

Endogenous Colonial Borders: Precolonial States and Geography in the Partition of Africa

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Abstract

We provide a new theory and evidence on colonial border formation in Africa. Existing accounts highlight that Europeans unilaterally drew arbitrary international borders in ignorance of local conditions. We instead show that African border formation was a dynamic process that lasted for decades, and propose that self-interested Europeans faced incentives to learn about and adjust to realities on the ground. The rough boundaries of precolonial states and salient geographical features (rivers and lakes) created focal points for Europeans to form borders and settle disputes, and also created leverage for African chiefs to influence colonial borders. To test our theory, we compiled original spatial data on precolonial states. Using both grid cells and ethnic groups, we test hypotheses about precolonial states and water bodies. We also compiled extensive data from treaties and diplomatic correspondences to show direct evidence of the mechanisms. We conclude that the colonial *states* were largely artificial with respect to historical and geographic antecedents—yet the *borders* between these states were not.

Keywords: Africa, borders, colonialism, geography, precolonial states

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1 INTRODUCTION

To understand the roots of economic underdevelopment and civil conflict in contemporary Africa, scholars and popular accounts frequently highlight the period of European colonial rule as a critical juncture. This epoch was relatively short, lasting from the 1880s to 1960s in most cases. Yet this period also engendered the modern political map of Africa, resulting in what scholars commonly characterize as largely arbitrary and artificial states, relative to historical precedents. Scholars connect arbitrary borders in Africa to outcomes such as conflict (Englebert, Tarango and Carter 2002; Michalopoulos and Papaioannou 2016; Goemans and Schultz 2017), economic development (Alesina, Easterly and Matuszeski 2011; Michalopoulos and Papaioannou 2014), and political identity (Posner 2004; Robinson 2016). As Herbst (2000) contends, “the boundaries were, in many ways, the most consequential part of the colonial state.” Existing accounts of European colonialism in Africa highlight two important claims:

Claim 1. Process. Most of Africa’s borders were drawn at the infamous 1884–85 Berlin Conference by self-interested European powers who lacked knowledge about local conditions. Their goal was simply to minimize conflict among themselves.

Claim 2. Outcomes. This process resulted in arbitrarily designed borders that neglected local features. Ethnic groups and historical states were partitioned via an as-if random process, and many borders were straight lines.

Michalopoulos and Papaioannou (2016) provide the most rigorous statistical evidence to date and conclude: “With the exceptions of the land mass of the historical ethnic homeland and the presence of lakes, there are no significant differences between split and non-split homelands along a comprehensive set of covariates . . . These results offer support to a long-standing assertion within the African historiography regarding the largely arbitrary nature of African borders, at least with respect to ethnic partitioning.” A recent textbook by leading Africanists cites this evidence as establishing “the arbitrariness—statisticians would say as-if randomness—with which borders were drawn in Berlin . . .” (Christensen and Laitin 2019). Herbst’s highly cited work on colonial bor-

der formation in Africa supports the view of existing research that “[t]he arbitrary division of the continent by the European powers [exhibited] little or not respect for preexisting social and political groupings, or even, sometimes, for ‘natural’ geographical features” (see Herbst 1989, 675 and Herbst 2000, ch. 3; for related claims, see Touval 1972; Asiwaju 1985; Englebert, Tarango and Carter 2002; Alesina, Easterly and Matuszeski 2011). Extensive research compares political and economic outcomes using borders in Africa as the basis of natural experimental research designs, given the premise of as-if randomness (see McCauley and Posner 2015 for a recent review).

Despite intense interest in the *consequences* of border formation in Africa, we lack systematic evidence about *how the borders were actually drawn*. We fill this important gap in the literature by providing a new theory accompanied by quantitative and qualitative evidence about African border formation, which rejects the conventional wisdom about arbitrary borders. The infamous Berlin Conference determined general spheres of influence, but few specific borders. Instead, the process of African border formation was dynamic, protracted, and unfolded over many decades. European powers were pernicious and self-interested. However, their selfish motives created incentives to *learn about and adjust to realities on the ground*. Although European powers had the upper hand, they did not operate in a vacuum, which enabled African rulers to influence the process.

Consequently, the process of African border formation was systematic in ways unrecognized in existing research, and hence less arbitrary with regard to local conditions than commonly alleged. To minimize intra-European conflict, European powers agreed on the principle of suzerainty. This meant that a power with a recognized treaty with an African ruler gained *all* the territory in their domain. Correspondingly, we find that major precolonial states were infrequently partitioned, and that chiefs of such polities were often influential in the border formation process. European states also frequently used salient geographic features as focal points, most commonly major rivers and lakes, and sometimes other topographic features such as mountains or existing towns and infrastructure. These features are not arbitrary with regard to realities on the ground. Water bodies, for example, were the bedrock of many precolonial states and civilizations in Africa and long-

distance precolonial trade networks were shaped by these water bodies. Only in the absence of discernible features did European powers frequently draw straight-line borders, which are prevalent in areas of low population density such as deserts.

We produce these findings using a multi-method approach. On the quantitative side, we conduct a statistical analysis using square grid cells to analyze what cell characteristics (e.g., territory governed by a historical state, presence of a river) increase the probability that a border segment is in that cell. To do so, we compiled an original spatial dataset on the location of precolonial states in Africa. We also examine statistical correlates of ethnic partition. On the qualitative side, we compiled information on the determinants of every bilateral border, as evidenced from primary sources, and on the years with which Britain signed treaties with African chiefs. We also compiled documentary evidence on border formation for all fifty precolonial states in our dataset, as well as for each of the ten longest rivers and largest lakes, which supports our theoretical claim that these features created focal points for resulting intra-European disputes over border formation. Our multi-method approach seeks to harness the advantages of using quantitative evidence to assess historical causes while also being attentive to the importance of qualitative data for scrutinizing treatment assignment (Dunning [2012](#); Kocher and Monteiro [2016](#)).

Rethinking the process of African border formation is critical to understanding contemporary political and economic outcomes in the region. State formation in Africa was externally imposed and harmful. However, most influential accounts overstate the extent to which the colonial *borders* specifically were drawn arbitrarily. A careful study of the process of African border formation is an essential step toward a more convincing explanation of the colonial roots of underdevelopment and conflict in the region. The primary contribution of this paper is to document the systematic process of border formation in the region, which is much more complex than portrayed in standard accounts. We conclude with suggestions for future research to substantiate a more promising mechanism of harmful European colonialism: combining many ethnic groups that lacked a shared political history into the same colonial state, thus creating states much larger than historical poli-

ties and drawing fixed lines in a region historically characterized by fluidity. In that discussion, we revisit Geertz’s (1973) and Englebert, Tarango and Carter’s (2002) distinction between “dismemberment” (*partitioning* groups) and “suffocation” (forcing *distinct* groups into the same country), and suggest that suffocation was perhaps the more important legacy.¹

The remainder of the paper proceeds as follows. We first reject the conventional theory of African border formation by documenting that most African borders were not in fact formed at Berlin in 1884–85. Then we present a theoretical account of African border formation that draws on international relations theories of border revisions in Europe. Our first piece of evidence comes from a statistical analysis of partition using grid cells. Finally, we present qualitative evidence about each bilateral border, precolonial states, and lakes and rivers. We conclude by discussing suffocation versus dismemberment, and implications for research designs that rely on as-if random border location.

2 IT DIDN’T HAPPEN AT BERLIN

The standard theory of African border formation is simple: it happened at Berlin. We contest this assertion.² We provide evidence that the main consequence of the Berlin Conference of 1884–85 was to spur European powers to sign treaties with African chiefs; most borders were formed years or even decades later. In the meantime, Europeans confronted on-the-ground realities that—as we argue in the next section—shaped a process of border formation that took various systematic factors into account.

Existing scholarship focuses mainly on the Berlin Conference of 1884–85 as the touchstone for the process of arbitrary border formation in Africa. The goal of the conference was to settle disputes

¹For recent assessments that pertain to suffocation in articles presenting statistical evidence, see Green (2012), who shows that Europeans tended to create large African states in areas with low population density; Müller-Crepon (2020), who shows that France was more likely than Britain to depose traditional rulers in Africa, consistent with France’s preference for more direct rule; and Jedwab, Meier zu Selhausen and Moradi (2018), who show that disease environment and early trading centers explain the location of missions in colonial Africa.

²Katzenellenbogen (1996) inspired the header for this section.

by rival European powers over claims to territory in Africa, sparked in part by Germany's surprising entrance onto the colonial scene.³ At the conference, "there was no African representation, and African concerns were, if they mattered at all, completely marginal to the basic economic, strategic and political interests of the negotiating European powers" (Asiwaju 1985, 1). To highlight Europeans' ignorance of local conditions, many scholars cite a contemporaneous quote by Lord Salisbury of Britain: "We have been engaged in drawing lines upon maps where no white man's foot ever trod; we have been giving away mountains and rivers and lakes to each other, only hindered by the small impediment that we never knew exactly where the mountains and rivers and lakes were."

According to existing scholarship, these circumstances engendered a particularly arbitrary process of border formation in Africa. "The infamous Berlin Conference of 1884-85 set administrative boundaries in Africa and granted vast territories to the leading European powers . . . Berlin set the colonial boundaries and determined, in large stretches, the borders of contemporary African states. . . . In Berlin, borders were drawn without regard for existing social groups and, thus, lumped together and partitioned Africa's ethnic groups" (Christensen and Laitin 2019). Similarly, Touval (1966, 291) asserts that African borders were "decided upon in complete disregard of local needs and circumstances." Others acknowledge events beyond the Berlin Conference but continue to stress how the ignorance and self interest of European powers yielded arbitrary borders. According to Herbst (1989, 674), "the borders demarcated by 1904 firmly established the outline of the boundary system that is used in Africa today. The overwhelming importance of imperial military and geopolitical interests in the scramble for Africa meant that the Europeans necessarily ignored factors that are generally considered relevant to the partitioning of land." Michalopoulos and Papaioannou (2016) provide a similar representative summary: "During the 'Scramble for Africa,'

³Prior to the 1880s, European territorial influence in Africa was mostly limited to small footholds on the coast. "It is not an exaggeration that between 1550 and 1800 Europeans learned virtually nothing new about the lands beyond the African coastline. [...] By 1875, in fact, European possessions in Africa still only comprised the coastal forts and trading stations and a few tiny colonies" (Foster 1967, 45, 51). For example, British presence in West Africa was largely confined to trading companies, such as the Royal African Company and the African Company of Merchants, and annexations of some coastal territories.

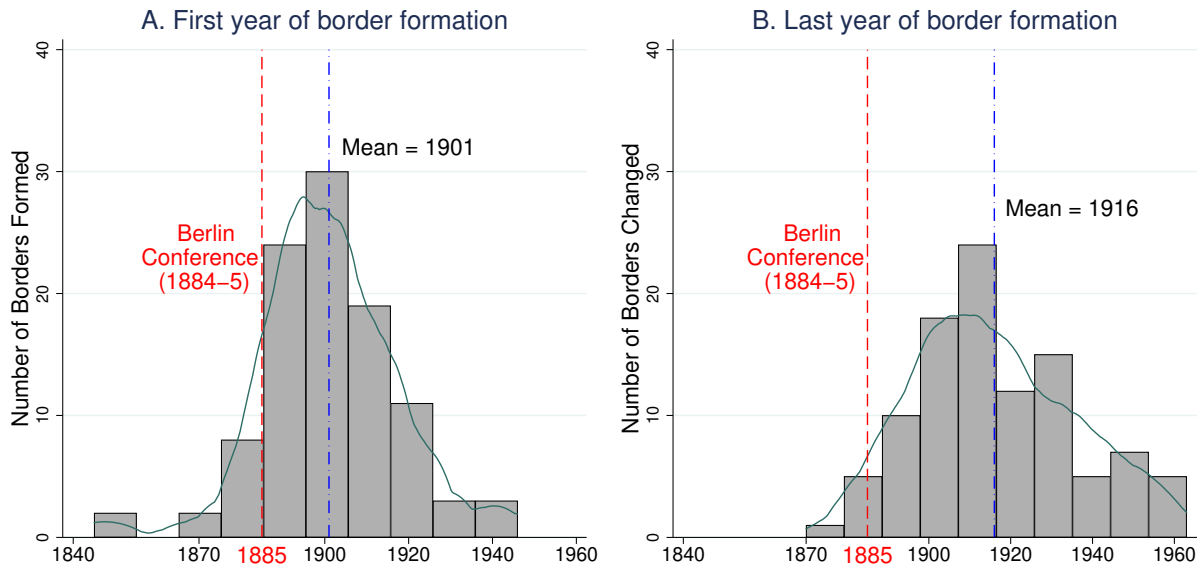
that starts with the Berlin Conference of 1884–1885 and is completed by the turn of the twentieth century, Europeans partitioned Africa into spheres of influence, protectorates, and colonies. The borders were designed in European capitals at a time when Europeans had barely settled in Africa and had limited knowledge of local conditions. Despite their arbitrariness, boundaries outlived the colonial era.”

We establish that the broad thrust of these claims does not comport with key facts about border formation in Africa. Although the Berlin Conference of 1884–85 ignited the “scramble for Africa,” it settled few borders. In Figure 1, for every bilateral border, we present data from Goemans and Schultz (2017) on the first year a border was formed and the last year it was revised.⁴ Half of all African bilateral borders were not even conceived until 1899 and, on average, the first treaty delineating a bilateral border occurs only in 1901, 15 years after the Berlin Conference (Panel A). On average, the final major revision to each border occurred in 1916, more than 30 years after the Conference (Panel B; median year is 1912). Using these data, we also compute that over half of the bilateral borders (54/102) were not settled after the first treaty. On average, it took 15 years to settle a border (median duration is 7 years), and 15 of the 102 borders took 40 years or longer to settle.

The late timing of border settlement raises important puzzles about conventional accounts of the partition of Africa focused on the 1884–85 Berlin Conference. We accept many pieces of conventional wisdom about the Berlin Conference: it was consequential for certain outcomes; it was an archetype of European imperialism; and, at that time, European powers did not consult the people over whom they claimed sovereignty and were largely ignorant of basic facts on the ground. However, the key point for understanding the historical process of border formation in Africa is that the Berlin Conference represented *the beginning rather than the end* of the process. The Conference carved out general spheres of influence, but *exactly* where each power would separate their territory remained an issue for future consideration—largely because European powers knew so little

⁴In unreported analysis, we also counted the number of European documents pertaining to African boundaries in each year using data from Brownlie (1979), which yields a similar conclusion as Figure 1.

Figure 1: Years of Border Formation



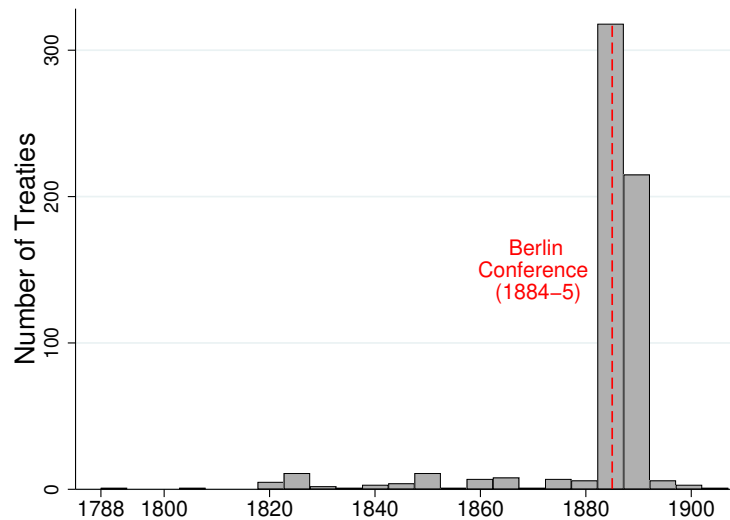
Notes: Data from Goemans and Schultz (2017). Their dataset contains 102 bilateral borders and 168 major border segments, for an average of 1.6 major segments per bilateral border. We aggregate their border segments at the bilateral border level, taking the earliest of all start years as the first year of formation and the latest of all end years as the last year of change.

about the interior of Africa.

The most immediate consequence of the Conference was not to form definitive borders between possessions, but instead to spark a “scramble” to sign or reaffirm relationships with African chiefs. This enabled European powers to establish their claims on the basis of what they termed “effective occupation.” “[T]he importance of these treaties lay, for European governments, not in the exchanges between Africans and Europeans but in the documents’ value for European diplomatic relations. These treaties provided the legal cover for European powers to show other European powers that they maintained effective control over certain inland territories, even if the document did not accurately describe the situation on the ground” (Carpenter 2012, 116). In Figure 2, we provide novel quantitative evidence of this frenzy to sign treaties immediately after the Berlin Conference. Although Britain had engaged in some treaty-making with African chiefs between 1808 and 1883 (average of 0.9 treaties per year), this activity spiked in 1884–85 (131 treaties per year)

and lasted through 1893 (59 treaties per year between 1884 to 1893). Each of the four colonies with the highest total volume of treaties exhibit a huge spike in treaties during this period (Nigeria, Sierra Leone, Gold Coast, Kenya).

Figure 2: Anglo-African Treaties, 1788–1907



Source: Hertslet (1909), written in consultation with the British Foreign Office, contains every treaty between British agents (officials or members of trading companies) with African chiefs, which we averaged by year and colony. We are unaware of a comparable source for other European powers.

Treaties with African chiefs enabled Europeans to learn about the conditions on the ground, and also enabled Africans to gain leverage over Europeans through the treaty-making process. Did this process of information gathering and African influence affect the borders? The late timing of border formation, relative to the Berlin Conference, does raise the possibility that African colonial borders reflected a more systematic process than is typically emphasized.

3 THEORY: USING FOCAL POINTS TO SETTLE BORDER DISPUTES

“It happened at Berlin” is not a compelling model of African border formation. Yet other key pieces of the conventional account are undoubtedly correct: European statesmen were mainly motivated by self interest, and they sought to minimize prospects for intra-European conflict. We present

an alternative model of African border formation that emphasizes how these premises created incentives to draw borders *conscientiously*, rather than haphazardly.

After determining general spheres of influence *but not* specific borders at Berlin, in the ensuing years and decades, competing European officials faced a coordination problem over exactly where to draw the borders. To make this idea concrete, consider an interaction between two state leaders determining where to draw a boundary between their respective frontiers. Assume that each state prefers more territory.⁵ Each state can decide whether to accept or contest any possible border. Contestation can come in two main varieties, both of which are costly. One is outright conflict to revise the border. That was indeed a key concern of European statesmen, who agreed that the costs of inter-European warfare exceeded the benefits of colonizing most pieces of African territory (Herbst 2000, ch. 3; Christensen and Laitin 2019, ch. 8). Another is that undetermined borders reduce surplus by inducing rulers to compete for revenue in overlapping jurisdictions (Acharya and Lee 2018).

Combining each state's goal of maximizing territory with the costs of disputed borders creates a canonical coordination problem. A territorial division that gives one side too little territory is not an equilibrium because that side would rather incur the costs of revising the border than accept it. However, if each side receives enough territory to satisfy their reservation value, then both will accept the border—but an infinite number of possible borders lie within the set of mutually acceptable territorial divisions.⁶

Existing theories of border formation and revision propose that if a focal point or salient aspect of a particular border option lies within the set of mutually acceptable divisions, then leaders are more likely to coordinate on that equilibrium (Goemans 2006; Carter and Goemans 2011). In the following, we discuss why the rough boundaries of pre-colonial states and major bodies of water

⁵This is a sensible assumption when the rough spheres of influence are exogenously fixed but the precise location of the border is yet to be determined, as in Africa after the Berlin Conference.

⁶The binary version of this interaction is the canonical asymmetric coordination game with two players. Each can either go to the movies or attend a baseball game. One prefers the movies over baseball, and the other the opposite; but either favors attending their less-preferred event with the other actor than attending their most-preferred event alone. This setup engenders multiple equilibria with distributional consequences.

served as such focal points. Europeans learned details about these features during the 1880s and 1890s in part through interactions with African chiefs, which provided Africans with agency in colonial negotiations. Our alternative model yields testable hypotheses about local features that should influence border formation.

3.1 PRECOLONIAL STATES

The rough limits of precolonial states created focal points for borders for two reasons. First, Europeans often used this principle for drawing their own boundaries (Goemans 2006, 28; Abramson and Carter 2016). Applying this principle to Africa, in a dispute with France over the border between Benin and Nigeria in 1896, a British official explicitly stated: “We could not abandon the principle of suzerainty. This principle was recognized in all international negotiations and we held that, in treating with a suzerain, the rights conferred [...] extended to the whole of the territory under his dominion” (quoted in Anene 1970, 220). Second, Europeans knew that pre-colonial states existed and had traded and signed treaties with their kings since the 1500s. As we showed in Figure 2, the number of agreements between European powers and African kings and chiefs spiked immediately after the Berlin Conference of 1884–85 (e.g., Britain’s negotiations with the Kingdom of Buganda).

The expectation that European powers would stake their claims in part based on agreements with African chiefs created incentives to learn about the territorial limit of traditional states during the 1880s and 1890s. Whereas Europeans were largely ignorant about Africa during the Berlin Conference, they had gained considerable information by the end of the nineteenth century. Europeans took precolonial states into account not out of benevolence, but instead because this local feature provided a convenient bargaining chip for maximizing territorial divisions. Preserving precolonial states also reduced governance costs because colonizers could use the existing political infrastructure to rule indirectly, e.g., the subsequent British Native Administrative system, German and Belgian rule in Ruanda-Urundi (Rwanda/Burundi), and French rule in Dahomey (Benin).

Bargaining over the territorial extent of traditional states also enabled African chiefs to influence

colonial borders. Although often characterized as hapless actors that signed treaties they did not understand, African chiefs were strategic and sought to preserve their areas of governance. Local rulers exaggerated their territorial claims and, on occasion, used military force to change Europeans' calculus. In many cases, African states lacked precise limits, given rapidly changing control over frontier areas and a general emphasis on controlling people rather than territory (Herbst 2000). Yet, as we document later, European and African statesmen vigorously debated these limits to aggrandize their claims, making them central in many colonial border negotiations. These observations yield the following expectations:

Hypothesis 1 The rough limits of precolonial states created focal points to draw borders between colonies.

Hypothesis 2 Areas with precolonial states should be less likely to be partitioned by colonial borders than areas with petty chieftaincies or acephalous societies.

In areas without precolonial states, a European power with treaties among a subset of loosely affiliated chiefs would be hard-pressed to argue that this constituted a basis for gaining control over all chieftaincies in the area. Nor could broadly defined cultural areas serve as focal points given the “intermingling and flexibility of these human groupings,” exemplified by the Yoruba in modern-day Nigeria and Benin (Mills 1970, 19).

3.2 RIVERS AND LAKES

Salient geographic features such as rivers, lakes, hills, and mountains also created focal points for drawing borders. Once again, this factor resonated with historical border formation in Europe (Goemans 2006). Within Africa, an important goal of early European penetration was to control rivers, which generated numerous disputes. These included Britain and France over the Gambia, Niger, and Nile rivers; and Belgium, France, and Portugal over the Congo river. The original instructions for the British South Africa Company included references to rivers that circumscribed their jurisdiction. Later, Britain, France, and Germany competed to control Lake Chad. As with

precolonial states, European statesmen were unaware of the exact location of inland portions of rivers and lakes when they discussed spheres of influence at the Berlin Conference. However, as with precolonial states, they faced strong incentives to learn more about these geographical features to stake their claims, and sponsored numerous expeditions.

Major water bodies provided focal points not only for Europeans, but also shaped precolonial development. Borders that follow rivers or lakes *cannot be considered arbitrary* with respect to realities on the ground because geographic features create ethnic and socioeconomic differences across space (Davis and Weinstein 2002; Michalopoulos 2012). Major water bodies are the bedrock of many peoples and civilizations since at least Sumer and Egypt, and a large body of work in economic geography shows that locational fundamentals such as water bodies are important to explain human and economic activity in Africa and elsewhere (Davis and Weinstein 2002; Jha 2013; Alix-Garcia and Sellars 2020; Ricart-Huguet 2020). Reid (2012, 2-3) argues: “Several riparian systems have shaped Africa’s history in the most fundamental of ways: The Niger, Benue, Senegal, Congo, Nile and Zambezi rivers are central to the histories of the regions through which they slice. The same is true of the major lacustrine clusters, notably Lake Chad in the western savannah and the lakes of the Great Rift chain, including Turkana, Albert, Victoria, Tanganyika, and Malawi.” These observations yield our third expectation:

Hypothesis 3 Colonial borders should appear more frequently in areas with rivers or lakes, especially in major water bodies that were more salient to Europeans.

3.3 ARTIFICIAL DESERT BORDERS

Some parts of Africa lacked clear focal points, especially desert and other areas of low population density. Here we expect Europeans to draw artificial borders, typically straight, that disregard conditions on the ground. Europeans should be more likely to draw artificial borders, often based on parallels and meridians, in areas that lacked focal points. However, the stakes of border placement were also lower because the territory was rarely valuable. Therefore, although the exact placement of a straight-line border is typically arbitrary, the decision to draw a straight-line border should be

conscientious and strategic—and, consequently, relegated to low-population density areas.

4 STATISTICAL ANALYSIS OF THE PARTITION OF AFRICA

To test our hypotheses, we present multiple forms of evidence. We present quantitative evidence in this section. Our main results come from analyzing African borders as grid cells and assessing correlations with our originally collected data on precolonial states, as well as geographic features. We also summarize results from statistically analyzing ethnic partition.

4.1 MEASUREMENT AND SOURCES FOR SPATIAL DATA

The following summarizes our data, with more description and sources presented in Appendix [A](#).

Precolonial states. Defining states poses difficulties for social scientists, including anthropologists who have long debated how to classify states in precolonial Africa (McIntosh 2005; Southall 1974). Even highly centralized states by African standards usually possessed rudimentary political institutions compared to contemporaneous Asian agrarian empires (Kohli 2004, 297). And even for political units that satisfy basic characteristics of a state, determining its territorial limits entails guesswork. African rulers and the African state system as a whole placed lower emphasis on territorial sovereignty than did early modern Europe, often instead emphasizing their control over specific groups of people (Warner 2001). Furthermore, European colonization occurred during a particularly tumultuous period in Africa of continual military expansion and retraction amid a military revolution (Reid 2012), which created fluctuating borders in many parts of the continent (Mills 1970). At the same time, and although traditional African states often lacked a precise territorial basis (e.g., Herbst 2000; Warner 2001), these states typically buttressed frontier regions (Kopytoff 1987; Reid 2012) that provided the objects of negotiation for European statesmen and African chiefs.

Acknowledging these difficulties, we compiled our new spatial data on precolonial states as follows. Ajayi and Crowder’s (1985) atlas provides the most extensive and detailed continent-wide

maps of which we are aware that contains the territorial location of precolonial polities. The atlas is an edited volume with a continent-wide and eight detailed regional maps, each of which is produced by a leading scholar on that region of Africa. We digitized each of the 128 polygons that appear in these maps. Despite the general fuzziness of the borders of precolonial African states, the outlines of the frontiers of these states have high face validity when compared to historical and anthropological monographs on individual states. Below we provide more direct evidence from specific cases that these frontiers did indeed serve as important objects of contention—by both Europeans and Africans—in the border formation process.⁷

We do not count every polygon from Ajayi and Crowder (1985) as a precolonial state. Instead, we assessed each unit to determine whether it met the following criteria for stateness: a single or small number of political organizations that exhibited some degree of centralized rule on the eve of colonization. In practice, we assessed whether a polity had a discernible chief (or king) with whom Europeans could sign a treaty and whose rule extended above the village level. Thus, we require some evidence that a chief exercised some degree of political power over a broader area corresponding with the territory in Ajayi and Crowder’s (1985) maps, as opposed to areas where chiefs exerted autonomous rule in individual villages (petty chieftaincies) or that lacked any discernible state-like structures. Our main sources were Paine (2019) and Stewart (2006), both of which code precolonial states for the entire continent.⁸ We restrict the sample to states that originated before 1850. Later states typically emerged as reactions to the process of European colonization, which differs our aim of assessing how *European powers* reacted to pre-existing states.⁹ In sum, we include any state identified on Ajayi and Crowder’s (1985) maps that either

⁷Our approach to spatially measuring precolonial states differs from contemporaneous advances in the literature. For example, Dasgupta and Johnson-Kanu (2021) draw radii of varying distances from the center of major states. This approach is highly appropriate given their contention, which is well-supported in the literature, that the effective power of these states declined monotonically across longer distances. However, for our purposes, we are interested in the claimed outer borders (even if these were to some extent fictional in reality) because these served as the objects of contention in the bargaining process over borders.

⁸These sources also confirm the comprehensiveness of Ajayi and Crowder’s (1985) maps, in the sense that they are not missing any major states that existed on the eve of European colonization. Note that Müller-Crepon (2020) also uses Stewart (2006) to indicate precolonial states across the continent.

⁹Examples of endogenous “pre”-colonial states include the Mahdist state that overthrew Anglo-Egyptian

Paine (2019) or Stewart (2006) also list as a state.

Water bodies and desert. Rivers and lakes are possibly the most important geographic focal points because they are highly visible and fixed. We measure rivers in three different ways: any river, any navigable river, and any of the ten longest rivers on the continent. Navigable rivers are closely related to economic activities and colonial interests. Many international borders also involve segments of smaller rivers that are locally salient. Different measures allow us to capture rivers and lakes of varied importance and conduct a more comprehensive assessment of their role in border formation. Our lake measures are similar: any lake, and any of the top ten largest lakes on the continent. Finally, we analyze desert areas as well to assess our contention about drawing straight lines in desert areas.

4.2 UNIT OF ANALYSIS: GRID CELLS

The unit of analysis in the following regressions is $0.5^{\circ} \times 0.5^{\circ}$ grid cells, following standard practice in the literature (Michalopoulos 2012; Alsan 2015). The advantage of using grid cells is that the analysis imposes no a priori assumptions about the substantively relevant unit of analysis, thus departing from the existing focus on ethnic partition specifically. This procedure yields more than 10,000 grid cells across the continent.

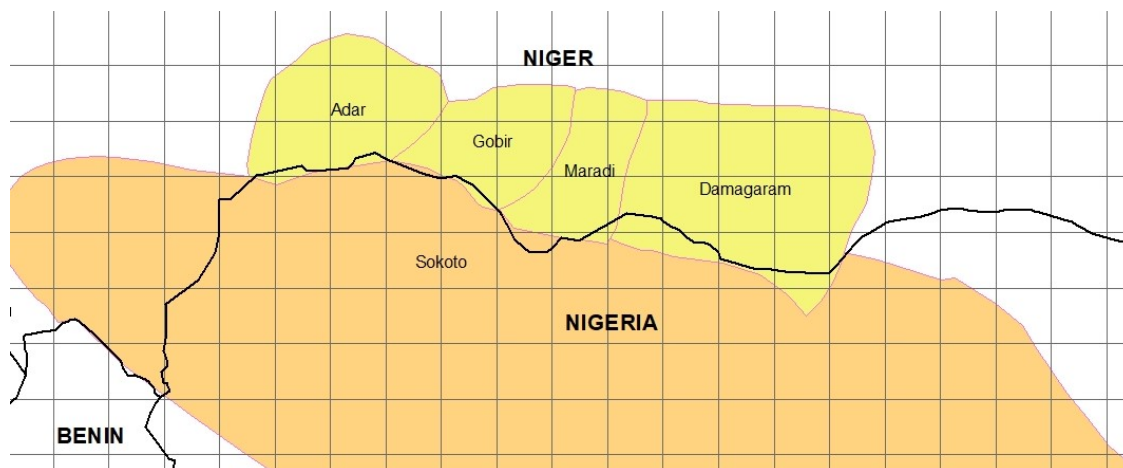
To compute the variables for each grid cell, we combine the grid cells with the spatial data described above to create a series of variables. Most are indicator variables, such as whether a cell includes a river or not, whether a cell includes a lake or not, etc. While there is no measurement error regarding rivers and lakes, most PCS borders were rough. Given imperfections in Ajayi and Crowder's (1985) polygons and the general fuzziness of the limits of precolonial states, we create a 0.25° buffer on each side of the border (0.5° or about 55 km. in total) that "thickens" the border and thus accounts for the uncertainty. We code two variables for precolonial states, one for each of our hypotheses. First, we code whether each grid cell includes a PCS border ("PCS border cell").

rule in Sudan (prior to Britain's re-imposition of colonial rule in 1899) and the Samori and Tukolor states that grew in response to French penetration in West Africa.

Second, we code whether a cell falls entirely within a PCS (“core PCS cell”).

Figure 3 provides a visual example of “border” and “core” grid cells using the Nigeria-Niger border, for which we provide detailed historical evidence below.

Figure 3: Niger-Nigeria Border with Overlaid 0.5°x0.5° Grid Cells



4.3 REGRESSION RESULTS

For the grid cell analysis, we reformulate our hypotheses as follows:

1. Grid cells with PCS borders should be more likely to have country borders
2. Grid cells contained within a PCS should be *less* likely to have a country border
3. Grid cells with rivers and lakes should be more likely to have country borders

To assess these hypotheses, we run a series of probit models:

$$\text{Border}_{ij} = \beta_0 + \beta_1 \text{Geog}_{ij} + \epsilon \quad (1)$$

$$\text{Border}_{ij} = \beta_0 + \beta_1 \text{PCS}_{ij} + \text{Geog}^T \beta_{2k} + \mathbf{X}^T \beta_{3k} + \eta_j + \epsilon \quad (2)$$

We begin with simple bivariate models to examine whether geographic features that were exogenous to the European scramble (deserts, rivers, and lakes) affect the probability of a cell containing part of a country border, our indicator outcome. We purposely do not control for “posttreatment”

variables such as the existence of a precolonial state, although results in Figure 4 are surprisingly robust to that and to the inclusion of multiple geographic variables in the same model.

Multivariate models attempt to measure the effect of our PCS indicators (whether a PCS border runs through a cell and whether a cell lies within a PCS) on the likelihood that a country border runs through that cell. We include a vector of “pretreatment” geographic variables as controls (i.e., a river affects the likelihood of a PCS but not the other way around). Those models also include controls for latitude, longitude and size of the ethnic group in that cell (X) and Murdock’s cultural provinces as fixed effects (η) to compare more similar regions within Africa. The multivariate models reflect our attempt to recover a difficult-to-establish *ceteris paribus* claim. All else equal, we claim that colonizers were less likely to draw borders that cut through historical states. Yet areas with precolonial states were generally more desirable and attracted more European competition. This made drawing *any* border in those areas more likely, hence biasing away from finding an affect for core PCS regions.

We use the cultural provinces from Murdock (1959, 1967) to cluster our standard errors following Alsan (2015, p. 393), who explains that Conley’s standard errors would be “inadequate in a setting where spatial and genealogical are both at work but argues that Murdock’s “provinces capture both spatial and genealogical correlation.”

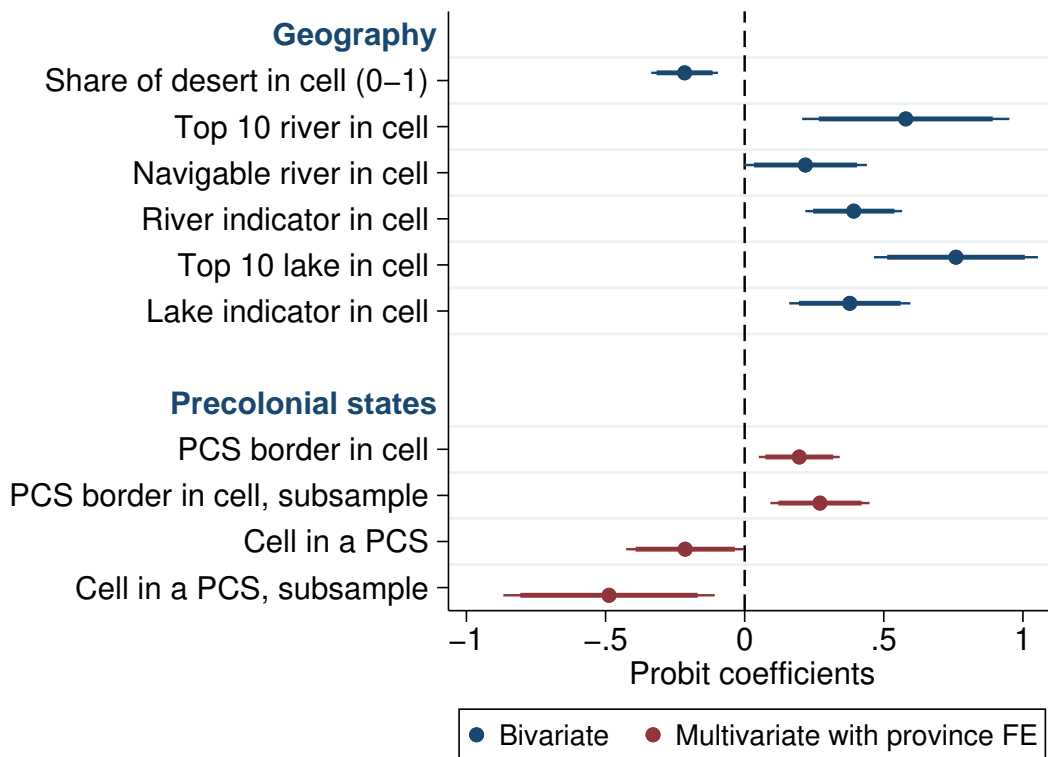
The top part of Figure 4 provides support for our hypotheses about geography. Across different measures of rivers and lakes, areas with major bodies of water are more likely to have a nearby country border. The coefficient estimates are particularly large in magnitude for the longest rivers and lakes. We also show that desert areas are less likely to have a country border, which reflects the typically large size of colonies in desert areas rather than any of our hypotheses *per se*.

In the bottom part of the figure, we show that cells containing PCS borders are more likely to contain country borders, whereas cells within a PCS are less likely to contain country borders. These results support our first and second hypotheses: that the rough borders of PCS were used to decide country borders and that PCS are less likely to be partitioned. Our main results try to

account for measurement error in the boundaries of PCS's by using buffers, but we also examine the raw boundaries of PCS's (Figure A.1). Excluding the buffer does not alter the fact that PCS borders were used to draw colonial borders, but cells within a PCS are not less likely to be partitioned in that specification. We also present specifications that drop several historical states with polygons that are clearly incorrect (Egypt, Morocco, Ouaddai in Chad). In each case, the polygon from the atlas far exceeds the limits of the historical state on the eve of colonization. The coefficient estimates are even larger in magnitude in these specifications.

Overall, the results are consistent with our theoretical prediction that colonizers are less likely to draw international borders that cut through precolonial states and that colonial borders tend to follow salient geographic features, such as rivers and lakes.

Figure 4: Correlates of African Borders: Grid Cells



Notes: All models use 0.5°x0.5° cells as unit of analysis ($n = 10,712$). The figure summarizes the coefficients of the main explanatory variables of a series of bivariate and multivariate probit models. It presents point estimates and both 95% and 90% confidence intervals calculated using clustered standard errors at the cultural province level as defined by Murdock (Alsan 2015).

4.4 ETHNIC GROUPS AS THE UNIT OF ANALYSIS

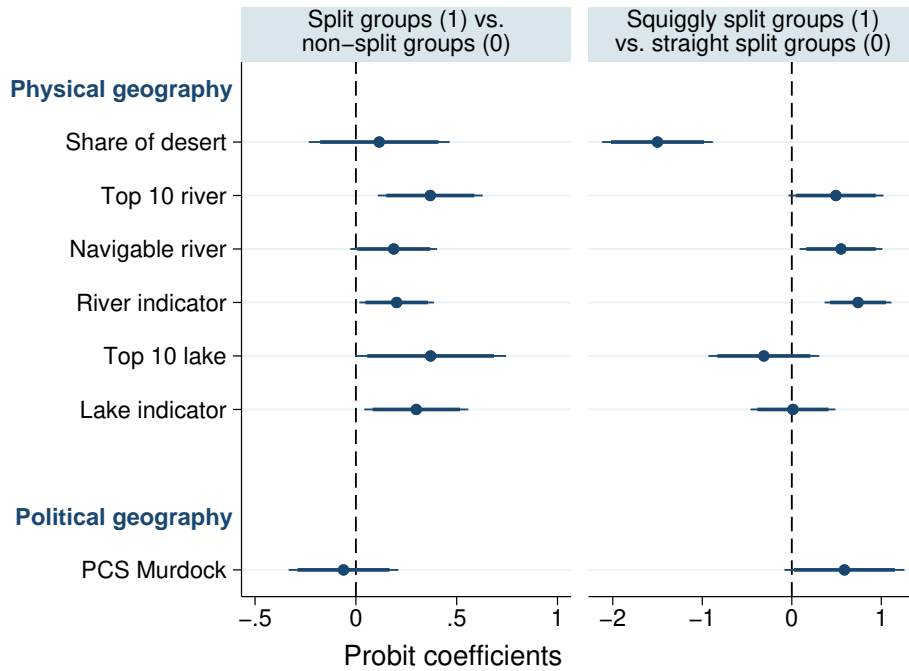
Our approach to assessing correlates of partition differs from the state of the art in the literature, in particular the pioneering approach of Michalopoulos and Papaioannou (2016) to use the map from Murdock (1959, 1967) to assess correlates of ethnic partition. We ran two sets of regressions using an augmented version of their dataset. First, among their 825 ethnic groups, we examined correlates of partition across international boundaries. Second, among the 229 split groups, we examined correlates of how the border was drawn (straight vs. squiggly). We briefly summarize the results here and present more details in Appendix B.

Figure 5 summarizes coefficient estimates from probit models similar to those in the above estimating equations, but using ethnic-group units. Consistent with our hypotheses, but in contrast to existing results, we find supportive evidence for some systematic correlates of ethnic partition. Ethnic groups with a river in their polygon, in particularly long rivers, are more likely to be partitioned, as are groups with lakes. Other factors exhibit a null unconditional correlation, but do correspond with a specific type of partition: squiggly rather than straight borders for groups with a precolonial state, and the opposite for ethnic groups in desert areas. This supports our hypothesis that straight-line borders typically reflect areas of low population density without obvious focal points, rather than as-if random lines.

In Appendix B, we also highlight problems with this approach for understanding colonial border formation, in particular for studying the effects of precolonial states. Ethnic groups exhibit a conceptual mismatch with the spatial reach of historical states. In many cases, the reach of the historical state (as measured using data provided below) was smaller than the area in which members of the ruling ethnic group resided (as measured using Murdock’s ethnic-group polygons). Thus, even if members of the *ethnic group* were partitioned across international borders, the *precolonial state* could have been preserved within the boundaries of a single colony.

Beyond conceptual mismatch, the Murdock data exhibits two additional shortcomings that motivate the need for new data. First, Murdock’s jurisdictional hierarchy variable exhibits considerable

Figure 5: Correlates of African Borders: Ethnic Groups



Notes: This figure summarizes a series of probit estimates with the explanatory variable listed in the rows and the dependent variable in the columns. It presents point estimates and both 95% and 90% confidence intervals calculated with robust standard errors. In the left panel, there are 229 split groups and 596 non-split groups. In the right panel, there are 178 squiggly-split groups and 51 straight-split groups. Physical geography presents bivariate probit estimates. Political geography presents the probit estimates with the following control variables: share of desert, land area in $\ln \text{ km}^2$, top 10 river, navigable river, river indicator, top 10 lake, lake indicator, malaria index, agricultural suitability, and suitability for European settlement. Adding these control variables does not cause any observations to drop.

measurement error. Ethnic groups with higher values of this variable exhibit little overlap little with major precolonial states identified by other historians and anthropologists. Second, there is considerable map-drawing error, that is, measurement error in the dependent variable of partition because Murdock’s map inaccurately reflects the location of the group. We show that among the 32 “positive-positive” cases—that is, cases in which a precolonial state, as coded by Murdock, was partitioned across international boundaries—only for three do we agree that members of this ethnic group did in fact govern a historical state that was partitioned across international boundaries.

5 EVIDENCE FROM TREATIES AND COLONIAL NAMES

We now provide more direct evidence about the process by which precolonial states and geographical factors influenced the colonial borders. Our first piece of evidence comes from colonial documents that pertain to border formation. We systematically coded the determinants of every bilateral border in Africa using Brownlie's (1979) encyclopedia. He provides extensive primary sources including treaties, conventions, agreements, and letters.

Most borders are determined by a combination of attributes that we categorize under physical geography (e.g., rivers) and political geography (e.g., towns), consistent with our theory of non-arbitrary borders. Table 1 summarizes the determinants by general categories and more specific features. The first set of counts and percentages code all determinants of each bilateral border—that is, all that are explicitly mentioned in one or more primary documents pertaining to that border. The second set codes the main characteristic that determined each bilateral border, that is, the feature that explains the largest fraction of that bilateral border. Although this approach has a more subjective element, given that multiple features determine most bilateral borders, it forces us to make the number of coded features equal to the number of bilateral borders.¹⁰

On average, over 3.5 features affected each border (369 features and 102 bilateral borders). Even excluding straight lines (parallels, meridians, and otherwise straight lines), a bilateral border is affected by three features, on average. The table shows that rivers are the main geographic determinant and precolonial states the main political determinant. Rivers stand out as the most common determinant: they influenced 83% of borders, and were the main determinant of 49%. Rivers were used extensively for intra-imperial borders, especially in inland areas where European knowledge of the territory was limited until the 1900s. Other bodies of water, such as lakes, are rarely the main determinant but are mentioned for many borders (42%).

There are numerous cases, 19 in total, of border treaties mentioning precolonial states. These are less frequent than water bodies simply because the spatial reach of precolonial states was more

¹⁰Coding the main determinant also forces us to make some choices: we prioritize political geography over physical geography when both are relevant.

Table 1: Determinants of African bilateral borders

Category	Feature	All determinants		Main determinant	
		Number	Percent	Number	Percent
Physical geography	Rivers, oueds, watersheds	85	83%	50	49%
	Water bodies: lakes, oasis, wells	43	42%	7	7%
	Topography: mountains, hills, valleys	54	53%	4	4%
	Desert	27	26%	0	0%
Political geography	Precolonial states (PCS)	19	19%	12	12%
	Non-PCS ethnic groups	17	17%	2	2%
	Cities, towns, high population density	34	33%	6	6%
	Infrastructure: roads and routes	22	22%	2	2%
Straight lines (possibly haphazard)	Parallels and meridians	27	26%	14	14%
	Other straight lines	38	37%	5	5%
Other	Bay, cape, or islands	3	3%	-	-
Total		369	-	102	100%

Notes: In total, there are 102 bilateral borders. For “All determinants,” we count every feature (which may be multiple) that appears in a treaty for each bilateral border. For example, a bilateral border affected by a precolonial state and by a meridian is counted for both categories. On average, three to four features explain each border, and the total number of features sums to 369. Under “Main determinant,” we code only one feature for each bilateral, and hence the total number of features sums to 102.

concentrated. An example of an inter-imperial treaty that explicitly mentions a precolonial state is that between Britain and France in 1889:

“The French Government shall undertake to allow England full liberty of political action to the east of the frontier line, particularly as regards the *Kingdom of the Ashantees*: and the English Government shall undertake to allow France full liberty of political action to the west of the frontier line” (our emphasis; quoted in Brownlie 1979, 215).

Although rarely the main determinant, documents regularly mention cities and towns (33%), stateless ethnic groups (17%), and roads and routes (22%) to trace the border. For example, French officials put considerable thought into the border between Upper Volta (Burkina Faso) and Dahomey (Benin), as described in a 1913 letter from the French Minister of the Colonies to the President of France (Brownlie 1979, 206). In the *rapport* to the President, the Minister notes the advantages of creating intracolony borders that correspond to the local ethnic geography to make *cercles* (colonial districts) more ethnically homogeneous. The Minister notes that a 1909 decree incorporates Baribas that had “no ethnic link with the populations of Fada-N’Gourma” [Upper

Volta] to Dahomey. A modification of the border “would ensure, over the populations of the same race, the unity of action that is necessary and, also, would provide a natural limit in this region to both interested colonies.”

Finally, at most 19% of borders are primarily defined by straight lines. This is an upper-bound because, for straight borders running along a desert, we code “straight lines” as the main determinant to favor the arbitrary-borders thesis. Consistent with our hypothesis that straight borders should be drawn where there is little at stake, we find that most of them are concentrated along the Sahara desert, an area of low geopolitical relevance in 1900.¹¹

The names of colonies and post-independence countries in Africa also reflect the importance of precolonial states and rivers/lakes. For each country, we coded whether the name reflects either feature. The permissive version of the variable counts any precolonial state and any body of water. The restrictive version requires that the *colonial* name reflected a precolonial state that was *still intact on the eve of colonization*, and that the water body is specifically a *lake or river*. Altogether, we code 66% of countries as meeting the permissive naming criterion, and 51% as meeting the restrictive naming criterion. Appendix Table C.2 lists every case.

6 QUALITATIVE EVIDENCE FOR PRECOLONIAL STATES

Our theory suggests that we should be able to find documentary evidence of European powers negotiating over precolonial states and with precolonial rulers, given their focal nature. We uncovered direct documentary evidence of the precolonial state influencing the colonial border for fifteen of twenty regional clusters of precolonial states. This is an inherently conservative figure because the burden is on us to find documentary evidence, and therefore missing data attenuates this percentage. The denominator for this figure is lower than our total of 50 early precolonial states used in the data analysis above because we grouped together regions of states as a single

¹¹Appendix Table C.1 demonstrates similar findings when restricting the sample to inland borders only. These are areas where Europeans lacked any detailed knowledge prior to the 1880s, thus providing a hard case for finding evidence of systematic determinants.

observation. Colonizers and historians alike discussed nearby states as regional clusters, which we adopt for qualitative analysis.

Table 2 lists every precolonial state, whether it was partitioned, and whether there is direct documentary evidence of the state influencing the colonial border. To assess whether the case was partitioned, we used our spatial data above in conjunction with historical sources. In some cases, imperfection in Ajayi and Crowder's (1985) polygons suggests that a PCS was partitioned but historical sources demonstrate that the border was purposely drawn along the believed boundaries of the state (e.g., the Nigeria-Niger case shown in Figure 3).

Appendix D summarizes the documentary evidence for each case. Two main patterns emerge. First, Europeans engaged in a competitive process to learn as much as they could about the limits of particular states in order to maximize their territorial claims, especially in cases of disputes. Below we present evidence of disputes between Britain and France over the Nigeria-Niger and Chad-Sudan borders. They drew borders in regions that were “divided in precolonial times by indigenous frontiers and zones of separation . . . the Anglo-French demarcation did take these local political divisions into account.”¹² In the appendix, we discuss other cases that provide clear evidence of colonizers learning about territorial limits to maximize their claims. These include Barotseland along the Angola-Zambia border, Borgu along the Benin-Nigeria border, and Adamawa and Borno along the Nigeria-Cameroon border. In the Borgu and Adamawa/Borno cases, the colonizers partitioned the precolonial state despite extensive negotiations. Ultimately, the inconclusive reach of these territorial states muddled the ability to use their boundaries as focal points to draw a border.

Second, precolonial states also affected colonial border formation by influencing borders *not* drawn. These cases do not directly pertain to our hypotheses or statistical analysis, but illustrate the broader influence of precolonial states. In numerous cases, a precolonial state composed the core of the colonial territorial unit. In one case, Ethiopia, the precolonial state remained sovereign

¹²Miles (1994, 60) discusses the Nigeria-Niger case, although the same conclusion applies to Chad-Sudan.

Table 2: Precolonial States and International Partition

State	Parti- tioned?	Docu- ments?	State	Parti- tioned?	Docu- ments?
Asante	NO	YES	Morocco	NO	YES
Barotseland (Lozi)	NO	YES	Mossi	NO	
Bemba	NO	NO	Ndebele	NO	NO
Borgu	YES	YES	NE Nigerian states		YES
Buganda etc.		YES	Adamawa	YES	
Ankole	NO		Borno	YES	
Buganda	NO		Rwanda/Burundi		YES
Bunyoro	NO		Burundi	NO	
Central Sudanese states		YES	Rwanda	NO	
Darfur	NO		Senegal		YES
Wadai	NO		Bundu	NO	
Dagomba	NO		Cayor	NO	
Dahomey, Yoruba, etc.		YES	Futa Toro		
Benin	NO		Jolof	NO	
Dahomey	NO		Salum	NO	
Egba	NO		Sine	NO	
Ibadan	NO		Walo	NO	
Igala	NO		Sokoto etc.		YES
Ijebu	NO		Damagaram	NO	
Oyo	NO		Sokoto	NO	
Porto Novo	NO		Southern African states		YES
Eastern Nigeria		NO	Gaza	NO	
Calabar	YES		Lesotho	YES	
Opobo	NO		Ngwato/Kwena (Tswana)	NO	
Egypt	NO	YES	Rolong (Tswana)	YES	
Ethiopia etc.		YES	Swazi	YES	
Ethiopia	NO		Zulu	NO	
Shoa	NO		Tunis	NO	YES
Futa Jalon	NO	YES			
Kasanje	NO	NO			
Luba and Lunda states		NO			
Kazembe/Lunda (E)	YES				
Luba	NO				
Mwata Yamvo/Lunda (W)	YES				

throughout almost the entire colonial period. In the rest of the cases, the colony consisted solely of a single precolonial state, or we uncovered evidence that the colonizer declined to amalgamate the territory with others to preserve the integrity and influence of a specific state. We discuss Uganda here and detail additional cases in Appendix D: Botswana (Tswana states), Burkina Faso (Mossi),

Lesotho, Morocco, Rwanda/Burundi, Swaziland, and Tunisia.¹³

6.1 REVISING THE NIGERIA-NIGER BORDER

The northern frontier of the Sokoto Caliphate was highly contested prior to European takeover (Anene 1970, 233-67). A Fulani jihad engendered numerous Muslim-controlled emirates in areas occupied by ethnic Hausa. Many areas accepted the new order of Fulani rule by acknowledging the suzerainty of Sokoto and paying an annual tribute of goods and slaves. All the core emirates within the empire became part of Nigeria, including Sokoto, Kano, Daura, Zaria, Bauchi, Gwandu, Nupe Yauri, and Ilorin. However, the empire lacked control over remnants of certain older Hausa states (Gobir, Maradi, Kebbi, Konni), with whom it frequently fought. This caused the frontiers of the empire to fluctuate. Nor did the Sokoto Caliphate control the Tuareg in Adar, or the Borno empire or its associated vassal states, including Damagarin (Zinder).¹⁴

Britain signed a treaty with the Sultan of Sokoto in 1885 that formed the basis of its sphere of influence. Although France accepted Britain's claim over Sokoto, they contested the northern reach of the Caliphate. The subsequent negotiations, after several revisions of the border, yielded control for France over many of the aforementioned frontier states that had successfully resisted conquest by the Sokoto Caliphate. In 1890, Britain and France concluded their first treaty pertaining to the border, which explicitly mentioned Sokoto:

“The Government of Her Britannic Majesty recognizes the sphere of influence of France to the south of her Mediterranean Possessions, up to a line from Saye on the Niger, to Barruwa on Lake Tchad, drawn in such manner as to comprise in the sphere of action of the Niger Company all that fairly belongs to the *Kingdom of Sokoto*; the line to be determined by the Commissioners to be appointed” (Hertslet 1909 Vol II, 739; our emphasis).

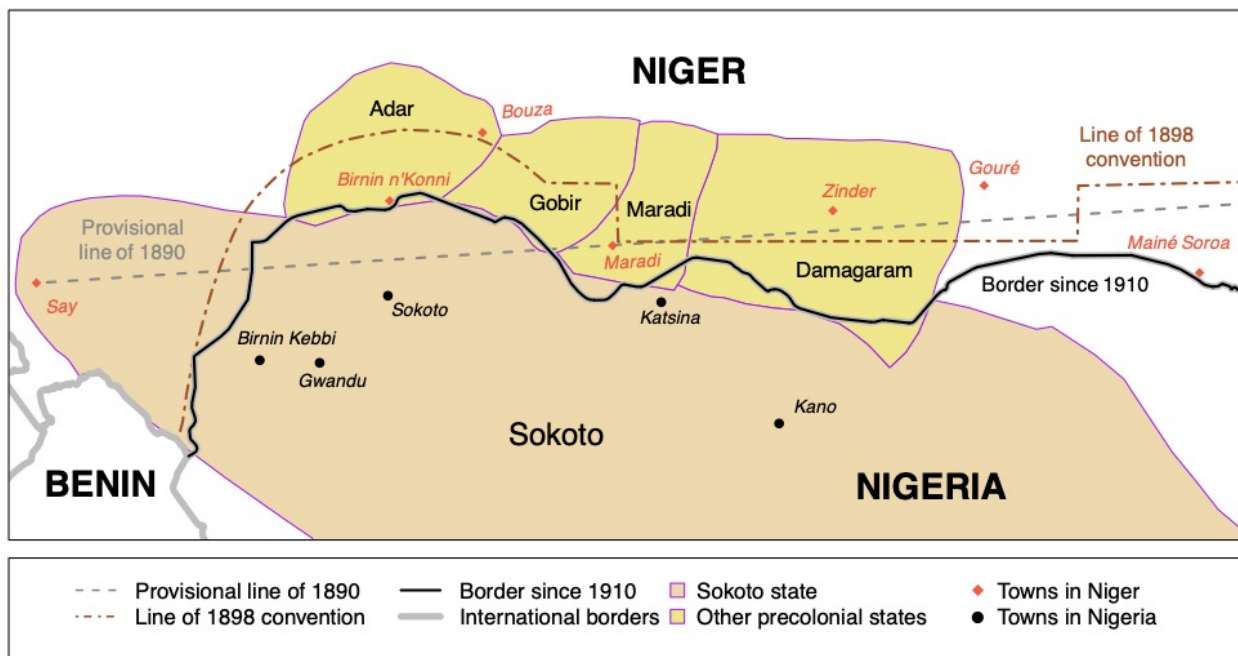
Britain and France revised the 1890 border in 1898, and again in 1904, as Figure 6 shows. France's goal was to gain “a water route to connect its eastern and western African holdings and in particular

¹³A related case is the island of Zanzibar, which was governed as a distinct colony through the Sultan of Zanzibar and gained independence by itself before being incorporated into Tanzania in 1964. We do not include islands in our dataset.

¹⁴We provide additional details on Borno in Appendix D.

a viable corridor from Niamey to Zinder” (Miles 1994, 67). The revised border in 1898 failed to solve the problem that “almost all the populated areas of Hausaland came under British sovereignty, including Maradi, Birnin Konni, Tibiri, and Magaria,” all of which France gained for Niger in the 1904 negotiation. Following the failure of the new border to satisfy its desires, “France proposed that the boundary be redefined to coincide with local political conditions. Observing that the Sokoto Arc [a new feature of the 1898 agreement; as its name suggests, one component of the new border was an arc around Sokoto] cut through greater Damagaram, Adar, and Gobir, France asked for changes that would leave these indigenous polities intact,” to which Britain agreed (Miles 1994, 68).

Figure 6: Sokoto Caliphate and the Nigeria-Niger Border



Notes: Polygons for precolonial states from authors’ digitization of Ajayi and Crowder (1985). International border lines from authors’ digitization of Brownlie (1979, 446).

6.2 NEGOTIATING WITH THE SULTAN OF DARFUR

African rulers did not passively observe the partition of their continent. Like Europeans, Africans were also self-interested actors that sought to maximize their territorial claims or otherwise pre-

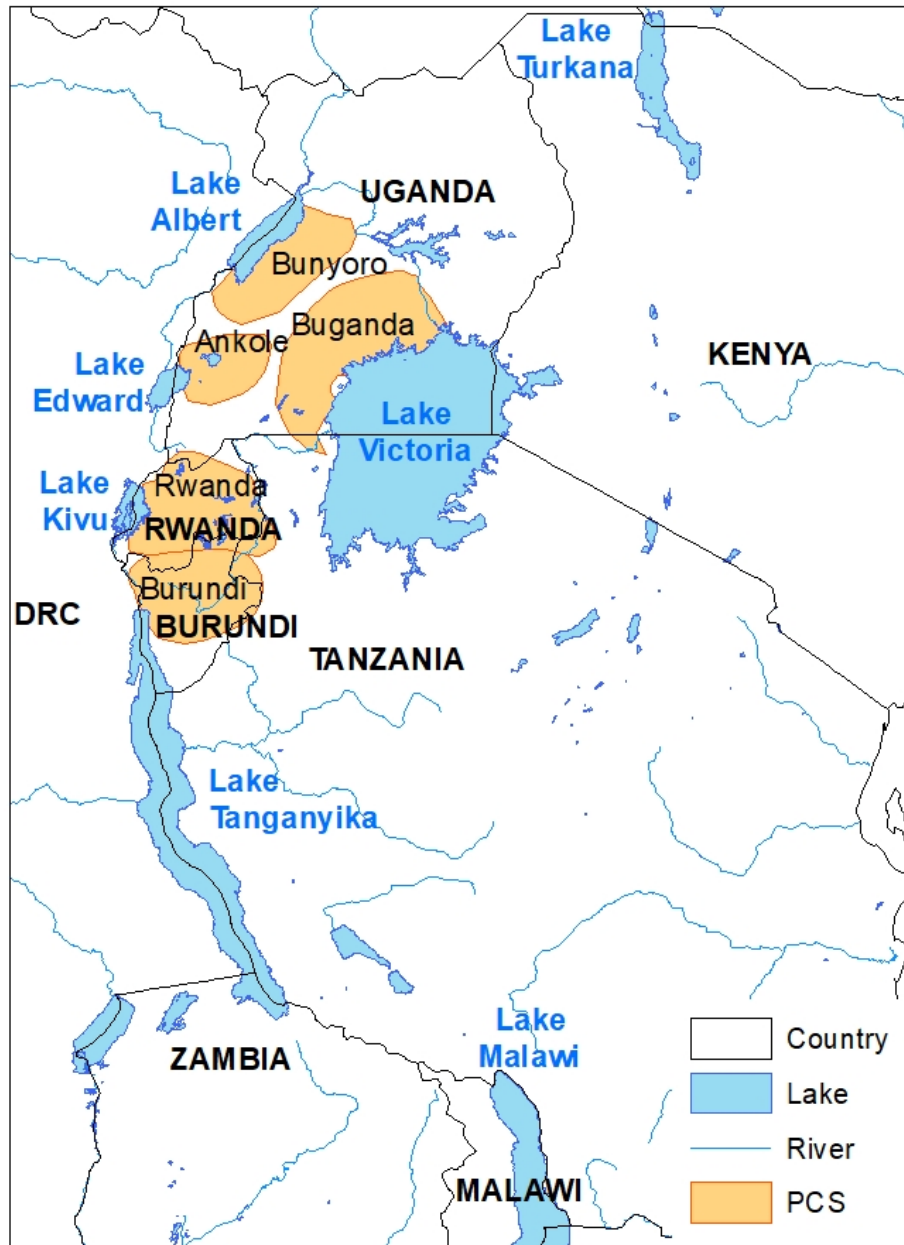
serve their influence. The Chad-Sudan border provides a stark example. Britain and France’s original treaty in 1899 called for the border to separate “the *Kingdom of Wadai* from what constituted in 1882 the *Province of Darfur*” (Hertslet 1909 Vol. 2, 796; our emphasis). As with Sokoto, the territorial limits of each state were imprecise and contested. However, when Britain established colonial control over western Sudan, it did not disarm Ali Dinar, the Sultan of Darfur. Instead, they granted him de facto autonomy in return for pronouncing loyalty to Britain. Ali Dinar had expansive aims for what constituted Darfur’s traditional territory. Between 1909 and 1912, he fought various battles with France over disputed petty sultanates in the hinterland between Darfur and Wadai. Britain could not definitively settle the border with France before deposing Ali Dinar, which happened in 1916 (see Appendix D for more details).

7 QUALITATIVE EVIDENCE ON WATER BODIES

7.1 GREAT LAKES REGION

The Great Lakes Region in Africa provides clear evidence of water bodies influencing historical states and colonial borders. Figure 7 highlights every country, major lake, and precolonial state in the region. Economic transformation through farming and agriculture in the fertile forests of that region began centuries ago as a result of favorable altitudes, adequate rainfall, and water bodies (Curtin et al. 1995, 107, 132). “Lake Victoria was criss-crossed by a network of trade ties” (Curtin et al. 1995, 370). Arguably, the most important nod in the network was Buganda. Reid (2002, 227) discusses “the enormous significance of Buganda’s lakeside location,” including the invention of sophisticated canoes in the 19th century to foster trade and, with it, economic and political development. As the figure shows, every major state in the region clustered around one of the Great Lakes.

Figure 7: States, Lakes, and Borders in East Africa



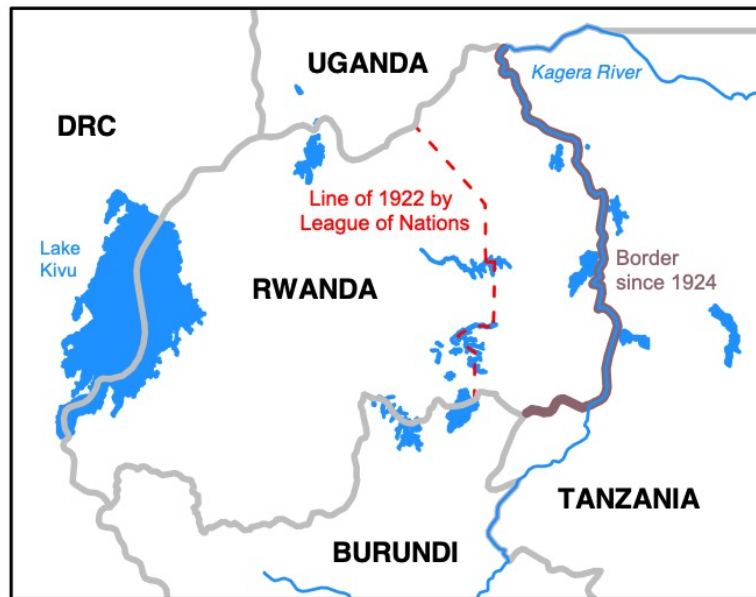
The consequent colonial borders reflected the geography and the political economy of the region. Originally, three European powers were present in the region. Lakes Albert and Edward separated British Uganda from the Belgian Congo; Lakes Kivu and Tanganyika separated German East Africa from the Belgian Congo; and Lakes Victoria and Nyasaland separated British Uganda and Nyasaland, respectively, from German East Africa. These borders remained even after Britain and Belgium partitioned German East Africa, with Belgium gaining control of Ruanda-Urundi and Britain of Tanganyika. As we document below and in Appendix D, attempts to revise the borders of Ruanda-Urundi or to combine them into the Belgian Congo met resistance from the League of Nations.

7.2 REVISING THE RUANDA-TANGANYIKA BORDER

The Ruanda-Tanganyika border (Figure 8) provides a clear case of a river serving as a focal point. The Kagera river had been central to the region's political and economic development. Following World War I, the League of Nations allocated the formerly German territories of Ruanda-Urundi and Tanganyika to Belgium and Britain, respectively. Thus, what had previously been an internal administrative border (and hence more flexible) became an inter-imperial border subject to concerted negotiations.

The proposed border in 1922 incorporated the district of Kissaka, traditionally part of the Kingdom of Rwanda, into British territory. Britain's specific goal was to use this territory to construct its vaunted Cape-to-Cairo railroad. But missionaries "emphasize[d] the social, political, and economic harm caused by the imposition of this arbitrary division and they urge the eastward extension of the boundary to the '*natural frontier*' of the Kagera River [emphasis added]" (McEwen 1971, 154-5). When the League of Nations' Permanent Mandates Commission reviewed the missionaries' claims, they highlighted that the agreement separated "one of the *richest and most civilised tracts* [emphasis added] of the Kingdom of Ruanda" and decried the "'deplorable moral effect' that the present arrangement had on the local population and their strong protests." In September 1922, the President of the Council wrote letters to Britain and Belgium. They agreed to alter the

Figure 8: Rwanda-Tanzania Border



Notes: Rivers and international border lines from authors' digitization of McEwen (1971).

boundary to follow the Kagera River, which took effect later in 1923. Similarly, the boundary between Rwanda and Burundi “is clearly demarcated by the rivers and lakes and is unequivocally recognized by the local inhabitants as their old, traditional boundary” (Biger 1995, 129).

7.3 PARTITIONING ACEPHALOUS GROUPS IN CENTRAL AFRICA

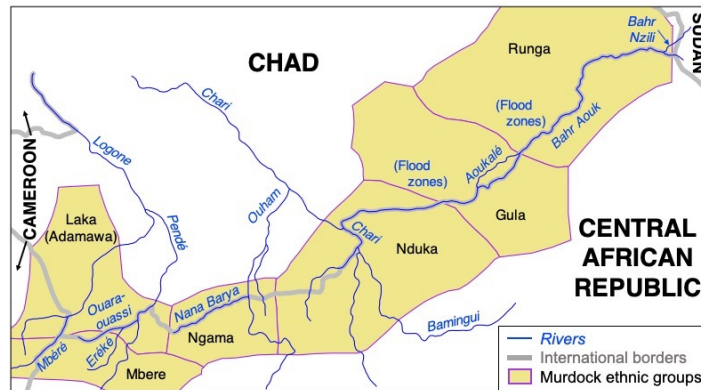
In other parts of Africa, rivers borders tended to partition ethnic groups and cultural areas into different colonies. This was typically the case in areas that lacked established chiefdoms, or in which chiefs held power only at the very local level. In such cases, treaties did not help one power to claim large territories, and generally the colonizers were less attentive to the needs of peoples in these areas; and thus rivers served as convenient intra-imperial borders as well.

Seven different rivers delineate sections of the border between Chad and Central African Republic (whose colonial name was Obangui-Chari, two of the rivers that comprise its borders). It starts at the center of the Mbéré river and extends eastward to follow the Ouaraouassi, Eréké, Pendé, Nana Barya, Chari, and Bahr Aouk rivers. Far from unique, this is a fairly typical example of a border that directly follows multiple rivers (Panel A of Figure 9). The figure also visualizes that ethnic

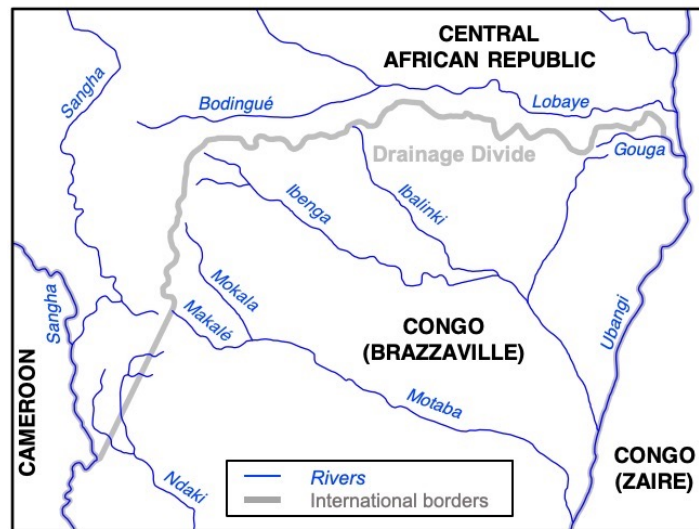
homelands that contain rivers are more likely to be split. From the southwest to the northeast the squiggly border successively slices through six ethnic groups from Murdock (1959), including Mbere, Laka, Ngama, Nduka, Gula, and Runga.

Figure 9: River Borders for the Central African Republic

Panel A. Chad–CAR border



Panel B. CAR–Congo border



Notes for Panel A: Polygons for ethnic groups from Murdock. Rivers and international border lines from authors' digitization of Brownlie (1979, 588). *Notes for Panel B:* Rivers and international border lines from authors' digitization of Brownlie (1979, 594). The Congo-CAR border starts with the Cameroon tripoint located on the thalweg of the Sangha and extends northeastward in a straight line for about 48 miles. Thence the border follows the drainage divides of Sangha-Kenié, Sangha-Ubangi, Ibergera-Bodingué, Ibergera-Lobaye, and Lobaye-Gouga. The rest of the border follows the Gouga until its confluence with the Ubangi.

This case also illustrates non-obvious ways in which rivers affected African borders. Panel B of Figure 9 depicts the the CAR-Congo border border along the drainage divide to illustrate that some border determinants cannot easily be distilled by regular statistical analysis because they do not actually run along a river but along the watershed. Historical qualitative knowledge helps us uncover additional ways in which features that are hard to measure, such as precolonial states or a drainage divide in this case, affected African border formation.

8 CONCLUSION

According to conventional wisdom, the Berlin Conference decided the map of Africa and resulted in mostly arbitrary borders. In this paper, we show instead that (i) most African borders were not settled until World War I (30 years later) and that (ii) most colonial borders were not drawn arbitrarily. Political and geographic factors determined border formation. Precolonial states, rivers, and lakes are the main determinants of more than two thirds (68%) of African borders. Further, other geographic (e.g, hills and valleys) and political features (e.g, towns and routes) affect many bilateral borders even if they are rarely the main determinants.

We theorize that precolonial states and water bodies, and other characteristics to a lesser extent, were highly salient and thus acted as focal points. European colonizers wanted to maximize their territorial claims vis-a-vis other European powers. Because of this, rather than any benevolence toward Africans, European powers frequently signed treaties with African rulers and gathered information about the traditional limits of states to adjudicate border disputes. Rivers and lakes served as similar focal points in negotiations. Like precolonial states, these were not neutral or arbitrary borders: rivers and lakes are the birthplaces of many African civilizations and centers of trade.

We conclude by discussing two broader implications. First, our findings raise important questions about the growing research agenda that exploits as-if randomness in African borders for regression discontinuities and related research designs (McCauley and Posner 2015 provide a recent review

of this literature). We heed Kocher and Monteiro's (2016, 952) call that "qualitative historical knowledge is essential for validating natural experiments" (see also Dunning 2012). We do not purport to question the findings of any particular study here, and many authors motivating a natural experimental or regression discontinuity research design carefully demonstrate that relevant covariates are continuously distributed across the borders. However, we do suggest caution for the general characterization that African borders are as-if random. Future quantitative research on borders should treat detailed qualitative historical knowledge as central to their inquiry, rather than as appendix material for the validation (or rejection) of a purported natural experiment. For example, our border-by-border historical analysis shows why using the post-independence borders as natural experiments is problematic: over half of all African bilateral borders were changed or otherwise revised after 1915, when European knowledge of the continent was far greater than during the 1885 Berlin Conference.

Second, demonstrating systematic determinants of African borders does not negate the broader claim that the European colonial project—including externally imposed state formation and the drawing of fixed borders—was decidedly harmful. Instead, it forces us to rethink *why* colonialism in Africa created negative consequences for contemporary socioeconomic outcomes. In particular, we reconsider the distinction between "dismemberment" (partitioning groups) and "suffocation" (forcing disparate groups that lack a shared history into the same country), as proposed by Geertz (1973) and Englebert, Tarango and Carter (2002). The predominant focus of existing research on dismemberment suggests a belief that dismemberment was much more harmful legacy than suffocation. By contrast, our findings suggest that understanding the consequences of externally imposed state formation requires further analysis of the harmful effects of suffocation. European intervention ossified African political structures, especially in territories with precolonial states. In a continent typically characterized by a lack of fixed boundaries and territorial fluidity, simply drawing any static borders would have profound consequences. European intervention did largely stop the warfare that plagued many parts of Africa in the late nineteenth century, but at the cost of creating large and artificial territorial states, which posed considerable logistical difficul-

ties for governance when European rule ended (Herbst 2000). Furthermore, merging precolonial states into larger countries with stateless groups against whom they had previously fought wars and raided for slaves created conditions for post-colonial conflict (Paine 2019). These are all important considerations for the next stage of a broader research project: incorporating our findings on endogenous African border formation to study their consequences for important political and economic outcomes.

Overall, the colonial *states* were largely artificial with respect to historical and geographic antecedents. However, the *borders* between these states were not.

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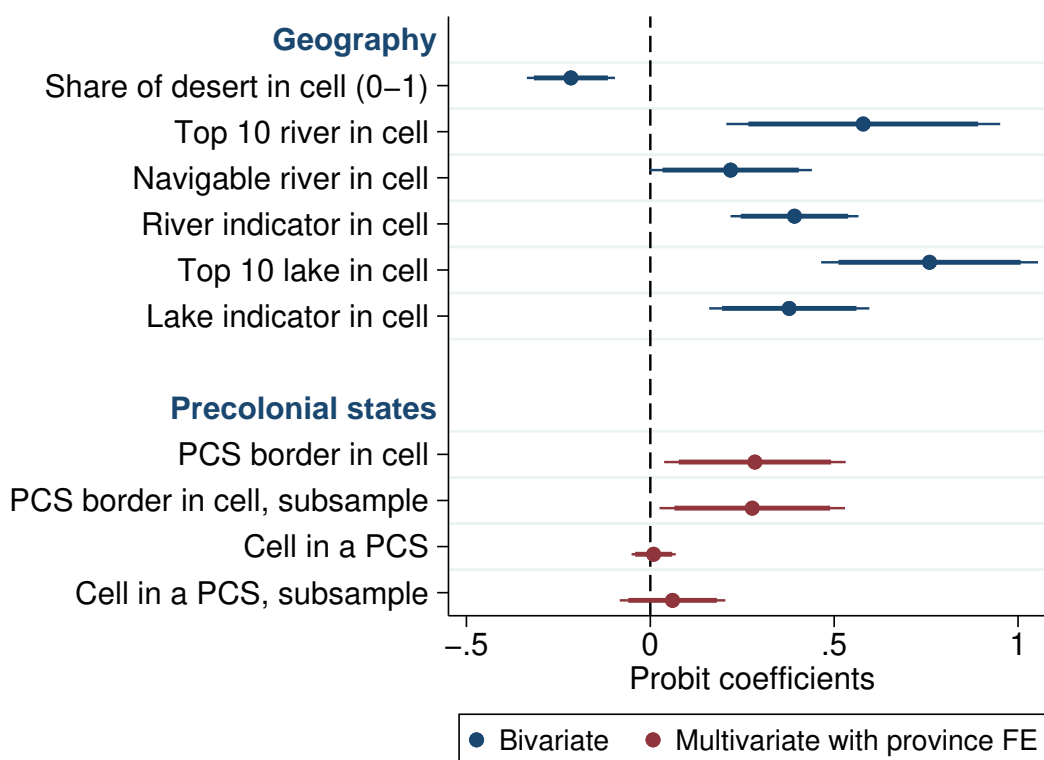
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A SUPPORTING INFORMATION FOR GRID CELL REGRESSIONS

Figure A.1: Correlates of African Borders: Grid Cells without buffer for PCSs



Notes: This figure is analogous to Figure 4 but there is no buffer around the boundaries of precolonial state boundaries, which are assumed to be correct.

1. **Top 10 River:** Dummy variable that takes on the value one for ethnic homelands with any of the 10 longest rivers in Africa and zero otherwise. Top 10 rivers are Nile, Congo, Niger, Zambezi, Ubangi-Uele, Kasai, Orange, Limpopo, Senegal and Blue Nile. *Source:* Constructed using the “Rivers and lake centerlines” shapefile available at <https://www.naturalearthdata.com/downloads/10m-physical-vectors/10m-rivers-lake-centerlines>.
2. **Navigable River:** Dummy variable that takes on the value one for ethnic homelands with a navigable river and zero otherwise. *Source:* Hammond’s *Business Atlas of Economic Geography*, 1919, p. 44.
3. **River Indicator:** Dummy variable that takes on the value one for ethnic homelands with a river and zero otherwise, *Source:* Constructed using the “Rivers and lake centerlines” shapefile available at <https://www.naturalearthdata.com/downloads/10m-physical-vectors/10m-rivers-lake-centerlines>.
4. **Top 10 Lake:** Dummy variable that takes on the value one for ethnic homelands with any of the 10 largest lakes in Africa and zero otherwise. Top 10 lakes are Lake Victoria, Tanganyika, Malawi, Chad, Turkana, Albert, Mweru, Tana, Kivu, Edward, Rukwa and Mai-Ndombe.

Source: Constructed using the “Rivers and lake centerlines” shapefile available at <https://www.naturalearthdata.com/downloads/10m-physical-vectors/10m-rivers-lake-centerlines>.

5. **Lake indicator:** Dummy variable that takes on the value one for ethnic homelands with a lake and zero otherwise. Source: Constructed using the “Rivers and lake centerlines” shapefile available at <https://www.naturalearthdata.com/downloads/10m-physical-vectors/10m-rivers-lake-centerlines>.
6. **Share of Desert:** Percentage of surface area classified as non-vegetated or sparsely vegetated. Source: *FAO land use*.
7. **Land Area:** Log surface area of each ethnic homeland in 1000s of km^2 . Source: *Michalopoulos and Papaioannous (2016)*. Original Source: *Global Mapping International, Colorado Springs, Colorado, USA*.
8. **Elevation:** Average value of elevation in kilometers. Source: *Michalopoulos and Papaioannous (2016)*. Original Source: *National Oceanic and Atmospheric Administration (NOAA) and U.S. National Geophysical Data Center, TerrainBase, release 1.0 (CD-ROM), Boulder, Colorado*.
9. **Distance to the Coast:** The shortest geodesic distance of the centroid of each ethnic homeland from the coast, measured in 1000s of km^2 .
10. **Coastal group:** Dummy variable that takes one the value of one for ethnic homelands on the coast.
11. **Malaria Stability 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. We use the average value for each ethnic homeland. Source: *Michalopoulos and Papaioannous (2016)*. Original Source: *Kiszewski, Mellinger, Spielman, Malaney, Sachs, and Sachs (2004)*.
12. **Agricultural Suitability:** Average value of land (soil) quality for cultivation. The index is the product of two components reflecting the climatic and soil suitability for cultivation. Source: *Michalopoulos (2016)*; Original Source: *Atlas of the Biosphere*.
13. **Suitability for European Settlement:** The index takes into account climate, rainfall, elevation and tsetse fly prevalence that influenced prospects for European settlement. Source: *Paine (2019)*.
14. **Intensity of Agriculture:** 1 – 6 scale index reflecting the intensity of agriculture. The index equals 1 when there is a “complete absence of agriculture”, 2 for “casual agriculture, i.e., the slight or sporadic cultivation of food or other plants incidental to a primary dependence upon other subsistence practices”, 3 for “extensive or shifting cultivation, as where new fields are cleared annually, cultivated for a year or two, and then allowed to revert to forest or brush for a long fallow period”, 4 for “horticulture, i.e., semi-intensive agriculture limited mainly to vegetable gardens or groves of fruit trees rather than the cultivation of field crops”, 5 for “intensive agriculture on permanent fields, utilizing fertilization by compost or animal manure, crop rotation, or other techniques so that fallowing is either unnecessary or is confined to

- relatively short periods”, and 6 for “intensive cultivation where it is largely dependent upon irrigation”. *Source: Murdock (1967); variable code v28.*
15. **Settlement Patterns:** The prevailing type of settlement pattern, with higher index corresponding to more complex pattern of settlements. *Source: Murdock (1967); variable code v30.*
 16. **Size of Local Communities:** The average population of local communities, whatever the pattern of settlement. 1: fewer than 50 persons; 2: 55 to 99 persons; 3: 100 to 199 persons; 4: 200 to 399 persons; 5: 400 to 1,000 persons; 6: more than 1,000 persons in the absence of indigenous urban aggregations; 7: one or more indigenous towns of more than 5,000 inhabitants but none of more than 50,000; and 8: one or more indigenous cities with more than 50,000 inhabitants. *Source: Murdock (1967); variable code v31.*
 17. **Jurisdictional Hierarchy:** The number of jurisdictional levels beyond the local community, with 1 representing the theoretical minimum (e.g., none/autonomous bands or villages) and 5 representing the theoretical maximum (e.g., villages nested within parishes, districts, provinces, and a complex state). This variable also provides a measure of political complexity, ranging from 1 for stateless societies, through 2 or 3 for petty and larger paramount chiefdoms or their equivalent, to 4 or 5 for large states. Organizations not held to be legitimate, e.g., imposed colonial regimes, are excluded. *Source: Murdock (1967); variable code v33.*
 18. **Number of Adjacent Ethnic Families:** Number of distinctive ethnic families among neighboring ethnic groups. *Source: Michalopoulos (2016).*
 19. **Precolonial trading post:** Dummy variable that takes on the value of one for ethnic groups with a precolonial trading post and zero otherwise. *Source: Ricart-Huguet (Forthcoming).*
 20. **Number of exported slaves:** Number of exported slaves scaled by land area for each ethnic group. *Source: Nunn (2008).*
 21. **Historical Natural Resource Density:** Number of historical natural resource sites scaled by land area for each ethnic group. *Source: Ricart-Huguet (Forthcoming).*
 22. **Historical diamond:** Dummy variable that takes on the value of one for ethnic groups containing a diamond mine by the year 1919 and zero otherwise. *Source: Ricart-Huguet (Forthcoming).*
 23. **Historical gold:** Dummy variable that takes on the value of one for ethnic groups containing a gold mine by the year 1919 and zero otherwise. *Source: Ricart-Huguet (Forthcoming).*

B SUPPORTING INFORMATION FOR ETHNIC PARTITION

The following provides details on our regression analysis using ethnic groups as the unit of analysis, followed by a critique of the Murdock data (in particular for studying the relationship between precolonial states and partition).

B.1 DATA

We largely follow Michalopoulos and Papaioannou's (2016) setup for assessing the correlates of ethnic partition. They identify partitioned groups using Murdock's Ethnolinguistic Map (1959), digitized by Nunn (2008), that describes and geo-locates ethnic groups in Africa at the time of European colonization. There are 825 ethnic homelands after dropping uninhabited areas and small islands. Given inevitable error in the Murdock-drawn "ethnic homeland" boundaries, they code as partitioned any group for which at least 10 percent of their territory falls into more than one country. Because our theory carries implications for *how* groups are split in addition to whether they are split, we code for each partitioned group whether the border is straight or squiggly, following Alesina, Easterly and Matuszeski's (2011) distinction.

To evaluate our theoretical expectations, we examine correlates for precolonial states and for geographic features, many of which are potential focal points. We also include environmental and socioeconomic historical covariates (e.g., a malaria index) that could influence ethnic partition even if they tend to be less visible focal points.

Our measure of precolonial states is based on Murdock's jurisdictional hierarchy variable, which we refer to as PCS MURDOCK. We count as a precolonial state any group that scores three levels or higher of political authority beyond the community level (e.g., autonomous bands and villages), which correspond with what Murdock labels as "states." Given our theoretical assessments, a binary variable is easier to interpret than a graded measure, although the correlations are qualitatively identical with Murdock's original graded jurisdictional hierarchy variable (not reported). We do not anticipate differential rates of partition for polities with less developed hierarchies because the absence of reasonably credible traditional claims to rule a broad territory should prevent European colonizers from identifying focal points.

Rivers and lakes are possibly the most important geographic focal points because they are highly visible and fixed. We measure rivers in three different ways. The dummy variable TOP 10 RIVER is coded as 1 if an ethnic homeland contains any of the 10 longest rivers in Africa. NAVIGABLE RIVER takes a value of 1 if a group contains a navigable river as identified by C.S. Hammond (1921). Another dummy variable RIVER INDICATOR takes on the value 1 if the group has access to any river, regardless of length, which is Michalopoulos and Papaioannou's (2016) measure. Navigable rivers are closely related to economic activities and colonial interests. Many international borders also involve segments of smaller rivers that are locally salient. Different measures allow us to capture rivers and lakes of varied importance and conduct a more comprehensive assessment of their role in border formation. Our lake measures are similar. TOP 10 LAKE is a dummy variable that takes the value 1 for ethnic homelands containing any of the 10 largest lakes in Africa. LAKE INDICATOR is coded as 1 for ethnic homelands containing a lake of any size, which is also Michalopoulos and Papaioannou's (2016) measure. To assess our theoretical expectations about border formation in areas lacking clear focal points, we include SHARE OF DESERT, which measures the percentage of desert area for each ethnic homeland.

B.2 PHYSICAL GEOGRAPHY

Figure 5 in the text presents a series of probit models examining the impact of physical and political geography on ethnic group partition. The left panel compares ethnic groups split across international borders with non-split groups. The right panel compares groups split by a squiggly border with those partitioned by a straight line. Across the entire sample, 229 of the 825 ethnic groups (28%) are partitioned across multiple countries. In 78% of the 229 split groups, a majority of the border is squiggly.

The top panel presents bivariate probit estimates for physical geography. The most visible and fixed geographic focal points, rivers and lakes, covary with an elevated likelihood of ethnic group partition, consistent with our theoretical expectations. Ethnic homelands containing a river or a lake are more likely to be partitioned: 39% of groups with a top-10 river in their territory were partitioned compared to 26% among groups lacking this feature, and the figures are almost identical for top-10 lakes. The relationship is consistent among different measures of rivers and lakes. Rivers also affect the *type* of split. The presence of a river increases the likelihood of squiggly split (80% versus 73% otherwise). Lakes, on the other hand, do not affect the type of split. This is consistent with qualitative evidence on bilateral borders. Unlike inherently squiggly river borders, some international borders involving lakes follow the squiggly median line between shores (e.g., Lake Tanganyika) while others cut across the lakes with straight lines (e.g., Lake Victoria), leading to a null aggregate effect. Overall, the statistical results suggest that water bodies influenced border formation.

As expected, an ethnic group's percentage of desert area does not affect the likelihood of partition. However, a larger desert area increases the likelihood of ethnic partition via a straight-line border. These results are consistent with the expectation that European powers competed for better-quality land and drew borders more carefully in those areas while dividing territories haphazardly in deserts, where there was a lack of both economic interests and focal points.

B.3 PRECOLONIAL STATES

The bottom panel of Figure 5 shows results for PCS MURDOCK. Since PCS MURDOCK is endogenous, we control for geographic and environmental covariates that are either of theoretical importance or shown to significantly impact the likelihood of partition in the earlier bivariate models. These include share of desert, logged land area, various river and lake indicators, malaria index, agricultural suitability, and suitability for European settlement.

Europeans had incentives to draw international borders corresponding to the rough limit of pre-colonial states because they were focal and could ease the burden of administration. The statistical evidence for this claim in Figure 5 is suggestive, but quite weak. The coefficient for PCS MURDOCK on the left panel is close to 0 and insignificant. Furthermore, the raw magnitudes are small: 27% of groups with PCS MURDOCK=1 were partitioned compared to 29% with PCS MURDOCK=0. However, *among* split groups, there is stronger evidence that Europeans drew squiggly rather than straight-line borders. The coefficient on the right panel is positive and significant, which suggests that the partition of precolonial states is not a random process.

B.4 SHORTCOMINGS OF THE MURDOCK DATA

For certain purposes, ethnic groups are undoubtedly an appropriate unit of analysis. However, to take stock of what we just learned, we need to highlight the shortcomings of examining ethnic

groups. This is most obvious for precolonial states, where we found null results. In the text, we listed three criticisms of the Murdock data, which we substantive here: (1) ethnic groups exhibit a conceptual mismatch with the spatial reach of historical states, (2) Murdock’s jurisdictional hierarchy variable exhibits considerable measurement error, (3) considerable map-drawing error, that is, measurement error in the dependent variable of partition because Murdock’s map inaccurately reflects the location of the group.

In Table B.1, we tally every “positive-positive” case from the regressions presented above, that is, every case with PCS_MURDOCK=1 and the ethnic group is partitioned. In Table B.2, we also use Murdock ethnic groups as the unit of analysis, but change the measure of historical statehood to incorporate the data that we use in the grid cell analysis. Specifically, we matched our list of precolonial states with Murdock ethnic groups; fortunately, there was little ambiguity in the matches based on names and locations. This table shows that even after incorporating better data on precolonial states, the overall problems with measurement error remain severe because of the conceptual mismatch between ethnic groups and states as well as map-drawing error.

Table B.1: Partitioned Ethnic Groups with Precolonial States: Murdock

Murdock group	Country	Notes
DELIM	Western Sahara	Not a major state
ESA	Somalia	Not a major state
FON	Benin	Dahomey was not partitioned
GIL	Morocco	Not a major state
HAMAMA	Tunisia	Not a major state
HIECHWARE	Botswana	Not a major state
IMRAGEN	Western Sahara	Not a major state
ISHAAK	Somalia	Not a major state
JERID	Tunisia	Not a major state
KGATLA	South Africa	Agree
MANDARA	Nigeria	Not a major state
MANGA	Niger	Not a major state
MASALIT	Sudan	Not a major state
MASHI	Zambia	Not a major state
MPEZENI	Zambia	Not a major state
POPO	Benin	Not a major state
REGEIBAT	Mauritania	Not a major state
RONGA	Mozambique	Not a major state
RUANDA	Rwanda	Not partitioned
RUNDI	Burundi	Not partitioned
RUNGA	Chad	Not a major state
SONGHAI	Mali	Not a major state
SOTHO	South Africa	Agree
SUBIA	Namibia	Not a major state
SWAZI	Swaziland	Agree
TABWA	Congo DRC	Not a major state
TAMA	Sudan	Not a major state
TIENGA	Nigeria	Not a major state
TLOKWA	South Africa	Not a major state
TRIPOLITANIANS	Libya	Not a major state
TUNISIANS	Tunisia	Not partitioned
WAKURA	Nigeria	Not a major state

Notes: This table lists every ethnic group for which Murdock codes the ethnic group with a jurisdictional hierarchy score of 3 or above, and Michalopoulos and Papaioannou (2016) code the group as partitioned.

Table B.2: Partitioned Ethnic Groups with Precolonial States: Revised Measure

Murdock group	Country	Notes
BARGU	Benin	Actually partitioned
EGBA	Benin	State smaller than ethnic group
FON	Benin	State smaller than ethnic group
FOUTADJALON	Guinea	Map-drawing error
HAUSA	Nigeria	State smaller than ethnic group
IBIBIO	Nigeria	State smaller than ethnic group
NGWAKETSE	Botswana	
RUANDA	Rwanda	Map-drawing error
RUNDI	Burundi	Map-drawing error
SOTHO	South Africa	Actually partitioned
SWAZI	Swaziland	Actually partitioned
TUNISIANS	Tunisia	Map-drawing error

Notes: Assignment to countries is from M&P.

The following figures exemplify our three critiques of Murdock. Figure B.1 overlays the international borders onto Murdock’s polygons for Ruanda and Urundi (presumably, these correspond with Tutsi in each country, given his scoring that each were three levels of political hierarchy above the village level, or states). As the figure shows, each polygon is presumably intended to correspond exactly with the international borders, but the match is inexact. Consequently, for both polygons, at least 10% lies beyond the primary country, hence meeting Michalopoulos and Pappaioannou’s (2016) standard for partition—despite the fact that the historical sources we consulted provide detailed evidence that the colonizers preserved the traditional limits of each state within a single colony.

Figure B.1: Rwanda-Burundi Border

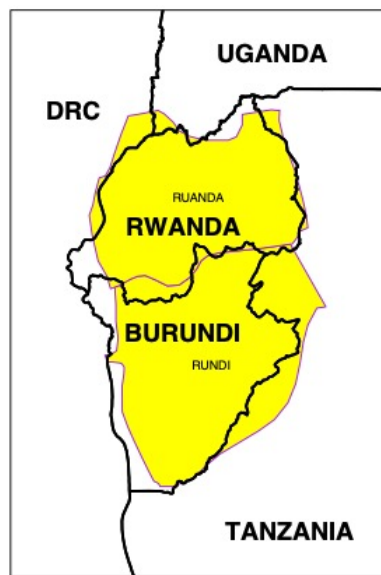
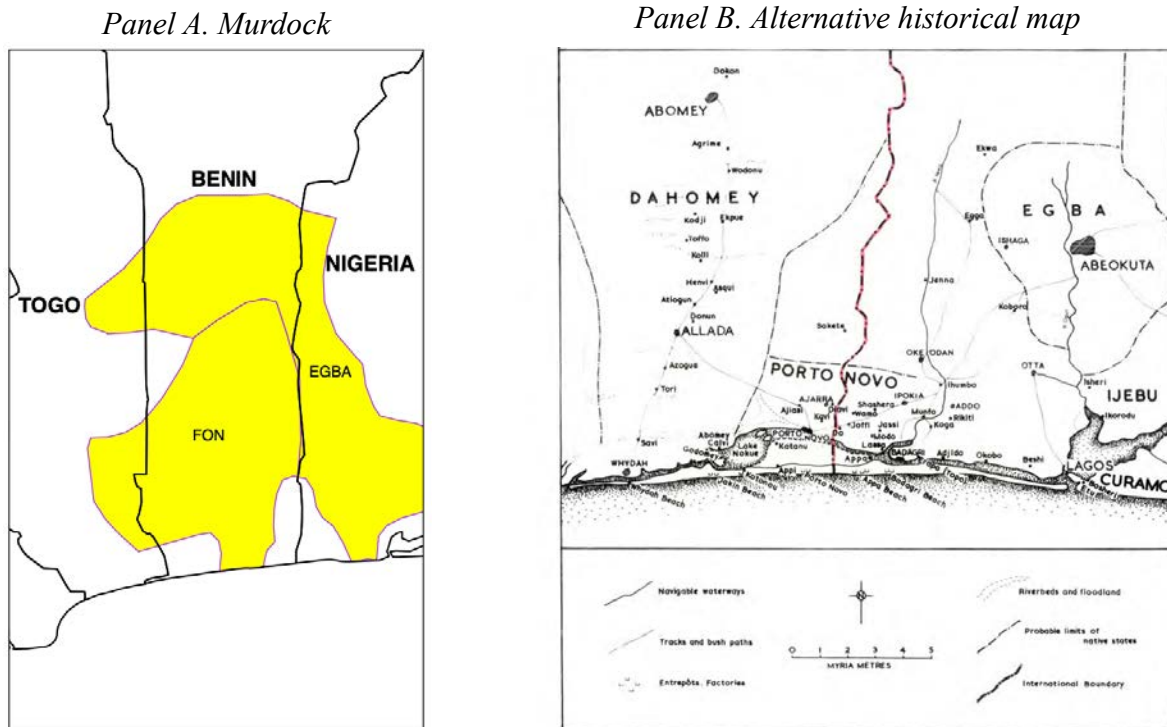


Figure B.2 presents two maps of the Benin-Nigeria border. Panel A is similar to Figure B.1 because

we overlay international borders on Murdock’s polygons for the Fon and Egba ethnic groups. In Panel B we present a different historical map of the Dahomey and Egba states. Analyzing the Egba illustrates two sources of error. First, Murdock codes Egba as two levels of political hierarchy above the village level, that is, a paramount chieftaincy rather than a state. However, historical sources argue that Egba was the most powerful state to emerge in Yorubaland following the collapse of the Oyo Empire early in the nineteenth century. This case also illustrates our point about conceptual mismatch. Whereas the historical map (buttressed by considerable historical evidence; see Appendix D) shows that Britain and France deliberately drew the southern part of the Benin-Nigeria border in the frontier zone between Egba and Fon, Murdock’s polygon for Egba stretches well into Benin. The outer edges of ethnic groups is inherently fuzzy, so we lack direct evidence to contest that members of the Egba ethnic group indeed resided that far west. However, it is clear that the Egba state (centered at Abeokuta) was contained entirely within the borders of Nigeria. The neighboring Fon exemplify this problem as well. Dahomey was the major state of the Fon ethnic group. Although the French colony of Dahomey (modern-day Benin) contained the limits of the historical state (and was, in fact, named after it), other members of the Fon ethnic group that were not incorporated into the state were partitioned into neighboring colonies.

Figure B.2: Benin-Nigeria Border



Notes: The source for Panel B is Map 12 from Mills (1970), a map from 1865 drawn by missionary Father Boghero.

C SUPPORTING INFORMATION FOR TREATIES AND COLONIAL NAMES

Table C.1: Determinants of African *inland* bilateral borders

Category	Feature	All determinants		Main determinant	
		Number	Percentage	Number	Percentage
Physical geography	Rivers, oueds, watersheds	59	84%	35	50%
	Water bodies: lakes, oasis, wells	26	37%	4	6%
	Topography: mountains, hills, valleys	36	51%	3	4%
	Desert border	17	24%	0	0%
Political geography	Precolonial states (PCS)	17	25%	11	16%
	Non-PCS ethnic groups	9	13%	2	3%
	Cities, towns, high population density	19	27%	3	4%
	Infrastructure: roads and routes	14	20%	0	0%
Straight lines (possibly haphazard)	Parallels and meridians	13	19%	8	11%
	Other straight lines	25	36%	4	6%
Total		235	-	70	100%

Notes: This table is analogous to Table 1 but subsets the analysis to inland borders; n=70. Counterintuitively, 26% of all borders but only 24% of inland borders are in desert areas. This is because as many as 10 bilateral coastal borders are in desert areas (e.g., Algeria-Morocco, Egypt-Libya, Namibia-South Africa).

Table C.2: Names of African States

Country	Colonial name in 1939	Historical state	Water body
Algeria	Algeria	Algiers	
Angola	Angola	Ndongo	
Benin	Dahomey	Dahomey, Benin*	Bight of Benin**
Botswana	Bechuanaland	Tswana	
Burkina Faso	Upper Volta		Volta river
Burundi	Ruanda-Urundi	Burundi	
Cameroon	French Cameroons		Wouri river
Central African Republic	Ubangui-Chari		Ubangui/Chari rivers
Chad	Chad		Lake Chad
Congo Brazzaville	Moyen-Congo		Congo river
Congo Kinshasa	Belgian Congo	Kongo*	Congo river
Djibouti	French Somaliland		
Egypt	Egypt	Egypt	
Equatorial Guinea	Spanish Guinea		
Eritrea	Eritrea		Red Sea**
Ethiopia	Ethiopia	Ethiopia	
Gabon	Gabon		Gabon estuary**
Gambia	Gambia		Gambia river
Ghana	Gold Coast	Ghana*	Gold Coast**
Guinea	French Guinea		
Guinea-Bissau	Portuguese Guinea		
Ivory Coast	Ivory Coast		Ivory Coast**
Kenya	Kenya		
Lesotho	Basutoland	Basutoland	
Liberia	Liberia		
Libya	Libya		
Malawi	Nyasaland	Maravi*	Lake Nyasa/Malawi
Mali	French Sudan	Mali*	
Mauritania	Mauritania		
Morocco	Morocco	Morocco	
Mozambique	Portuguese East Africa		
Namibia	South-West Africa		
Niger	Niger		Niger river
Nigeria	Nigeria		Niger river
Rwanda	Ruanda-Urundi	Rwanda	
Senegal	Senegal		Senegal river
Sierra Leone	Sierra Leone		
Somalia	Italian Somaliland		
South Africa	South Africa		
Sudan	Sudan		
Swaziland	Swaziland	Swaziland	
Tanzania	Tanganyika	Zanzibar	Lake Tanganyika
Togo	French Togo		
Tunisia	Tunisia	Tunis	
Uganda	Uganda	Buganda	
Zambia	Northern Rhodesia		Zambezi river**
Zimbabwe	Southern Rhodesia	Great Zimbabwe*	

Source: Everett-Heath (2005). *Does not meet the restrictive version of the historical state variable.

**Does not meet the restrictive version of the water body variable.

D SUPPORTING INFORMATION FOR PRECOLONIAL STATES

The following details the documentary evidence that we compiled for precolonial states. In a handful of cases, the colonial state directly reflected a discernible precolonial state whose territory integrity was mostly unquestioned (Egypt, Ethiopia, Morocco, Tunisia). This section provides information for every other case in [Table 2](#) for which we denote documentary evidence of a precolonial state affecting colonial border formation.

D.1 ASANTE

Distinct treaties between Britain and each of the Netherlands and France explicitly state the Asante territory as within the British sphere of influence, therefore eliminating claims from rival empires that could have led to its partition. An 1867 Convention with the Netherlands yielded an interchange of territory in the Gold Coast. “In this Convention the boundary between the possessions of Her Britannic Majesty and those of the King of the Netherlands was defined as being a line drawn true north from the centre of the mouth of the Sweet River as far as the boundary of the then existing Ashantee kingdom” (Hertslet 1909 Vol. 1, 65). The main arrangement that determined British and French possessions in West Africa was signed in 1889, which mentioned: “The French Government shall undertake to allow England full liberty of political action to the east of the frontier line, particularly as regards the Kingdom of the Ashantees: and the English Government shall undertake to allow France full liberty of political action to the west of the frontier line” (Brownlie 1979, 215).

D.2 BAROTSELAND (LOZI)

Overview. An early treaty between Britain and Portugal explicitly placed the Lozi (alternatively, Barotse) kingdom under Britain’s control. However, because the limits of the kingdom were unknown, there was extensive negotiations to find the traditional limits of the state.

Details. Article IV of the main treaty (1891) dividing British and Portuguese spheres of influence in Central Africa contains the passage: “It is agreed that the western line of division separating the British from the Portuguese sphere of influence in Central Africa shall follow the centre of the channel of the Upper Zambezi, starting from the Katima Rapids up to the point *where it reaches the territory of the Barotse Kingdom*” (Brownlie 1970, 1041; our emphasis). However, diplomatic communications between Britain and Portugal later questioned: “What are, within the meaning of . . . Article [IV] of the Treaty of 1891, the limits of the territory of the Barotse Kingdom?” They submitted their dispute to arbitration by the King of Italy, whose “award and definition of the western limit of the Barotse Kingdom was based upon an assessment of the territorial extent of the effective authority of the Barotse ruler” (Touval 1966, 289). Relative to the originally proposed border, this alteration “moved the southern sector westward from the Zambesi to the River Kwando” (Brownlie 1979, 1043). Notably, despite this attention to not partitioning Barotseland, the border chosen by the King of Italy was still 390 miles of astronomical lines (Griffiths 1986, 207), a rare instance of drawing a straight-line border for a precolonial state.

D.3 BORGU

Overview. A central consideration in British-French negotiations over the northern part of the border between Nigeria and Benin was the territorial status of Borgu (see Anene 1970, 190-232). Ultimately, Borgu was dismembered, but this case supports our proposed mechanism in other ways.

Britain and France were intensely interested in the territorial status of Borgu, and sent agents in a “race to Nikki” to learn as much as they could about the empire. Previously unrealized divisions within the Borgu empire between Bussa and Nikki played an important role in Britain’s decision to not maintain its claim for all of Borgu.

Details. Britain established a broad presence in this part of West Africa before France. Britain sought to obtain all of Borgu for itself, in large part to secure its control over the navigable part of the Niger River. It initially proceeded under the assumption that Borgu was a unified political unit under paramountcy of the chief of Bussa. They based this claim on (self-admitted) uncertain intelligence from Royal Niger Company agents, who signed a vague treaty with the chief of Bussa in 1885. In 1894, France challenged this claim on two grounds, although without providing its own evidence. First, Borgu might not have been a unified state. Second, if any Borgu chief was paramount, it was the chief of Nikki (another Borgu ruler) rather than of Bussa.

This challenge induced a “race for Nikki” to secure new treaties. Ironically, the main result of this race was not to settle the border, but instead to gain new information about Bussa that prolonged the negotiations. British and French officials each gained compelling evidence that the chiefs of Bussa, Nikki, and other Borgu states were de facto independent of each other, with none paying tribute to the other. Because this reality was inconvenient for British claims to all of Borgu, its officials continued through 1896 to speak of the unity of Borgu. This case also prompted an explicit defense of the principle of suzerainty, which we quoted in the paper: “We could not abandon the principle of suzerainty. This principle was recognized in all international negotiations and we held that, in treating with a suzerain, the rights conferred . . . extended to the whole of the territory under his dominion” (quoted in Anene 1970, 220).

However, perhaps because the unity of Borgu was inconsistent with reality, as negotiations continued, “[t]he compromises progressively ignored the earlier British contention that Borgu was one nation. The need to soothe ruffled national feelings and reconcile imperial interests became, in the view of the Powers, more important than the territorial integrity of Borgu” (Anene 1970, 221). By 1897, the powers had agreed on a new interpretation of the political structure of Borgu in which there were separate Bussa and Nikki states, which would be assigned to Britain and France, respectively. The Anglo-French Convention of 1898 explicitly contains provisions that “leav[e] Nikki and the surrounding district within the French sphere” and “leav[e] within the British sphere all territory belonging to the Province of Boussa and the district of Gomba” (quoted in Anene 1970, 226).

D.4 BUGANDA AND NEIGHBORS

Overview. Britain established its presence in modern-day Uganda through treaties first with Buganda, and then neighboring kingdoms in the southwest part of the modern country. However, Britain also colonized the neighboring territory of Kenya, which proved hospitable to large-scale white settlement. There was never a threat of partitioning Buganda and neighboring kingdoms across multiple colonies, but there were multiple proposed schemes to combine Uganda with Kenya. Buganda’s central role in Uganda, as well as protests by traditional rulers, ultimately undermined these plans for amalgamation.

Details. The historical kingdom of Buganda was the core of Uganda (Ingham 1958, Ch. 2 and 3).

Britain originally established a colonial presence in modern Uganda through missionaries and, for a short period, corporate governance by the Imperial British East African Company in Buganda, which it secured by a series of treaties with Mwanga, the kabaka (king) of Buganda (see *Map of Africa by Treaty* Vol. 1, 392-6 for these treaties). In 1894, Britain declared a protectorate, which was initially limited solely to Mwanga's kingdom. Britain later signed treaties with other kings in the western part of the present country, and also secured a sphere of influence (in a series of treaties with Germany and Belgium) over territory to the north and to the east of Buganda. The Buganda Agreement of 1900 reinforced Buganda's position at the core of the colony. Britain granted the Baganda high levels of internal autonomy and made the Buganda Province a "separate unit" (Ingham 1958, 92) within the Uganda Protectorate. Britain's arrangement with Buganda affected colonial borders during two distinct episodes in 1902, and later in the 1920s.

First, in 1902, Britain transferred territory from eastern Uganda to British East Africa (later, Kenya) instead of amalgamating the two colonies. The main goal of British officials was place the entire Uganda Railway under a single administration; by moving the border for British East Africa westward, the terminus of the railroad (which began in Mombasa) now lay entirely within British East Africa. One permissive condition for transferring this territory was that Britain had established minimal administrative presence in what was, until 1902, the Eastern Province of Uganda. This was itself endogenous to low precolonial political development in the area. British officials exerted minimal effort to collect hut taxes because there "seemed to be no chiefs ... there was nothing approaching the centralized, quasi-feudal government of the Uganda kingdoms" (Matson 1958 *Uganda Journal*, 47). The Foreign Office preferred this plan over an alternative to create a federation between Uganda and British East Africa, two colonies with fundamentally different geographical orientations. Even the main proponent of federation, Ugandan governor Harry Johnston, "recognized that Uganda was still centred upon the kingdom of Buganda while the affairs of the East Africa Protectorate radiated from the Arab coast" (Ingham 1957, 44).

Second, a plan emerged in the 1920s to amalgamate Uganda, Kenya, and Tanganyika into a larger federation, although this ultimately fell through. Baganda officials repeatedly stated their opposition to a federation, and the evidence suggests that British officials were receptive to these complaints. The core fear by Ugandans was that Kenya would be the senior partner in the arrangement, which would subject Uganda to rule by the influential community of European settlers in Kenya. Amid a commission in 1924 to gather opinions, "The Kabaka and Lukiiko [council] of Buganda addressed a memorial opposing closer political union lest the special position guaranteed to their kingdom by the 1900 Agreement should be jeopardized" (Ingham 1958, 180-1). They offered similar protests to British officials in 1927 and 1929 (183-5). The final serious discussion over federation occurred in 1931, during which a Joint Select Committee sat to debate the proposal. "The Committee was particularly impressed by the authority and skill with which the African witnesses, led by Mr Serwano Kulubya, Omuwanika [Treasurer] of Buganda, stated their case ... [and] convinced their hearers that the British Government in the past had tended to underestimate the abilities of the leaders of African opinion" (Ingham 1958, 187).

D.5 CENTRAL SUDANESE STATES

Overview. Before establishing a presence on the ground, Britain and France determined in a treaty that the border between Sudan and Chad would divide the historical states of Darfur and Wadai (using their territorial limits as of 1882) into these respective colonies. However, later a dispute

arose regarding the limits of each state. This case was unique because Britain did not seek to pacify Ali Dinar, the Sultan of Darfur, who retained an independent army. Ali Dinar fought battles with France over the border. Ultimately, Britain and France settled the border after World War I and divided the contested areas between the two powers, but only after Britain had deposed Ali Dinar during the war.

Details. An 1899 declaration between Britain and France decreed: “The line of frontier shall start from the point where the boundary between the Congo Free State and French territory meets the water-parting between the watershed of the Nile and that of the Congo and its affluents. It shall follow in principle that water-parting up to its intersection with the 11th parallel of north latitude. From this point it shall be drawn as far as the 15th parallel in such manner as to separate, in principle, the *Kingdom of Wadai* from what constituted in 1882 the *Province of Darfur*” (Hertslet 1909 Vol. 2, 796; our emphasis). A Convention signed in 1919 confirmed this division: “From this point [the boundary] shall be drawn in such a manner as to separate in principle the countries of Dar Kouti, Dar Sula (Sila), Wadai, and Dar Tama from the countries of the Taaisha and other tribes subject to Darfur and from those of Dar Masalit and Dar Gimr” (626).

This case is unique because Ali Dinar, the Sultan of Darfur was only nominally under British control. He had his own army and repeatedly demonstrated his willingness to use force if the border was not settled to his satisfaction. Britain deemed it too expensive to rule Darfur directly, and instead allowed Ali Dinar to govern Darfur as long as he was friendly to British interests. Ali Dinar had considerable agency, and between 1899 (when he gained undisputed control of Darfur) and 1916 (when Britain militarily defeated and killed him), he fought a series of battles against Mahdist chiefs, neighboring tribes, and France.

The disputes with France arose in 1909 when it moved eastward to conquer the Wadai empire. Despite Britain and France’s earlier treaty settlement of their spheres of influence, “there now lay only the debatable border lands of Dars Tama and Gimr in the north, Dar Masalit in the centre, and Dar Sila in the south . . . ‘the old frontier between Darfur and Wadai’ [did not] mean anything . . . there was not, and never had been, any stable, clearly defined, and generally recognized frontier between Darfur and Wadai” (64, 69). Ali Dinar claimed these petty sultanates as Darfur’s historical tributary states, and between 1909 and 1912, control fluctuated between France and Darfur through a series of battles—ultimately resulting in French control in 1912. In diplomatic communication with France, British officials repeatedly stressed that they lacked the direct military presence in the area to prevent Ali Dinar from attacking French positions if he did not gain control over these territories, specifically, Dar Tama and Dar Masalit (98, 109). This, in turn, prompted Britain to seek to settle the border with France (94). Each side then sought to persuade the other with evidence regarding which sultanates were controlled by either Wadai or Darfur in 1882 (in reference to the Declaration between Britain and France from 1899).

Neither power gave in. Although they had agreed in principle to let a neutral party arbitrate the dispute, World War I began first, prompting them to agree to revisit the matter after the war. During the war, Britain’s uncertain relationship with Ali Dinar soured and, ultimately, they launched a military expedition to depose him in 1916. Given the pressure he placed on Britain to press territorial claims of which they were unable to convince France—despite Britain placing fairly low value on the territory—his removal cleared the way for settlement. At the Peace Conference in Versailles

in 1919, during a Supplementary Convention, the British Governor-General of Sudan stated in a private letter to the British High Commissioner in Egypt: “The main point is that we have let the French keep Tama and they are letting us keep Masalit and Gimr” (220).

D.6 DAGOMBA

Overview. Traditional states in northern Ghana (the most important of which was Dagomba) provide a clear example of Europeans gaining information about local conditions and adjusting borders to accommodate them. The original border between British Gold Coast and German Togoland partitioned these states between the two colonies. However, the powers drew new borders after World War I (when Germany lost its colonies) that rectified the earlier partition.

Details. Togo was originally a German colony, and a series of agreements between Britain and Germany between 1886 and 1904 determined its borders with the Gold Coast (Brownlie 1979, 251). During World War I, Britain and France invaded and occupied the territory. They subsequently divided the colony among themselves, with British Togoland in the west and French Togoland in the east. The new border purposefully contained within the British territory members of precolonial states that were previously divided between the British Gold Coast and German Togoland, but now would be administered entirely by the Gold Coast. In return, France received control over the port of Lomé and the Palimé railway (Nugent 1996, 43).

Bourret (1949, 96-7) provides additional detail on the World War I negotiations: “In the northern part of [German] Togoland there were several native states that were split by the Anglo-German boundary. Among these the Dagomba kingdom was the largest. Its head chief or ‘Na’ had his capital at Yendi, in German territory. After the British invasion, he signed a treaty acknowledging their sovereignty, and asking that his former state be reunited. Mamprussi and a small part of Gonja had likewise been separated by the former frontier. With this situation in view, it was decided at the Paris Peace Conference that Togoland should be divided in such a way as to reunite these tribes . . . for the same reason, the British were allowed, by Section 9 of the mandate, to administer the area as an integral part of the Gold Coast Dependency.”

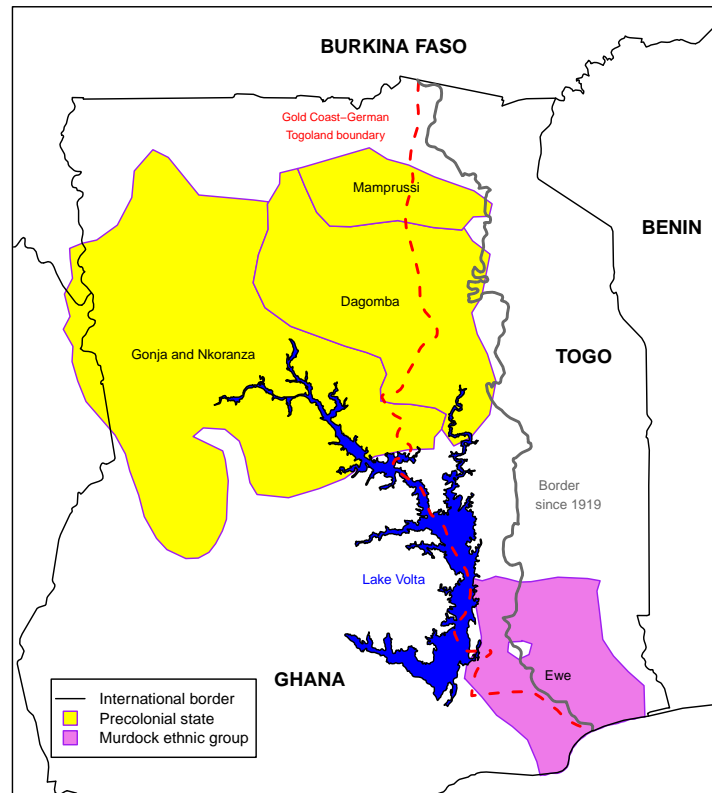
In 1956, residents of British Togoland participated in a plebiscite to decide whether they would be integrated with the Gold Coast or with French Togoland. They chose the former, and hence the prevailing international boundary reflects the post-World War I alteration that corrected the partition of the northern states.

Although this new border reunited states in the north, it divided ethnic Ewe in the south. “Some sympathy was expressed for the plight of the Ewe peoples to the south, but since they had never constituted a single political unit it was felt that their case was less pressing” (Nugent 1996, 43). This supports our general contention that colonizers largely ignored ethnic groups that lacked precolonial states when drawing borders.

D.7 DAHOMEY, YORUBA STATES, AND NEIGHBORS

Overview. Britain and France drew the border between Nigeria and Benin in a frontier zone between the traditional states of Dahomey (in Benin) and Egba (in Nigeria). Although the border partitioned the historical state of Oyo, and hence the broader Yoruba cultural area, this state had disintegrated by the time of European conquest. Unconvincing historical territorial claims undercut Britain’s claim to acquire more Yoruba territory.

Figure D.1: Ghana-Togo Border



Notes: Precolonial state shapefiles from authors’ digitization of Ajayi and Crowder’s (1985) maps. Ewe shapefile from Murdock.

Details. The Benin-Nigeria border coincided with a buffer zone between the historical states of Dahomey (ethnic Fon) and Egba (ethnic Yoruba). Frequent warfare between these rival states depopulated the region, in particular territory occupied by the Egbado (Ipokia, Ado, Oke-Odan, Ilaro, and Ijanna). Among the tribal areas partitioned by the border, only the Ketu kingdom was a distinct political entity, yet Mills also shows that by the time of the partition, warfare between Dahomey and Egba had already essentially destroyed the kingdom. Although the Yoruba language group was partitioned, these peoples lacked political unity at the time of partition, and European officials made separate treaties with Yoruba rulers that governed distinct states (e.g., Egba, Egbado, Ibadan). The earlier major Yoruba state, Oyo, disintegrated in the early nineteenth century, and Egba became the main power in the Yoruba region. Although Murdock’s polygon for Egba is partitioned between Benin and Nigeria, Mills presents maps showing that the area corresponding with the historical state lies entirely within Nigeria, which we reproduce in Figure B.2. Thus, he concludes that “[b]y placing a line of demarcation through this are the colonial powers were to a large extent replacing a frontier zone with a specific boundary line . . . the colonial boundary-makers cannot be accused of disregarding existing political conditions” (35, 43).

There is also ample evidence that the Europeans knew about these conditions. In order for Britain

and France to maximize their territory, they sought to learn as much as they could about to which states controlled the frontier areas (see also Anene 1970, 176-89). Britain sought to retain Yorubaland against encroachments by France. However, British officials perceived rulers of Dahomey as irredeemable barbaric slavers, and did not interfere with France's ambitions there despite earlier establishing treaty relations with the King of Dahomey. Thus, "[t]he desideratum, from the British point of view, was to separate Dahomey from Yorubaland. The French were agreeable" (184). Britain originally argued for expansive limits to Yorubaland on the basis of claims by the Alafin of Oyo that he was the "Head of Yorubaland, the four corners of which are and have been from time immemorial known as Egba, Ketu, Jebu, and Oyo, embracing within its area that inhabited by all Yoruba speaking peoples" (186). However, given the earlier disintegration of the Oyo empire, these claims were inaccurate, and Britain ceded parts of the frontier region to France despite claiming that they lay in Yorubaland. One of Britain's main goals in the region was to prevent France from gaining Abeokuta (the capital of Egba, which France had offered a treaty in 1888). Britain succeeded at retaining "the most effective Yoruba state in the boundary zone . . . The international boundary therefore in no way affected the western frontier of Egbaland" (186).

D.8 FUTA JALON

A border treaty between France and Portugal specifically mentions Futa Jalon: "Art. II.—His Majesty the King of Portugal and Algarves recognizes the French Protectorate over the territories of Fouta-Djallon, such as it was established by the Treaties concluded in 1881 between the Government of the French Republic and the Almamys of Fouta-Djallon. The Government of the French Republic, on its side, binds itself not to attempt to exercise influence within the limits assigned to Portuguese Guinea by Article I of the present Convention. They further bind themselves not to modify the treatment which has always been extended to Portuguese subjects by the Almamys of Fouta-Djallon" (Hertslet 1909 Vol. 2, 674).

D.9 MOSSI

The French colony of Upper Volta was originally established in 1919, abolished in 1932 with its territory reassigned to neighboring French colonies, and re-established in 1947. This case provides evidence of the non-amalgamation channel for the historical state of the Mossi. There are two separate episodes, corresponding to each time France detached Upper Volta. France gained control over the Mossi territory without facing armed resistance (Thompson and Adloff 1958, 173). France preserved the indigenous Mossi political structure to facilitate indirect rule, including leaving intact their supreme ruler, the Moro Naba (Skinner 1958, 125). Following a revolt in Niger in 1916, France established the territory of Upper Volta for administrative reasons "to introduce greater reliance on traditional institutions" (Touval 1972, 12).

The second case was after World War II, when most of Burkina Faso was part of the Ivory Coast. When France instituted elections across all its colonies, the most prominent inter-territorial political party was the Rassemblement Démocratique Africain (RDA), which maintained links with the French Communist party. "When asked by Houphouët-Boigny, who later became the Ivory Coast's long-time president, to collaborate in the naming of an Ivory Coast candidate for election to the Constituent Assembly in 1945, the Moro Naba [Mossi king] chose a loyal servitor who proceeded to campaign exclusively on the issue of reconstituting a separate Mossi state. The large vote that he rolled up—only slightly smaller than Houphouët's—was clear evidence of the Mossi people's wish to be separated administratively from the Ivory Coast . . . the Moro Naba had a one-track mind, and

when French President Auriol visited French West Africa in 1947 he took advantage of this occasion to press successfully the Mossi claim for separate territorial status. There is little doubt but that it was the desire to curtail R.D.A. expansion that moved France to accede, and on September 4, 1947, the Upper Volta once again became a territory in its own right” (Thompson and Adloff 1958, 174-5). The Mossi became “the single most influential tribe in Upper Volta” (Touval 1972, 13). As is typical in the non-amalgamation cases, there was an “other” factor that compelled the colonizer to grant governance privileges to elites of the precolonial state, but pressure from members of the precolonial state was necessary even if perhaps not sufficient.

D.10 NORTHEASTERN NIGERIAN STATES

Overview. Adamawa and Borno are exceptions to the general pattern of European powers not partitioning precolonial states. Negotiations between Britain and Germany over the original borders explicitly discussed concerns about dismembering Adamawa, and negotiations between Britain and France when carving up the former German colony discussed but chose not to rectify the partition of either Adamawa or Borno. One important factor behind partition was the particularly amorphous nature of the frontier of these empires in the territories that got partitioned. A related key factor in Borno was that the empire was in decline in the late nineteenth century, and had lost control of many of its traditional territories even before colonial rule began.

Historical background. The Nigeria-Cameroon border underwent several colonial revisions. Cameroon was originally a German colony, and therefore the original border divided British and German spheres of influence. During World War I, Germany lost its colonial empire and Britain and France partitioned this area between themselves. They split the original territory of German Cameroon into three territories: French Cameroon in the east, and British-controlled Southern and Northern Cameroons in the west. (German Cameroon was enlarged in 1911 when France ceded additional territory to the eastern part of Cameroon, which France subsequently regained after World War I. However, this territorial transfer did not affect the Cameroon–Nigeria border.) In referenda in the 1950s and 1960s, Northern Cameroons voted to join Nigeria and Southern Cameroons voted to join (French) Cameroon. Therefore, negotiations between Britain and Germany before World War I ultimately determined the southern part of the post-independence Cameroon–Nigeria border, whereas negotiations between Britain and France during and after World War I ultimately determined the northern part.

Details on Adamawa. For the original border drawn in 1886, Britain gained control over the town of Yola (the capital of the Adamawa Empire), but Germany gained much of the outlying areas. The first official correspondence that acknowledged the partition of Adamawa occurred in 1893. “When the negotiations came out into the open, the Germans expressed regret that the previous provisional boundary had ignored historical antecedents,” and instead proposed a new border that would “preserve the territorial integrity of the Adamawa and Bornu empires” (Anene 1970, 124). British officials responded by contesting German claims about the limits of Adamawa and refusing to give up Yola: “We do not admit that the whole of Adamawa, with the exception of the capital is in the German sphere . . . Yola is close to the head of navigation in the Benue, and essential to the Power which holds the river” (Prescott 1971, 31).

Ultimately, German officials concluded that avoiding the partition of Adamawa was not a high-enough priority to delay settling the border. A letter from the German Foreign Office to Britain

stated: “In order to facilitate a speedy settlement of the matter . . . Germany is prepared to desist from the claim to include Yola, which, owing to an erroneous appreciation of local conditions . . . was reserved for the English . . . However desirable it might accordingly be to correct that mistake and to avoid separating districts which are naturally and historically connected with one another . . . I will refrain from pursuing the matter further” (Anene 1970, 125).

Amid negotiations with France during World War I, Britain “was anxious to reunite political groups as it understood them,” but “[i]n the circumstances, British gains in other parts of the world had to be counterbalanced by concessions to France in Adamawa” (Anene 1970, 135-6). The Emir of Yola complained that the Anglo-French boundary was “politically mortal” and that “they have left us the head, but they have cut off the body” (Anene 1970, 137). In the international plebiscite in 1959, Fulani in Northern Cameroons (who were historically governed by Adamawa) voted overwhelmingly to join Nigeria (139-40).

The ambiguous limits of the Adamawa empire impeded the ability to use its frontiers as focal points for drawing borders. Anene (1970, 128-9) argues that there was no “coherent political entity known as Adamawa.” Yola lacked control over a coherent Adamawa empire, and there were many pagan tribes in the hills (i.e., not Fulani Muslims) that maintained their independence. This distinguishes Adamawa from many other cases discussed in the text and the appendix in which there was clear evidence regarding the control of precolonial states over certain areas, even if a precise territorial border did not exist.

Details on Bornu. In contrast to their discussions about Adamawa, the extensive documentary evidence presented in Anene (1970) and Prescott (1971) suggests that British and German officials devoted minimal attention to Bornu. The exceptions were a warning by the British Foreign Office in 1893 to not trust meridians of longitude because “[a]n error of a degree or even half a degree might cost England Kukawa, and therefore all Bornu,” (Prescott 1971, 34), although they ultimately ignored this advice. In that year, the negotiations also raised the possibility of transferring all of Bornu to either the British or German sphere, but the main focus was on Yola (31).

Bornu received more concerted attention when Britain and France negotiated new borders during World War I. One factor that appears crucial for their decision to not rectify the partition of Borno was that the historical state had largely disintegrated by the time Europeans colonized the area, which made its boundaries indeterminate. The long-standing empire was in decline during the nineteenth century and lost considerable territory in the west to Sokoto and in the east to Wadai. The ruling dynasty fell in 1893 when attacked by Rabih az-Zubayr. He controlled large parts of the central Sudan region of Africa until French troops defeated and killed him in 1900 when establishing their paramountcy over this part of Africa.

During the World War I negotiations, a preliminary line partitioned the provinces of German Bornu: Dikwa, Gulfei, Logone, and Kuseri. “The Anglo-French boundary followed none of the German provincial boundaries and resulted in Britain administering most of Dikwa Province and France administering the rest of Dikwa and the other three Provinces” (Prescott 1971, 47-8). Britain sought to gain control over all these provinces, to which French officials responded that “the best plan would be to consult German records and archives, with a view to establishing the extent of German Bornu. They learned that the provinces in question fluctuated throughout the nineteenth century between “complete independence and complete subjection” even before Ra-

bih's conquest. Consequently, "[t]hese frequent changes in political allegiance and authority gave much scope for disagreement and the British and French officials were unable to find a mutually acceptable definition of 'German Bornu'" (49).

D.11 RWANDA AND BURUNDI

Rwanda and Burundi (known during the colonial period as Ruanda-Urundi) provide numerous pieces of direct evidence for our proposed mechanisms. We highlight three episodes: (1) preservation of distinct territories under German rule, (2) preservation of distinct territories under Belgian rule, and (3) redrawing the border to avoid partitioning Rwanda. We then discuss the role of Bugandan traditional leaders in causing Britain to rethink plans to amalgamate Uganda into Kenya.

First, Germany ruled Ruanda-Urundi from the 1890s until World War I as a district within German East Africa (which included Tanganyika, the mainland part of modern-day Tanzania). German officials governed these territories as a distinct district and ruled them less directly than other parts of the colony because of "the constant fear that too much interference with traditional Tutsi authority might incite an uprising that would be disastrous for German rule. The Tutsi could not be bullied and intimidated with the same success the Germany had had with Africans in other parts of the colony. And the German administration was flexible enough to recognize that different circumstances demanded different policies" (Louis 1963, 128-29).

Second, during World War I, Belgium militarily occupied Ruanda-Urundi and surrounding areas with the goal of using it as a bargaining chip. Their occupation of Ruanda-Urundi was purely strategic, as Belgians sought to gain land in Portuguese-governed Angola where the Congo River meets the ocean, which would augment the Belgian Congo's narrow outlet to the ocean. They proposed a three-way trade of territory that also included Britain, who would have gained Ruanda-Urundi, and Portugal, who would have gained territory from Britain farther south in Central Africa. This ultimately fell through. Then Belgium sought, but failed, to amalgamate Ruanda-Urundi into their neighboring colony of the Belgian Congo. "The Belgians thought it regrettable that they would not be allowed simply to absorb Ruanda-Urundi into the Congo. Ruanda-Urundi was to become a mandate of the League of Nations. 'This invention is no doubt unfortunate; . . . the ideas of President Wilson had a great influence'" (Louis 1963, 256).

The paper discusses the third episode.

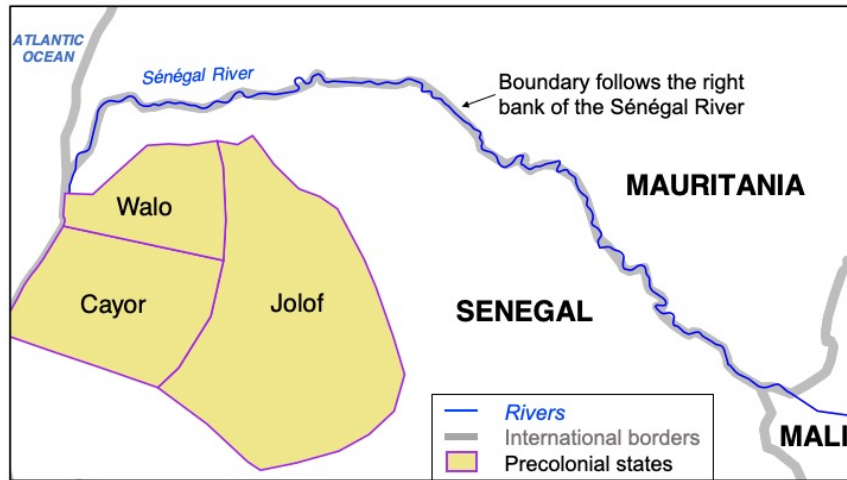
D.12 SENEGAL

France initially settled at St. Louis in the seventeenth century because of its harbor, river, and nearby precolonial states. When France drew the intra-imperial border between Senegal and Mauritania in 1905, did not mention any precolonial states (see Brownlee, Biger, or U.S. boundary report). However, this was because France had already subjugated the kingdoms, nor did it face the same incentives to explicitly delineate the territories of these precolonial states as it would if bargaining with another European colonizer. Instead, our coding of documentary evidence rests on the fact that France originally created the colony to trade with precolonial states.

D.13 SOKOTO AND NIGERIEN NEIGHBORS

See paper.

Figure D.2: Senegal-Mauritania Border



Notes: Precolonial state shapefiles from authors' digitization of Ajayi and Crowder's (1985) maps.

D.14 SOUTHERN AFRICAN STATES

Overview. Britain established a major presence in southern Africa, in particular via large settlements of Europeans (primarily, British and Dutch settlers). These settlers encountered many traditional states. Some, like those of the Zulu and the Ndebele, became incorporated into broader colonies and largely dismantled (in contrast to Britain's preference to preserve precolonial political structures to facilitate indirect rule in territories with fewer European settlers). Yet three traditional states survived and became independent countries: Botswana (collection of affiliated Tswana chiefdoms), Lesotho, and Swaziland. Despite plans to incorporate them into South Africa, the existence of traditional political structures in these areas caused British officials to seek to protect their interests. When white South African officials refused to guarantee the rights of traditional rulers, British officials—who also faced protests from African chiefs to prevent agglomeration—ultimately decided against a territorial transfer.

Despite surviving as distinct territorial entities, the traditional Lesotho and Swaziland kingdoms each lost considerable traditional territory to South Africa, as did Tswana tribes located in the southern part of what became Botswana. Thus, even in cases of partition, precolonial states could still influence borders.

Details. For decades after Britain incorporated these three High Commission colonies into its empire during the 1870s and 1880s, it planned to incorporate them into the white settler-dominated South African colonies (Hailey 1963). In all three cases, chiefs looked to Britain for protection against incursions by white settlers. However, early on, each was governed by a white settler colony: Swaziland by Transvaal until the Boer War, Lesotho by Cape Colony from 1871–83, and British Bechaunaland (which was distinct from the Bechuanaland Protectorate) was permanently incorporated into Cape Colony in 1895.

The original plan to incorporate these territories into South Africa (either its constituent colonies before de facto independence in 1910, or into South Africa itself afterwards) reached an impasse

when the Afrikaaner colonies refused to implement non-racial franchise rules similar to those in Cape (despite income and education requirements preventing most Africans from voting, anyway). Despite this snag, during South Africa's National Convention in 1907, many of the delegates thought it was "inevitable that in time the government of these areas must be entrusted to the people of South Africa" (28). However, by the 1920s, the attitude of British officials had changed. "In 1909 it had made no secret of its intention to hand over their administration to the Union; it was in fact only a question of time when this was to take place. It now had to face the fact that the outlook on Native policy held by the majority party in the Union was not at all that to which it had looked forward in 1909. In 1909 it had shown that it would only cede the Territories to the Union if its Government agreed to abide by the spirit of these conditions in view of increasing proofs of the hardening of majority opinion in the Union regarding the treatment to be given to the Native people" (59-60).

During this period, and until independence in the 1960s, the leading chiefs in the High Commission colonies were consistently opposed to incorporation into South Africa. Hailey provides evidence from both the colonial period for South Africa (Hailey 1963, 13, 30-1) and the 1950s, using phrases such as "detest," "strongly opposed," and "no reasonable grounds to support" a transfer to South Africa (100). Early on, the Bechuanaland Protectorate also had to fend off incorporation into Southern Rhodesia, although four chiefs traveled to London and successfully protested the proposed territorial transfer (39-40, 53). Certainly, the opposition of chiefs to unfavorable borders was not determinative. Hailey (1963, 96-7) posits that had South Africa met Britain's conditions of non-racial franchise rules, then they probably would have transferred the territories despite local opposition. However, this evidence still supports the non-amalgamation mechanism. Without the precolonial states, there would have been no chiefs to whom the British could have granted separate territories, and the pre-existing political hierarchies enabled Britain to govern these colonies with minimal direct administrative interference.