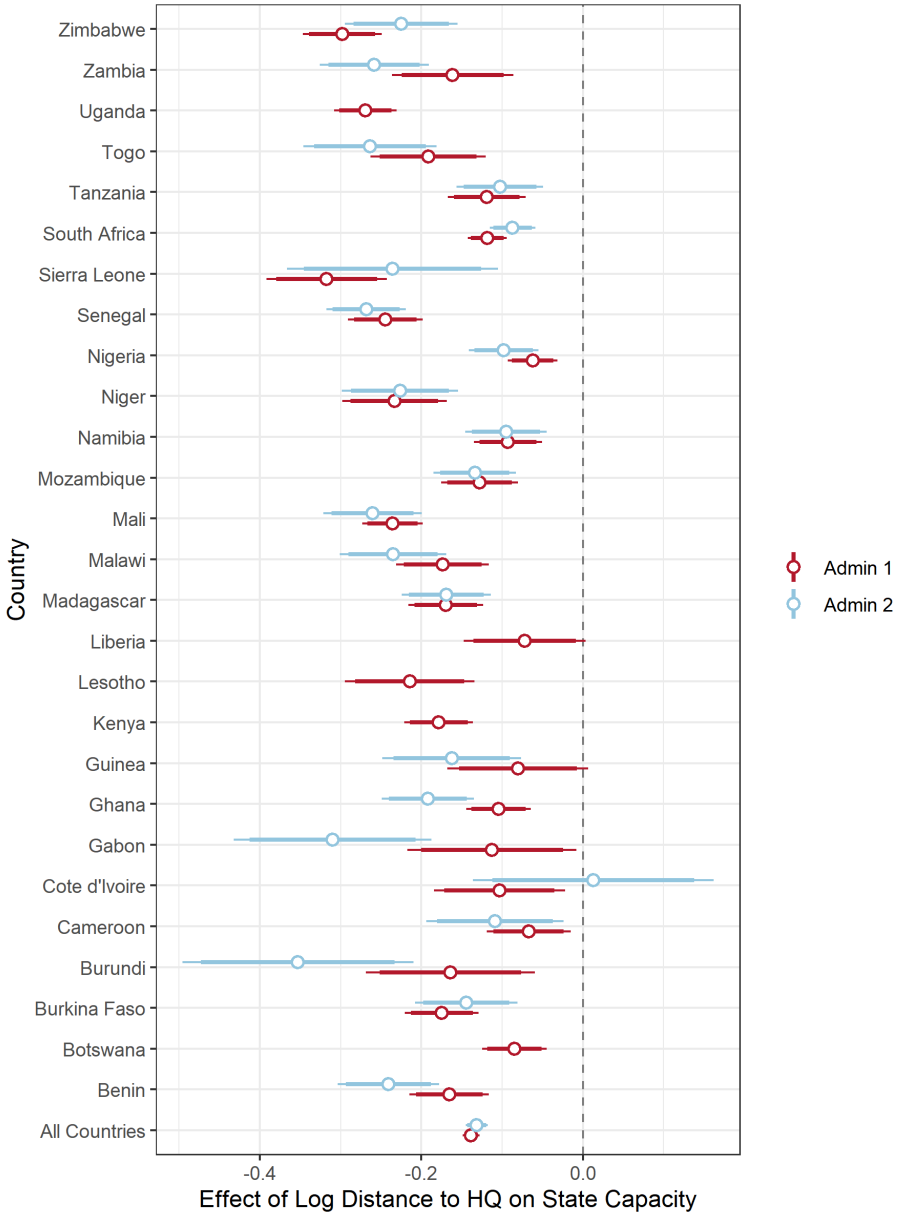
vary smoothly. I test the validity of these assumptions in Section VI where I also show robustness to different choices for the main specification, and the possible endogeneity of administrative borders and headquarters.

I then introduce institutional variation by interacting the treatment variable, distance to the border and their interaction with an indicator of the constitutional recognition of traditional authority. The resulting specification can be seen in Equation 2, where $Tint_s^*$ signifies the *scaled* intensive treatment measure and $Recognized_c$ being a dummy of whether traditional authorities are recognized by the constitution of the country. The coefficient of interests are β_1 and β_5 which signify the effect of having low state capacity in non-institutionalized and institutionalized countries respectively.

$$\begin{aligned} Y_{v,s,r,c} = \beta_0 &+ \beta_1 Tint_s^* + \beta_2 DB_v + \beta_3 T_s \times DB_v + \beta_4 Recognized_c \\ &+ \beta_5 Tint_s^* \times Recognized_c + \beta_6 DB_v \times Recognized_c + \beta_7 T_s \times DB_v \times Recognized_c \\ &+ \beta_8 \chi_v + \beta_9 \chi_v \times Inst_c + \beta_{10} BR_r + \epsilon_{v,s,r} \end{aligned} \tag{2}$$

The data are aggregated to the location (i.e., village or neighborhood) level. Restricting to locations with at least one observation within 5 km of each side of a border and dropping extreme outliers results in a sample of 1,032 locations for the Afrobarometer data and 3,563 for the DHS data. Table A3 in the Appendix shows the summary statistic for this regression sample.

Figure 2: Correlation between state capacity and distance by country and admin. division



Notes: This figure shows the coefficient of regressing log-distance to administrative headquarter on the state presence index by administrative division and country.

IV Results

First, I test whether state capacity — measured by the indices created from state presence-related outcomes in the Afrobarometer and DHS — does indeed change discontinuously at the border. To that end, Table 1 shows the results of the main specification, with state presence as the dependent variable. Both the data from the Afrobarometer (Column 1) and the DHS (Column 2) reveal a sizable and significant jump in state presence. Enumerators report significantly lower levels of state presence on the side of the border farther away from the administrative headquarters, indicating that the empirical strategy is successful in identifying a jump in state presence. Increasing treatment by one standard deviation reduces the index of state presence outcomes by a tenth of a standard deviation.

Table 1: Effect of Treatment on State Presence Index

	Dependent variable:	
	State Presence Index	
	Afrobarometer	DHS
	(1)	(2)
Remoteness Treatment	-0.113^{**}	-0.082^{***}
	(0.048)	(0.018)
Fixed effects	Border Region	Border Region
Controls	✓	✓
Observations	1,032	3,563
Adjusted R^2	0.510	0.643

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of specification 1 with state capacity as the dependent variables. The treatment variable is the intensive measure of how much the distance to the administrative headquarter is larger than on the other side of the internal administrative border. Standard errors, clustered at the administrative unit level, are shown in parentheses.

I now turn to the main prediction of the theoretical framework, Hypothesis 1: institutionalization determines whether the perceptions of traditional authorities act as complements or substitutes to state capacity. I first present the correlation in the full Afrobarometer sample

before moving to the main result using different RDD specifications. I then look at the effect in the pooled sample of all countries and finally split the sample by institutionalization of traditional authorities.

Table 2 shows the effect of interacting low state capacity treatment with institutional integration of traditional authorities on the local perceptions of the traditional authorities' influence, corruption, and trustworthiness as measured by the traditional authorities z-score from the Afrobarometer data. Column 1 starts by looking at the correlation between log-distance to administrative headquarter and the z-score in the full Afrobarometer sample. Column 2 restricts the sample to villages close to an administrative boundary and implements the regression discontinuity design, first with a binary indicator whether the village is on the side farther away from its administrative headquarter while controlling for the distance to the administrative headquarter and its interaction with the treatment variable. Column 3 includes border region fixed effects and clusters standard errors at the district level. Column 4 replaces the treatment variable with an intensive measure of how much the distance to the administrative headquarter on one side is larger than on the other side of the internal administrative border. Column 5 includes geographic controls. Column 6 is the paper's main specification and scales the treatment indicator by how much distance affects state capacity following Figure 2. Throughout the different specifications, the results consistently show the same finding: The treatment effect is positive, meaning traditional authorities are perceived more favorably when the state is weak and they are not institutionalized. Yet, the interaction of low state capacity treatment and institutionalization is negative, indicating that traditional authorities lose influence farther away from the state when they are institutionalized. A one standard deviation increase in treatment decreases the perceptions of traditional authorities by two tenths of a standard deviation when traditional authorities are institutionalized. Overall the results show clear evidence in support of Hypothesis 1.

Table 2: Effect of Distance to State on Perceptions of Traditional Authorities

	Dependent variable:					
	Traditional Leader Z-Score					
	OLS	Binary Treatment	Fixed Effects	Intensive Treatment	Controls	Scaling
	(1)	(2)	(3)	(4)	(5)	(6)
Log Distance to Admin. HQ	0.152^{***}					
	(0.020)					
Distance × Recognized	-0.066^{**}					
	(0.029)					
Remoteness Treatment		0.512^{**}	0.321^{**}	0.126^{***}	0.164^{***}	0.154^{***}
		(0.213)	(0.143)	(0.047)	(0.059)	(0.055)
Treatment × Recognized		-0.857^{***}	-0.582^{***}	-0.136^{**}	-0.208^{***}	-0.219^{***}
		(0.275)	(0.198)	(0.061)	(0.075)	(0.067)
Fixed effects	Admin. Unit	None	Border Region	Border Region	Border Region	Border Region
Controls	✓	×	✓	✓	✓	✓
Observations	10,962	801	801	801	703	703
Adjusted R^2	0.547	0.044	0.640	0.637	0.638	0.639

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of specification 1 by institutional context with the traditional leader z-score as the dependent variable. Column (1) shows the correlation between log-distance and traditional leader z-score in the full sample. Column (2) uses the RD design with a binary treatment indicator. Column (3) includes border region fixed effects and clusters standard errors at the district level. Column (4) has an intensive treatment indicator. Column (5) includes geographic controls. Column (6) is the paper's main specification and scales the treatment indicator by how much distance affects state capacity following Figure 2. Standard errors, clustered at the administrative unit level, are shown in parentheses.

Table A6 in the Appendix estimates the effect of the low state capacity treatment when not considering the institutional role of traditional authorities and then tests Hypotheses 1.A and 1.B separately by subsetting the data by countries where traditional authorities are not recognized in the constitution (Column 3) vs countries where they are recognized (Column 4). Confirming the two Hypotheses, the results show heterogeneity by institutional context.

Columns 2-4 in Table A4 in the Appendix show the result separately for the different components of the traditional leader z-score. Respondents farther away from the state report their traditional leader to be more influential, more trustworthy, less corrupt, and have more contact with them when not institutionalized. Yet, in countries where traditional authorities have an institutional role, respondents farther away have lower levels of all 4 indicators. In other words, all components of the z-score show a positive effect of the low state capacity treatment at the border and a negative coefficient of its interaction with institutionalization.

Whether traditional leaders are complements or substitute to state capacity has important implications for local development as outlined in Hypothesis 2. If traditional leaders are complements to state capacity, we would expect the gap in public service delivery between high state capacity localities and low state capacities localities to be large. In contrast, when traditional leaders are not institutionalized, they are better able to compensate for state weakness and thus narrow the gap. Using data from the DHS surveys Table 3 tests this prediction.

Column 1 confirms that lower state capacity is associated with lower development outcomes. Villages on the side of the border closer to headquarters have considerably higher development outcomes, as measured by literacy rates, wealth measures, and water access. A one standard deviation increase in distance to state headquarters being associated with a 0.1 standard deviation drop in development.

Hypothesis 2 theorized that institutional integration of traditional leaders mediates how local state capacity affects rural welfare. The components of the development index, literacy, wealth, and access to water, are local development outcomes that traditional authorities have

some influence over. They affect literacy by organizing the construction and maintenance of classrooms and can be an important mechanism for villagers to coordinate the hiring and payment of teachers.[13] By allocating land, administrating local justice, and organizing public works (e.g., road maintenance), traditional leaders can influence economic development in their village.

Table 3: Effect of Distance to State on Development

	Dependent variable:	
	Development Index	
	(1)	(2)
Remoteness Treatment	-0.092^{***}	-0.063^{***}
	(0.016)	(0.017)
Treatment × Recognized		-0.100^{***}
		(0.033)
Fixed effects?	Border Region	Border Region
Controls	✓	✓
Observations	3,563	3,563
Adjusted R^2	0.695	0.698

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of OLS regressions with development outcomes from the DHS survey as the dependent variable. Standard errors, clustered at the administrative unit level, are shown in parentheses.

Column 2 in Table 3 reveals a pattern that confirms Hypothesis 2. Countries where traditional leaders are not institutionally integrated via the constitution exhibit a smaller drop in development farther away from the state. This indicates that traditional leaders are better able to step in and compensate for the weak state when they are not integrated into it. Moreover, the effect of institutional integration is sizable. The coefficient of state capacity on development is almost 3 times larger in countries in which village chiefs are integrated into national institutions compared to countries where they are not integrated. Note that these results do not show that institutional integration improves or decreases welfare on *aggregate*,

[13] Qualitative Interview L5 and L6, May 2018, North Kivu, DRC.

but only how it shapes the effect of varying state capacity on local welfare.

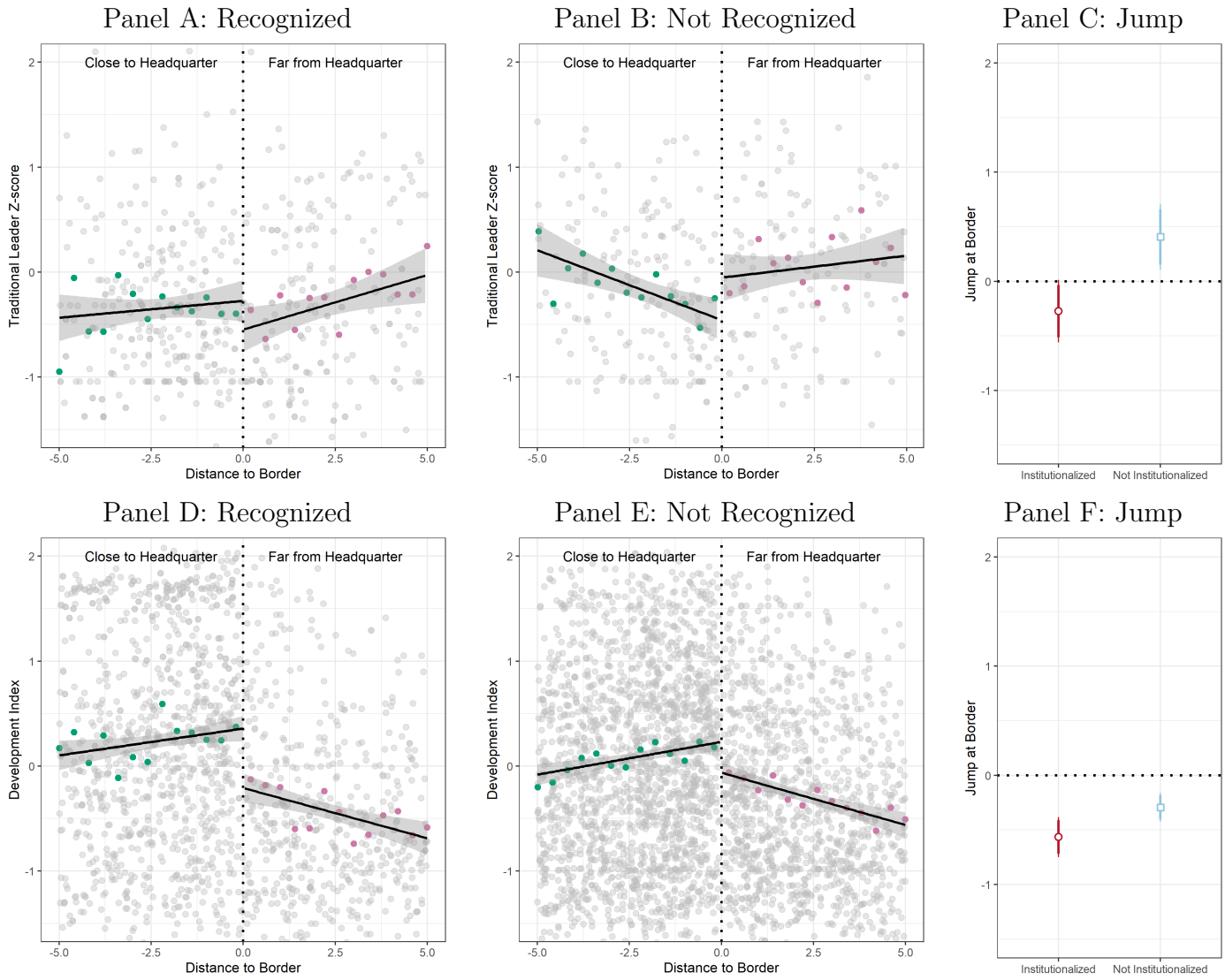
Table A13 in the Appendix shows the result separately for each component of the development index and reveals the same heterogeneity across measures. The results on development outcomes confirm Hypothesis 2 and provide further evidence that the relationship between the state and traditional authorities is shaped by institutional integration, with important consequences for local welfare.

Figure 3 visualizes the two main findings using the raw data. It shows the outcome variables plotted against the distance to the border for institutionalized countries (Column 1) and not institutionalized countries (Column 2). It also includes the bin-scatter and the linear relationships between distance to the border and the outcome on both sides of the border. They help visualize the key feature of the RDD, the jump at the border, which is highlighted by Column 3. Two patterns emerge: First, at the boundary, switching from the side close to the headquarter to the side farther from the headquarter results in opposite jumps in the perceptions of chiefs depending on whether chiefs have an institutional role (Panel C). Second, at the boundary, switching from the side close to the headquarter to the side farther from the headquarter results in a jump in development outcomes of double the size when chiefs have an institutional role as compared to when they do not (Panel F). Both relationships are clearly visible and statistically significant even when just using the raw data, a zero-one treatment indicator, and no fixed effects or controls.

The results are in line with Hypotheses 1 and 2 and indicate that the institutionalization of traditional authorities does indeed determine whether they are substitutes or complements. The conceptual framework has offered two channels through which this could happen.

First, I have argued that traditional authorities in non-institutionalized settings are perceived favorably when compared to a weak state while traditional authorities in institutionalized settings get blamed for the shortcomings of the state. Columns (6) and (7) of Table A4 provides some evidence for this mechanism. Traditional leader performance is rated higher when the state is far away, but only when traditional authorities are not institutionalized.

Figure 3: Raw data around cut-off



Notes: This figure shows shows a bin-scatter with the traditional leader z-score (Panels A and B) and the development index (Panels D and E) on the y-axis and distance to the border on the x-axis. The scatter of the raw data is included in grey as is the trend lines with 95% confident intervals on each side of the border. Panels C and F visualize the different jumps at the border.

When they are, respondents farther away rate their traditional leader's performance worse. Similar heterogeneous effects are found for whether the traditional leader listens to the concern of their population. Importantly, perceptions about the performance of other actors such as the president or MPs do not follow this heterogeneous pattern.

A second way through which complementarity in institutionalized setting could occur is resources. Recognized traditional authorities receive salaries, development grants, and other

resources from the state, some of which might be unavailable to traditional authorities in setting with low state capacity. If they use some of these resources to provide public services, their ability to do so will be correlated with state capacity. Non recognized traditional authorities do not have an official way to obtain resources from the state. Instead they often rely on the population for contributions for which they sometimes compete with the state making them substitutes. I coded whether traditional authorities receive an official government salary at the country level. There is a high degree of overlap: only two countries where chiefs are recognized do not give traditional authorities a salary and only traditional authorities in two countries where they are not recognized receive a salary. Column 2 in Table A7 shows the result interacting the RDD specification with the salary dummy instead of recognition. The results are almost identical. While this does not provide direct evidence that institutionalization matters through resources it is suggestive evidence.

An alternative channel could be through changes in the local accountability of traditional authorities. (Baldwin and Mvukiyehe, 2015) established that local processes of accountability can be crucial for chief performance. Are traditional authorities more likely to be selected by the state when institutionalized? In the vast majority of institutionalized settings the selection process follows custom, remains largely local, and if it requires state approval is largely limited to rubber-stamping. Still, it is possible that institutionalized traditional authorities become more accountable to the state and are more responsive to state officials, rather than the population. The extent to which this channel differs from the recognition and resources channel outlined above could be investigated in future studies.

V Determinants of Institutional Integration

The spatial regression discontinuity design provides exogenous variation in state capacity, allowing for a causal interpretation given certain assumptions whose validity I test in Section VI. However, the main finding of the paper comes from the interaction of state capacity

with a country's institutional integration of traditional authorities. Naturally, this raises the question which factors have determined the institutional integration of traditional authorities and whether they could also explain the results. Below, I provide an overview of the main determinants of institutional integration according to existing research. I then show that none of these independently explain the findings.

Previous research has argued that democratization and its electoral incentives make governments more likely to recognize customary authority in an attempt to use them as electoral agents (Baldwin, 2016). British colonizers were more likely to use existing traditional hierarchies as administrators (Müller-Crepon, 2020). Local economic resources further determined the state's interest in a given area and subsequent cooperation with local elites (Boone, 2003). At the same time, states with higher capacity are more likely to be able to sidestep traditional authorities (Herbst, 2000), and decentralization policies determine how much local influence and independence the central state seeks to establish (Bardhan and Mookherjee, 2006).

Democracy, colonial history, economic resources, state capacity, and decentralization are likely to also impact traditional authorities and the state. As a result, states and traditional authorities could be *on average* different in countries where traditional authorities are institutionalized compared to in countries where they are not. Yet, such differences at the country level are not enough to seriously cast doubt on the findings. To illustrate this, we can consider the power of traditional authorities. States might be more likely to institutionalize traditional authorities when they are more influential. In that case, we would find traditional authorities in institutionalized settings to be more influential, not due to institutionalization, but because their influence made them more useful partners to the state. However, the conceptual framework and empirical analysis has focused on variation of the influence of traditional authorities *within a country*. Just because traditional authorities in institutionalized settings might be on average more influential than in countries where they are not institutionalized, does not explain how the influence of traditional authorities

responds heterogeneously to state capacity. In other words, the regression discontinuity design identifies the effect of *local* changes in state capacity on the perceptions of traditional authorities and development. They differ dramatically by institutional integration. For a determinant of institutional integration to independently explain the findings, it must result in traditional authorities and development being *differently* impacted by low levels of state capacity.

To first test whether institutional linkages correspond with other country-level variation, I collect several country-level variables and perform two-sided t-tests. I focus on variables in three categories: a) historical institutions such as pre-colonial centralization, settler colonies, or whether the country was a British colony; b) geographic determinants of economic activity and vulnerability, such as soil quality, malaria suitability, or ruggedness; and c) more recent measures of institutions such as rule of law, democracy index or failed state index. Table A9 shows the covariate balance. Out of 22 variables, only 5 differ significantly between where traditional leaders are institutionalized from when traditional leaders are not institutionalized. To test whether these differences are driving the results, I interact the main specification with these country-level variables. The results for the ten variables with the lowest p-value in the t-test are shown in Table 4 for the Afrobarometer data and Table A20 for the DHS data. The interaction with all other variables is shown in Tables A21 and A22.

The results confirm Hypothesis 3. Even when interacting treatment with these potential confounders, the interaction of treatment and institutionalization remains sizable, negative, and statistically significant.[14] I also rerun the main specification while only including former British colonies (Column 2 of Table A16). Institutional integration is more common in Southern Africa. The heterogeneous effect of institutional integration remain when excluding countries from Southern Africa.[15]

[14]The coefficient when including malaria suitability is not significant (p=0.12), yet goes in the same direction and is of similar magnitude. In the main specification, I control for a more local measure of malaria suitability.

[15]There are only three cases of institutional integration outside of Southern Africa. The coefficient remains positive and sizable but loses significance.

Table 4: Robustness: Interaction with Country Variables

	Dependent variable:									
	Pop. 1400	Brit. Colony	Brit. Legal	Settler Colony	Traditional Leader Z-Score Gemstones	Ruggedness	Malaria Suit.	Dem. Index	Rule of Law	Decentral.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Low Local State Capacity	0.121***	0.109***	0.102**	0.121***	0.104**	0.118***	0.107*	0.125***	0.107**	0.131***
	(0.044)	(0.041)	(0.040)	(0.043)	(0.051)	(0.044)	(0.058)	(0.045)	(0.049)	(0.042)
Treatment × Recognized	−0.169***	−0.155**	−0.144**	−0.146**	−0.130**	−0.169***	−0.134	−0.167***	−0.144***	−0.148***
	(0.058)	(0.060)	(0.058)	(0.058)	(0.054)	(0.055)	(0.085)	(0.052)	(0.055)	(0.051)
Treatment × CountryVariable	0.016	−0.009	−0.016	−0.046*	−0.030	−0.015	0.031	0.007	−0.016	−0.025
	(0.043)	(0.034)	(0.033)	(0.026)	(0.043)	(0.021)	(0.052)	(0.021)	(0.037)	(0.029)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	703	703	703	703	703	703	703	703	703	633
Adjusted R^2	0.637	0.637	0.637	0.639	0.641	0.640	0.640	0.637	0.638	0.605

Notes: *p<0.1; **p<0.05; ***p<0.01. This table includes the interaction of treatment with several country-level variables to control for possible confounding factors. Border region fixed effects are included. Standard errors, clustered at the administrative unit level, are shown in parentheses.

VI Robustness Checks

I show robustness to a range of different specifications and measurements; most notably, the validity of the assumptions underpinning the regression discontinuity design, different choices for the main specification, and the possible endogeneity of administrative borders and headquarters.

Table A5 demonstrates balance on geographical and historical characteristics, Table A8 low migration among respondents, and no differential migration by state capacity. Panel B in Figure A5 shows no indication for significant variation in density on around the cutoff.

Figure 4 plots the main coefficients when changing the bandwidth. Institutionalization shapes the relationship between traditional leaders and the state at all bandwidths (Panel A). Panel B suggests that this is largely driven by traditional leaders who are not institutionalized. They show clear evidence of being substitutes for all bandwidths, thus confirming Hypothesis 1.A. Evidence of institutionalized traditional leaders as complements as stated by Hypothesis 1.B loses significance at bandwidths larger than 10 km.

The results also hold when implementing a bias adjustments and when using alternative regression discontinuity specifications such as no geographic controls, binary treatment variable, absolute distance, longitude-latitude specification, clustering at the highest administrative level, and removing observation where their own distance results in a different treatment assignment than the mean distance (Table A10).

To make sure outliers are not driving the results, I show robustness to dropping the most remote villages, using non-logged distance, traveltime or restricting the sample to rural respondents (Table A11). Panel A in Figure A5 leaves out individual countries one by one.

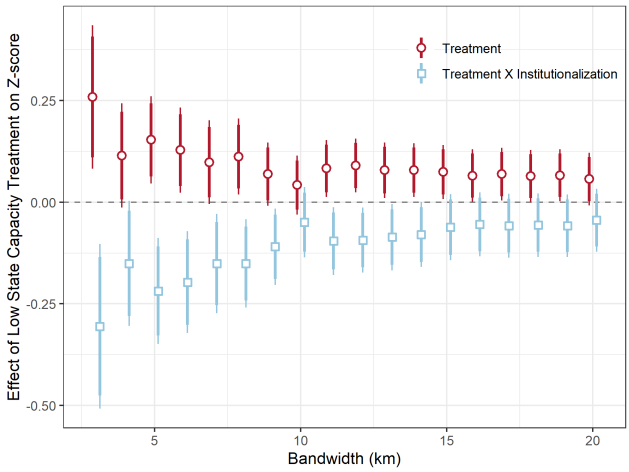
Table A12 controls for the distance to neighboring headquarters to account for spillovers, analyzes the first and second administrative divisions separately, reports a Donut RD that leaves out villages within 1 km of the border, includes Murdock-ethnicity fixed effects, instruments the location of headquarters with the most populated place in a given district in 1960, and shows no effects of distance to randomly drawn placebo headquarters.

Table A7 offers three alternative measures of institutionalization. Column (1) interacts the RDD with whether traditional leaders receive an official salary from the state and Columns (2) and (3) include two measures from Baldwin 2016, namely whether the constitution protects or mentions chiefs. A full description of the robustness checks can be found in Section B in the Appendix.

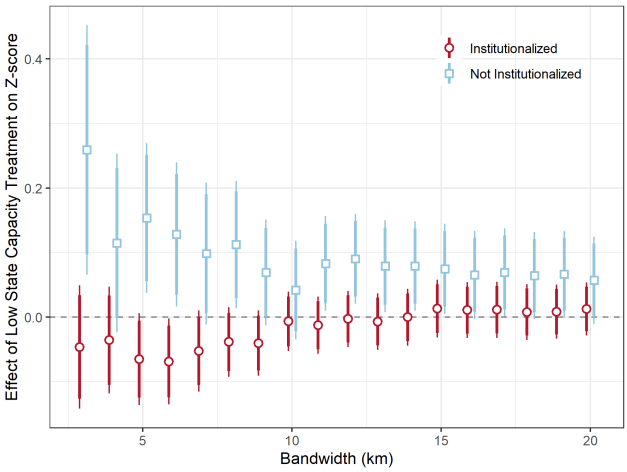
Throughout the robustness checks, the results remain qualitatively the same: distance to the state is associated with a higher perception of traditional authorities when the state and traditional authorities are institutionally separated. When both are linked, traditional authorities act as complements and their perception is lower farther from the state. I also rerun all robustness checks for the DHS data, the results of which can be seen in Tables A17–A20.

Figure 4: Changing the Bandwidth

Panel A: Interaction



Panel B: Separate by Institutionalization



VII Conclusion

This paper investigated how the state interacts with traditional leaders in Africa. How power is distributed across different levels of government is a central question of politics

across political systems. Many developing countries not only feature a weak state, but also local governance institutions that have inherent local authority independent of the state. Understanding whether these traditional institutions act as complements or substitutes to the state has important consequences for local politics and public good provision.

In this paper I have argued that whether traditional authorities are complements or substitutes is shaped by whether they are integrated into institutional structures of the state, measured by whether a country's constitution gives traditional authorities a formal role. I test this theory with a spatial regression discontinuity design that uses distance of villages to their administrative headquarters as a measure of state capacity and compares villages in the border region of neighboring districts. Afrobarometer data confirm that traditional leaders farther away from the state are perceived less favorably when institutionalized, but gain influence when not institutionalized. Further, DHS data show that countries where traditional leaders are not institutionalized exhibit a smaller reduction in development outcomes when state capacity is low, indicating that traditional leaders are able to substitute for the state.

The results have implications for the relationship between traditional rulers and state capacity at the local and national level. Locally, it improves our understanding of the incentives of traditional leaders, citizens, and the state and the constraints they face in local governance and service provision. At the country level, the results offer a potential explanation why in some African countries traditional leaders continue to play an important role while they have been marginalized in others: it is the interaction of state capacity and the institutional integration of chiefs that determines how much space chiefs have to operate.

Further, the findings shed light on where to direct investments in state capacity by the state and development projects by civil society and international organizations. When traditional authorities are institutionalized, it is crucial to invest in state capacity and development projects where the state is weak. Otherwise these localities will be left behind, since traditional authorities cannot compensate for state weakness. When traditional authorities

are not institutionalized, investments can be more widely distributed.

Regression discontinuity designs face a challenge of external validity. Do results hold further away from the cutoff and out of sample? Encouragingly, in the whole Afrobarometer sample the correlation of distance and the perceptions of traditional leaders is shaped by institutionalization. This suggests that the causal estimates at the border translate to other settings. The study sample includes almost all countries in sub-Saharan Africa for which there is Afrobarometer data and the results do not change when including or excluding individual cases. This bodes well for the findings translating to other cases on the continent and potentially beyond. Yet, some of the countries not surveyed by the Afrobarometer are distinctly more autocratic. Whether institutionalization shapes the relationship between traditional leaders and the state in these settings could be examined in future research.

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Online Appendix

A Data Appendix

Table A1: Administrative Divisions in Sample

Country	Admin Unit	# in 2002	# in 2005	# in 2008	# in 2012	# in 2015
Benin	department	12	12	12	12	12
Benin	commune	77	77	77	77	77
Botswana	district	15	15	16	16	16
Burkina Faso	province	45	45	45	45	45
Burkina Faso	department	351	351	351	351	351
Burundi	province	17	17	17	17	18
Burundi	commune	115	129	129	129	129
Cameroon	department	58	58	58	58	58
Cameroon	arrondissement	360	360	360	360	360
Cote d'Ivoire	department	58	70	81	107	108
Cote d'Ivoire	sub-prefectures				510	510
D.R.C	province	11	11	11	11	26
D.R.C	territory	166	166	166	166	166
Gabon	region	10	10	10	10	10
Gabon	department	48	48	50	50	49
Ghana	region	10	10	10	10	10
Ghana	district	110	110	170	216	216
Guinea	region	8	8	8	8	8
Guinea	prefecture	34	34	34	34	34
Kenya	province	8	8	8		
Kenya	county				46	46
Lesotho	district	10	10	10	10	10
Liberia	county	15	15	15	15	15
Madagascar	region		22	22	22	22
Madagascar	district	110	110	114	114	114
Malawi	region	3	3	3	3	3
Malawi	district	27	28	28	28	28
Mali	cercle	49	49	49	49	49
Mali	commune	701	701	701	701	701
Mozambique	province	10	10	10	10	10
Mozambique	district	128	128	128	128	151
Namibia	region	13	13	13	13	14
Namibia	constituency	102	107	107	107	121
Niger	region	7	7	7	7	7
Niger	department	36	36	36	63	63
Nigeria	state	36	36	36	36	36
Nigeria	lga	774	774	774	774	774
Senegal	region	11	11	14	14	14
Senegal	cr	364	364	364	431	431
Sierra Leone	district	14	14	14	14	14
Sierra Leone	chiefdom	149	149	149	149	149
South Africa	district	53	53	52	52	52
South Africa	Municipality	226	226	226	226	226
Tanzania	region	25	26	26	30	30
Tanzania	district	129	129	130	149	149
Togo	region	5	5	5	5	5
Togo	prefecture	31	31	31	36	36
Uganda	district	56	70	80	112	112
Zambia	province	9	9	9	10	10
Zambia	district	72	72	72	72	110
Zimbabwe	province	10	10	10	10	10
Zimbabwe	district	59	59	59	59	59

A.I Survey Questions

The **Perceptions of Traditional Leader Z-score** takes the standardized version of the following variables in the Afrobarometer survey and combines them in a z-score with mean 0 and standard deviation of 1:

- *Influence Traditional Leader*: "How much influence do traditional leaders currently have in governing your local community?" (Question 65 in Round 4)
- *Trust Traditional Leader*: "How much do you trust each of the following, or haven't you heard enough about them to say: Traditional leaders?" (Question 49I in Round 4, Q52K in Round 6)
- *Corruption Traditional Leader*: "How many of the following people do you think are involved in corruption, or haven't you heard enough about them to say: Traditional leaders?" (Question 50H in Round 4, Q53H in Round 6) (Inversed for the index)
- *Contact Traditional Leader*: "During the past year, how often have you contacted any of the following persons about some important problem or to give them your views: A traditional ruler?" (Question 23F in Round 3, Q27B in Round 4, Q24E in Round 6)

Note that each question offers the option of "Don't Know" or "Refuse to Answer". I code both cases as missing. There is no significantly different occurrence of these cases in the four variables across institutional settings.

The Afrobarometer surveys contain two additional questions about traditional authorities that are used in Table A4 to determine what drives the effect.

- *Performance of Traditional Leader*: "Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: Your Traditional Leader?" (Question Q68D in Round 6)
- *Traditional Leader Listens*: "How much of the time do you think the following try their best to listen to what people like you have to say: Traditional leaders?" (Question Q54C in Round 4)

Further the Afrobarometer survey contains several questions about local development, public goods provision, and tax payment from which I create a **Afrobarometer State Presence Index**. First, the sub-indexes are created by combining their standardized variables into a z-score. Second, the three sub-indexes (Development, Public Goods, and Taxation) are combined into the state capacity index with mean zero and standard deviation of 1.

- *Development*: Enumerators are asked whether the enumeration area contains public services.
  - "Are the following services present in the primary sampling unit/enumeration area: Electricity grid that most houses could access?" (Question EA-SVC-A in Rounds 3–6)
  - "Are the following services present in the primary sampling unit/enumeration area: Piped water system that most houses could access?" (Question EA-SVC-B in Rounds 3–6)
  - "Are the following services present in the primary sampling unit/enumeration area: Sewage system that most houses could access?" (Question EA-SVC-C in Rounds 3–6)
- *Public Goods*: Enumerators are asked whether the enumeration area contains state provided public goods:
  - "Are the following facilities present in the primary sampling unit/enumeration area, or within easy walking distance: Post-office?" (Question EA-FAC-A in Rounds 3–6)
  - "Are the following facilities present in the primary sampling unit/enumeration area, or within easy walking distance: School?" (Question EA-FAC-B in Rounds 3–6)
  - "Are the following facilities present in the primary sampling unit/enumeration area, or within easy walking distance: Police station?" (Question EA-FAC-C in Rounds 3–6)
  - "Are the following facilities present in the primary sampling unit/enumeration area, or within easy walking distance: Health clinic?" (Question EA-FAC-D in Rounds 3–6)
  - "Are the following facilities present in the primary sampling unit/enumeration area, or within easy walking distance: Market stalls (selling groceries and/or clothing)?" (Question EA-FAC-E in Rounds 3–6)
  - "In the PSU/EA, did you (or any of your colleagues) see: Any policemen or police vehicles?" Question EA-SEC-A in Rounds 3–6)
- *Taxation*: In round 4 respondents are asked whether they pay different types of taxes:

- "Have you had to make any of the following payments during the past year: Fees for a government service such as education or health care?" (Question Q64A in Round 4)
- "Have you had to make any of the following payments during the past year: Licence fees to local government e.g., for a bicycle, cart, or market stall?" (Question Q64B in Round 4)
- "Have you had to make any of the following payments during the past year: Property rates or taxes?" (Question Q64C in Round 4)
- "Have you had to make any of the following payments during the past year: Public utility fees, e.g., for water, electricity or telephone?" (Question Q64D in Round 4)
- "Have you had to make any of the following payments during the past year: Income taxes?"(Question Q64E in Round 4)

Similarly, the DHS survey allows us to create a **DHS State Presence Index** by combining the following standardized variables into a z-score with mean 0 and standard deviation of 1:

- *Electricity*: Whether the household has access to electricity. (HV206)
- *Piped Water*: Whether the household has access to piped water. (HV201)
- *Registered*: The percentage of children in each household that are registered with the state or have a birth certificate. (HV140)
- *Vaccination Card*: The percentage of children with a vaccination card in each household. (H1)

Additionally, we can create a **DHS Development Index** by combining the following standardized variables into a z-score with mean 0 and standard deviation of 1:

- *Literacy*: Whether the respondent can read a card shown by the enumerator. (H108)
- *Wealth*: Household wealth on a 1–5 scale. (HV270)
- *Piped Water*: Whether the household has access to piped water. (HV201)[16]

[16]Note that this variable is also included in DHS State Presence Index. This is to mirror the Afrobarometer Index which also includes piped water as a development outcome. Results remain when excluding "piped water" from either the state capacity or development index.

A.II Control Variables

- **Distance to the Capital**: The distance of a village from the capital city, measured in kilometers. *Source: OpenStreetMap*
- **Distance to the National Border**: The distance of a village from the national border, measured in kilometers. *Source: Digital Chart of the World*
- **Distance to the Coast**: The distance of a village from the nearest coastline, measured in kilometers. *Source: Digital Chart of the World*
- **Elevation**: Average value of elevation for grid cells of 30 Arc-Seconds (equivalent to 250 meters), measured in meters above sea level. *Source: SRTM version 4.1 (NASA)*
- **Ruggedness**: Averaging the Terrain Ruggedness Index of 30 by 30 arc-second cell. It is measured by dividing the millimeters of elevation difference by the area of the 30 by 30 arc-second cell. *Source: Nunn and Puga (2012)*
- **Land Suitability for Agriculture**: The fraction of each grid cell that is suitable to be used for agriculture. It is based on the temperature and soil conditions of each grid cell. *Source: Atlas of the Biosphere*
- **Distance to Historical Cities**: The distance of a village from the nearest historical city, measured in kilometers. *Source: Chandler (1987)*
- **Malaria Ecology Index:**: The index takes into account the prevalence and type of mosquitoes indigenous to a region, their human biting rate, their daily survival rate, and their incubation period. The index has been constructed for 0.5 degree by 0.5 degree grid-cells. *Source: Kiszewski et al. (2004)*
- **Distance to Catholic and Protestant mission stations**: The distance of a village from the nearest Catholic or Protestant mission station, measured in kilometers *Source: Nunn (2010)*
- **Distance to Railroad**: The distance of a village from the nearest railroad built before 1960, measured in kilometers. *Source: Jedwab and Moradi (2015)*

B Description of Robustness Checks

The following section shows robustness to a range of different specifications and measurements; most notably, the validity of the assumptions underpinning the regression discon-

tinuity design, different choices for the main specification, and the possible endogeneity of administrative borders and headquarters.

Throughout the robustness checks, the results remain qualitatively the same: distance to the state leads to an increased role of traditional leaders when the state and chiefs are institutionally separated. When both are linked, chiefs act as complements and their role decreases when the state is weak. I also rerun all robustness checks for the DHS data, the results of which can be seen in Tables A17–A20.

Testing Hypotheses 1.A and 1.B

Column 1 in Table A6 estimates the effect of the low state capacity treatment when not considering the institutional role of traditional authorities. In the pooled sample, running the same specification as Table 1 on perceptions of traditional authorities reveals no effect of state capacity. This is not surprising considering that the Afrobarometer sample contains countries with distinct institutional setups and thus different relationships between the state and traditional authorities.

Next, Table A6 shows the effect of interacting treatment with institutional integration of traditional authorities (Column 2) following the main specification. Only when also considering the institutional integration of traditional authorities does low state capacity treatment have an effect on perceptions of traditional authorities. To further examine this pattern, Columns 3 and 4 test Hypotheses 1.A and 1.B separately. They subset the data by countries where traditional authorities are not given an institutionalized role in the constitution (Column 3) vs countries where they are institutionalized (Column 4). Confirming the two Hypotheses, the results show heterogeneity by institutional context. Traditional authorities become stronger in villages farther away from the state — they act as substitutes — but only when they are not institutionalized by the constitution (and thus institutionally separated). When traditional authorities are institutionalized in the constitution (and thus institutionally linked to the state), this relationship is reversed. Their role decreases farther away from the state — they act as complements.

Testing the RDD assumption

Two underlying assumptions are crucial for the causal validity of any regression discontinuity specification: smooth variation of covariates and no sorting around the cutoff.

If treatment is indeed as if random around the border and not the result of confounding factors, treatment should not have an effect on pretreatment covariates. In the case of changes in state capacity, few potential variables are pretreatment. Therefore, to test the

balance of my sample, I run the main specification on a set of geographical and historical variables. The results are reported in Table A5. Two out of ten are significantly different on the side of the border farther away from the state — distance to the national border and distance to colonial railways. A look at the observations on the map and sensitivity analysis finds that this is driven by observations from one country (Cameroon).[17] Still, all variables in the table and their interaction with institutionalization of chiefs are included as controls in the main analysis.[18]

For observations on both sides of the border to be comparable, there must be little or no sorting. I.e. chiefs and citizens should not move across internal borders to be closer or farther away from the state. One indication for sorting would be different densities on both sides of the border. To test for this, I perform McCrary tests on the Afrobarometer sample for the different bandwidth specification, the results of which can be seen in Panels B–E in Figure A5. Unfortunately, neither the Afrobarometer nor the DHS data contains information on the population of the settlement. Consequently, these graphs only show the distribution of settlements around the bandwidth used in the specification to see whether settlements cluster close to administrative boundaries on the side closer or farther from the headquarter. Figure A5 shows no indication for significant variation in density on around the cutoff. Second, I use the DHS data to test whether the low state capacity treatment induces migration on either side of the border. Table A8 shows that neither migration by children, men, women, nor an indicator combining the three, is significantly different on one side of the border.

Different Specifications

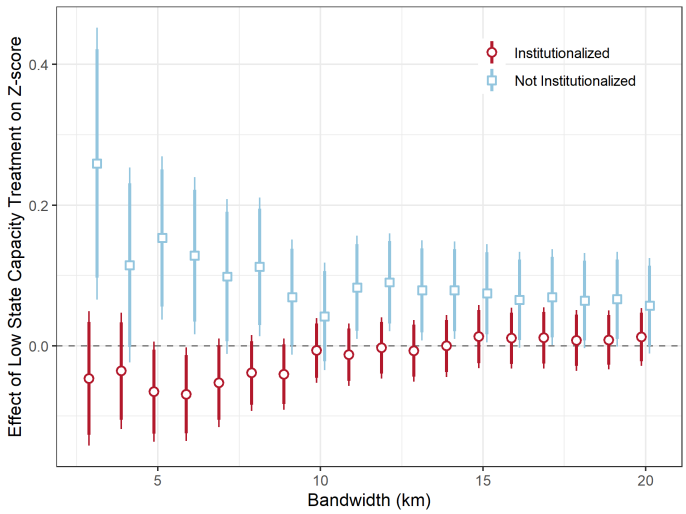
The choice of optimal bandwidth is a crucial step in any regression discontinuity design. Various strategies exist to select an optimal bandwidth (Imbens and Kalyanaraman, 2012; Calonico, Cattaneo and Titiunik, 2014). The matched regression discontinuity design in this paper, however, creates inconsistent estimators for the optimal bandwidth.[19] In order to check the robustness of these results, I vary the bandwidth between 3 and 20 kilometers. Sample size restricts the possibility to use bandwidths smaller than 3 km, and larger band-

[17] Panel A in Figure A5 shows that dropping each country individually from the analysis does not affect the results.

[18] I also run the analysis without using controls in Column 2 of Table A10, and the results remain consistent.

[19] This is due to the matching aspect of the specification. In a normal RD setting, extending the bandwidth from X to X+1 only adds observations that are between X and X+1 from the cutoff. In this case, however, increasing the bandwidth from X to X+1 will not only add observations between X and X+1 from the cutoff but also their matched observations on the other side of the border, which could be anywhere from 0 to X+1 from the cutoff. Thus, the variance bias trade-off calculated by the standard optimal bandwidth algorithms is not consistent.

Figure A1: Changing the Bandwidth



Notes: This figure shows the effect of the treatment measure on the dependent variable of Table A6 but varying the bandwidth from 3 to 20 kilometers. The 95% and 90% confidence intervals are plotted for each bandwidth.

widths than 20 km become less meaningful from an identification standpoint, as villages can be up to 40 km away from each other and are thus less comparable. The results can be seen in Figure A1. The results follow general regression discontinuity specifications, larger but less precise coefficients when using smaller bandwidths. No matter the bandwidth choice, chiefs remain substitutes from the state when not institutionalized by the constitution and they show the opposite relationship when being institutionalized. Still, the associated confidence intervals may not have correct coverage even if the estimator is unbiased, suggesting that it might be appropriate to use a higher critical value (Armstrong and Kolesar, 2017). Both the difference between treatment coefficients of the institutionalized and not institutionalized samples and the coefficient in the interaction specification surpass the most conservative critical value of 2.8.

The main specification uses an intensive treatment measure that indicates how much the distance to the administrative headquarter on one side is larger than on the other side of the internal administrative border. This intensive treatment measure is then scaled by the country and administrative division specific effect of distance on state capacity outcomes. The results hold when using the more rudimentary specification with a binary treatment indicator (Column (3) in Table A10). Using absolute log-distance to the administrative headquarter instead of the treatment indicator returns similar results (Column (4)). Removing the scaling of treatment by the country and administrative division specific coefficient of distance

on state capacity also does not change the findings (Column (5) in Table A10).

The main specification differs from some geographical regression discontinuity designs that use polynomial longitude-latitude specification (e.g., Dell. 2010). These studies estimate differences across a single geographical boundary. In that case using longitude and latitude offers a precise way of controlling for an observation's location vis-a-vis the boundary. However, when analyzing the differences across multiple boundaries, and in different countries as is the case here, using longitude and latitude becomes problematic. Since boundaries are in many different locations, longitude and latitude controls do not adequately capture an observation's location vis-a-vis its boundary in this setting. Distance to the border, as used in this paper, represents a clean measure. It has the added benefit of closely mirroring the standard regression discontinuity specification that incorporates a control for the distance to the cutoff. Nevertheless, I show that using this specification results in the same heterogeneous pattern (Column (6) in Table A10). Furthermore, I also conservatively cluster the standard errors at the highest administrative division instead of the lowest (Column (7) in Table A10).

Lastly, Column (8) of Table A10 removes all observations who have a different treatment assignment when using their own distance to their administrative headquarter instead of the average distance on their side of the border region (56 out of 801 observations).

The specification could also be sensitive to the inclusion or exclusion of outliers, both in terms of extreme values of the explanatory variable as well as specific countries. To make sure the results are not driven by such outliers, I drop extreme outliers that are more than 100 km and 50 km away from the administrative headquarters in Columns (2) and (3) of Table A11, respectively. In Panel A in Figure A5, I show the results dropping one country at a time. Columns (4) of Table A11 does not restrict to border segments by also including villagers whose nearest village on the other side of the border is farther than 30 km.

More generally, the results are also robust to different typical geographic regression discontinuity specification. While the logged distance is used in the main specification, the non-logged distance is used in Column (5) in Table A11. A more realistic measure of state capacity could be obtained by using travel time between villages and administrative headquarters. Travel time is linked to infrastructure investments that could be affected by state capacity or the state-chief interaction. Nevertheless, the results remain consistent when using logged travel time (Column (6) of Table A11).[20] I also restrict the analysis to rural observations since the dynamics between the state and chiefs might be different in an urban setting. Column (7) shows that the results hold when focusing on cases where observations

[20]Following methodology by Alegana et al. (2012) I use, altitude, land cover, rivers, and road network to calculate the travel time between a village and its administrative headquarters.

on both sides of the border are classified as rural. Due to data availability, the samples for the Afrobarometer and DHS analysis are not identical. Column (3) in Table A16 shows that the results remain unchanged when limiting the sample to countries for which I have both Afrobarometer and DHS geo-coded data.

Endogenous Borders and Headquarters

Previous studies have found spillovers in state capacity (Acemoglu, Camilo and Robinson, 2015). If local state capacity spillovers were sizable in the African context, it would downward bias my results and reduce the potency of the regression discontinuity design. To test whether such spillovers influence the results, I control for a village's distance to the administrative headquarter in the neighboring administrative unit (Column (2) in Table A12).

A concern in this particular regression discontinuity design might be that the locations of the administrative borders and headquarters are not random. Indeed, both the boundaries and the district capitals are likely to be the result of economic and political processes. Scholars have demonstrated, for example, that African governments routinely create more lower-level administrative units as part of political bargaining processes (Grossman and Lewis, 2014; Gottlieb et al., 2018). However, the endogeneity of borders and headquarters is unlikely to impact the results of this study, since both decisions are unlikely to be based on the particular villages and chiefs surveyed. Borders follow natural boundaries such as rivers or are straight lines and rarely altered for individual villages or chiefs. In other words, a strong local chief is unlikely to have the ability to influence the drawing of borders to put her village in a district with high or low state capacity.

Since the splitting of districts and the redrawing of boundaries is more prevalent in lower administrative divisions, I run the results separately for the first and second administrative divisions of the countries in my sample (Columns (3) and (4) in Table A12). Additionally, if borders were drawn to explicitly include or exclude a particular village, the boundary should be right next to the village. To exclude such potential cases I run a "Donut" RDD, where I exclude all villages within 1 km of the border (Column (5) in Table A12).

Another omitted factor in the analysis that could create discontinuity at the border is ethnicity. If administrative borders consistently coincide with ethnic demographics, the results and their interpretations could be affected. Column (6) in Table A12 indicates that this is not a concern. When controlling for ethnicity fixed effects based on the pre-colonial locations of ethnic groups, the results remain virtually unchanged.

Similarly to administrative boundaries, the location of headquarters is not based on the power of local chiefs but typically follows population density or economic activity: the

biggest or economically most important village or town becomes the administrative capital. While these factors determine the location of the capital, they don't change discontinuously at the border. Controlling for the distance to the neighboring headquarters does not affect the results (Column (2) in Table A12) and there is no evidence of high levels of migration (Table A3 and A8).

Still, in some cases, the location of the capital might be influenced by a particular influential chief. To make sure the results are not driven by this phenomenon I use the most populated place in each district in 1960[21] to instrument for the location of the district capitals. Putting the distance to the instrumented capitals in the specification returns similar results (Column (7) in Table A12). Lastly, I also run a placebo test where I chose a random location within an administrative division as the headquarter and estimate the effect of its distance on local chief power. The result can be seen in Column (8) in Table A12. Reassuringly, distance to these placebo headquarters does not result in sizable or significant effects, whether chiefs are institutionalized or not.

[21] Earlier data on population density is not disaggregated enough.

C Photos

Figure A2: Public Goods Provided by Traditonal Leaders in DRC

Panel A: Meeting Room

Panel B: Bridge

Panel C: Water Tap

Panel D: Water Source

Panel E: Bricks

Panel F: Road Clearing

Notes: These pictures show public goods provided by chiefs in villages in the Democratic Republic of the Congo. The pictures were taken during the collection of qualitative interviews with village chiefs in more than 20 villages in the North and South Kivu provinces of the DRC.

D Additional Figures

Figure A3: Bin-scatter between state capacity and distance

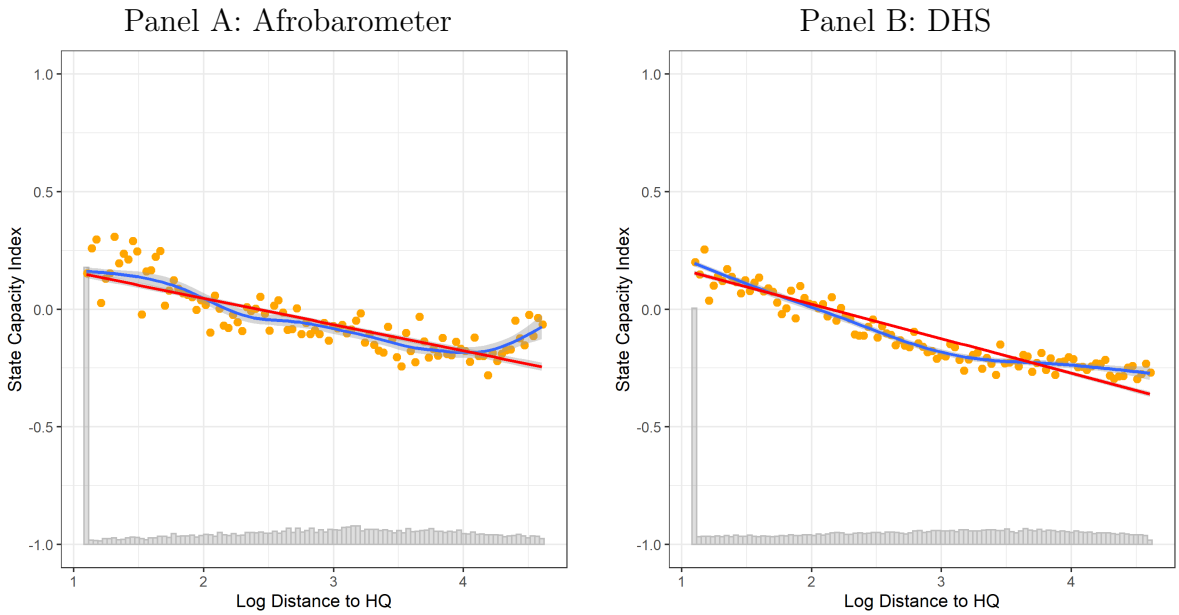
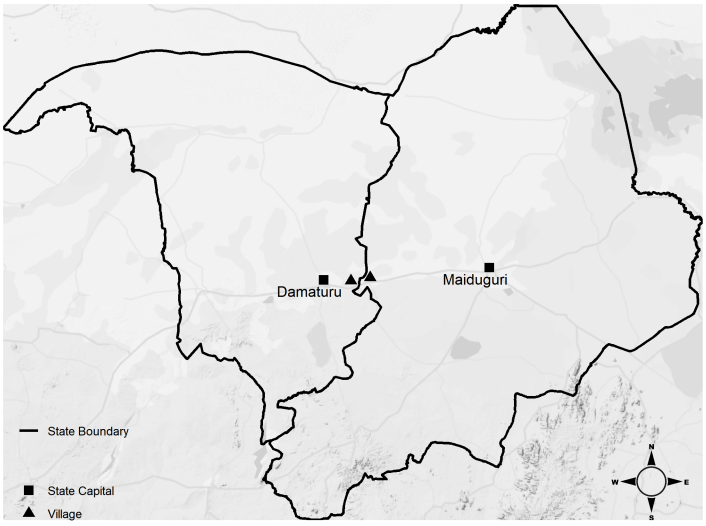


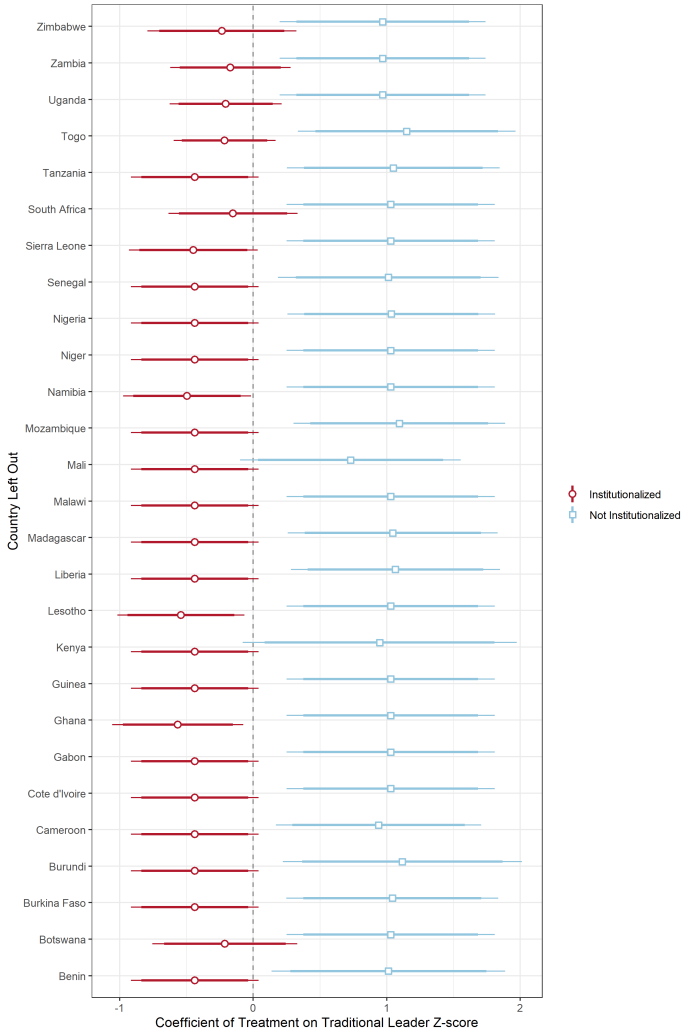
Figure A4: Illustration of Identification



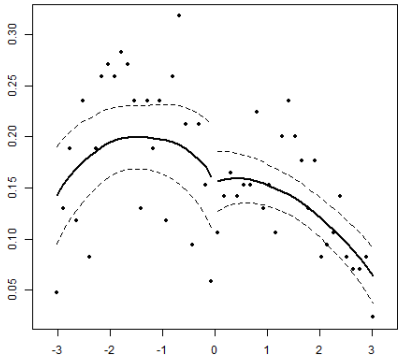
Notes: This figure shows the boundaries of two states (Yobe in the West and Borno in the East) in Nigeria.

Figure A5: Results of Leaving out Countries and McCrary Test with Different Bandwidths

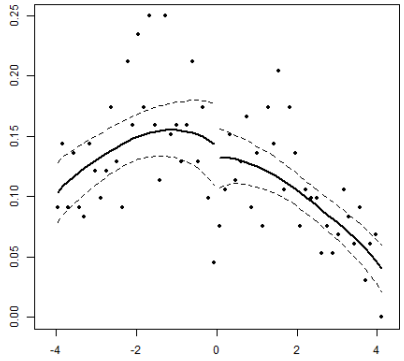
Panel A: Leave Countries Out



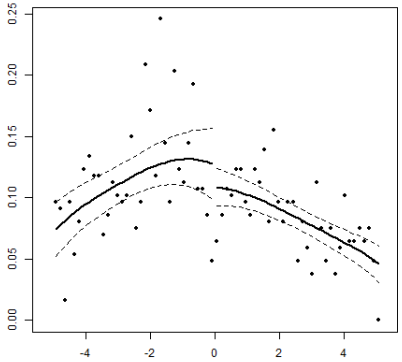
Panel B: McCrary 3 km



Panel C: McCrary 4 km



Panel D: McCrary 5 km



Panel E: McCrary 6 km

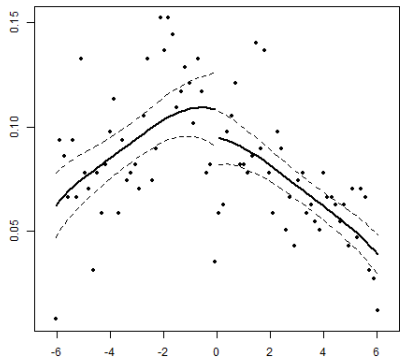
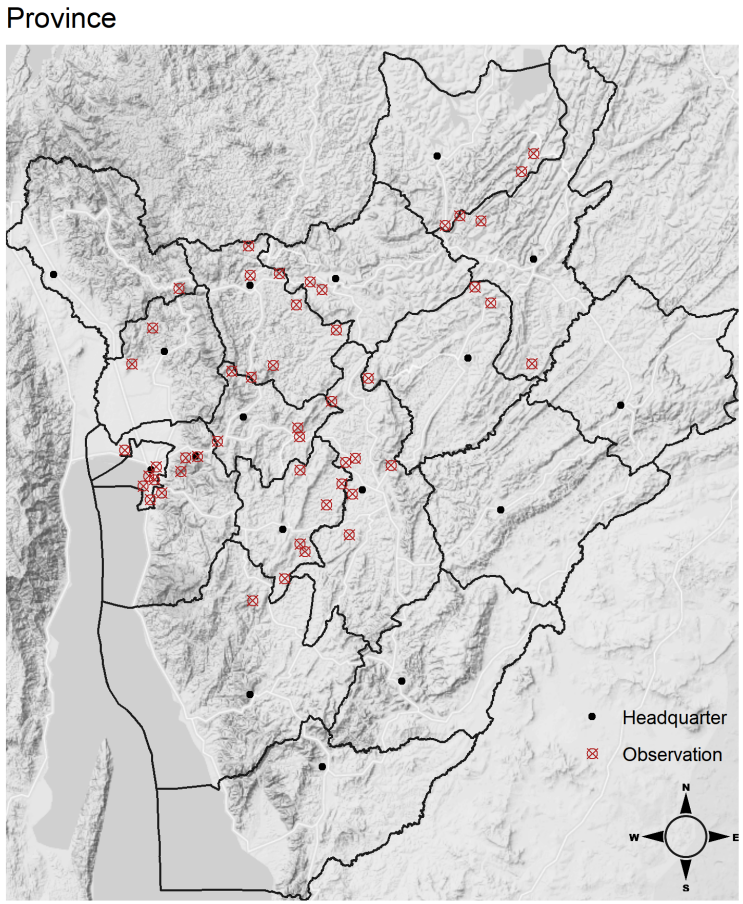
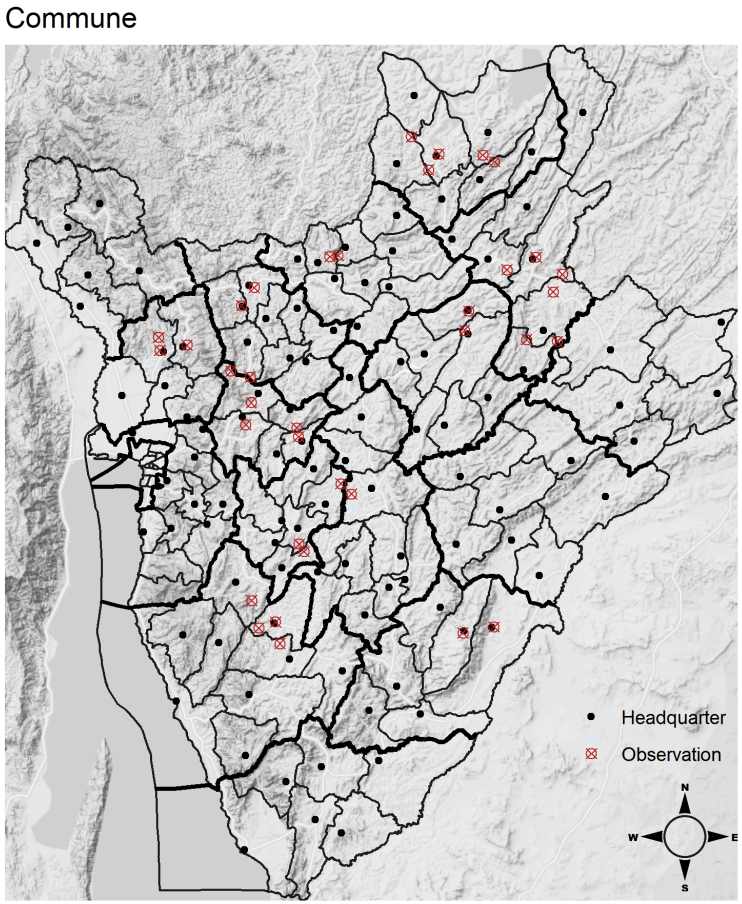


Figure A6: Borders, Headquarters, and Observations

Panel A: Admin Level 1 Burundi



Panel B: Admin Level 2 Burundi



Notes: This figure maps the administrative divisions and headquarters of Burundi as well as all villages in the Afrobarometer data included in the sample (i.e., at least one observation within 5 km on each side of an administrative border). Panel A uses the first administrative division, provinces. Panel B shows the second level, communes.

E Additional Tables

Table A2: Effect of Log Distance to HQ on Outcomes Related to State Presence

Panel A: Afrobarometer Data	*Dependent variable:*			
	Taxes paid	Local Dev	Public Goods	State Presence Index
	(1)	(2)	(3)	(4)
Log Distance to HQ	-0.155^{***}	-0.209^{***}	-0.094^{***}	-0.151^{***}
	(0.020)	(0.010)	(0.010)	(0.008)
Observations	3,392	15,777	15,797	15,797
Adjusted R^2	0.240	0.602	0.329	0.476
Panel B: DHS Data	*Dependent variable:*			
	Registered	Electricity	Water Access	State Presence Index
	(1)	(2)	(3)	(4)
Log Distance to HQ	-0.148^{***}	-0.311^{***}	0.136^{***}	-0.216^{***}
	(0.009)	(0.010)	(0.013)	(0.007)
Observations	21,178	30,239	29,150	30,239
Adjusted R^2	0.713	0.559	0.402	0.624

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of OLS regressions with log-distance to the administrative headquarters as the independent variable and various outcomes of state capacity as the dependent variables. Geographic and historical controls are included as well as district level and survey round fixed effects. Panel A uses data from the Afrobarometer survey. Standard errors, clustered at the district level, are shown in parentheses.

E.I Summary Statistics

Table A3: Summary Statistics for Full Regression Sample

Statistic	N	Mean	St. Dev.	Min	Max
Distance to Headquarter (km)	5,882	15.20	16.12	3.00	145.11
Distance to Admin. Border (km)	5,882	−0.49	2.56	−5.00	5.00
Distance to Village on Other Side (km)	5,882	8.16	6.16	0.10	29.99
Distance to Neighbouring HQ (km)	915	84.31	154.38	0.47	1,081.75
Traveltime to HQ (in min)	1,174	689.99	971.32	0.00	10,036.79
Treatment Intensity	5,611	0.48	1.00	0.00	8.14
Urban	5,882	0.50	0.50	0	1
Distance to National Capital (km)	5,787	170.13	221.02	0.15	1,789.27
Distance to National Border	5,787	74.75	73.34	0.02	378.52
Distance to Coast (km)	5,882	361.40	365.38	0.05	1,268.65
Elevation	5,882	625.50	620.92	−2	2,766
Ruggedness	5,882	0.08	0.12	0.00	1.30
Malaria Suitability	5,882	11.14	11.32	0	36
Agricultural Suitability	4,936	0.37	0.20	0.00	0.99
Distance to Christian Missions (km)	5,882	52.03	105.36	0.16	742.50
Distance to Histroical Cities (km)	5,882	450.13	378.87	0.00	1,940.92
Distance to Colonial Railroad (km)	5,882	73.40	109.15	0.00	968.55
Admin. Unit Size (sqkm)	5,787	2,657.73	7,771.85	2.22	175,770.30
Traditional Leader Z-score	810	−0.24	0.79	−2.62	2.84
Traditional Leader Influence	185	−0.10	0.97	−2.10	2.11
Trust in Traditional Leader	627	−0.31	1.06	−2.84	1.70
Corrupt Traditional Leader (Inverse)	627	−0.24	1.03	−3.96	1.94
Contact with Traditional Leader	810	−0.21	0.96	−1.04	4.05
State Presence Index	5,882	0.00	1.00	−2.96	3.00
Percentage of HH with Electricity	4,673	0.44	0.40	0.00	1.00
Percentage of Children Registered	3,551	0.52	0.32	0.00	1.00
Average Time to Water (min)	4,587	16.83	17.42	0.00	255.62
Literacy	3,655	0.53	0.31	0.00	1.00
Wealth Index	4,517	3.48	1.12	1.00	5.00
Infant Mortality	3,715	0.13	0.08	0.00	0.52
Traditional Medicine	4,006	−0.03	0.92	−0.28	9.74
Percentage of Kids Gone	3,715	0.24	0.11	0.00	0.75
Percentage of Men Born in Location	1,935	0.99	0.04	0.62	1.00
Percentage of Women Born in Location	1,929	0.98	0.04	0.55	1.00

Notes: This table shows the summary statistic of the regression sample. Only villages within 5 km of an administrative border, and which have a village on the other side of the border, are included. Villages farther than 150 km from their headquarter are dropped as are those where the neighboring village is more than 30 kilometers away. The sample for the DHS and Afrobarometer are pooled. Separate summary statistics can be found in Tables A14-A15.

Table A4: Effect of Distance to State on Components of Traditional Leader Z-Score and Additional Variables

	Dependent variable:						
	Traditional Leader Z-Score	Influence of TL	Contact with TL	Trust in TL	TL not Corrupt	Performance of TL	TL Listens
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Remoteness Treatment	0.154***	0.297	0.159**	0.058	0.246***	0.074	0.449*
	(0.055)	(0.195)	(0.071)	(0.068)	(0.079)	(0.073)	(0.268)
Treatment × Recognized	−0.219***	−0.332	−0.162*	−0.074	−0.285***	−0.239**	−0.457
	(0.067)	(0.271)	(0.084)	(0.082)	(0.101)	(0.098)	(0.293)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	703	157	703	536	536	375	155
Adjusted R^2	0.639	0.513	0.607	0.540	0.432	0.535	0.516

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of OLS regressions with the traditional leader z-score (1), its components (2-5), and two additional questions about traditional leaders (6-7) as the dependent variable. The exact wording of the variables can be found in Section A.I in the Appendix. Standard errors, clustered at the district level, are shown in parentheses.

E.II Geographic Outcomes

Table A5: Effect of Treatment on Historical and Geographical Controls using Afrobarometer and DHS Data

	Dependent variable:									
	Dist Capital	Dist Nat Border	Dist Coast	Elevation	Ruggedness	Agriculture	Hist Cities	Malaria	Missions	Dist Rail
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Remoteness Treatment	0.00005	0.035***	0.002	0.004	0.131	0.053	0.002	0.016	−0.002	0.027***
	(0.003)	(0.011)	(0.003)	(0.024)	(0.133)	(0.040)	(0.003)	(0.073)	(0.007)	(0.007)
Treatment × Recognized	0.008	−0.023	0.001	−0.003	−0.159	−0.064	0.011*	0.023	0.002	−0.008
	(0.006)	(0.027)	(0.006)	(0.039)	(0.213)	(0.071)	(0.006)	(0.078)	(0.013)	(0.012)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin Unit	Admin Unit	Admin Unit	Admin Unit	Admin Unit	Admin Unit	Admin Unit	Admin Unit	Admin Unit	Admin Unit
Observations	4,595	4,595	4,595	4,595	4,595	4,595	4,595	4,595	4,595	4,595
Adjusted R^2	0.999	0.994	1.000	0.986	0.644	0.936	1.000	0.955	0.998	0.997

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of OLS regressions with various geographical and historical variables as dependent variables. Following the main specification, the treatment variable is the intensive measure of how much the distance to the administrative headquarter is larger than on the other side of the internal administrative border while controlling for the distance to the administrative headquarter and its interaction with treatment variable. The sample is restricted to respondents who live within 5 km of the internal administrative boundary. In order to only compare respondents in neighboring districts, border region fixed effects are included. The following dependent variables are used: Column(1): Distance to the Capital. Column(2): Distance to the National Border. Column(3): Distance to the Coast. Column(4): Elevation. Column(5): Ruggedness. Column(6): Land Suitability for Agriculture. Column(7): Distance to Historical Cities. Column(8): Malaria Ecology Index. Column(9): Distance to Catholic and Protestant mission stations. Column(10): Distance to Railroads in 1960. Standard errors, clustered at the district level, are shown in parentheses.

E.III Robustness Checks

Table A6: Effect of Distance to State on Perceptions of Traditional Leader by Constitutional Recognition

	Dependent variable:			
	Traditional Leader Z-Score			
	Pooled Sample	Pooled Sample	Not Recognized	Recognized
	(1)	(2)	(3)	(4)
Remoteness Treatment	−0.010	0.154***	0.148**	−0.068*
	(0.033)	(0.055)	(0.057)	(0.038)
Treatment × Recognized		−0.219***		
		(0.067)		
Fixed effects?	Border Region	Border Region	Border Region	Border Region
Controls	✓	✓	✓	✓
Observations	703	703	246	457
Adjusted R^2	0.627	0.639	0.544	0.653

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of OLS regressions by institutional context with the traditional leader z-score as the dependent variable. Standard errors, clustered at the administrative unit level, are shown in parentheses.

Table A7: Robustness: Different Measures of Institutional Context

	Dependent variable:			
	Traditional Leader Z-Score			
	(1)	(2)	(3)	(4)
Remoteness Treatment	0.154***	0.185***	0.133***	0.063
	(0.055)	(0.058)	(0.049)	(0.048)
Treatment × Recognized	−0.219***			
	(0.067)			
Treatment × Mentioned		−0.253***		
		(0.069)		
Treatment × Protected			−0.227***	
			(0.062)	
Treatment × Salary				−0.125**
				(0.060)
Fixed effects?	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	703	703	703	703
Adjusted R^2	0.639	0.637	0.636	0.641

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the same specification as Table A6 in Column (1). Additionally, instead of noting whether traditional authorities are institutionalized in the constitution, it interacts treatment with Baldwin (2016) measure of whether traditional authorities are mentioned in the constitution (Column 2) or protected in the constitution (Column 3). Column (4) interacts treatment with an indicator if traditional leaders in the country receive an official salary from the state. Standard errors, clustered at the district level, are shown in parentheses.

Table A8: Effect of Treatment on Migration

	Dependent variable:			
	Migration			
	Children	Men	Women	Z-score
	(1)	(2)	(3)	(4)
Remoteness Treatment	0.019	−0.047	−0.017	−0.035
	(0.024)	(0.053)	(0.039)	(0.022)
Treatment × Recognized	−0.012	0.056	−0.016	0.041
	(0.050)	(0.064)	(0.067)	(0.037)
Fixed effects?	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	3,088	1,519	1,621	3,135
Adjusted R^2	0.346	0.122	0.204	0.566

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of OLS regressions with various measures of migration as outcomes. It follows the same specification as Table 3. The following dependent variables from the DHS survey are used: Column (1): Percentage of children that do not live at home. Column (2): Percentage of men that have always lived in their current location. Column (3): Percentage of women that have always lived in their current location. Column (4): Z-score combination of the three measures. Standard errors, clustered at the district level, are shown in parentheses.

Table A9: Covariate Balance — Country-Level Variables

	Not Recognized		Recognized		
Covariates (country level)	**N**	**Mean**	**N**	**Mean**	**p-value**
Historical Centralization	16	0.33	10	0.59	0.02
Year of Independence	16	1,954.31	11	1,961.82	0.43
Violent Independence?	16	0.19	11	0.27	0.63
Slave Exports	16	376,818.21	11	169,121.67	0.29
Population in 1400	16	973,040.63	11	439,638.09	0.16
Log Settler Mortality	15	6.07	5	5.41	0.40
British Colony	16	0.19	11	0.91	0.00
British Legal Origins	16	0.25	11	0.91	0.00
Settler Colony	16	0.13	11	0.36	0.19
Colonial Railroads (km)	16	962.36	11	921.50	0.91
Gemstones	16	2,014.94	11	40,045.45	0.11
Soil Quality	16	39.19	11	29.79	0.24
Average Distance to Coast	16	19.07	11	9.77	0.18
Land area (1000 Ha)	16	43,710.94	11	51,110.18	0.65
Ruggedness	16	0.51	11	1.24	0.20
Oil Production in 2000	16	8,285.33	11	60.62	0.26
Malaria Suitability	16	16.70	11	7.97	0.01
Rule of Law	16	-0.88	11	-0.37	0.03
GDP 1950	16	893.60	11	924.22	0.91
Failed State Index 2006	15	86.11	10	81.02	0.43
Taxes as % of GDP 2010	13	13.46	8	16.87	0.24
Democracy Index 2017	16	4.72	11	5.68	0.10
Political Decentralization	13	1.92	8	2.24	0.55

Notes: Difference in means between countries where traditional leaders are institutionalized and where they are not. All reported p-values are from two-sided t-tests.

Table A10: Robustness: Different Specifications

	Dependent variable:							
	Traditional Leader Z-Score							
	Main	No Controls	Binary Treatment	Absolute Distance	No Scaling	Long/Lat	Cluster	Drop Misassigned
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Remoteness Treatment	0.154***	0.113**	0.413**	0.113*	0.164***	0.094**	0.154**	0.136**
	(0.055)	(0.047)	(0.187)	(0.066)	(0.059)	(0.045)	(0.068)	(0.057)
Treatment × Institutionalized	−0.219***	−0.145**	−0.677***	−0.229**	−0.208***	−0.103*	−0.219***	−0.203***
	(0.067)	(0.057)	(0.245)	(0.077)	(0.075)	(0.053)	(0.079)	(0.071)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	703	801	703	703	703	703	703	654
Adjusted R^2	0.639	0.637	0.640	0.641	0.638	0.632	0.639	0.615

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the same specification as Table A6 for Column (1). Column (2) removes geographical controls. Column (3) uses only a binary treatment. Column (4) uses absolute log-distance to the hq instead of the treatment indicator. Column (5) does not scale the treatment variable. Column (6) uses a long-lat specification similar to Dell (2010). Column (7) clusters at the highest admin. division. Standard errors, clustered at the district level, are shown in parentheses. Column (8) shows the result after removing observations that have a different treatment assignment when using their own distance as opposed to the average distance on their side.

Table A11: Robustness: Different Measurement

	Dependent variable:						
	Traditional Leader Z-Score						
	Main	Drop 100 km	Drop 50 km	No Restriction	Non-Logged	Traveltime	Rural Only
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Remoteness Treatment	0.154***	0.179***	0.189***	0.174***	0.108*	0.139**	0.200**
	(0.055)	(0.069)	(0.070)	(0.048)	(0.055)	(0.065)	(0.091)
Treatment × Recognized	−0.219***	−0.238***	−0.250***	−0.233***	−0.194***	−0.223***	−0.276*
	(0.067)	(0.080)	(0.095)	(0.061)	(0.062)	(0.075)	(0.148)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	703	695	660	749	703	683	306
Adjusted R^2	0.639	0.644	0.643	0.638	0.639	0.636	0.593

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the same specification as Table A6 for Column (1). Column (2) drops outliers farther than 100 km away from their administrative headquarter. Column (3) drops observations more than 50 km away. Column (4) includes observations that do not have an observation on the other side of the border within 30 km. Column (5) uses non-logged distance. Column (6) uses travel time to the administrative headquarter instead of straight distance. Column (7) restricts to rural observations. Standard errors, clustered at the district level, are shown in parentheses.

Table A12: Robustness: Headquarters and Boundaries

	Dependent variable:							
	Traditional Leader Z-Score							
	Main	Neighbor HQ	Admin 1	Admin 2	Donut RD	Ethnicity FE	Instrumented HQs	Placebo
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Remoteness Treatment	0.154***	0.176**	0.181***	0.097	0.056	0.162**	0.140***	0.084
	(0.055)	(0.072)	(0.064)	(0.087)	(0.057)	(0.065)	(0.053)	(0.061)
Treatment × Recognized	−0.219***	−0.229**	−0.249***	−0.149	−0.133*	−0.215***	−0.134**	−0.113
	(0.067)	(0.094)	(0.083)	(0.105)	(0.079)	(0.076)	(0.064)	(0.076)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	703	558	392	311	560	701	726	731
Adjusted R^2	0.639	0.609	0.655	0.611	0.621	0.641	0.627	0.633

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the same specification as Table A6 for Column (1). Column (2) controls for distance to the neighboring headquarter. Columns (3) and (4) only uses the first and second administrative division in each country respectively. Column (5) includes ethnic homeland fixed effects. Column (6) uses instrumented locations for the administrative headquarters based on 1960 population density. Column (7) shows the effect of distance to randomly assigned "placebo" headquarters. Standard errors, clustered at the district level, are shown in parentheses.

Table A13: Effect of Distance to State on Components of Development Index

	Dependent variable:		
	Literacy	Wealth	Piped Water
	(1)	(2)	(3)
Remoteness Treatment	−0.028**	−0.070***	−0.050**
	(0.012)	(0.019)	(0.021)
Treatment × Recognized	−0.055**	−0.106***	−0.133***
	(0.027)	(0.036)	(0.047)
Fixed effects?	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit
Observations	3,061	3,516	3,563
Adjusted R^2	0.813	0.712	0.586

Standard errors in parentheses *p<0.1; **p<0.05; ***p<0.01

Notes: This table shows the results of OLS regressions on several outcome variables from the DHS survey. Following the main specification, the treatment variable is the intensive measure of how much the distance to the administrative headquarter on one side is larger than on the other side of the internal administrative border while controlling for the distance to the administrative headquarter and its interaction with the treatment variable. The sample is restricted to respondents who live within 5 km of the internal administrative boundary. In order to only compare respondents in neighboring districts, I include border region fixed effects. An observation corresponds to a geographic location (i.e., village or neighborhood). Standard errors are clustered at the district level. Column (1) looks at literacy. Column (2) shows the results on wealth. Column (3) considers access to piped water.

Table A14: Summary Statistics for Afrobarometer Regression Sample

Statistic	N	Mean	St. Dev.	Min	Max
Distance to Headquarter (km)	1,209	17.73	20.00	3.00	145.11
Distance to Admin. Border (km)	1,209	−0.36	2.59	−5.00	5.00
Distance to Village on Other Side (km)	1,209	9.38	6.40	0.64	29.93
Distance to Neighbouring HQ (km)	915	84.31	154.38	0.47	1,081.75
Traveltime to HQ (in min)	1,174	689.99	971.32	0.00	10,036.79
Treatment Intensity	1,194	0.06	0.12	0.00	0.86
Urban	1,209	0.64	0.48	0	1
Distance to National Capital (km)	1,209	139.98	226.76	0.73	1,298.90
Distance to National Border	1,209	97.03	86.69	0.09	276.66
Distance to Coast (km)	1,209	408.50	354.82	0.13	1,182.26
Elevation	1,209	854.96	671.34	0	2,205
Ruggedness	1,209	0.10	0.13	0.00	1.30
Malaria Suitability	1,209	7.09	9.85	0	34
Agricultural Suitability	1,045	0.37	0.18	0.01	0.99
Distance to Christian Missions (km)	1,209	34.30	72.68	0.16	742.50
Distance to Histroical Cities (km)	1,209	564.90	403.01	0.0000	1,940.92
Distance to Colonial Railroad (km)	1,209	119.42	156.64	0.12	968.55
Admin. Unit Size (sqkm)	1,209	3,425.26	10,512.82	2.22	146,680.40
Traditional Leader Z-score	810	−0.24	0.79	−2.62	2.84
Traditional Leader Influence	185	−0.10	0.97	−2.10	2.11
Trust in Traditional Leader	627	−0.31	1.06	−2.84	1.70
Corrupt Traditional Leader (Inverse)	627	−0.24	1.03	−3.96	1.94
Contact with Traditional Leader	810	−0.21	0.96	−1.04	4.05
State Presence Index	1,209	0.19	0.61	−1.15	1.44

Notes: This table shows the summary statistic of the regression sample using the Afrobarometer data only. Only villages within 5 km of an administrative border, and which have a village on the other side of the border, are included. Villages farther than 150 km from their headquarter are dropped as are those where the neighboring village is more than 30 km away.

Table A15: Summary Statistics for DHS Regression Sample

Statistic	N	Mean	St. Dev.	Min	Max
Distance to Headquarter (km)	4,673	14.55	14.89	3.00	74.63
Distance to Admin. Border (km)	4,673	−0.53	2.56	−5.00	4.99
Distance to Village on Other Side (km)	4,673	7.85	6.06	0.10	29.99
Treatment Intensity	4,417	0.07	0.16	0.00	1.21
Urban	4,673	0.46	0.50	0	1
Distance to National Capital (km)	4,578	178.09	218.81	0.15	1,789.27
Distance to National Border (km)	4,578	68.87	68.19	0.02	378.52
Distance to Coast (km)	4,673	349.22	367.11	0.05	1,268.65
Elevation	4,673	566.13	592.99	−2	2,766
Ruggedness	4,673	0.07	0.11	0.00	1.01
Malaria Suitability	4,673	12.19	11.44	0.00	35.71
Agricultural Suitability	3,891	0.37	0.21	0.00	0.99
Distance to Christian Missions (km)	4,673	56.62	111.82	0.19	741.09
Distance to Histroical Cities (km)	4,673	420.44	366.61	0.23	1,472.23
Distance to Colonial Railroad (km)	4,673	61.49	89.23	0.004	547.50
Admin. Unit Size (sqkm)	4,578	2,455.03	6,854.98	2.22	175,770.30
State Presence Index	4,673	0.31	0.70	−1.74	2.33
Percentage of HH with Electricity	4,673	0.44	0.40	0.00	1.00
Percentage of Children Registered	3,551	0.52	0.32	0.00	1.00
Average Time to Water (min)	4,587	16.83	17.42	0.00	255.62
Literacy	3,655	0.53	0.31	0.00	1.00
Wealth Index	4,517	3.48	1.12	1.00	5.00
Infant Mortality	3,715	0.13	0.08	0.00	0.52
Traditional Medicine	4,006	−0.03	0.92	−0.28	9.74
Percentage of Kids Gone	3,715	0.24	0.11	0.00	0.75
Percentage of Men Born in Location	1,935	0.99	0.04	0.62	1.00
Percentage of Women Born in Location	1,929	0.98	0.04	0.55	1.00

Notes: This table shows the summary statistic of the regression sample using the DHS data only. Only villages within 5 km of an administrative border, and which have a village on the other side of the border, are included. Villages farther than 150 km from their headquarter are dropped as are those where the neighboring village is more than 30 km away.

Table A16: Additional Robustness

	Dependent variable:		
	Traditional Leader Z-Score		
	Main	British Colonies	Drop Non-DHS Countries
	(1)	(2)	(3)
Remoteness Treatment	0.154^{***}	0.196^{**}	0.186^{***}
	(0.055)	(0.082)	(0.069)
Treatment × Recognized	-0.219^{***}	-0.261^{***}	-0.156^{*}
	(0.067)	(0.090)	(0.088)
Fixed effects?	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit
Observations	703	527	452
Adjusted R^2	0.639	0.642	0.632

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the same specification as Table A6 for Column (1). Column (2) restricts the sample to former British colonies.

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Table A17: Robustness: Different Specifications

	Dependent variable:						
	Development Index						
	Main	No Controls	Binary Treatment	No Scaling	Long/Lat	Cluster	Scramble
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Remoteness Treatment	-0.063^{***}	-0.068^{***}	-0.056	-0.081^{***}	-0.095^{***}	-0.063^{***}	-0.065^{***}
	(0.017)	(0.015)	(0.048)	(0.020)	(0.014)	(0.020)	(0.019)
Treatment × Recognized	-0.100^{***}	-0.072^{**}	-0.094	-0.049	-0.079^{***}	-0.100^{**}	-0.107^{***}
	(0.033)	(0.032)	(0.096)	(0.034)	(0.025)	(0.041)	(0.033)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	3,563	4,417	3,563	3,563	3,563	3,563	3,563
Adjusted R^2	0.698	0.740	0.692	0.698	0.695	0.698	0.702

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the same specification as Table 3 for Column (1). Column (2) removes geographical controls. Column (3) uses only a binary treatment. Column (4) does not scale the treatment variable. Column (5) uses a long-lat specification similar to Dell (2010). Column (6) clusters at the highest admin. division. Column (7) adjusts for potential scrambling of coordinates in the DHS sample. Standard errors, clustered at the district level, are shown in parentheses.

Table A18: Robustness: Different Measurement

	Dependent variable:				
	Development Index				
	Main	Drop 50 km	No Restriction	Non-Logged	Traveltime
	(1)	(2)	(3)	(4)	(5)
Remoteness Treatment	−0.063***	−0.074***	−0.078***	−0.030*	−0.072***
	(0.017)	(0.018)	(0.019)	(0.016)	(0.015)
Treatment × Recognized	−0.100***	−0.108***	−0.095***	−0.026	−0.079**
	(0.033)	(0.038)	(0.035)	(0.029)	(0.033)
Fixed effects?	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	3,563	3,358	3,763	3,563	3,484
Adjusted R^2	0.698	0.700	0.695	0.692	0.701

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the same specification as Table 3 for Column (1). Column (2) drops outliers farther than 50 km away from their administrative headquarter. Column (3) includes observations that do not have an observation on the other side of the border within 30 km. Column (4) uses non-logged distance. Column (5) uses travel time to the administrative headquarter instead of straight distance. Standard errors, clustered at the district level, are shown in parentheses.

Table A19: Robustness: Headquarters and Boundaries

	Dependent variable:						
	Development Index						
	Main	Distance to Neigh HQ	Admin 1	Admin 2	Donut RD	Ethnicity FE	Placebo
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Remoteness Treatment	−0.063***	−0.096***	−0.038	−0.063***	−0.076***	−0.059***	−0.014
	(0.017)	(0.018)	(0.027)	(0.019)	(0.024)	(0.018)	(0.014)
Treatment × Recognized	−0.100***	−0.108***	−0.152*	−0.093**	−0.110***	−0.095***	−0.055
	(0.033)	(0.036)	(0.088)	(0.038)	(0.037)	(0.032)	(0.042)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	3,563	3,563	1,359	2,204	2,762	3,555	3,857
Adjusted R^2	0.698	0.700	0.766	0.645	0.693	0.697	0.702

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the same specification as Table 3 for Column (1). Column (2) controls for distance to the neighboring headquarter. Columns (3) and (4) only uses the first and second administrative division in each country respectively. Column (5) estimates a Donut RD by removing observations within 1 km of the border. Column (6) includes ethnic homeland fixed effects. Column (7) shows the effect of distance to randomly assigned "placebo" headquarters. Standard errors, clustered at the district level, are shown in parentheses.

Table A20: Robustness: Interaction with Country Variables

	Dependent variable:								
	Development Index								
	Pop. 1400	Brit. Colony	Brit. Legal	Settler Colony	Gemstones	Ruggedness	Malaria Suit.	Dem. Index	Q Rule of Law
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Low Local State Capacity	-0.074^{***}	-0.064^{***}	-0.065^{***}	-0.062^{***}	-0.079^{***}	-0.063^{***}	-0.057^{***}	-0.083^{***}	-0.101^{***}
	(0.022)	(0.015)	(0.015)	(0.019)	(0.022)	(0.021)	(0.018)	(0.016)	(0.019)
Treatment × Recognized	-0.093^{**}	-0.106^{***}	-0.102^{***}	-0.101^{***}	-0.077^{**}	-0.124^{***}	-0.125^{***}	-0.100^{***}	-0.040
	(0.037)	(0.034)	(0.033)	(0.031)	(0.037)	(0.035)	(0.032)	(0.032)	(0.036)
Treatment × CountryVariable	0.012	-0.001	-0.004	0.002	-0.036	0.019	-0.038^{*}	0.016	-0.063^{***}
	(0.009)	(0.015)	(0.015)	(0.019)	(0.032)	(0.026)	(0.020)	(0.011)	(0.018)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	3,540	3,540	3,540	3,563	3,540	3,540	3,563	3,540	3,540
Adjusted R^2	0.700	0.700	0.700	0.698	0.701	0.702	0.699	0.702	0.702

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the main specification but also includes the interaction of treatment with several country-level variables to control for possible confounding factors. This results in the following specification: $Y_{i,s,r} = \beta_0 + \beta_1 Tint_s + \beta_2 DB_i + \beta_3 T_s \times DB_i + \beta_4 Tint_s \times Recognized + \beta_5 DB_i \times Recognized + \beta_6 T_s \times DB_i \times Recognized + \beta_7 Tint_s \times CountryVariable + \beta_8 DB_i \times CountryVariable + \beta_9 T_s \times DB_i \times CountryVariable + \beta_{10}\chi_i + \beta_{11} BR_r + \epsilon$. Border region fixed effects are included and standard errors, clustered at the district level, are shown in parentheses.

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Table A21: Robustness: Interaction with Country Variables

	Dependent variable:						
	Traditional Leader Z-Score						
	Hist. Central.	Year Indep.	Violent Indep.	Slave Export	Settler Mortality	Colonial Rail	Soil Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Low Local State Capacity	0.099**	0.084*	0.125***	0.112***	0.072	0.115**	0.124***
	(0.047)	(0.050)	(0.043)	(0.043)	(0.047)	(0.045)	(0.045)
Treatment × Recognized	−0.144**	−0.165***	−0.163***	−0.142**	−0.075	−0.159***	−0.177***
	(0.063)	(0.056)	(0.054)	(0.059)	(0.084)	(0.055)	(0.054)
Treatment × CountryVariable	−0.031	0.087	−0.037*	0.046	0.120*	−0.001	−0.007
	(0.022)	(0.055)	(0.021)	(0.049)	(0.061)	(0.021)	(0.028)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	668	703	703	703	577	703	703
Adjusted R^2	0.600	0.641	0.639	0.638	0.594	0.638	0.637

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the main specification but also includes the interaction of treatment with several country-level variables to control for possible confounding factors. This results in the following specification: $Y_{i,s,r} = \beta_0 + \beta_1 Tint_s + \beta_2 DB_i + \beta_3 T_s \times DB_i + \beta_4 Tint_s \times Recognized + \beta_5 DB_i \times Recognized + \beta_6 T_s \times DB_i \times Recognized + \beta_7 Tint_s \times CountryVariable + \beta_8 DB_i \times CountryVariable + \beta_9 T_s \times DB_i \times CountryVariable + \beta_{10}\chi_i + \beta_{11} BR_r + \epsilon$. Border region fixed effects are included and standard errors, clustered at the district level, are shown in parentheses.

Table A22: Robustness: Interaction with Country Variables

	Dependent variable:						
	Near Coast	Land Area	Oil Production	Traditional Leader Z-Score RGDP 1950	Years Schooling	Fragile State Index	Tax Revenue over GDP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Low Local State Capacity	0.107**	0.124***	0.126***	0.046	0.075	0.100**	0.073
	(0.043)	(0.047)	(0.044)	(0.053)	(0.057)	(0.043)	(0.046)
Treatment × Recognized	−0.214***	−0.175***	−0.173***	−0.139***	−0.098	−0.160***	−0.138**
	(0.063)	(0.052)	(0.053)	(0.053)	(0.066)	(0.055)	(0.066)
Treatment × CountryVariable	−0.088*	−0.047	0.020	−0.133**	−0.080	0.021	−0.076
	(0.048)	(0.042)	(0.046)	(0.059)	(0.060)	(0.025)	(0.059)
Fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit	Admin. Unit
Observations	703	703	703	703	663	666	617
Adjusted R^2	0.639	0.639	0.639	0.642	0.646	0.594	0.591

Notes: *p<0.1; **p<0.05; ***p<0.01. This table shows the results of the main specification but also includes the interaction of treatment with several country-level variables to control for possible confounding factors. This results in the following specification: $Y_{i,s,r} = \beta_0 + \beta_1 Tint_s + \beta_2 DB_i + \beta_3 T_s \times DB_i + \beta_4 Tint_s \times Recognized + \beta_5 DB_i \times Recognized + \beta_6 T_s \times DB_i \times Recognized + \beta_7 Tint_s \times CountryVariable + \beta_8 DB_i \times CountryVariable + \beta_9 T_s \times DB_i \times CountryVariable + \beta_{10} \chi_i + \beta_{11} BR_r + \epsilon$. Border region fixed effects are included and standard errors, clustered at the district level, are shown in parentheses.

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