*American Economic Review 2016, 106(7): 1802–1848*
*http://dx.doi.org/10.1257/aer.20131311*

# The Long-Run Effects of the Scramble for Africa[†]

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*We explore the consequences of ethnic partitioning, a neglected aspect of the Scramble for Africa, and uncover the following. First, apart from the land mass and water bodies, split and non-split groups are similar across several dimensions. Second, the incidence, severity, and duration of political violence are all higher for partitioned homelands which also experience frequent military interventions from neighboring countries. Third, split groups are often entangled in a vicious circle of government-led discrimination and ethnic wars. Fourth, respondents from survey data identifying with split ethnicities are economically disadvantaged. The evidence highlights the detrimental repercussions of the colonial border design.* (*JEL* D72, D74, F51, J15, O15, O17, Z13)

The predominant explanations on the deep roots of contemporary African development are centered around the influence of Europeans during the colonial period (Acemoglu, Johnson, and Robinson 2001, 2002, 2005), but also in the centuries before colonization when close to 20 million slaves were exported from Africa (Nunn 2008). Yet in the period between the ending of the slave trades and the beginning of the colonial rule, another major event took place that, according to the African historiography, had malicious long-lasting consequences. During the "Scramble for Africa," 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.

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[†] Go to http://dx.doi.org/10.1257/aer.20131311 to visit the article page for additional materials and author disclosure statement(s).

As a result, in many African countries today a significant fraction of the population belongs to ethnic groups that are partitioned among different states.[1]

Many African scholars (e.g., Asiwaju 1985; Wesseling 1996; Dowden 2008; Thomson 2010) have maintained that the main channel of Europeans' influence on development was not colonization per se, but the improper border design. Herbst (2000, p. 94) succinctly summarizes the argument: "for the first time in Africa's history [at independence], territorial boundaries acquired salience … The boundaries were, in many ways, the most consequential part of the colonial state." The artificial borders fostered ethnic struggles and conflict primarily by splitting groups across the newly-minted African states. Horowitz (1985) argues that ethnic partitioning led to irredentism and helped create an ideology of secession and nationalism. Moreover, split groups have often been instrumentally used by governments to destabilize neighboring countries, setting the stage for discrimination of split ethnicities in the political sphere and the eruption of ethnic wars.

Despite the wealth of anecdotal evidence, there is little work formally examining the ramifications of ethnic partitioning in the context of the Scramble for Africa. Some cross-country studies have touched upon this issue showing that the likelihood of conflict increases when there is an ethnic war in adjacent states (Bosker and de Ree 2014), and that countries with straight borders, where a large share of the population belongs to ethnicities that are present in neighboring nations, perform economically worse (Alesina, Easterly, and Matuszeski 2011). Nevertheless, to the best of our knowledge there is no empirical work directly exploring the consequences of ethnic partitioning for African groups (the relevant unit of analysis), where the arbitrary border design and the large number of split groups offer the opportunity to cleanly identify the impact of partitioning. This study is a step in this direction.

*Results*.—To formally assess the claim that African borders were drawn with little respect to the local political geography, we investigate whether partitioned ethnicities differ systematically from non-split groups across several geographic-ecological traits. 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. And there are no systematic differences across several precolonial, ethnic-specific, institutional, cultural, and economic features, such as the size of the settlements, the type of subsistence economy, and proxies of precolonial conflict. 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.

We then employ the Scramble for Africa as a "quasi-natural" experiment to assess the impact of ethnic partitioning on civil conflict. Using a newly-assembled dataset (Armed Conflict Location and Event Data Project (ACLED)) that reports georeferenced information for the 1997–2013 period on incidents of political violence, including battles between government forces, rebels, and militias, and violence against

[1] Asiwaju (1985) identifies 177 partitioned ethnicities. Englebert, Tarango, and Carter (2002) estimate that partitioned groups constitute, on average, 40 percent of the total population; Alesina, Easterly, and Matuszeski (2011) estimate that in several African countries the percentage of the population that belongs to a split group exceeds 80 percent (e.g., Guinea-Bissau (80 percent); Guinea (88.4 percent); Eritrea (83 percent); Burundi (97.4 percent); Malawi (89 percent); Senegal (91 percent); Rwanda (100 percent); Zimbabwe (99 percent)).

civilians, we document that civil conflict is higher in the homelands of partitioned ethnicities. This applies to conflict intensity, duration, casualties, and the likelihood of conflict. Our estimates suggest that conflict intensity (likelihood) is approximately 40 percent (8 percent) higher in areas where partitioned ethnicities reside, as compared to homelands of ethnicities that have not been separated by national borders. The results are similar when we restrict estimation to ethnic homelands near the national borders.

We then exploit the richness of the data to examine what type of conflict is more likely to afflict partitioned homelands. In line with the thesis put forward by African historians that split groups are often used by neighboring countries to stage proxy wars and destabilize the government on the other side of the border, we find that military interventions from adjacent countries are more common in the homelands of partitioned groups, rather than in nearby border areas where non-split groups reside. We also examine the impact of ethnic partitioning on the different forms of political violence. Partitioning matters crucially for two-sided conflict between government troops and rebel groups "whose goal is to counter an established national governing regime by violent acts" and to a lesser extent with one-sided violence against civilians (this is the definition of rebel groups applied by ACLED: see Raleigh, Linke, and Dowd 2014). These patterns are corroborated with a different georeferenced conflict database (Uppsala Conflict Data Program Georeferenced Event Dataset, UCDP-GED) that records only deadly events associated with civil wars. In contrast, there is no link between ethnic partitioning and riots and protests, which are predominantly a capital-city phenomenon; and there is no association between partitioning and conflict between non-state actors. These results are in accord with African historiography pointing out that partitioned groups face discrimination from the national government and often engage in rebellions (often with the support of their co-ethnics on the other side of the border) to counter repression.

In an attempt to dig deeper on the partitioning-repression-civil war nexus we use the Ethnic Power Relations (EPR) dataset (Wimmer, Cederman, and Min 2009) that offers an assessment of formal and informal degrees of political participation of ethnic groups in the political arena over the post-independence period. The within-country analysis shows that partitioned ethnicities are significantly more likely (11 percent–14 percent increased likelihood) to engage in civil wars that have an explicit ethnic dimension; moreover, the likelihood that split ethnicities are subject to political discrimination from the national government is approximately 7 percentage points higher compared to non-split groups.

We complement the group-based and the location-based analysis with individual-level evidence from the Demographic and Health Surveys (DHS) spanning more than 85,000 households across 20 African countries. Members of partitioned groups have fewer household assets, poorer access to utilities, and worse educational outcomes, as compared to individuals from non-split ethnicities in the same country (and even in the same enumeration area). This applies both to respondents residing in their ethnicity's ancestral homeland and to individuals residing outside of it (both in non-split and in partitioned ethnic homelands).

*Related Literature*.—Our paper belongs to the genre of studies that investigate the historical origins of comparative development (see Nunn 2014 for a review). The literature has mainly focused on the impact of colonization via institutions

(e.g., Acemoglu, Johnson, and Robinson 2005; Acemoglu, Reed, and Robinson 2014), infrastructure (e.g., Huillery 2009; Jedwab and Moradi 2016), and human capital (e.g., Easterly and Levine 2015; Wantchekon, Klasnja, and Novta 2015). We emphasize instead an aspect of the colonial legacy that has been largely neglected by economics research: the drawing of political boundaries in the end of the nineteenth century that resulted in a large number of partitioned ethnicities after independence. As such, our work is related to Alesina, Easterly, and Matuszeski (2011), who show that countries with more straight-line-like borders and nations where a significant part of their population also resides in different countries underperform economically.

A related body of research traces the origins of African countries' weak state capacity to the precolonial period. Nunn (2008) and Nunn and Wantchekon (2011) document that the slave trades (1400–1900) have shaped development by spurring ethnic conflict and lowering trust. Gennaioli and Rainer (2006, 2007) and Michalopoulos and Papaioannou (2013) show that precolonial political centralization at the group level is a significant correlate of contemporary development both across and within countries. Our paper relates to these contributions, as we also study the long-run implications of historical legacies focusing on ethnic traits. Yet, rather than studying precolonial features, we examine the impact of ethnic partitioning during colonization. Assessing the impact of ethnic-specific characteristics in Africa is crucial, as Michalopoulos and Papaioannou (2014) show that states' capacity to broadcast power within a country rapidly diminishes for regions further from the capitals (Herbst 2000).[2]

Our paper also contributes to the literature on the origins of civil conflict that mainly examines the role of country-level characteristics (see Collier and Hoeffler 2007; Blattman and Miguel 2010 for reviews, and Collier and Sambanis 2005 for case studies in Africa). Of most relevance are works studying the role of ethnic heterogeneity. Since the influential work of Easterly and Levine (1997), Africa's underdevelopment and conflict intensity has been linked to its widespread ethnolinguistic diversity. While the correlation between ethnic fragmentation and civil war is weak (Fearon and Laitin 2003), ethnic polarization (Montalvo and Reynal-Querol 2005; Esteban, Mayoral, and Ray 2012), and inequality across and within ethnic lines (Huber and Mayoral 2014; Esteban and Ray 2011) correlates significantly with civil conflict. And a growing literature in political science (and recently in economics) shows the prevalence of ethnic politics, ethnic discrimination, and repression from the central government, and poor public goods provision across all parts of the continent (Posner 2005; Franck and Rainer 2012; Hodler and Raschky 2014; Luca et al. 2015; Burgess et al. 2015). Moreover, Wimmer, Cederman, and Min (2009) show that the likelihood of ethnic conflict increases when groups are excluded from national power.

[2] In Michalopoulos and Papaioannou (2014) we employ a spatial regression discontinuity design to quantify the impact of national institutions on regional development (as reflected on satellite images of light density at night) at the border, exploiting within-ethnicity across-country variation. The analysis reveals two key results. First, differences in contemporary national institutions do not translate to differences in development. Second, the average non-effect masks considerable heterogeneity, which is linked to the limited penetration of national institutions in regions far from the capital cities.

We complement this research by uncovering that ethnic minorities partitioned across Africa's borders present a much greater problem for governance than non-split groups. Because split ethnicities are more capable of organizing rebellions through assistance from co-ethnics across the border, armed conflict between partitioned groups and the governments is more likely. We show that the heightened propensity of split groups to participate in conflict is particularly strong for ethnicities and periods when excluded from the central government. This finding is consistent with Fearon and Laitin (2003) who link conflict onset to opportunity cost rather than grievances. Moreover, our finding that foreign interventions from neighboring countries are more common in the homelands of partitioned ethnicities implies that the latter serve as vehicles of instability.

The correlations found in studies linking cross-country variation in border features and ethnic composition to development proxies (income or conflict) are informative (e.g., Alesina, Easterly, and Matuszeski 2011; Englebert, Tarango, and Carter 2002; Bosker and de Ree 2014), but they cannot be easily interpreted (see Blattman and Miguel 2010 and Fuchs-Schundeln and Hassan forthcoming). The main endogeneity concern is that the process of border drawing is usually an outcome of state formation that determines both economic performance and conflict. As the recent literature on state capacity shows, nation building, development, and conflict are interlinked and jointly determined by hard-to-account-for factors related to the societal structure, geography, and historical legacies (Besley and Persson 2011b). Thus, selection, reverse causality, and omitted variables are non-negligible issues. Likewise, due to measurement error in the main independent variables, multi-colinearity, and the limited degrees of freedom, the cross-country correlations are sensitive to small permutations and data revisions (see Hegre and Sambanis 2006 and Ciccone and Jarocinski 2010).

By exploiting variation across ethnic homelands, we account for some of the shortcomings of cross-country works. First, by showing that there are no systematic differences in geographic, economic, and cultural characteristics between split and non-split ethnic homelands, our analysis offers large-scale econometric evidence on the accidental nature of most African borders, at least with respect to the ethnic partitioning dimension.[3] Second, using information on the spatial distribution of ethnicities in the end of the nineteenth century, well before the current national boundaries came into effect, alleviates concerns related to the migratory flows ignited by the border design itself. Since borders were drawn by Europeans with limited respect to local conditions and did not change at independence, we focus on cases where country boundaries were not the result of political, economic, and military developments. Third, focusing on ethnic groups is conceptually appealing in the context of Africa, where ethnic identification is strong, ethnic segregation high, and political violence has a strong ethnic component. In their synthesis of the case-study evidence on conflict in Africa and the results of cross-country regressions, Collier and Sambanis (2005) note "the country-year is not the appropriate unit of observation to

[3] Admittedly, we cannot entirely rule out that some unobserved factor may have been taken into account in the process of border drawing. Nevertheless, given the exhaustive list of covariates considered and the overwhelming evidence of the African history on the arbitrariness of borders, our results suggest that the impact of unobservable factors are unlikely to be of first-order significance.

study such wars. Instead it would be more appropriate to focus on the ethnic group or we should analyze patterns of violence in a geographical region that does not necessarily correspond to predefined national boundaries." Fourth, by looking into different subsets of conflict and exploiting group-level data from the Ethnic Power Relations Database on political discrimination and ethnic wars as well as individual-level data from the DHS, we shed some light on the potential mechanisms at work. In this regard our empirical study builds on Besley and Persson (2011a), who stress the need to jointly study one-sided violence (repression), two-sided violence (civil war), and public goods.

*Structure*.—The next section provides a synopsis of the historical background and presents the key arguments on the impact of the Scramble for Africa. In Section II we first discuss how we identify partitioned ethnicities and then examine whether there are systematic differences between split and non-split groups with respect to an array of geographic and historical features that may independently affect conflict. Section III reports our estimates on the effect of partitioning on various aspects of civil conflict (likelihood, intensity, duration, and fatalities). In Section IV we explore the different aspects of conflict affecting partitioned homelands, so as to shed light on the potential mechanisms at work. In Section V we explore the connection between partitioning, ethnic-based discrimination from the national government, and ethnic wars. Section VI presents the individual-level analysis linking education and access to public utilities to ethnic partitioning. In Section VII we summarize and discuss avenues for future research.

## I. Historical Background

### A. *The Scramble for Africa*

The Scramble for Africa starts in the 1860s when the French and the British begin the systematic exploration of West Africa, signing bilateral agreements on spheres of influence. During the next 40 years, Europeans signed hundreds of treaties that divided the largely unexplored continent into protectorates, free-trade areas, and colonies. The event that stands for the partitioning of Africa is the conference that Otto von Bismarck organized in Berlin from November 1884 until February 1885. While the Berlin conference discussed only the boundaries of Central Africa (the Congo Free State), it came to symbolize ethnic partitioning because it laid down the principles that would be used among Europeans to divide the continent. The key consideration was to preserve the status quo preventing conflict among Europeans for Africa, as the memories of the European wars of the eighteenth–nineteenth century were alive. As a result, in the overwhelming majority of cases, European powers drew borders without taking into account local conditions. African leaders were not invited and had no say. Asiwaju (1985, p. 1) notes that "the Berlin conference, despite its importance for the subsequent history of Africa, was essentially a European affair: 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." In many cases, European leaders were in such a rush that they did not wait for the information arriving from

explorers, geographers, and missionaries. As the British prime minister at the time Lord Salisbury (Robert Cecil) put it,[4]

> *We have been engaged in drawing lines upon maps where no white man's feet have ever tord; 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.*

Asiwaju (1985, p. 25) summarizes that "the study of European archives supports the accidental rather than a conspiratorial theory of the marking of African boundaries." In line with the historical evidence, Alesina, Easterly, and Matuszeski (2011) document that 80 percent of African borders follow latitudinal and longitudinal lines, more than in any other part of the world.

Several factors have been proposed to rationalize the largely accidental border design. First, at the time Europeans had little knowledge of local geography, as with the exception of few coastal areas, the continent was unexplored. There was a constant imperialist back and forth with European powers swapping pieces of land with limited (at best) ideas of what they were worth.[5] Second, Europeans were not drawing borders of prospective states, but of colonies and protectorates; clearly at the time none could foresee independence. Third, demarcation was poor.[6] Fourth, Europeans were unwilling to change colonial borders despite new information arriving from the ground.[7] Fifth, as locals could freely move across colonial borders, African chiefs did not oppose much of the colonial design, as little changed on the ground. Asiwaju (1985, p. 9) cites the Ketu king, saying that "we regard the boundary (between Benin-Dahomey and Nigeria) separating the English and the French, not the Yoruba." Wesseling (1996, p. 362) summarizes the situation: "The partition of Africa was recorded by the Europeans on their maps, but the matter rested there for the time being. … In Europe conquests preceded the drawing of maps; in Africa the map was drawn, and then it was decided what was going to happen. These maps did not therefore reflect reality but helped to create it."

African independence occurred at a speed that not even the key protagonists expected (Herbst 2000). The independence of Northern African countries in the 1950s was soon followed by Ghana's and Guinea's independence in 1957 and in 1958, respectively. By the end of 1966, 40 countries had become independent. While at the time many proposed changing the borders, African leaders and departing Europeans did not touch this issue. The leaders of the newly-crafted African states believed that nation-building and industrialization would sideline ethnic

[4] Excerpt from a speech by Robert Cecil, Prime Minister, as reported by the Times, August 7, 1890.

[5] An illustrative example is the annexation of Katanga in Congo Free State that turned out to be its richest province. King Leopold got Katanga in exchange for the Niari-Kwilu area that the French insisted on getting themselves. Wesseling (1996, p. 120) writes "what impelled him [Leopold] was a general imperialist surge, the desire for compensation for the Niari-Kwilu, and the objective of making the new state as large as possible and filling as much of the Congo basin as possible."

[6] Poor demarcation and imprecise colonial treaties of the exact boundaries have contributed to conflict after independence. Examples include the war between Tanzania and Uganda in 1978 over the Kagera region (a 1,800 $km^2$ strip of land) and the conflict between Burkina Faso and Mali over the Agacher strip in 1985.

[7] Wesseling (1996, p. 122) writes "in later years, Katanga was to become a most desirable possession in the eyes of British imperialists such as Cecil Rhodes and Harry Johnston. When they approached the British government on the subject, it stuck to its guns. Anderson let them know that Leopold's map had been recognized in 1885 and that his territory unmistakably comprised the mining region of Katanga. What was done, was done."

divisions. African leaders feared that border realignment would threaten their position, whereas Europeans' main objective was to maintain the special rights and corporate deals with their former colonies, and, as such, they were also reluctant to open the border issue. Almost all African countries accepted the colonial borders when signing the Charter of the Organization of African Union (OAU) in 1964. Only Somalia and Morocco did not accept the borders, while Ghana and Togo raised some objections on their boundary that splits the Ewe, but the border did not change. The freezing of the colonial borders by the OAU compact allows us to explore their consequences in a "quasi-experimental" setting that facilitates causal inference.

### B. *Channels and Case Studies*

*Irredentism, Secession, and Autonomy.*—The literature has stressed the impact of ethnic partitioning on generating irredentist demands, as split ethnicities may want to unify with their peers across the border.[8] In line with this argument, Wimmer, Cederman, and Min (2009) estimate that 20 percent of all civil wars in Africa have a secessionist component.[9] While, compared to the number of civil wars in Africa, there have been few instances of secession (Englebert 2009), irredentism and the associated ideology have played an important role in some major conflicts, mostly in Somalia, Mali, and Senegal. Somalis, for example, were split during colonization between four different European colonies, while Ethiopia also got a slice—the Ogaden region which is almost exclusively occupied by Somalis. The five-pointed star in the flag of Somalia symbolizes the desire of unifying the five regions inhabited by Somali clans (Italian Somaliland, Northern Kenya, Southern Ethiopia, French Somaliland-Djibouti, and British Somaliland); three long-lasting wars have been partly driven by the desire of Somalis in Ethiopia to become part of Somalia (Meredith 2005). UCDP describes the event as follows: "When Somalia became independent and began spreading the idea of Somali nationalism, it found fertile soil in the Ogaden region. Irredentist agitation and armed clashes soon commenced, and increased as the Ethiopian government launched its first systematic attempt to collect taxes in the region." Similarly, in the initial years after independence Kenya experienced conflict in the Northern Frontier District when Somali insurgents fought for annexation to Somalia (Touval 1967). In Section 8 of the online Appendix we discuss in detail the case of the partitioning of the Somalis and perform a counterfactual analysis of its impact on conflict.

[8] Horowitz (1985, p. 281) notes:

> *A quick tour d'horizon reveals the rich range of possibilities (for conflict and irredentism). The Ghana-Togo border divides the Ewe, as the Nigeria-Benin border divides the Yoruba. There are Hausa in Nigeria and Hausa in Niger. There are Fulani across a wide belt of West and Central Africa, Beteke in Gabon and Congo (Brazzaville), and Fang in Cameroon, Gabon, and Equatorial Guinea. The Bakongo are divided among, Zaire, Congo (Brazzaville), and Angola; the Lunda among Zaire, Zambia, and Angola. There are Somalis in Somalia, Ethiopia, Kenya, and Djibouti. There are Wolof in Mauritania, in Gambia, and in Senegal, Kakwa in Sudan and in Uganda. And various Berber groups are distributed among more than one North African state.*

[9] Civil wars with a secession demand are almost absent in Central and South America. Besides Africa, secession-driven conflicts are found in the Middle East, India, and the Caucasus.

*Repression*.—Ethnic-based discrimination is pervasive and a large body of research provides ample evidence on ethnic-based politics (Posner 2005). National governments frequently attempt to suffocate ethnicities by seizing property, imposing high taxation, and restrictions on the activities of specific groups (Bates 1981). Examples include the (Hu)Ambo and the Chokwe in Angola, the I(g)bo in Nigeria, Tuareg clans in Mali and Niger, and the Oromo and Somalis in Ethiopia. What is different between partitioned and non-split groups, though, is that split ones can seek shelter within their ancestral homeland on the other side of the border. Members of split ethnicities can reorganize, obtain arms, and get assistance from their co-ethnics across the border both when they are on the defense and when they attack. Thus, quite often episodes of repression lead to civil wars, as partitioned groups have a lower opportunity cost of conflict. Moreover, the instrumental use of split ethnicities by neighboring governments provides a pretext for their inferior treatment by home governments.

The recurrent conflict in the Casamance region in Southern Senegal, where the partitioned Diola (Jola) and some smaller groups reside, offers an illustration. As Gambia effectively splits Senegal, Casamance is disconnected from the central government in Dakar. Moreover, Casamance was ruled independently from the rest of Senegal for most of the colonial time. Locals objected to the land reform of 1964 that transferred to the state all non-registered land, effectively transferring property to the capital over local ethnic groups, that had communal property rights. The violent riots in 1980 were soon followed by the formation of the separatist, "Movement of the Democratic Forces of Casamance (MDFC)" in 1982. While initially MDFC used low-level violence, in the 1990s conflict intensified as MDFC was supported by Guinea-Bissau and Gambia, where the Diola exert significant influence. The Senegalese government has accused the Gambian President Yahya Jammeh, a Diola himself, and Guinea-Bissau's army for assisting MDFC insurgents, providing them with arms and shelter (Humphreys and Mohamed 2005; Evans 2004).[10] Moreover, MDFC rebels from Senegal participated in the 1998 civil war in Guinea-Bissau, aiding General Mane in his efforts to dispose President Vieira (Wagane 2006).

*Spillovers*.—Population displacements across the border are more common within split groups. Such refugee flows, however, may change the ethnic composition in adjacent countries fomenting conflict. A pertinent example is the Alur, a group partitioned between the Belgian Congo and the British Protectorate of Uganda during the late phase of the Scramble for Africa (1910–1914). When Mobutu Sese Seko initiated the subjugation of several minority groups in Zaire, many Alur were pushed to Uganda. This in turn generated opposition from the Buganda leading to conflict (Asiwaju 1985). Fearon and Laitin (2011) report that 31 percent of civil wars (and 57 percent of ethnic wars) involve "members of a regional ethnic group that considers itself to be the indigenous sons-of-the-soil and recent migrants from other parts of the country."[11]

[10] There is a debate whether MDFC is a Jola-based irredentist movement or if it reflects the aspirations of other groups in the region. MDFC has consistently asserted that it represents all Casamance groups, denying accusations from the central government that it is a Diola movement.

[11] Fearon and Laitin (2011) list eight conflicts in Africa (26 percent of all wars) that involved indigenous versus *within-country* migrants (e.g., Tuareg in Mali in 1989, Senegal in 1989 involving Diolas in Casamance, etc.).

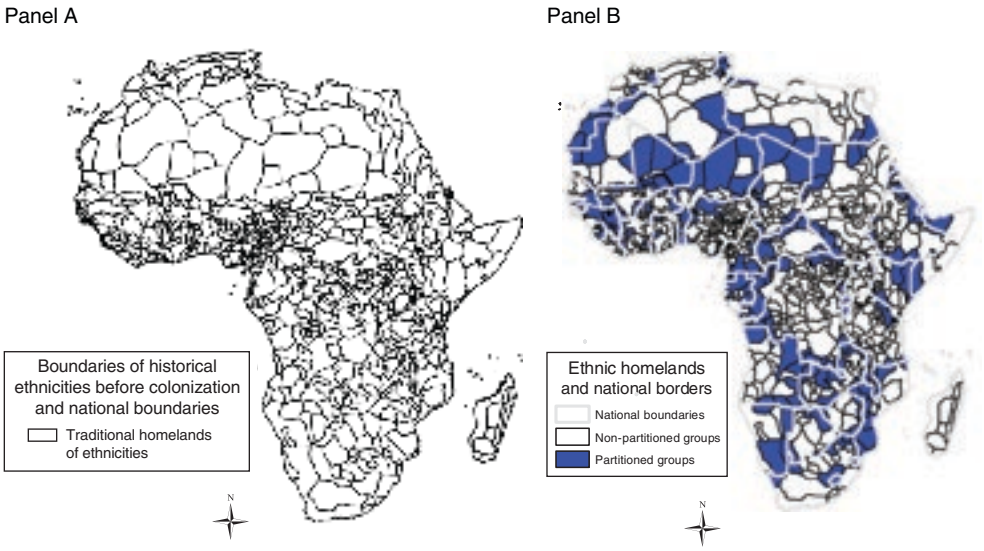


FIGURE 1

*Other Aspects of the Scramble for Africa*.—Besides ethnic partitioning, the artificial border design may have contributed to underdevelopment and conflict via other channels that we do not consider. Border drawing shaped each and every country-specific geographic and cultural characteristic including a country's ethnic heterogeneity, land size, and access to the coast that affect development. Herbst (2000) argues that civil conflict is more pervasive in large African countries because their size limits their ability to broadcast power across their territories. Collier (2007) discusses how the border design resulted in Africa having the largest proportion of landlocked countries hampering their growth potential. While our analysis focuses on a single aspect of the Scramble for Africa, that of ethnic partitioning, by exploiting within-country variation we are able to account for common-to-all-homelands, country-specific characteristics. Moreover, in the online Appendix, we examine how these different nationwide byproducts of the border design interact with ethnic partitioning in influencing conflict intensity.

## II. Ethnic Partitioning and Border Artificiality

### A. *Identifying Partitioned Ethnic Groups*

We identify partitioned groups projecting contemporary country borders, as portrayed in the 2000 Digital Chart of the World,[12] on George Peter Murdock's Ethnolinguistic Map (1959) that depicts the spatial distribution of African ethnicities at the time of the European colonization in the late nineteenth and early twentieth century (Figure 1, panel A).[13] Murdock's map divides Africa into 843 regions. The

[12] https://www.nga.mil/Pages/Default.aspx.

[13] Murdock's map is based on primary sources covering the period 1860–1940. Most observations correspond to 1890, 1900, and 1910. After intersecting ethnic boundaries with country borders, we drop ethnicity-country polygons of less than 100 $km^2$, as such small areas are most likely an outcome of error in the underlying mapping of ethnicities.

mapped ethnicities correspond roughly to levels 7–8 of the Ethnologue's language family tree. Eight areas in the Sahara are "uninhabited upon colonization" and are therefore not considered. We also drop the Guanche, a small group in the Madeira Islands that is currently part of Portugal and the Comorians, as the conflict databases do not cover the Comoros. This leaves us with 833 groups. We also exclude eight regions where population according to the earliest post-independence census is zero.[14] So our analysis focuses on 825 ethnicities.

The homeland of 357 groups falls into more than one country. Yet, for several of these groups, the overwhelming majority of their ancestral land (usually more than 99 percent) belongs to a single country. For example, 99.5 percent of the area of the Ahaggaren falls into Algeria and only 0.5 percent in Niger. Since Murdock's map is bound to be drawn with some error, we identify as partitioned those ethnicities with at least 10 percent of their total surface area belonging to more than one country (*SPLIT*). As such, the Ahaggaren is classified as a non-split group. There are 229 ethnicities (27.7 percent of the sample) with at least 10 percent of their historical homeland falling into more than one contemporary state (Figure 1, panel B).[15] Online Appendix Table A lists partitioned ethnicities. When we use a broader threshold of 5 percent we identify 266 partitioned groups.

Our procedure identifies most major ethnic groups that have been split by the African borders. For example, the Maasai are partitioned between Kenya and Tanzania (62 percent and 38 percent, respectively), the Anyi between Ghana and the Ivory Coast (58 percent and 42 percent), and the Chewa between Mozambique (50 percent), Malawi (34 percent), and Zimbabwe (16 percent). Other examples include the Hausa (split between Nigeria and Niger) and the Ewe (split by the Togo-Ghana border). We also checked whether our coding is in line with Asiwaju (1985), who provides the only comprehensive (to our knowledge) codification of partitioned African groups. Our strategy identifies almost all ethnic groups that Asiwaju (1985) lists as partitioned.[16]

It is perhaps instructive to assess how much of the cross-country variation in ethnic diversity in Africa can be attributed to ethnic partitioning. In this regard, we estimated simple cross-country regressions linking the widely-used ethnic fragmentation measures (of Alesina et al. 2003 and Desmet, Ortuño-Ortín, and Wacziarg 2012) to the log number of partitioned groups in a country (with and without controls for size); we find

[14] These groups are the Bahariya, the Fertit, the Ifora, the Kimr, the Matumbi, the Midobi, the Mituku, and the Popoi. The results are identical if we were to retain these ethnic areas, assigning to them a very small population number.

[15] We apply the same threshold, as in our previous work assessing the within-ethnicity across-the-border impact of national institutions on contemporary development. In Michalopoulos and Papaioannou (2014) we focus, however, on 220 split groups. The nine-groups difference emerges because: (i) three ethnicities were dropped in Michalopoulos and Papaioannou (2014) as they are split between Western Sahara and Morocco and there are no data on national institutions for Western Sahara; (ii) six groups were dropped because the population estimate is zero in *one* of the two partitions in 2000.

[16] Our approach of identifying split groups is imperfect. Ethnic groups' homelands partially overlap and there is certainly noise in Murdock's map. As such our partitioning index is noisy. For example, our procedure identifies as non-split the Ogaden (it enters as partitioned when we adopt the 5 percent threshold) and the Sab groups in Ethiopia. Our readings suggest that these groups have been impacted by the Ethiopian-Somali border. Since our classification is solely based on the intersection of the historical tribal map with the contemporary country boundaries, such errors are unlikely to be systematic (correlated with contemporary conflict or the key controls). In presence of classical measurement error our estimates will be attenuated.

that approximately a fourth to a third of the cross-country variation of the measures of ethnic diversity can be accounted for by partitioned ethnicities.

### B. *Border Artificiality*

The African historiography provides ample evidence arguing that, in the majority of cases, Europeans did not consider ethnic features and local geography in the design of colonial borders. In a few instances, nevertheless, Europeans did try taking into account political geography, as, for example, in Swaziland and Burundi. And some borders were delineated in the early twentieth century, when Europeans conceivably had some knowledge of local conditions.[17] Moreover, some contemporary borders in Western Africa follow the French administrative divisions. And in some cases (Cameroon-Nigeria; Ghana-Togo) there were referenda on the redrawing of these border segments at independence. Yet, what is key for establishing causality is not that all borders were randomly drawn (though many were); what is needed for causal inference is that there are no systematic differences between partitioned and non-split ethnic homelands with respect to (un)observable characteristics that may independently affect contemporary conflict.

In this section we examine whether there are significant differences between the two sets of ethnicities across a host of observable traits. We estimate simple (linear probability) models associating the binary ethnic partitioning index (*SPLIT*) with various geographic, ecological, natural resource variables and proxies of precolonial conflict and development.[18] Table 1 reports the results. In all specifications we include region-specific constants to account for the different timing and patterns of colonization. Below the estimates, we report double-clustered standard errors at the country and at the ethnic-family level using the method of Cameron, Gelbach, and Miller (2011) that accounts for spatial correlation and arbitrary residual correlation within each dimension.[19]

*Geography*, *Ecology*, *Natural Resources, and Ethnic Partitioning*.—In Table 1, panel A, we examine the impact of geography, ecology, and natural resources. The positive and highly significant estimate of (log) land area in column 1 suggests that ethnic groups spanning large territories were more likely to be partitioned. In column 2 we augment the specification with two dummy variables that identify ethnic homelands with a large lake and a main river, respectively. The coefficient on the lake dummy is positive and significant at the 10 percent level, while the river indicator enters with a small and statistically insignificant coefficient. These results are in accord with the narrative of Europeans attempting to use natural barriers while delineating spheres of influence, apparently with limited success. In column 3 we add an index reflecting land quality for agriculture and elevation (Michalopoulos

[17] Yet our reading suggests that even in cases where Europeans were aware of borders splitting ethnicities (as in the case of the Abyssinia-Ethiopia border), this did not seem to factor in their decisions.

[18] Online Appendix Table 1 reports summary statistics for all variables at the ethnic homeland level. The online data Appendix gives variable definitions and sources. The results are similar with probit and logit ML estimation.

[19] Cameron, Gelbach, and Miller (2011) explicitly cite spatial correlation as an application of the multi-way clustering method. Murdock (1959) assigns the 833 ethnicities into 96 ethnolinguistic clusters. We also used the method of Conley (1999) to account for spatial dependence of an unknown form, finding similar standard errors.

Table 1—Border (*Ethnic Partitioning*) Artificiality

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| *Panel A. Geography, ecology, natural resources, and ethnic partitioning* | | | | | | | |
| log land area | 0.0556 | 0.0529 | 0.0618 | 0.0554 | 0.0534 | 0.0528 | 0.0640 |
| | (0.0153) | (0.0159) | (0.0175) | (0.0186) | (0.0150) | (0.0156) | (0.0172) |
| Lake indicator | | 0.0961 | 0.0963 | 0.0965 | 0.0910 | 0.0933 | 0.0900 |
| | | (0.0565) | (0.0645) | (0.0567) | (0.0554) | (0.0557) | (0.0624) |
| River indicator | | −0.0053 | −0.0164 | −0.0092 | −0.0064 | −0.0057 | −0.0174 |
| | | (0.0337) | (0.0324) | (0.0325) | (0.0344) | (0.0346) | (0.0347) |
| Elevation | | | −0.0411 | | | | −0.0673 |
| | | | (0.0709) | | | | (0.0726) |
| Suitability for agriculture | | | 0.1239 | | | | 0.1591 |
| | | | (0.0974) | | | | (0.1078) |
| Malaria stability index | | | | 0.0195 | | | −0.0415 |
| | | | | (0.0982) | | | (0.1097) |
| Distance to the coast | | | | 0.0000 | | | −0.0001 |
| | | | | (0.0001) | | | (0.0001) |
| Diamond mine indicator | | | | | 0.0289 | | 0.022 |
| | | | | | (0.0647) | | (0.0647) |
| Oil indicator | | | | | −0.0774 | | −0.1066 |
| | | | | | (0.0545) | | (0.0625) |
| Nearby groups in the same family | | | | | | −0.0727 | −0.0662 |
| | | | | | | (0.0579) | (0.0622) |
| Adjusted $R^2$ | 0.050 | 0.055 | 0.059 | 0.056 | 0.058 | 0.057 | 0.065 |
| Region fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 825 | 825 | 825 | 825 | 825 | 825 | 825 |

(*Continued*)

*Notes:* Panel A reports linear probability model (LPM) estimates associating ethnic partitioning (SPLIT) with geographical, ecological, and natural resource variables. In all specifications the dependent variable is an indicator that equals one when at least 10 percent of the historical ethnic homeland (as portrayed in Murdock's 1959 Ethnolinguistic map) falls to more than one contemporary country (using the 2000 Digital Chart of the World). All specifications include a set of (five) region fixed effects (constants not reported). The online data Appendix gives detailed variable definitions and data sources. The online Appendix reports summary statistics for all variables. Standard errors in parentheses are adjusted for double clustering at the country-dimension and the ethnolinguistic family dimension.

2012). Both variables enter with small and insignificant coefficients. In column 4 we examine the role of ecological conditions using a malaria index and distance to the coast. Since Europeans settled mostly in coastal areas and regions where malaria was less pervasive, these specifications shed light on whether early contact with colonizers predicts partitioning. Both variables enter with insignificant estimates. In column 5 we include indicators identifying ethnic areas with diamond mines and petroleum. While in the initial phase of colonization, Europeans were mostly interested in agricultural goods and minerals; adding these indicators allows investigating whether partitioned and non-split groups differ across these aspects that correlate with contemporary conflict (see Ross 2012). There are no systematic differences between the two sets of ethnic homelands. In column 6 we augment the specification with the share of adjacent ethnicities that are of the same ethnolinguistic family, to examine whether Europeans took into account broad cultural differences when delineating the borders. This does not seem to be the case. Column 7 includes all the geographic, ecological, and natural resource measures. No factor other than the size of the ethnic area (and to a lesser extent the presence of lakes) correlates with ethnic partitioning.

TABLE 1—BORDER (*Ethnic Partitioning*) ARTIFICIALITY (*Continued*)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| *Panel B. Historical (precolonial) features and ethnic partitioning* | | | | | | | |
| log land area | 0.0551 | 0.0540 | 0.0527 | 0.0527 | 0.0485 | 0.0529 | 0.0524 |
| | (0.0158) | (0.0153) | (0.0155) | (0.0160) | (0.0170) | (0.0174) | (0.0158) |
| Lake indicator | 0.0984 | 0.0915 | 0.0956 | 0.0942 | 0.0878 | 0.0962 | 0.0967 |
| | (0.0555) | (0.0589) | (0.0558) | (0.0559) | (0.0582) | (0.0590) | (0.0561) |
| River indicator | −0.0049 | −0.0097 | −0.0058 | −0.0077 | −0.0067 | −0.0054 | −0.006 |
| | (0.0337) | (0.0351) | (0.0348) | (0.0347) | (0.0337) | (0.0337) | (0.0331) |
| Pre-colonial conflict indicator | −0.0663 | | | | | | |
| | (0.0733) | | | | | | |
| Distance to precolonial conflict | | −0.0444 | | | | | |
| | | (0.0839) | | | | | |
| Slave trades indicator | | | 0.0045 | | | | |
| | | | (0.0322) | | | | |
| log number of slaves (normalized by land area) | | | | 0.0063 | | | |
| | | | | (0.0080) | | | |
| Pre-colonial kingdom indicator | | | | | 0.0466 | | |
| | | | | | (0.0469) | | |
| Distance to precolonial kingdom | | | | | | 0.0009 | |
| | | | | | | (0.1235) | |
| Major city in AD 1400 double-clustered s.e. | | | | | | | 0.0233 |
| | | | | | | | (0.0652) |
| Adjusted $R^2$ | 0.056 | 0.056 | 0.055 | 0.056 | 0.057 | 0.055 | 0.055 |
| Region fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 825 | 825 | 825 | 825 | 825 | 825 | 825 |

*Notes:* Panel B reports linear probability model (LPM) estimates associating ethnic partitioning (SPLIT) with historical variables capturing precolonial conflict, kingdoms, and slavery (in panel B). In all specifications the dependent variable is an indicator that equals one when at least 10 percent of the historical ethnic homeland (as portrayed in Murdock's 1959 Ethnolinguistic map) falls to more than one contemporary country (using the 2000 Digital Chart of the World). All specifications include a set of (five) region fixed effects (constants not reported). The online data Appendix gives detailed variable definitions and data sources. The online Appendix reports summary statistics for all variables. Standard errors in parentheses are adjusted for double clustering at the country-dimension and the ethnolinguistic family dimension.

*Precolonial Features and Ethnic Partitioning*.—While at the time of the colonial border design Europeans had limited understanding of local political geography, it is useful to examine the association between ethnic partitioning and precolonial conflict, as recent cross-country works (Fearon and Laitin 2012) and cross-regional studies reveal a legacy of conflict from the precolonial times to the present (Besley and Reynal-Querol 2014; Nunn and Wantchekon 2011; Depetris Chauvin 2014). Table 1, panel B, examines the association between ethnic partitioning and proxies of precolonial conflict.

Besley and Reynal-Querol (2014) show that contemporary conflict is higher in regions that suffered from precolonial wars (such as the Songhai-Gourma conflict in Mali in the end of the fifteenth century or the war between the Banyoro and Buganda kingdoms around AD 1600). Column 1 shows the lack of a systematic association between ethnic partitioning and precolonial violence, as reflected in an indicator that takes the value one for ethnic homelands that experienced conflict over the period 1400–1700. Column 2 shows that ethnic partitioning and proximity to the nearest precolonial conflict are not related (the results are similar with log distance). These

results suggest that ethnic partitioning captures a potential source of contemporary conflict distinct to that emphasized by Besley and Reynal-Querol (2014).

Africa experienced conflict during the slave trades, as the most common method of enslavement was "through raids and kidnapping conducted by members of different groups or even between members of the same ethnicity" (Nunn and Puga 2012). Djankov and Reynal-Querol (2010) present cross-country evidence of a positive association between enslavement and civil war. In column 3 we regress ethnic partitioning on an indicator that equals one for ethnicities that were affected directly by the slave trades, while in column 4 we follow Nunn (2008) and use the log of one plus the number of slaves normalized by the area of each homeland. The coefficient on slave trades is quantitatively small and statistically insignificant, assuaging concerns that the ethnic partitioning index captures precolonial violence.

In columns 5 and 6 we associate ethnic partitioning to the proximity of a group to a large precolonial kingdom, using data from Besley and Reynal-Querol (2014). There is no systematic association between ethnic partitioning and the group being part of a large kingdom or the distance to the centroid of the closest precolonial kingdom. So, precolonial political centralization, that has been found to confer long-lasting beneficial effects on regional development (Michalopoulos and Papaioannou 2013) does not seem to correlate with partitioning.

In column 7 we associate ethnic partitioning to the pre-slave trade level of development using an indicator that equals one if a city with a population exceeding 20,000 people in AD 1400 was present in the historical homeland and zero otherwise (using data from Chandler 1987). There is no evidence that ethnicities with historical urban centers were disproportionately impacted by the border design.

*Further Checks*.—In online Appendix Table 8 we provide additional evidence on the lack of a systematic association between ethnic partitioning and other measures of precolonial, societal, economic, political, and cultural traits, such as the family organization, the type of inheritance rules, the presence of local elections, and settlement patterns, using data from Murdock (1967) available for 450–490 groups.

These checks corroborate that in the beginning of the colonial era, apart from a group's landmass, there were no differences between split and non-split groups. However, one would like to verify that also ex post, i.e., after the borders were set, the resulting split groups within a country are no different than non-split ones. In online Appendix Table 9 we report "balancedness tests" along various geographic, ecological, and natural resource characteristics both for the full sample of country-ethnic homelands and for the country-ethnic homelands close to the national border. The "similarity regressions" show that within countries with the exception of (log) land area for groups close to the border, there are no systematic differences in numerous observable characteristics between split and non-split groups.

*Summary*.—Our results are consistent with the historical account on the largely arbitrary nature of African borders. Yet, they do not imply that *all* African borders were randomly designed, something that is not the case. The econometric evidence suggests that, on average, there are no systematic differences between partitioned and non-split ethnic homelands across observable characteristics that may independently affect conflict.

## III. Ethnic Partitioning and Civil Conflict

This section reports the baseline estimates associating various aspects of civil conflict to ethnic partitioning. First, we present the conflict data. Second, we lay down the econometric specification and discuss estimation. Third, we report the benchmark estimates along with additional results.

### A. *Main Conflict Data*

Our baseline data come from the Armed Conflict Location and Event Dataset (ACLED 4, Raleigh, Linke, and Dowd 2014) that provides information on the location and some other characteristics of political violence events across all African countries from 1997 to 2013. Political violence is defined as the use of force by a group with a political purpose or motivation. ACLED is by far the most complete georeferenced conflict dataset; and while the data are noisy they have several desirable features.[20]

First, ACLED does not only record conflicts that take place within the context of a civil war, but also "violent activity that occurs outside of civil wars, particularly violence against civilians, militia interactions, communal conflict, and rioting." The reporting of violence against civilians is particularly desirable, as Africa is plagued by civil strife that the standard data sources of civil war miss. Not only violence against civilians, such as child-soldiering raids, rapes, and abductions is rampant, but these incidents are often deadly, economically harmful, and devastating for the victims and the local community.

Second, ACLED categorizes conflict into four groups, allowing for a finer decomposition. The main categories are (percentage of total events): (i) battles, either without change of control (32 percent) or where rebels or government troops gain control (4 percent); (ii) violence against unarmed civilians (31.5 percent); (iii) riots and protests (25 percent); and (iv) nonviolent activities by violent actors, such as recruiting rallies (7.5 percent).

Third, ACLED reports an estimate of casualties, so, we can study the impact of partitioning on conflict intensity. Battles and violence against civilians are by far the most deadly types, as 45 percent of these incidents result in at least one fatality; in contrast, only 6.5 percent of riots and protests result in casualties and nonviolent acts of conflict actors almost never result in casualties (less than 1 percent).

Fourth, the events are classified by the main conflict actors (government, rebels, militias, foreign interventions) allowing us to examine whether partitioning is mostly linked to state-driven violence and interventions from nearby countries.

*Original Sources*.—The data are based on a diverse set of sources. For almost all countries data come from more than 10 different sources, while for the more war-prone nations data come from around 20 sources. This diversity assuages concerns of systematic biases in reporting from government controlled media. The data are mostly based on international sources, such as the BBC (around 10,000

[20] Parallel works studying various driving forces of civil conflict using ACLED data, include Besley and Reynal-Querol (2014); Harari and La Ferrara (2014); and Berman et al. (2014).

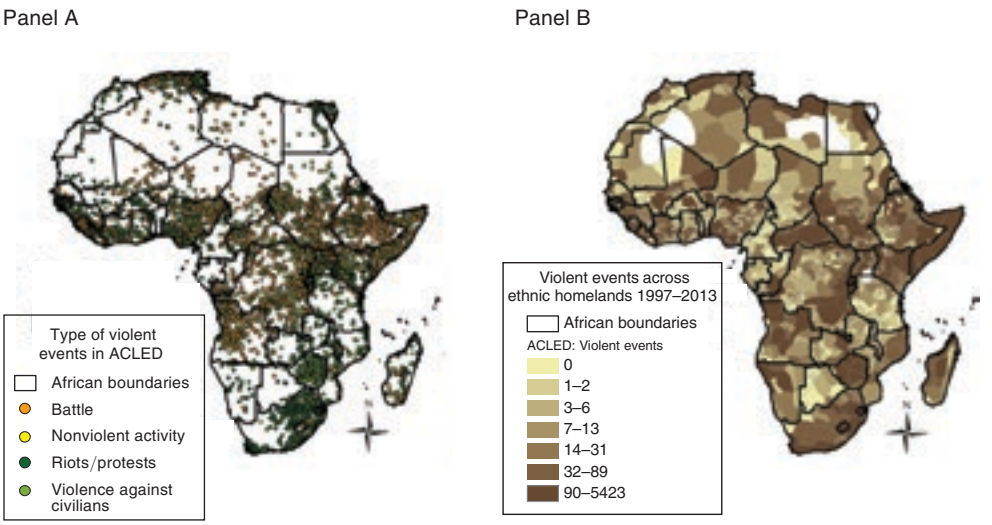


FIGURE 2

incidents), Reuters (more than 5,000 incidents), the Associated Press (around 2,500 incidents), and the Agence France Press (around 5,000 incidents). A considerable fraction (around 10 percent) comes from media outlets from the United Kingdom, Portugal, Canada, the United States, and Australia. ACLED also relies on reports from NGOs, such as Human Rights Watch and Amnesty International, and the United Nations.[21] Even in cases of data coming from local sources (around 25 percent of the sample), most incidents come from pan-African news agencies, such as the *All Africa* network and independent newspapers.

Figure 2, panel A, illustrates the spatial distribution of conflict events. The map plots 64,650 precisely georeferenced incidents of political violence. In total there are 79,765 recorded events, but given the spatial nature of our study, we drop events where the location of the conflict is not accurately known. There is significant heterogeneity in the incidence of political violence across countries (see online Appendix Table 6). There are numerous events in Central Africa, mostly in Eastern Congo, Rwanda, Burundi, and Uganda. In Western Africa, conflict and political violence are mostly present in Nigeria and Sierra Leone. Violence is also pervasive in Somalia, Ethiopia, and Zimbabwe. In contrast, there are few events in Botswana, Zambia, Tanzania, Namibia, and Gabon. There is also considerable variation within countries. For example, while conflict incidence in Tanzania is low, there are several violent events along the border with Kenya and Rwanda. Likewise, most of the conflict in Angola is close to the northern border with Congo and in the Cabinda enclave. Battles and violence against civilians are correlated, but the correlation is far from perfect (0.64; see online Appendix Table 7). For example, in Zimbabwe we observe lots of violence against civilians (3,701 incidents) and few battles (59). Conversely,

[21] Going over the documentation it seems that the data are based on verified information and not simply the reproduction of state-press releases. For example, in Zimbabwe, most events come from the BBC, Reuters, and the Zimbabwe Human Rights NGO Forum, a coalition of 19 NGOs that get data from their representatives on the ground.

in Ethiopia and Angola we predominantly observe conflict between government troops and rebels rather than violence against civilians.

To construct conflict intensity at the country-ethnic homeland level, we project ACLED's mapping (Figure 2, panel A) on the intersection of Murdock's ethnolinguistic map with contemporary borders (Figure 1, panel B). Figure 2, panel B portrays the spatial distribution of all conflicts at the country-ethnic homeland level.

### B. *Econometric Specification and Estimation*

We estimate the long-run effect of ethnic partitioning on contemporary civil conflict running variants of the following specification:

$$(1) \qquad y_{i,c} = \exp(a_c + \gamma SPLIT_{i,c} + \phi SPIL_{i,c} + X'_{i,c}\Phi + \varepsilon_{i,c}).$$

The dependent variable, $y_{i,c}$, reflects civil conflict in the historical homeland of ethnic group $i$ in country $c$. $SPLIT_{i,c}$ is a binary (dummy) variable that identifies partitioned ethnic areas in each country. Each partition of group $i$ is assigned to the corresponding country $c$. For example, the part of Lobi's homeland in Ivory Coast is assigned to Ivory Coast, while Lobi's land mass in Burkina Faso gets a Burkina Faso indicator. At the country-ethnic homeland level, we have 518 partitioned areas and 694 non-split homelands.[22] Given the lack of systematic association between the ethnic partitioning index and various historical, ecological, and geographical variables that correlate with conflict (Table 1 and the "balancedness tests" in online Appendix Table 9), the $\gamma$ coefficient captures the local average treatment effect of ethnic partitioning. To capture potential spatial externalities of partitioning, we augment the specification with a spillover index (*SPIL*), reflecting the fraction of adjacent groups in the same country that are partitioned. In the sample of 1,212 country-ethnic areas, we have 274 areas without a partitioned neighbor, 146 areas are fully surrounded by split groups. [The mean (standard deviation) of *SPIL* is 0.41 (0.32).]

The conditioning set, $X'_{i,c}$, follows Michalopoulos and Papaioannou (2013, 2014) and other related works (e.g., Fenske 2013, 2014) and includes log land area, log population according to the first post-independence census, indicators for the presence of rivers and lakes, and several geographic, ecological, and natural resource measures. $a_c$ denotes country-specific constants that account for countrywide factors that may affect conflict, related to the type of colonial rule, colonial and contemporary institutions, national policies, etc.

As the dependent variable is a count, we estimate negative binomial (NB) models with maximum likelihood (ML) (Wooldridge 2002; Cameron and Trivedi 2013).[23] The negative binomial model accounts for the many zeros and for some extreme observations in the right tail of the distribution of the dependent variable. Following

[22] Since in our empirical analysis we primarily explore within-country variation, in many specifications we lose observations from countries with either a single ethnicity or without variability in ethnic partitioning. These countries are Burundi, Djibouti, Swaziland, Madagascar, and Western Sahara.

[23] Due to overdispersion in the dependent variable, specification tests reject the Poisson, favoring the negative binomial model. Across all specifications in Tables 2–5 the $\chi^2$ value of the likelihood ratio test for the null hypothesis of a Poisson model (where the mean equals standard deviation) exceeds 100 [$p$-value : 0.00], and as such the negative binomial model is adopted. This LR test is asymptotically equivalent to a $t$-test on whether the alpha overdispersion parameter is zero.

Cameron and Trivedi (2013), we use the unconditional negative binomial (NB2) model with country constants that allows for arbitrary over-dispersion.[24] To further account for outliers, we report specifications excluding homelands hosting the capital city or homelands where the dependent variable is in the top 1 percent. In the online Appendix we also report fixed-effects Poisson ML estimates dropping the top 5 percent of the dependent variable. To isolate the impact of ethnic partitioning on the likelihood of conflict, we always report linear probability model (LPM) estimates where the dependent variable is an indicator that takes on the value one if a country-ethnic area has been affected by conflict over the sample period. And we also estimate nonlinear models focusing on conflict duration and fatalities.

### C. *Ethnic Partitioning and Civil Conflict*

Table 2 reports the baseline specifications. Panel A gives (unconditional) NB-ML estimates with country-specific constants focusing on conflict events, while panel B gives country-fixed effects LS estimates focusing on the likelihood of conflict.

Let us start with the NB specifications. The coefficient on the ethnic partitioning index in the parsimonious specifications in columns 1 and 2 is positive and more than two standard errors larger than zero. In column 3 we account for location and geographic characteristics. The location controls include distance to the national border, the sea coast, the capital, a capital city dummy, and an indicator for coastal homelands.[25] The geography-ecology controls include measures of land quality for agriculture, elevation, malaria, an island dummy, and indicators for diamond mines and oil deposits, respectively. We also add an indicator for the presence of a major city in 1400. The coefficient on the ethnic partitioning index slightly increases and becomes more precisely estimated. This is consistent with our findings that partitioning is largely uncorrelated with these characteristics. In column 4 we exclude homelands where capitals fall (estimates are similar when we drop the top 1 percent of the dependent variable). The estimates imply that partitioned ethnicities experience an increase of approximately 145 log points in the number of conflict incidents. This translates into an 57 percent increase in political violence ($\exp(0.45) - 1 = 0.568$). The effect of ethnic partitioning on conflict is quantitatively comparable to the effect of the petroleum indicator that enters with a significant coefficient (0.44 in specification (4)). The share of adjacent partitioned ethnicities (to the total number of neighboring ethnic areas) also enters with a positive estimate that in some specifications is significant at the 90 percent level. This implies that the negative repercussions of ethnic partitioning are not confined to split homelands, but also affect nearby regions. The coefficient on *SPIL* (ranging from 0.43 to 0.49) suggests

[24] This model reduces to the Poisson when the overdispersion parameter converges to zero. While the estimation of the fixed-effects suffers from the "incidental parameters" problem, the estimator has good properties (Greene 2000; Guimaraes 2008; Allison and Waterman 2002). The NB2 model with fixed-effects has been used recently by Fisman and Miguel (2007); Aghion, Van Reenen, and Zingales (2013); and Bloom, Schankerman, and Van Reenen (2013), among others.

[25] Distance to the coast enters with a positive and significant estimate suggesting that there is less conflict in areas closer to the coast. Distance to the capital enters with a positive estimate suggesting that there is more conflict in regions further from the capitals, though the coefficient is not always significant. Distance to the border enters with a negative though insignificant coefficient. As violence against civilians, riots, and protests often take place in the capitals, the capital city indicator enters with a positive and highly significant coefficient in almost all specifications.

Table 2—Ethnic Partitioning and Civil Conflict: Baseline Country Fixed Effects Estimates

| | All ethnicity-country homelands | | | | Ethnicity-country homelands close to the national border | | | |
|---|---|---|---|---|---|---|---|---|
| | All observations | | | Excl. capitals | All observations | | | Excl. capitals |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| *Panel A. Negative binomial ML estimates* | | | | | | | | |
| SPLIT (partitioning) | 0.4513 | 0.3329 | 0.4626 | 0.4565 | 0.9247 | 0.6014 | 0.5906 | 0.5806 |
| | (0.1611) | (0.1851) | (0.1201) | (0.1236) | (0.1704) | (0.2226) | (0.2176) | (0.2146) |
| SPIL (adjacent split) | 0.0481 | 0.3910 | 0.4920 | 0.4256 | 0.0879 | 0.4328 | 0.4514 | 0.3928 |
| | (0.2789) | (0.3430) | (0.2628) | (0.2760) | (0.5748) | (0.3818) | (0.3565) | (0.3640) |
| log likelihood | −4,506.794 | −4,280.17 | −4,108.723 | −3,781.286 | −1,697.469 | −1,517.999 | −1,510.73 | −1,445.62 |
| *Panel B. Linear probability model (LPM) estimates* | | | | | | | | |
| SPLIT (partitioning) | 0.0562 | 0.0660 | 0.0819 | 0.0789 | 0.0874 | 0.0821 | 0.0903 | 0.0893 |
| | (0.0241) | (0.0238) | (0.0266) | (0.0266) | (0.0399) | (0.0523) | (0.0457) | (0.0461) |
| SPIL (adjacent split) | 0.0571 | 0.1146 | 0.1443 | 0.1468 | 0.1787 | 0.2297 | 0.2444 | 0.2347 |
| | (0.0486) | (0.0394) | (0.0408) | (0.0408) | (0.0594) | (0.0631) | (0.0562) | (0.0575) |
| Adjusted $R^2$ | 0.304 | 0.430 | 0.445 | 0.446 | 0.315 | 0.475 | 0.489 | 0.486 |
| Simple controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Location controls | No | No | Yes | Yes | No | Yes | Yes | Yes |
| Geographic controls | No | No | Yes | Yes | No | No | Yes | Yes |
| Country fixed effects | No | Yes | Yes | Yes | No | Yes | Yes | Yes |
| Observations | 1,212 | 1,212 | 1,212 | 1,165 | 579 | 579 | 579 | 568 |

*Notes:* The table reports negative binomial (NB) maximum likelihood (ML) estimates in panel A and linear probability model (LPM) estimates in panel B, associating civil conflict with ethnic partitioning at the country-ethnicity homeland level. The dependent variable in panel A is the total number of civil conflict incidents at each country-ethnic homeland over the period 1997–2013. The dependent variable in panel B is an dummy variable that takes on the value of one for country-ethnic homelands that have experienced conflict and zero otherwise over the period 1997–2013. SPLIT is an indicator variable that identifies partitioned ethnicities as those with at least 10 percent of the historical homeland falling into more than one contemporary country. SPIL, that captures spillovers, is the share of adjacent partitioned ethnic homelands to the total number of adjacent ethnic homelands in the same country. The specifications in columns 2–4 and 6–8 include country fixed effects (constants not reported). The specifications in columns 5–8 focus on country-ethnicity areas close to the national border (using as a cutoff the median distance from the centroid of each ethnicity-country homeland to the national border; 61.3 km). The specifications in columns 4 and 8 exclude country-ethnic homelands where capital cities fall. The set of simple controls includes the log of land area, the log of population in 1960, an indicator for lakes, and an indicator for rivers. The set of location controls includes the distance of the centroid of each country-ethnic homeland from the respective capital, from the sea coast, from the national border, an indicator that takes on the value of one if a capital city falls in the homeland of an ethnic group, and an indicator for country-ethnic areas that are by the sea coast. The set of geographic controls includes an index of land suitability for agriculture, mean elevation, a malaria stability index, a diamond mine indicator, an oil field indicator, and an indicator for areas with major city in 1400. The online data Appendix gives detailed variable definitions and data sources. The table reports in parentheses double-clustered standard errors at the country and the ethnolinguistic family dimensions.

that conflict intensity is approximately 30 percent higher in the homelands of groups that are surrounded by 50 percent of split groups $((\exp(0.47) - 1) \times 0.5 = 0.30)$.

In columns 5–8 we restrict estimation to areas close to the border, using the median distance from the centroid of each country-ethnic homeland (61.3 km). This allows us to compare conflict between partitioned and other at-the-border groups. Across all permutations the coefficient on the partitioning index is positive (around 0.60) and highly significant; this assures that our estimates in the full sample are not capturing an overall border effect (which itself could reflect the impact of partitioning). The coefficient in the border sample is somewhat larger compared to the estimate in the full sample; yet a Hausman-Chow test shows that these differences

are not statistically significant. The coefficient on *SPIL* is also stable (around 0.45), though standard errors increase and the estimate loses significance.[26]

Table 2, panel B reports LPM estimates with country fixed effects. Looking at the "extensive" margin accounts for the nonlinear nature of the dependent variable; it also sheds light on the margin at which ethnic partitioning operates. The likelihood of conflict is approximately 7 percent–8 percent higher for partitioned, as compared to non-split, groups. The magnitude is similar (0.08–0.09) when we restrict estimation to groups close to the national border.[27] The LPM reveals sizable spillovers, as *SPIL* always enters with a highly significant estimate. The specification in column 4 implies that compared to ethnic homelands where none of the nearby groups are split ($SPIL = 0$), in homelands where half of the adjacent groups are partitioned ($SPIL = 0.5$) the likelihood of conflict increases by 7 percent.

*Observables versus Unobservables*.—A noteworthy result of both the NB-ML and the LPM estimates is the stability of the coefficient on the ethnic partitioning index. The NB estimate on *SPLIT* in the specification that includes country fixed effects and a rich set of controls is similar to the parsimonious specification (in column 1), where we simply condition on log land area, log population, and the presence of water bodies. The heuristic test of Altonji, Elder, and Taber (2005) implies that the bias from unobservable features has to be very large, way larger than the impact of the geographic and location traits and country-specific fixed factors. Moreover, the model fit increases as more controls are added which coupled with the coefficient stability imply that it is less likely that unobservable omitted variables spuriously drive our estimates (Oster 2015).

### D. *Ethnic Partitioning and Conflict Intensity*

ACLED reports both deadly events and incidents of violence without casualties (that, nevertheless, involve conflict actors). Which type of conflict is more common across split homelands? To answer this question, we constructed measures of conflict reflecting the number of deadly incidents, the likelihood of deadly conflict, fatalities, and conflict duration. By employing these different proxies of conflict severity, we also address concerns that the comprehensive nature of ACLED lumps together events of political violence that differ substantially in the underlying intensity of violence and the casualties involved (Eck 2012).

Table 3 reports the results. Columns 1 and 5 give NB-ML estimates looking on the number of deadly events in the full and the border sample, respectively. The coefficient on *SPLIT* is 0.335 and 0.465, implying that deadly conflict is 40 percent–60 percent higher in the homelands of partitioned ethnicities. This effect is similar to that of the petroleum dummy (coefficient 0.41). Columns 2 and 6 report LPM estimates, where the dependent variable is a binary index identifying homelands that have experienced at least one deadly incident. There is a 6 percent to 8 percent

[26] The border sample is somewhat smaller than 606 observations, because there is no variability in ethnic partitioning for some countries when we zoom in along the border.

[27] We obtain similar results when we replace the country fixed effects with regional constants and estimate the limited dependent variable model with logit or probit ML. The probit marginal effect with the full set of controls is 0.09 and 0.12 in the full and the border sample, respectively.

Table 3—Ethnic Partitioning and Civil Conflict Intensity: Baseline Country Fixed Effects Estimates

| | All ethnicity-country homelands | | | | Ethnicity-country homelands close to the national border | | | |
|---|---|---|---|---|---|---|---|---|
| | Deadly incidents NB-ML (1) | Deadly incidents indicator LPM (2) | Total casualties NB-ML (3) | Duration all incidents Poisson-ML (4) | Deadly incidents NB-ML (5) | Deadly incidents indicator LPM (6) | Total casualties NB-ML (7) | Duration all incidents Poisson-ML (8) |
| SPLIT (partitioning) | 0.3356 | 0.0599 | 0.4843 | 0.2015 | 0.4651 | 0.0820 | 0.8489 | 0.2784 |
| double-clustered SE | (0.1357) | (0.0287) | (0.1651) | (0.0622) | (0.2037) | (0.0428) | (0.3787) | (0.1216) |
| SPIL (adjacent split) | 0.3948 | 0.1461 | 0.1161 | 0.2478 | 0.2745 | 0.2378 | 0.3573 | 0.3731 |
| double-clustered SE | (0.2465) | (0.0463) | (0.3121) | (0.1174) | (0.3110) | (0.0611) | (0.5155) | (0.1804) |
| log likelihood | −2,910.906 | — | −4,516.44 | −2,759.21 | −1,028.82 | — | −1,657.27 | −1,057.16 |
| Adjusted $R^2$ | — | 0.411 | — | — | — | 0.449 | — | — |
| Simple controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Location controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Geographic controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,212 | 1,212 | 1,199 | 1,212 | 579 | 579 | 575 | 579 |

*Notes:* The table reports estimates associating civil conflict with ethnic partitioning at the country-ethnicity homeland level. In columns 1 and 5 the dependent variable is the total number of deadly civil conflict incidents in each country-ethnic homeland over the sample period (1997–2013). These models are estimated with the negative binomial ML model. In columns 2 and 6 the dependent variable is a dummy variable that takes on the value of one for country-ethnic homelands that have experienced at least one deadly conflict incident over the period 1997–2013 and zero otherwise. These columns give linear probability model estimates. In columns 3 and 7 the dependent variable is the total number of fatalities at each country-ethnic homeland over 1997–2013. These models are estimated with the negative binomial ML model. For the estimation we exclude country-ethnic homelands where the dependent variable exceeds the 99th percentile. In columns 4 and 8 the dependent variable is the number of years that each country-ethnic homeland has experienced conflict over the period 1997–2013. These columns give Poisson ML estimates. SPLIT is an indicator variable that identifies partitioned ethnicities as those with at least 10 percent of the historical homeland falling into more than one contemporary country. SPIL, that captures spillovers, is the share of adjacent partitioned ethnic homelands to the total number of adjacent ethnic homelands. The specifications in columns 5–8 focus on country-ethnicity areas close to the national border (using as a cutoff the median distance from the centroid of each ethnicity-country homeland to the national border; 61.3 km). All specifications include country fixed effects (constants not reported) and a rich set of controls. The set of simple controls includes the log of land area, the log of population in 1960, an indicator for lakes and an indicator for rivers. The set of location controls includes the distance of the centroid of each country-ethnic homeland from the respective capital, from the sea coast, from the national border, an indicator that takes on the value of one if a capital city falls in the homeland of an ethnic group within a country and an indicator for country-ethnic areas that are by the sea coast. The set of geographic controls includes an index of land suitability for agriculture, mean elevation, a malaria stability index, a diamond mine indicator, an oil field indicator, and an indicator for areas with major city in 1400. The online data Appendix gives detailed variable definitions and data sources. The table reports in parentheses double-clustered standard errors at the country and the ethnolinguistic family dimensions.

increased likelihood of a deadly event in the homelands of split groups. Again the LPM estimates reveal sizable spillovers. Columns 3 and 7 report NB-ML estimates associating fatalities (aggregated across all types of conflict in all years for each country-ethnic area) to ethnic partitioning. Given the extreme skewness of casualties, the estimate is somewhat unstable;[28] yet *SPLIT* enters with a significantly positive coefficient both in the full and the border sample. In columns 4 and 9 we focus on conflict duration, i.e., the number of years that there has been some conflict in each homeland. Since outliers are not an issue when we examine duration (the mean-variance equality holds), we report country-fixed-effects Poisson ML

[28] The mean (median) of fatalities is 317 (3) with a standard deviation of 3,307. This is because of few extreme outliers. The threshold for the top 1 percent is 435 and the maximum value is 107,554. See online Appendix Table 2.

estimates. There is a strong link between partitioning and conflict duration. The estimate in column 8 implies that conflict duration is on average 32 percent higher in the homelands of partitioned ethnicities ($\exp(0.278) - 1 = 0.32$). The highly significant estimate on *SPIL* further shows that if a homeland is surrounded exclusively by split groups then conflict duration further increases by 45 percent, as compared to homelands where none of the adjacent groups is split.

*Example*.—Senegal offers an illustration of our results. ACLED records 565 events across its 12 ethnic homelands. In the isolated Casamance region in the South, where the Diolas/Jolas (a major group of half a million people) and the Banyun (a smaller group of approximately 10,000 people) are partitioned by the colonial border between France and Portugal, we observe 154 and 85 events, respectively.[29] This is 42.5 percent of all events (63 percent if we exclude conflicts in the capital) though these two regions jointly correspond to 11.2 percent of Senegal's area and only 6 percent of the country's population. Conflict severity is also high. In these two homelands we observe 61.5 percent of the country's 182 deadly events and 74 percent of the country's 1,210 fatalities. The overwhelming majority of these events involve government troops (129 events) and/or rebels (114 in the homeland of the Diola and 63 in the Banyun territory). And in both ethnic areas we observe conflict for 16 out of the 17 years between 1997–2013, much longer than in all other ethnic regions (with the exception of the capital, the mean is five).

In the online Appendix we discuss extensively two more case studies where partitioning has played a prominent role, namely, conflict in Eastern Congo and in Eastern Africa, where the Somalis are split across five countries.

### E. *Ethnic Partitioning and Type of Conflict*

In Table 4 we take advantage of ACLED's detailed conflict classification to distinguish between battles, violence against civilians, and riots and protests. Panel A reports NB-ML estimates and panel B shows linear probability models with country constants.

*Battles*.—Examples of battles include the fights of the Lord's Resistance Army, the Sudanese People's Liberation Army, and Uganda's People Defence Force; and the fighting between the Rwandan forces against Hutu rebels in Rwanda and Eastern Congo. Battles result often (on average 47 percent) in fatalities; for example, ACLED describes that in a single event in September 1999 the Ugandan army killed 42 Pian warriors from the Karamojong group that is split between Uganda, Sudan, and Kenya. The specifications in columns 1 and 4 show that (compared to non-split ethnicities) partitioned groups experience 55 percent–60 percent ($\exp(0.45) - 1 = 0.57$) more battles between government forces and militias/rebels. The LPM coefficient on *SPLIT* is also positive and significant implying that battles are 9 percent more likely to take

[29] The contemporary border follows the 1886 convention between Portuguese Guinea and (French) Senegal. The seeds of the current conflict may be traced to the early 1900s, when the Diolas opposed the French, who fought the local resistance and imprisoned King Sihalebe and other chiefs. Even during the colonial era, the Diolas were organizing their resistance at the Portuguese side of the border (Tomâs 2006). Moreover, Casamance was ruled directly from French administrators till 1939, when its administration was transferred to Dakar.

Table 4—Ethnic Partitioning and Civil Conflict Aspects

| | All ethnicity-country homelands | | | Ethnicity-country homelands close to the national border | | |
|---|---|---|---|---|---|---|
| | Battles (1) | Civilian violence (2) | Riots and protests (3) | Battles (4) | Civilian violence (5) | Riots and protests (6) |
| *Panel A. Negative binomial ML estimates* | | | | | | |
| SPLIT (partitioning) | 0.4428 | 0.4328 | 0.0747 | 0.5238 | 0.4980 | 0.0453 |
| double-clustered SE | (0.1489) | (0.1229) | (0.1526) | (0.2818) | (0.1949) | (0.2402) |
| SPIL (Adjacent split) | 0.4846 | 0.3816 | 0.4119 | 0.4372 | −0.0188 | 0.9385 |
| double-clustered SE | (0.3060) | (0.3523) | (0.2574) | (0.3765) | (0.3662) | (0.4926) |
| log likelihood | −2,918.506 | −2,876.564 | −2,203.732 | −1,068.327 | −1,000.611 | −648.381 |
| *Panel B. Linear probability estimates* | | | | | | |
| SPLIT (partitioning) | 0.0912 | 0.0517 | 0.0193 | 0.0902 | 0.0647 | 0.0066 |
| double-clustered SE | (0.0375) | (0.0320) | (0.0305) | (0.0462) | (0.0447) | (0.0540) |
| SPIL (adjacent split) | 0.0631 | 0.1749 | 0.0773 | 0.1724 | 0.1839 | 0.0745 |
| double-clustered SE | (0.0442) | (0.0577) | (0.0533) | (0.0615) | (0.0705) | (0.0775) |
| Adjusted $R^2$ | 0.465 | 0.422 | 0.439 | 0.457 | 0.435 | 0.417 |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Simple controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Location controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Geographic controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,212 | 1,212 | 1,212 | 579 | 579 | 579 |

*Notes:* The table reports negative binomial (NB) maximum likelihood (ML) estimates in panel A and linear probability model (LPM) estimates in panel B, associating the main categories of civil conflict with ethnic partitioning at the country-ethnicity homeland level. Columns 1 and 4 focus on battles. Columns 2 and 5 focus on violence against the civilian population. Columns 3 and 6 focus on riots and protests. In panel A, the dependent variable is the total number of battles (in columns 1 and 4), violent events against the civilian population (in columns 2 and 5), and riots and protests events (in columns 3 and 6). In panel B the dependent variable is an indicator (dummy) variable for country-ethnic homelands that have experienced at least one battle (in columns 1 and 4), at least one violent event against the civilian population (in columns 2 and 5), and at least one event of riots and protests (in columns 3 and 6) over the period 1997–2013 (and zero otherwise). SPLIT is an indicator variable that identifies partitioned ethnicities as those with at least 10 percent of the historical homeland falling into more than one contemporary country. SPIL, that captures spillovers, is the share of adjacent partitioned ethnic homelands to the total number of adjacent ethnic homelands. The specifications in columns 4–6 focus on country-ethnicity areas close to the national border (using as a cutoff the median distance from the centroid of each ethnicity-country homeland to the national border; 61.3 km). All specifications include country fixed effects (constants not reported) and a rich set of control variables. The set of simple controls includes the log of land area, the log of population in 1960, an indicator for lakes and an indicator for rivers. The set of location controls includes the distance of the centroid of each country-ethnic homeland from the respective capital, from the sea coast, from the national border, an indicator that takes on the value of one if a capital city falls in the homeland of an ethnic group within a country and an indicator for country-ethnic areas that are by the sea coast. The set of geographic controls includes an index of land suitability for agriculture, mean elevation, a malaria stability index, a diamond mine indicator, an oil field indicator, and an indicator for areas with major city in 1400. The online data Appendix gives detailed variable definitions and data sources. The table reports in parentheses double-clustered standard errors at the country and the ethnolinguistic family dimensions.

place in the historical homelands of partitioned ethnicities. *SPIL* also enters with a positive (though noisy) estimate, suggesting the weak presence of spatial externalities.

*Violence against Civilians*.—A useful feature of the ACLED is the reporting of violence against the civilian population, a socially and economically devastating aspect of conflict that the commonly-employed civil war datasets leave unaccounted. Approximately 20 percent of violence against civilians is perpetrated by

government troops, 20 percent from rebel groups, with the remaining events coming from militias. Examples include the raids of the Janjaweed against civilians in Darfur and the assaults of the Central Intelligence Organization in Zimbabwe. Violent events include the burning of churches, hostage-taking, and child-soldiering raids by rebels in Nigeria and in Sierra Leone. Going over the event narratives reveals that they are often devastating (43 percent of these events result in at least one fatality). For example, in a single event in Eastern Congo in May 1997 "ADLF rebels moved in and took control of Mbandaka slaughtering 200 Rwandan Hutu refugees." The NB-ML estimate in the full sample (in column 2) implies that there are 55 percent ($\exp(0.43) - 1 = 0.54$) more violent events against civilians in the homelands of partitioned ethnicities. Restricting estimation to ethnic regions close to the national border (in column 5) yields somewhat larger estimates (although the difference is not statistically significant). The LPM estimate on *SPLIT* is 0.052 and 0.065 in the full and the border sample, respectively. While the coefficient is insignificant ($t$-stat around 1.5), it implies that the likelihood of violence against the civilian population is approximately 5 percent–6 percent higher in the homeland of split ethnicities. The LPM reveals sizable spillovers. The coefficient on *SPIL* is 0.18 and significant at the 1 percent level; a 1 standard deviation (0.34) increase in the share of adjacent groups within the country increases the likelihood of one-sided violence by 6.5 percent.

*Riots and Protests*.—In columns 3 and 6 we examine the link between ethnic partitioning and riots and protests. Protests and riots are (relatively) nonviolent events taking place usually in major urban centers. Examples include the protests in South Africa during and after the Marikana miners' strike (in 2012), the protests in Zimbabwe during the periods of hyperinflation and food shortages (2005–2009), and the Arab Spring events. Given the nature and usual location of these events, it is not surprising that there is no association with ethnic partitioning.

### F. *Sensitivity Checks*

We performed numerous sensitivity checks that for brevity we report and discuss in the online Appendix. Specifically: (i) As the number of conflict events recorded in the ACLED increases considerably in 2011, 2012, and 2013, we repeat estimation focusing on the period 1997–2010. (ii) We estimate the specifications with the conditional negative binomial model of Hausman, Hall, and Griliches (1984) that parameterizes the over-dispersion parameter rather than the mean. (iii) To further account for outliers we drop the top 5 percent of the dependent variable and estimated country-fixed-effects Poisson ML models as in this case the mean-variance equality approximately holds and Poisson models have good small-sample properties. (iv) We do not account for spillovers. (v) We reclassify groups into split and non-split using a 5 percent land-area threshold. (vi) We augment the specification with a third (or a fourth) order polynomial in distance to the border to further account for unobserved factors that vary smoothly by border proximity. (vii) We include ethnic-family fixed effects (on top of country fixed effects) to account for local conditions and broad cultural, institutional, and other hard-to-observe ethnic-family factors. (viii) To account for different colonial and post-independence

policies we drop iteratively homelands from each of the five main African regions. (ix) We estimate formal spatial models that account for spillovers. (x) We account for conflict spillovers from regions in the same country and the same ethnolinguistic family. (xi) We control for the historical legacy of violence from the precolonial period. (xii) We condition on regional income (overall there is a small and usually insignificant effect of partitioning on proxies of regional income). Across all these permutations the coefficient on the ethnic partitioning index retains its economic and statistical significance. And most specifications reveal sizable spillovers of ethnic partitioning.

### G. *Heterogeneous Effects*

We searched for potential heterogeneous effects of ethnic partitioning. In particular, we explored whether the coefficient on partitioning varies by ethnic features related to: (i) the group's population share in the country; (ii) the population of a group's co-ethnics on the other side of the border; (iii) the share of adjacent groups that belong to the same ethnic family; (iv) the share of groups in the country that belong to the same ethnic family; (v) the share of partitioned groups among neighboring ethnicities; (vi) whether the bilateral border intersecting split groups is straight or wiggly; (vii) whether a group is split within the same colonizer or between different colonizers; and (viii) the number of countries a split group belongs to. The analysis (reported in Section 4.1 of the online Appendix) does not reveal much heterogeneity. We also examined whether the impact of partitioning depends on level of country's ethnic, linguistic, religious diversity, country size, and geographic position. Besides some weak evidence that partitioning is particularly harmful for ethnicities in landlocked countries, its effect on conflict is quite homogeneous.

## IV. Further Evidence: Ethnic Partitioning and Conflict by Key Actors

In this section we utilize ACLED's grouping of events by conflict actors to shed light on the parties involved in violence. We then complement the analysis using georeferenced data on civil wars using an alternative conflict database (UCDP GED).

### A. *ACLED*

*Data.*—ACLED categorizes events by main conflict actors, namely: (i) government forces; (ii) rebel groups, "defined as political organizations whose goal is to counter an established national governing regime by violent acts. Rebel groups have a stated political agenda for national power, are acknowledged beyond the ranks of immediate members, and use violence as their primary means to pursue political goals"; (iii) political and (iv) ethnic militias, groups that "are not subsumed within the category of government or opposition, but are noted as an armed associated wing"; (v) riots and (vi) protests, defined "as violent and nonviolent spontaneous groupings (respectively)"; (vii) violence against civilians; and (viii) outside/external forces.

We merge rebels and militias (since there is some degree of arbitrariness distinguishing between the two);[30] and we distinguish foreign interventions from international peace-keeping forces (United Nations or African Union) and from government troops of neighboring countries. If neighboring countries intervene to assist their co-ethnics across the border, we would expect a significant link between ethnic partitioning and military interventions from adjacent countries. In contrast, there is no reason to expect other types of foreign interventions (from the UN, AU, or NATO) to be related to ethnic partitioning.

*Results.*—Table 5 reports NB-ML (in panel A) and linear probability model (in panel B) estimates linking conflict by each actor to ethnic partitioning.[31]

**Government Forces:** The specifications in columns 1 and 5 reveal a strong link between partitioning and conflict where government forces are involved. The NB estimates in the full sample imply that there are 70 percent more conflicts involving state troops whereas the LPM suggests that the likelihood of such conflict is 11 percent–12.5 percent higher in the homelands of partitioned ethnicities. The LPM specifications indicate sizable externalities of ethnic partitioning; a 1 standard deviation (0.34) increase in the share of adjacent groups that are split increases the likelihood of state-driven violence by 4.5 percent–6.5 percent.

**Rebels and Militias:** There is a significant association between ethnic partitioning and conflict where rebels and militias participate (columns 2 and 6). The LPM suggests that the probability of conflict involving rebel groups is approximately 6.5 percent–8.5 percent higher in the homelands of partitioned ethnicities. Since ACLED classifies as rebel groups those that explicitly challenge national authority via violent means, these results show that the partitioning-conflict link operates (to some extent) via groups challenging the central government. In line with this interpretation when we separately focus on rebels and militias, we find a stronger effect of partitioning for conflict of rebel groups as compared to militias (results not shown).[32]

**Interventions from Neighboring Countries:** In columns 3 and 7 we examine whether interventions from neighboring countries are related to ethnic partitioning. This is a key conjecture of the African historiography linking the Scramble for Africa with political violence. While we do report NB-ML specifications (where *SPLIT* enters with a highly significant coefficient), we focus on the LPM estimates, as the dependent variable is highly skewed. Overall, 269 country-ethnic homelands (22.2 percent) experienced an incursion from a neighboring country. Examples include the interventions of Ugandan and Rwandan troops in DRC, the fighting of

[30] ACLED notes, "militias are more difficult to assess since they can be created for a specific purpose or during a specific time period (i.e., Janjaweed) and may be associated with an ethnic group, but not entirely represent it (i.e., Kenyan Luo militias)."

[31] Since we have already reported specifications with riots and protests and violence against civilians (in Table 4), for brevity we do not repeat them in Table 5.

[32] In the full sample the NB-ML (linear probability model) estimate with rebels only is 0.88 (0.087), while for militias only it is 0.23 (0.056). Moreover, events featuring rebels are quite deadly, especially when fighting against government troops.

Table 5—Ethnic Partitioning and Conflict Actors

| | All ethnicity-country homelands | | | | Ethnicity-country homelands close to the national border | | | |
|---|---|---|---|---|---|---|---|---|
| | Government forces (1) | Rebels and militias (2) | Nearby external (3) | Other external (4) | Government forces (5) | Rebels and militias (6) | Nearby external (7) | Other external (8) |
| *Panel A. Negative binomial ML estimates* | | | | | | | | |
| SPLIT (partitioning) | 0.5247 | 0.4908 | 1.1280 | 0.244 | 0.8198 | 0.6083 | 1.1310 | 0.8889 |
| double-clustered SE | (0.1394) | (0.1381) | (0.2577) | (0.2534) | (0.2212) | (0.2434) | (0.2242) | (0.5275) |
| SPIL (adjacent split) | 0.496 | 0.3258 | 0.1629 | −0.519 | 0.2893 | 0.0667 | −0.0037 | −1.1611 |
| double-clustered SE | (0.3108) | (0.3089) | (0.4327) | (0.4765) | (0.3840) | (0.3620) | (0.3405) | (0.9901) |
| log likelihood | −3,213.30 | −3,538.28 | −1,088.25 | −571.59 | −1,127.39 | −1,278.77 | −418.72 | −170.35 |
| *Panel B. Linear probability model (LPM) estimates* | | | | | | | | |
| SPLIT (partitioning) | 0.1089 | 0.0663 | 0.0658 | 0.0065 | 0.1240 | 0.0861 | 0.0693 | 0.0349 |
| double-clustered SE | (0.0281) | (0.0327) | (0.0325) | (0.0228) | (0.0426) | (0.0497) | (0.0342) | (0.0298) |
| SPIL (adjacent split) | 0.1300 | 0.1059 | 0.0737 | −0.009 | 0.1905 | 0.1671 | 0.0074 | −0.0625 |
| double-clustered SE | (0.0530) | (0.0482) | (0.0466) | (0.0292) | (0.0625) | (0.0619) | (0.0487) | (0.0415) |
| Adjusted $R^2$ | 0.453 | 0.472 | 0.345 | 0.378 | 0.467 | 0.485 | 0.384 | 0.425 |
| Observations | 1,212 | 1,212 | 1,212 | 1,212 | 579 | 579 | 579 | 579 |
| Simple controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Location controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Geographic controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Notes:* The table reports negative binomial (NB) maximum likelihood (ML) estimates in panel A and linear probability model (LPM) estimates in panel B, associating civil conflict by actor with ethnic partitioning at the country-ethnicity homeland level. Columns 1 and 5 focus on conflict where government forces participate. Columns 2 and 6 focus on conflict where rebels and militias participate. Columns 3 and 7 focus on military interventions of adjacent (nearby) African countries. Columns 4 and 8 focus on foreign interventions by peace-keeping forces (UN, African Union, etc.). In panel A, the dependent variable is the total number of events of each category across country-ethnic homelands over the period 1997–2013. In panel B, the dependent variable is an indicator (dummy) variable for country-ethnic homelands that have experienced at least one event from each type of civil conflict over the period 1997–2013 (and zero otherwise). SPLIT is an indicator variable that identifies partitioned ethnicities as those with at least 10 percent of the historical homeland falling into more than one contemporary country. SPIL, that captures spillovers, is the share of adjacent partitioned ethnic homelands to the total number of adjacent ethnic homelands. The specifications in columns 5–8 focus on country-ethnicity areas close to the national border (using as a cutoff the median distance from the centroid of each ethnicity-country homeland to the national border; 61.3 km). All specifications include country fixed effects (constants not reported) and a rich set of control variables. The set of simple controls includes the log of land area, the log of population in 1960, an indicator for lakes, and an indicator for rivers. The set of location controls includes the distance of the centroid of each country-ethnic homeland from the respective capital, from the sea coast, from the national border, an indicator that takes on the value of one if a capital city falls in the homeland of an ethnic group within a country, and an indicator for country-ethnic areas that are by the sea coast. The set of geographic controls includes an index of land suitability for agriculture, mean elevation, a malaria stability index, a diamond mine indicator, an oil field indicator, and an indicator for areas with major city in 1400. The online data Appendix gives detailed variable definitions and data sources. The table reports in parentheses double-clustered standard errors at the country and the ethnolinguistic family dimensions.

Military Forces of Kenya against rebels in Southern Somalia, and the interventions of the military forces of Chad in Mali and the Central African Republic. The estimates imply that there is a 7 percent increased likelihood of a military intervention from a neighboring country in the homelands of split groups. A simple test of means illustrates the regression estimates. In the border sample (606 observations) that consists of 416 partitioned and 190 non-split ethnic homelands, interventions from neighboring countries have taken place in 113 regions (19 percent). Ninety-four of these homelands (83 percent) are partitioned, while overall 69 percent of ethnic homelands are split. Not only the likelihood but also the frequency of interventions

from government forces of nearby countries is higher in the homelands of partitioned ethnicities. In the border sample, we observe 708 interventions from nearby countries in the homelands of split groups, as compared to just 100 interventions in the homelands of non-split groups. Perhaps indicative of the highly targeted nature of military aggressions from neighboring states is the absence of spatial externalities associated with it.

**Interventions by International Forces:** ACLED also reports conflict associated with international, usually peace-keeping forces, such as the United Nations/African Union Hybrid Operation in Darfur, the Economic Community of West African States Monitoring Group, and United Nations Mission in Sierra Leone, Liberia, and Guinea at the end of the civil war, and the military interventions of NATO in Libya. We examined whether ethnic partitioning correlates with such type of outside interventions —that we use as a "placebo" as a priori these interventions should not be associated with partitioning. We focus again on the LPM estimates as the variable is highly skewed. The coefficient on *SPLIT* is small and statistically indistinguishable from zero.

## B. *UCDP GED*

*Data.*—To shed further light on the link between ethnic partitioning and conflict we used data from the Uppsala Conflict Data Program Georeferenced Events Dataset (UCDP GED) that covers the period 1989–2010 (Sundberg, Lindgren, and Padskocimaite 2010; Sundberg and Melander 2013). The UCDP focuses on deadly incidents associated with civil wars, as identified by the UCDP-PRIO Armed Conflict Database. UCDP conflicts are grouped into three mutually exclusive categories:

(i) State-based armed conflict is defined as a "contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year." Examples of state-based conflict where ethnic partitioning has played a role include the fights between the Ethiopian government and Somali rebels in the Ogaden region and the fighting between the Tuareg rebels and government troops in Mali and Niger. In total there are 7,512 state-conflict events.

(ii) One-sided violence defined as the "use of armed force by the government of a state or by a formally organized group against civilians which results in at least 25 deaths in a year." Examples include the public killings and executions against civilians carried in Angola by both government troops and UNITA (mostly during 1997–2003); and ethnic-based violence during the transition to democracy in Congo (1997–1999). In total there are 5,219 such events.

(iii) Non-state conflict "between two organized armed groups, neither of which is the government of a state, which results in at least 25 battle-related deaths in a year." Examples include conflict between the various factions of the African National Congress (ANC) and between the ANC and other anti-apartheid

movements during the democratic transition in South Africa; and conflict between militias in Kenya's Rift Valley. In total UCDP includes 3,645 events, though 60 percent of these incidents are from South Africa during the democratic transition. Amodio and Chiovelli (2014) analyze political violence in South Africa during the democratic transition using UCDP non-state conflict data.

Online Appendix Figures 4 and 5a–5c portray the distribution of conflict events across ethnic homelands according to UCDP-GED, while online Appendix Table 6 gives the number of each type of conflict by country.

*Results.*—Table 6 reports the results linking each type of civil conflict to ethnic partitioning. Online Appendix Table 9 reports tests of means and medians across ethnic homelands.

**State-Driven Conflict:** In panel A we associate state conflict to ethnic partitioning. The NB estimate in column 1 implies that state conflict intensity is 65 percent higher in the homelands of split ethnicities ($\exp(0.50) - 1 = 0.65$). So, this estimate is quite similar to the one obtained with ACLED's data on conflict involving government troops. The correlation between state-driven conflict in UCDP and battles in ACLED is 0.72. The coefficient on *SPLIT* retains significance when we restrict estimation to border areas in column 4. Columns 2 and 5 give LPM estimates. The likelihood of state-driven conflict is 5 percent–8 percent higher in the homelands of partitioned ethnicities. Columns 3 and 6 report NB estimates (specification tests reject the mean-variance equality) focusing on the duration (in years) of state-driven conflict. *SPLIT* enters with a significant coefficient in both samples; the duration of state conflict is approximately 75 percent higher for partitioned ethnic groups. Across all specifications *SPIL* enters with a positive coefficient that is significant in the full sample. We also estimated NB-ML models linking fatalities from state conflict to ethnic partitioning (results not shown). While the casualty estimates are highly skewed, there is a strong link between partitioning and the number of fatalities. The coefficients (s.e.) on *SPLIT* and *SPIL* in the full sample are 0.78 (0.35) and 1.74 (0.70), respectively, implying large effects.

**One-Sided Violence:** Panel B focuses on one-sided violence. The coefficient on *SPLIT* is positive both in the NB specifications with the number of incidents (columns 1 and 4) and duration (columns 3 and 6) and the LPM specifications (in columns 2 and 5). Yet the estimates do not pass the standard significance thresholds. The same applies to the coefficient on the spillover measure (*SPIL*). The results are similar with fatalities (results not shown). *SPLIT* and *SPIL* enter with positive though weakly insignificant coefficients ($t$-stats around 1.4). Overall, the UCDP GED data point out that there is a weak link between ethnic partitioning and one-sided violence. The key difference with ACLED—where ethnic partitioning appears to have a somewhat stronger impact on civilian violence—is that UCDP covers way fewer events, as it records events where conflict actors can be succinctly identified and linked to a major war. ACLED reports events that are not part of a full-scale civil war and/or incidents where the perpetrators are not clearly identified. This

Table 6—Ethnic Partitioning and Civil Conflict Types: UCDP GED

| | All ethnic homelands | | | Ethnic homelands close to the border | | |
|---|---|---|---|---|---|---|
| | All events NB-ML (1) | Indicator LPM (2) | Duration NB-ML (3) | All events NB-ML (4) | Indicator LPM (5) | Duration NB-ML (6) |
| *Panel A. State (government forces) civil conflict* | | | | | | |
| SPLIT (partitioning) | 0.4978 | 0.0487 | 0.3390 | 0.8053 | 0.0799 | 0.5469 |
| | (0.2411) | (0.0294) | (0.1422) | (0.2335) | (0.0393) | (0.2389) |
| SPIL (adjacent split) | 1.1577 | 0.0902 | 0.6868 | 0.4340 | 0.0424 | 0.255 |
| | (0.4761) | (0.0518) | (0.2964) | (0.5468) | (0.0534) | (0.3744) |
| log likelihood | −1,453.054 | — | −1,046.922 | −528.002 | — | −383.392 |
| Adjusted $R^2$ | — | 0.471 | — | — | 0.441 | — |
| *Panel B. One-sided violence against civilian population* | | | | | | |
| SPLIT (partitioning) | 0.3468 | 0.0269 | 0.2750 | 0.3288 | 0.0331 | 0.2925 |
| | (0.2416) | (0.0292) | (0.1474) | (0.2615) | (0.0404) | (0.2237) |
| SPIL (adjacent split) | 0.4708 | 0.0829 | 0.4935 | 0.0901 | 0.0161 | 0.1659 |
| | (0.4549) | (0.0481) | (0.2277) | (0.6886) | (0.0626) | (0.3416) |
| log likelihood | −1,499.837 | — | −1,099.667 | −556.790 | — | −396.804 |
| Adjusted $R^2$ | — | 0.404 | — | — | 0.434 | — |
| *Panel C. Non-state civil conflict* | | | | | | |
| SPLIT (partitioning) | −0.2087 | −0.0459 | 0.026 | −0.4122 | −0.0351 | −0.1797 |
| | (0.4062) | (0.0317) | (0.3374) | (0.5178) | (0.0283) | (0.4917) |
| SPIL (adjacent split) | −0.8703 | −0.0344 | −0.5089 | −0.6593 | −0.0268 | −0.6964 |
| | (0.7193) | (0.0302) | (0.4423) | (0.8728) | (0.0415) | (0.7086) |
| log likelihood | −841.675 | — | −644.791 | −243.970 | — | −199.677 |
| Adjusted $R^2$ | — | 0.320 | — | — | — | — |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Simple controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Location controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Geographic controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,212 | 1,212 | 1,212 | 579 | 579 | 579 |

*Notes:* The table reports estimates associating three types of civil conflict with ethnic partitioning at the country-ethnicity homeland level using data from the UCDP GED 1.5 project. Panel A gives estimates focusing on state conflict (where government forces, troops, and militias participate). Panel B gives estimates focusing on one-sided violence, mostly against the civilian population. Panel C gives estimates focusing on conflict between (at least) two non-state actors (where the government is not involved). The dependent variable in columns 1 and 4 is the total number of civil conflict incidents at each country-ethnic homeland over the period 1989–2010. These models are estimated with the negative binomial (NB) maximum likelihood (ML) model. The dependent variable in columns 2 and 5 is a dummy variable that takes on the value of one for country-ethnic homelands that have experienced each conflict type over the period 1989–2010 (and zero otherwise). The dependent variable in columns 3 and 6 is the number of years that each country-ethnic homeland has experienced each type of conflict over the period 1989–2010. These models are estimated with the negative binomial maximum likelihood model. SPLIT is an indicator variable that identifies partitioned ethnicities as those with at least 10 percent of the historical homeland falling into more than one contemporary country. SPIL, that captures spillovers, is the share of adjacent partitioned ethnic homelands to the total number of adjacent ethnic homelands. The specifications in columns 4–6 focus on country-ethnicity areas close to the national border (using as a cutoff the median distance from the centroid of each ethnicity-country homeland to the national border; 61.3 km). All specifications include a country fixed effects (constants not reported) and a rich set of control variables. The set of simple controls includes the log of land area, the log of population in 1960, an indicator for lakes, and an indicator for rivers. The set of location controls includes the distance of the centroid of each country-ethnic homeland from the respective capital, from the sea coast, from the national border, an indicator that takes on the value of one if a capital city falls in the homeland of an ethnic group within a country, and an indicator for country-ethnic areas that are by the sea coast. The set of geographic controls includes an index of land suitability for agriculture, mean elevation, a malaria stability index, a diamond mine indicator, an oil field indicator, and an indicator for areas with major city in 1400. The table reports in parentheses double-clustered standard errors at the country and the ethnolinguistic family dimensions.

difference in coverage explains the modest correlation (0.43) between the ACLED-based and UCDP GED-based measures.

**Non-State Conflict:** In panel C we look at non-state-driven conflict. Across all permutations the ethnic partitioning index enters with a small, unstable, and statistically insignificant coefficient. This should not be surprising as the non-state conflict events predominantly reflect violence in South Africa after the fall of the apartheid (that is clearly unrelated to ethnic partitioning) and other low-intensity communal violence mostly between pastoral groups over livestock and land.[33]

**Example:** The UCDP GED mapping of conflict in Casamance in Southern Senegal illustrates the results. Thirty-six and 45 from a total of 91 events of state-driven conflict have taken place in the homelands of the partitioned Banyun and the Diola, respectively. Those events have resulted in 322 and 427 fatalities, out of a total of 827 deaths from state-driven conflict in Senegal (90 percent). Looking at one-sided violence yields a similar picture. There have been 79 violent events against civilians resulting into 243 fatalities in Casamance whereas one-sided violence in Senegal outside these two groups is minimal (15 events). The UCDP documentation states that all these events involved either state conflict against the MDFC or one-sided civilian violence conducted by MDFC rebels.

*Summary.*—Both the ACLED and UCDP analysis shows that ethnic partitioning matters crucially for two-sided political violence where government troops fight against rebels and militias. The analysis further shows that there is a weaker link between ethnic partitioning and one-sided violence; and no association with conflict where only non-state actors are involved.[34] This ordering is in line with the theoretical work of Besley and Persson (2011a), who argue that when the opportunity cost of conflict is low and political institutions are non-cohesive, then political violence takes more often the form of two-sided violence (civil war) rather than one-sided violence (repression). Below we examine this issue in greater detail.

## V. Partitioning and Ethnic Power Relations

### A. *Motivation and Data*

Political violence is multifaceted; so far we have focused on the instances that materialize into conflict. However, a growing empirical literature in African political economy provides compelling evidence that national politics are characterized by ethnic favoritism, patronage, and discrimination (Posner 2005); Asiwaju (1985) discusses case studies pointing out that split groups not only participate in state-driven conflict, but also become targets of abusive policies. We thus examine the impact of

[33] Non-state conflict is weakly correlated with the other conflict aspects both in UCDP and ACLED (correlations around 0.15). See online Appendix Table 7.

[34] Arguably conflict incidents are not perfectly measured by either ACLED or UCDP. To account for error-in-variables in the online Appendix we combine the two datasets to obtain a more precise picture on the presence of conflict. The link between ethnic partitioning and civil conflict is quite strong.

ethnic partitioning on various forms of political violence using data from the Ethnic Power Relations (EPR) dataset (Wimmer, Cederman, and Min 2009).

EPR focuses on politically relevant ethnic groups and relies on expert input to assess formal and informal degrees of political participation and exclusion along ethnic lines. An ethnic group is classified as politically relevant "if at least one significant political actor claims to represent the interests of that group in the national political arena, or if members of an ethnic entity are systematically and intentionally discriminated against in the domain of public politics." EPR provides information on 758 politically relevant ethnic groups in 134 states around the world. The coverage for Africa spans 40 countries and 196 groups. Using a multitude of sources, we linked the 196 EPR groups to 593 ethnicities on Murdock's (1959) map.[35] Among the 593 ethnicities, 234 (39.5 percent) are partitioned and 359 (60.5 percent) are non-split. EPR provides ethnic-specific information on political representation (or exclusion) in the national government. Participation in the governing coalition may take the following forms (in ascending order) from junior to senior to dominant partner, to being the monopolist in the national politics. Among groups excluded from the central government, there are three mutually exclusive categories: those enjoying some regional autonomy; those that are powerless but are not discriminated against; and ethnicities that face active discrimination from the central government. EPR also identifies civil wars with an explicit ethnic angle.

### B. *Ethnic Wars*

We start by exploring the link between partitioning and civil wars that have an ethnic dimension. Using ethnic wars as the outcome of interest has several advantages. First, we look at major breakouts of violence. The coding of civil wars is based on the widely-used UCDP/PRIO Armed Conflicts Dataset (Gleditsch et al. 2002). From this dataset, EPR identifies ethnic wars as those that "typically involve conflicts over ethno-national self-determination, the ethnic balance of power in the government, ethno-regional autonomy, ethnic or racial discrimination (whether alleged or real), and language and other cultural rights." Second, instead of relying on the incidence of conflict in a given location, we directly assess whether members of partitioned groups have participated in an ethnic war *irrespective* of the location of actual violence. By doing so, we account for the imprecision in the anthropological maps and the georeferenced conflict data. Third, EPR has a long time horizon covering the entire post-independence period. Fourth, by looking at politically relevant groups, we check the robustness of our findings to focusing on ethnicities with a presence in the national political sphere.

A simple tabulation reveals the stark disparities with respect to civil war participation between split and non-split groups. On the one hand, 72 out of the

[35] Such sources include the Joshua Project, the Ethnologue dataset, and the A-MAR project. In several instances the matching procedure is straightforward. For example, the "San (Bushmen, Basarwa)" group in Namibia in the EPR is linked to the "Bushmen and their kin" cluster in Murdock (1959). In other instances, the matching is less straightforward. For example, in Nigeria EPR blends the "Hausa-Fulani and Muslim Middle Belt" in a single category. In this case we used the A-MAR correspondence (Birnir et al. 2014). We also used the georeferenced version of EPR so as to identify the corresponding location of groups on Murdock's map. This method is the least satisfactory and, hence, was only used for roughly 10 percent of cases. Results are unaffected if such matches are excluded.

234 partitioned ethnicities (31 percent) have taken part in an ethnic war. On the other hand, only 19 percent (69 out of the 359 non-split groups) have participated in an ethnic war. Examples of split groups that have been involved in ethnic wars include the Afar in North-East Ethiopia, that have also faced large-scale discrimination and marginalization policies by the central government for many years. For example, in 1975 the Dergue administration nationalized all land and annulled the de facto autonomy of the Afar leading to a secessionist rebellion (Vaughan 2003).

In columns 1–3 of Table 7 we formally assess the impact of ethnic partitioning on ethnic-war incidence. Column 1 tests for cross-sectional mean differences in the likelihood of ethnic wars between split and non-split groups. In column 2 we add country fixed effects, while in 3 we account for differences across groups in terms of population in 1960, land area, and the presence of water bodies (river or lake), location, and geography. The pattern is robust. The estimate in the specification with the rich set of controls suggests that partitioned groups have roughly an 11 percent increased likelihood of participating in an ethnic war, as compared to non-split groups. This magnitude is similar to the LPM estimate focusing on conflict where government forces are involved using the ACLED (0.11, column 1, panel B of Table 5). In line with the baseline coefficients (in Tables 3–5), the EPR-based estimates also reveal sizable externalities. The coefficient on *SPIL* suggests that a one-standard-deviation increase (0.25) in the share of adjacent partitioned groups increases the probability of involvement in an ethnic war by roughly 7 percent, contributing significantly to the eruption of ethnically-tainted large-scale violence.

### C. *Ethnic Discrimination*

We now turn our focus on repression using the EPR's information on ethnic discrimination, defined as: … group members are subject to active, intentional, and targeted discrimination with the intent of excluding them from both regional and national power. Such active discrimination can be either formal or informal. Formal discrimination legally limits access to government positions to citizens who speak a certain mother tongue, display certain phenotypic features, or are members of certain religious groups. Informal discrimination actively and intentionally inhibits individuals with certain ethnic backgrounds from rising within the ranks of government.

During the post-independence period, 110 (out of 593) groups have being discriminated by the national government at some point (18.5 percent).[36] This average masks considerable differences between partitioned and non-split ethnicities. Fifty-eight of the 234 split groups have been subject to political discrimination by the government (25 percent), while the likelihood of discrimination for non-split groups is 10 percentage points lower, 15 percent, as 52 of the 359 non-split groups faced discrimination. Examples of discriminated partitioned groups include the Bushmen (San/Basarwa) in Botswana that have faced restrictions on residence, limited access

[36] On average these 110 ethnicities have faced discrimination post-independence for 21 years.

Table 7—Ethnic Partitioning and Political Violence (*Discrimination and Ethnic Wars*)

| | Ethnic war | | | Ethnic discrimination | | | Violence | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| SPLIT (partitioning) | 0.1155 | 0.1402 | 0.1101 | 0.1030 | 0.0778 | 0.0718 | 0.6175 | 0.5802 |
| | (0.0509) | (0.0381) | (0.0390) | (0.0342) | (0.0276) | (0.0282) | (0.2663) | (0.2565) |
| SPIL (adjacent split) | | | 0.2570 | | | 0.0203 | | 1.1716 |
| | | | (0.1155) | | | (0.0759) | | (0.6170) |
| Adjusted $R^2$ | 0.019 | 0.423 | 0.487 | 0.018 | 0.475 | 0.521 | — | — |
| log likelihood | — | — | — | — | — | — | −422.612 | −417.453 |
| Observations | 593 | 593 | 593 | 593 | 593 | 593 | 593 | 593 |
| Country fixed effects | No | Yes | Yes | No | Yes | Yes | No | No |
| Simple controls | No | No | Yes | No | No | Yes | Yes | Yes |
| Location controls | No | No | Yes | No | No | Yes | Yes | Yes |
| Geographic controls | No | No | Yes | No | No | Yes | Yes | Yes |

*Notes:* The table reports linear probability model estimates (in columns 1–6) and ordered logit estimates (in columns 7 and 8), associating ethnic-based political violence with ethnic partitioning. The dependent variable in columns 1–3 is a dummy variable that takes on the value of one if an ethnicity has experienced a major or minor civil war with an explicit ethnic dimension over the period 1960–2010. The dependent variable in columns 4–6 is a dummy variable that takes on the value of one if an ethnicity has experienced discrimination from the central government for at least one year over the period 1960–2010. The dependent variable in columns 7 and 8 is an ordered index of political violence. The trichotomous index of political violence equals two if the ethnic group is engaged in a major civil war (two-sided conflict); the index equals one when the group is subject to political discrimination from the national government but not in civil war (one-sided violence); the index equals zero when the ethnicity is neither discriminated from the national government nor involved in civil war (the construction of the ordered index of political violence follows Besley and Persson 2011). Data on ethnic wars and ethnic-based political discrimination from the national government come from the Ethnic Power Relations (EPR) database (Wimmer, Cederman, and Min 2009). SPLIT is an indicator variable that identifies partitioned ethnicities as those with at least 10 percent of the historical homeland falling into more than one contemporary country. SPIL, that captures spillovers, is the share of adjacent partitioned ethnic homelands to the total number of adjacent ethnic homelands in the same country. The specifications in columns 2–3 and 5–6 include a vector of country fixed effects (constants not reported). The specifications in columns 3, 6, and 7–8 include log of land area, the log of population in 1960, an indicator for lakes, and an indicator for rivers (simple controls); distance of the centroid of each country-ethnic homeland from the respective capital, from the sea coast, from the national border, an indicator that takes on the value of one if a capital city falls in the homeland of an ethnic group, and an indicator for country-ethnic areas that are by the sea coast (location controls); and an index of land suitability for agriculture, mean elevation, a malaria stability index, a diamond mine indicator, an oil field indicator, and an indicator for areas with major city in 1400 (geographic controls). Columns 7 and 8 report ordered logit estimates, replacing the country fixed effects with regional constants. For specifications 1–8 the table reports in parentheses double-clustered standard errors at the country and the ethnolinguistic family dimensions.

to the civil service, and no recognition of their traditional chiefs. Another example is that of the Karamojong in Uganda, a group split along the Kenyan-Ugandan border that has suffered from land confiscation, abuses, and raids by government forces (MercyCorps 2011).

Table 7, columns 4–6 report LPM estimates that explore the association between ethnic discrimination and partitioning. Column 4 reports the unconditional specification, while in column 5 we include country-specific constants. The coefficient of *SPLIT* is 0.078 and highly significant. Controlling for group size in terms of (log) land area and (log) population in 1960 and the rich array of location and geographic traits does not alter the economic or statistical significance of the estimate. The likelihood of discrimination is approximately 7.2 percent for partitioned, as compared to non-split, groups. *SPIL* enters with a small and statistically indistinguishable from zero coefficient. Perhaps not surprisingly there are no spatial externalities on political discrimination from partitioning.

### D. *Political Violence* (*Repression and Civil Wars*)

So far, we have analyzed the relationship between partitioning and two forms of political violence, ethnic wars and ethnic discrimination, without attempting to disentangle which form of political violence comes first. The case of the Diolas in Senegal discussed above suggests that discrimination may precede conflict, but other cases such as that of the Somalis in Northern Kenya covered in Section 8 of the online Appendix indicate that the reverse is not uncommon. Moreover, Besley and Persson (2011a) criticize theoretical and empirical works on civil war and repression for having moved in parallel and stress the importance of studying these aspects of political violence jointly, since they have common roots and are naturally interrelated. Besley and Persson (2011a) develop a model where groups compete for the control of central government whose resources can either be used for group-specific consumption or for public goods investments. Their model that allows both for one-sided (repression) and two-sided violence (civil war) links group-level opportunity cost of fighting and nationwide resource rents to an ordered measure of political violence when institutions are non-cohesive. Following their approach we examined the impact of ethnic partitioning on a trichotomous index of political violence that equals two if the group has ever engaged in an ethnic war, one when the group has been subject to ethnic discrimination from the central government but not in a civil war, and zero when the group has neither been discriminated against nor involved in an ethnic war.

The descriptive statistics are telling. Among partitioned groups, 72 out of the 234 (30.8 percent) have engaged in an ethnic war, while 22 (9.40 percent) have suffered from ethnic discrimination only. The corresponding likelihoods of civil war and political repression for non-split groups are 19.2 percent (69 groups out of 359) and 6.7 percent (24 ethnicities), respectively. Table 7, columns 7–8 report ordered logit ML estimates associating the trichotomous index of political violence to ethnic partitioning. To avoid the incidental parameters problem, we replace the country dummies with regional constants (results are similar if we follow Besley and Persson 2011a and implement the fixed-effects logit estimator of Ferrer-i-Carbonell and Frijters 2004). In all specifications the ethnic partitioning index enters with a highly significant coefficient. As logit coefficients are not easily interpretable, we compared the model predictions for the likelihood of each outcome ($0 =$ peace, $1 =$ repression, $2 =$ ethnic war) for split and non-partitioned ethnicities. The estimates imply that the likelihood of civil war increases from 19.5 percent to 31.5 percent for partitioned ethnicities, while the likelihood that an ethnicity will experience political discrimination is 7 percent for non-split groups and 9 percent for partitioned ones. These estimates, that take into account various ethnic characteristics and regional heterogeneity, are close to the simple tabulations, showing that unobservables are unlikely to matter much.

So, ethnic partitioning is more strongly associated with ethnic wars compared to repression. This result is in line with the Besley and Persson (2011a) theoretical argument that in weakly institutionalized countries, a low opportunity cost of fighting translates more often into two-sided violence. In our context this is driven by two empirical regularities. First, political violence in Africa overall takes more often the form of two-sided violence, rather than repression (24 percent versus 18.5 percent); second, when a group faces discrimination from the national government, it

is also more likely to engage in an ethnic war (out of the 110 groups that have ever been discriminated against, 64 have also participated in an ethnic war), i.e., one-sided violence often escalates into full-fledged conflict.

In the online Appendix we provide additional sensitivity checks, showing that the ethnic partitioning-discrimination-ethnic war link is present when: (i) we classify a group as split if at least 5 percent of its homeland falls into more than one country; (ii) we drop iteratively each African region; and (iii) we estimate alternative linear and nonlinear models with the ordered index of political violence.

### E. *Further Evidence*

We should stress here that the disproportionate incidence of ethnic wars and political discrimination among split groups does not imply that the latter are never part of the central government. For example, the Yakoma in Central African Republic, the Oroma and the Tigray in Ethiopia, and the Alur, the Madi, and the Lugbara in Uganda, although they have been subject to discrimination and have participated in ethnic wars, they also seem to have taken part in some capacity (either as junior or senior partners) in the various government coalitions over time. This result echoes Francois, Rainer, and Trebbi (2015) finding that groups' participation in the government is widespread. Empirically, this oscillation of split groups between a state of conflict and discrimination at some point and members of governing alliances at other instances translates into an insignificant relationship between partitioning and the probability of a group having ever been a partner in the central government.

Moreover, this nuanced political status of split groups suggests that the vicious cycle of discrimination and conflict in which they are often embroiled, comes into play primarily when excluded from the governing coalition. We checked the empirical validity of this conjecture exploiting the time-series information of group's political status from the EPR. Specifically, we run year-country-ethnicity regressions with country and year fixed effects associating the onset of ethnic wars in period $t$ with ethnic partitioning separately for groups that have been excluded from political power in any of the past three (or five) years and those that have been included in the national power-sharing coalition during the same time. The estimates reported in the online Appendix imply that the likelihood of ethnic war onset is 0.6 percent higher for partitioned as compared to non-split groups, when ethnicities are excluded from national power. This effect is considerable, as the yearly likelihood of war onset across the 593 groups during post independence is 0.7 percent. In contrast, the difference in the likelihood of civil war between split and non-split ethnicities when they take part in the central government is much smaller (0.15 percent).[37] These findings show that the link between exclusion from political power and ethnic-based civil wars, documented by Cederman, Wimmer, and Min (2010), disproportionately affects split groups.

[37] We also pooled all ethnicities across all years and interacted the ethnic partitioning index with an indicator that equals one in period $t$ when a group has been excluded for at least one year from the central government in any of the previous three (or five) years. The interaction term between exclusion from the governing coalition and ethnic partitioning enters with a positive and highly significant estimate (0.5 percent), implying that the likelihood of civil war onset increases considerably for partitioned ethnicities when they are politically excluded. A similar pattern obtains in the cross section. See in the online Appendix the discussion in Section 5.2 and the corresponding Tables 34A and 34B.

The rationale is straightforward. Partitioned ethnicities have a lower cost of engaging in armed rebellions against the government, as they can get assistance from their co-ethnics on the other side of the border; hence split groups are more likely to react violently against their marginalization and exclusion from the central government.

## VI. Ethnic Partitioning and Individual Well-Being

Our evidence suggests that partitioned ethnic groups are more likely to engage in conflict (predominantly against the government), to experience violence against their civilian population, and to suffer from repression. To further understand how the ethnic partitioning-political violence link operates, in this section we employ micro-level data from the Demographic and Health Surveys (DHS) to examine how individuals of partitioned groups fare economically compared to citizens from non-split groups in the same country. Exploiting individual-level variation has some straightforward advantages. First, we can directly assess whether individuals identifying with split groups underperform compared to those from non-split ethnicities using direct measures of well-being and self-reported ethnic affiliation. Second, we can account for a host of individual level characteristics, so as to better isolate the impact of ethnic partitioning. Third, since we observe people residing within and outside their group's historical homeland, we can evaluate whether ethnic partitioning has negative repercussions irrespective of respondents' residence or whether the negative effects are concentrated among individuals residing in partitioned homelands.

### A. *Data and Specification*

The Demographic and Health Surveys are based on nationally representative samples and include information on households' wealth, education, occupation, and health. We use all georeferenced surveys with information on the respondents' ethnic identity. Our sample comprises 20 countries and covers 88,171 male respondents. We focus on two outcome variables. First, we use household's composite wealth index that ranges from 1 to 5 and corresponds to the quintiles of the distribution of household wealth in each country. This index reflects access to basic public goods (electricity, sewage system, piped water) and ownership of various assets. Second, we use years of schooling.

Our empirical specification reads

$$y_{i,e,r,c} = a_c + \beta SPLIT_e + X'_{i,e,r,c}\mathbf{\Phi} + Z'_{i,r,c}\mathbf{\Gamma} + \zeta_{i,e,r,c}. \tag{2}$$

The dependent variable, $y_{i,e,r,c}$, reflects economic conditions and education of individual $i$ that self-identifies with ethnic group $e$ and resides in enumeration area (village/town/city) $r$ in country $c$. $X'_{i,e,r,c}$ is a vector of individual characteristics; in most specifications we include a set of 62 year-of-birth dummies, a set of 6 marital-status fixed effects, and 7 religion fixed effects. $Z'_{i,r,c}$ includes location controls (at the enumeration area). We also include a dummy variable that identifies respondents residing outside their ethnicity's ancestral homeland. All specifications include country-specific constants, $a_c$, that among others, capture survey differences across countries. $SPLIT_e$, the variable of interest, is an indicator that takes on the

value of one if individual $i$ identifies with an ethnicity, $e$, that has been partitioned across different countries. Overall 38,887 individuals come from partitioned ethnicities (44 percent) while 49,284 individuals (56 percent) identify with non-split ones. To account for spatial correlation and the fact that the split indicator takes on the same value for individuals belonging to the same group, we cluster standard errors at the ethnic identity and ethnic homeland level.

### B. *Baseline Estimates*

In Table 8, panel A we report the baseline estimates linking the composite wealth index to ethnic partitioning. The coefficient on the partitioning index in column 1, that only includes a set of country-specific constants and an indicator reflecting whether the individual currently resides outside his ancestral homeland, is negative and highly significant. Individuals who identify with split ethnicities have on average lower access to public goods and worse living conditions. In column 2 we add a vector of location controls, namely distance terms to the national border, the capital, and the coast. To adequately capture the capital city effect we also include an indicator for enumeration areas, whose distance to the capital is less than the 25th percentile.[38] The coefficient drops, but retains significance at standard confidence levels. In column 3 we account for individual characteristics. The estimate implies that respondents identifying with split ethnicities have roughly 0.20 points of lower wealth as compared to individuals from non-split ethnicities in the same country; this translates into a standardized beta coefficient of 0.07, which is half of the beta coefficient on the capital city indicator. So the impact of identifying with a split group is half of residing in the capital city. In columns 4–6 we focus on enumeration areas close to the border, using as a cutoff the median distance (80 km). In all specifications the coefficient on the ethnic partitioning index is negative and significant at the 1 percent level and similar to the analogous estimates in the full sample. In panel B, years of schooling serves as the dependent variable. The estimates imply that, conditional on location and various individual characteristics, individuals from partitioned ethnicities have on average 0.4 more years of formal education. The beta coefficient on the ethnic partitioning index is around 0.052, implying an economic effect moderately smaller to that of residing in capitals (the beta coefficient on the capital city dummy is 0.076).

### C. *Ethnic Identity and Ethnic Homelands*

So far, we have two main findings. First, political violence is more frequent in the homelands of split ethnicities. Second, the scars of ethnic partitioning can be traced in the livelihoods of members of partitioned groups. Weaving these two observations together, begets the question whether ethnic partitioning depressed standards of living for everybody currently residing in split homelands (i.e., residents of split homelands are worse off irrespective of their ethnic affiliation) or whether it is the

[38] The coefficients on distance to the capital and distance to the sea are negative and significant; the coefficient on distance to the border is positive and (marginally) significant. The dummy on the capital city indicator is also positive and significant.

TABLE 8—THE LONG-RUN EFFECTS OF ETHNIC PARTITIONING ON INDIVIDUAL WELL-BEING AND EDUCATION: DHS DATA

| | All observations | | | Border observations | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *Panel A. Dependent variable composite wealth index* | | | | | | |
| Partitioning-identity | −0.3853 | −0.2369 | −0.2069 | −0.2818 | −0.2557 | −0.2454 |
| double-clustered SE | (0.1129) | (0.0972) | (0.0905) | (0.1018) | (0.0810) | (0.0789) |
| Nonindigenous | 0.1936 | 0.1873 | 0.1890 | 0.1359 | 0.1792 | 0.1828 |
| double-clustered SE | (0.0887) | (0.0744) | (0.0721) | (0.0783) | (0.0767) | (0.0750) |
| Adjusted $R^2$ | 0.028 | 0.145 | 0.171 | 0.053 | 0.134 | 0.162 |
| Observations | 88,171 | 88,171 | 88,171 | 44,090 | 44,090 | 44,090 |
| *Panel B. Dependent variable education* | | | | | | |
| Partitioning-identity | −0.9907 | −0.6594 | −0.4897 | −0.5301 | −0.4701 | −0.4089 |
| double-clustered SE | (0.4045) | (0.3045) | (0.2520) | (0.3086) | (0.2658) | (0.2444) |
| Nonindigenous | 0.3116 | 0.2922 | 0.3163 | 0.1273 | 0.2028 | 0.2056 |
| double-clustered SE | (0.2695) | (0.2485) | (0.2328) | (0.2043) | (0.1829) | (0.1693) |
| Adjusted $R^2$ | 0.176 | 0.227 | 0.281 | 0.164 | 0.198 | 0.244 |
| Observations | 88,043 | 88,043 | 88,043 | 44,030 | 44,030 | 44,030 |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Location controls | No | Yes | Yes | No | Yes | Yes |
| Individual controls | No | No | Yes | No | No | Yes |

*Notes:* The table reports OLS estimates, associating the DHS composite wealth index in panel A and years of education in panel B with ethnic partitioning. The ethnic partitioning index (partitioning-identity) takes on the value of one for individuals that identify with a partitioned ethnicity and zero otherwise. The composite wealth index is calculated by the DHS team in each country via a principal component method using easy-to-collect data on a household's ownership of selected assets (e.g., televisions and bicycles), materials used for housing construction, and public good access (e.g., type of water access, electrification, and sanitation). The nonindigenous indicator takes on the value of one for individuals residing outside their ethnicity's ancestral homeland and takes the value of zero otherwise. All specifications include a vector of country fixed effects (constants not reported). The set of location controls in columns 2, 3, 5, and 6 includes the distance of each enumeration area to the capital city, the distance to the coast, the distance to the national border, and an indicator that takes on the value of one for enumeration areas close to the capital city (distance to the capital less than the 25th percentile). The set of individual controls in columns 3 and 6 includes a vector of year-of-birth fixed effects, a vector of six marital-status fixed effects, and a vector of seven religion fixed effects. The specifications in columns 4–6 focus on individuals residing close to the national border (using as a cutoff the median distance to the border; 80 km). The online data Appendix gives detailed variable definitions and data sources. Below the estimates we report in parentheses double-clustered standard errors at the ethnicity and the ethnic homeland dimensions.

individuals belonging to split ethnicities that experience disproportionately lower standards of living irrespective of their place of residence. The narrative in African studies and the EPR-based analysis suggests that it is the latter that is going on. To shed light on this, we augment the baseline specification with a location-based indicator of ethnic partitioning that takes on the value of one for individuals residing in the homeland of partitioned ethnicities. Doing so allows us to disentangle the importance of ethnically identifying with a split group from that of residing in the homeland of a partitioned ethnicity. Note that for individuals residing in their ancestral homelands these two indexes (identity-based and location-based) coincide.[39]

[39] Out of 88,171 individuals, 25,631 (29 percent) self-identify with a split group and reside in split homelands; 36,694 (41.5 percent) neither identify with a split group nor reside in partitioned homelands; 13,256 (15 percent) reside in split homelands, but identify with a non-split group; and 12,590 (14.5 percent) reside in non-split homelands but identify with split groups.

Table 9 reports the results. In column 1 of panel A the identity-based partitioning indicator enters negatively and significantly, whereas the location-based index does not. The insignificance of the latter is driven by the location controls; when we do not account for those both partitioning indicators enter with significantly negative estimates. In column 2 we control for individual characteristics; the pattern remains unchanged. In columns 3–4 we restrict estimation to areas close to the border. The coefficient on the identity-based partitioning index remains negative $(-0.26)$; this suggests that even when we focus on the border and control for numerous individual and location features, members of partitioned ethnicities have worse living conditions as compared to those identifying with non-split groups. In columns 5 and 6 we introduce an interaction term between the partitioned ethnic identity indicator and the partitioned ethnic location indicator; this variable identifies individuals that reside in partitioned homelands and identify with split groups. The interaction enters with an insignificant coefficient suggesting that the negative impact of partitioning is not different for members of partitioned groups residing in split homelands. The pattern is similar for schooling outcomes in panel B. The identity-based measure of partitioning enters all permutations with a significantly negative estimate, implying that individuals from partitioned ethnicities have on average half a year less of schooling.

### D. *Sensitivity Checks and Further Evidence*

In the online Appendix we further investigate the impact of ethnic partitioning on public goods. First, we exploit within enumeration-area variation, so as to fully account for differences in location-specific, time-invariant characteristics. While these specifications are quite restrictive (as the sample includes 7,898 villages/towns/cities), they reveal that members of split groups have systematically worse access to utilities and are less educated than respondents from non-split groups residing in the same place.

Second, to further account for unobserved differences between "movers" and "nonmovers," we estimated the link between ethnic partitioning and economic performance separately for "nonmovers" (respondents currently residing within their group's ancestral homeland) and "movers" (individuals living outside their ethnicity's historical homeland). And we further distinguished between "movers" residing in non-partitioned ethnic homelands and "movers" in split homelands, other than their own ethnicity. The pattern is fairly uniform. Respondents identifying with a split ethnicity register lower levels of wealth and have fewer years of schooling irrespective of their location.

Third, we examined the persistence of ethnic partitioning's impact distinguishing between "old" and "young" respondents. The negative impact of partitioning on individual outcomes does not differ across generations pointing to its ongoing importance.

## VII. Conclusion

We study the consequences of a neglected aspect of the colonization in Africa, the drawing of political boundaries among European powers, which led to the partitioning of several ethnicities across African states upon independence.

TABLE 9—THE LONG-RUN EFFECTS OF ETHNIC PARTITIONING ON INDIVIDUAL WELL-BEING AND EDUCATION. DHS DATA. CHANNELS; LOCATION AND IDENTITY

| | All observations | | Border observations | | All observations | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *Panel A. Dependent variable composite wealth index* | | | | | | |
| Partitioning-identity | −0.2469 | −0.2150 | −0.2733 | −0.2612 | −0.2818 | −0.2519 |
| double-clustered SE | (0.1012) | (0.0933) | (0.0832) | (0.0809) | (0.1388) | (0.1255) |
| Partitioning-location | 0.0413 | 0.033 | 0.0873 | 0.0777 | 0.0072 | −0.0031 |
| double-clustered SE | (0.0751) | (0.0760) | (0.0838) | (0.0826) | (0.0980) | (0.1008) |
| Nonindigenous | 0.1885 | 0.1900 | 0.1845 | 0.1874 | 0.2058 | 0.2083 |
| double-clustered SE | (0.0740) | (0.0717) | (0.0760) | (0.0743) | (0.0888) | (0.0845) |
| Partitioned location and identity | | | | | 0.0708 | 0.0750 |
| double-clustered SE | | | | | (0.1400) | (0.1350) |
| Adjusted $R^2$ | 0.145 | 0.171 | 0.135 | 0.162 | 0.145 | 0.171 |
| Observations | 88,171 | 88,171 | 44,090 | 44,090 | 88,171 | 88,171 |
| *Panel B. Dependent variable education* | | | | | | |
| Partitioning-identity | −0.7277 | −0.5513 | −0.5504 | −0.4812 | −0.9405 | −0.7710 |
| double-clustered SE | (0.3190) | (0.2646) | (0.2724) | (0.2510) | (0.4496) | (0.3634) |
| Partitioning-location | 0.2801 | 0.252 | 0.3993 | 0.3574 | 0.072 | 0.037 |
| double-clustered SE | (0.1988) | (0.1858) | (0.2185) | (0.1958) | (0.2458) | (0.2379) |
| Nonindigenous | 0.3006 | 0.3237 | 0.227 | 0.2268 | 0.4062 | 0.4326 |
| double-clustered SE | (0.2454) | (0.2300) | (0.1773) | (0.1638) | (0.2970) | (0.2701) |
| Partitioned location and identity | | | | | 0.4323 | 0.4464 |
| double-clustered SE | | | | | (0.4113) | (0.3625) |
| Adjusted $R^2$ | 0.227 | 0.282 | 0.199 | 0.245 | 0.227 | 0.282 |
| Observations | 88,043 | 88,043 | 44,030 | 44,030 | 88,043 | 88,043 |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Location controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Individual controls | No | Yes | No | Yes | No | Yes |

*Notes:* The table reports OLS estimates associating a composite wealth index in panel A and years of education in panel B with ethnic partitioning. The ethnic partitioning identity index (partitioning-identity) takes on the value of one for individuals that identify with a partitioned group. The location-based ethnic partitioning index (partitioning-location) takes on the value of one for individuals that currently reside in ethnic homelands that have been partitioned by the national border and zero otherwise. The composite wealth index is calculated by the DHS team in each country via a principal component method using easy-to-collect data on a household's ownership of selected assets (e.g., televisions and bicycles), materials used for housing construction, and public good access (e.g., type of water access, electrification, and sanitation). All specifications include a vector of country fixed effects (constants not reported). The set of location characteristics controlled for in all columns include the distance of each enumeration area to the capital city, the distance to the sea, the distance to the national border, and an indicator that takes on the value of one for enumeration areas close to the capital city (distance to the capital less than the 25th percentile). The set of individual controls in even-numbered columns includes a vector of year-of-birth fixed effects, a vector of six marital-status fixed effects, and a vector of seven religion fixed effects. The specifications in columns 3–4 focus on individuals residing close to the national border (using as a cutoff the median distance to the border; 80 km). The online data Appendix gives detailed variable definitions and data sources. Below the estimates we report in parentheses double-clustered standard errors at the ethnic identity and the ethnic homeland dimensions.

In the first part of our paper, we formally explore the nature of African political boundaries. Utilizing information on the spatial distribution of ethnicities at the time of colonization, we associate ethnic partitioning to various geographic, ecological, and natural resource measures, and ethnic-specific proxies of precolonial conflict and early development. With the exception of the size of the historical homeland, there are no significant differences between partitioned and non-partitioned groups.

Hence, our results offer support to the claim of the African historiography on the largely accidental drawing of the colonial and, consequently, national borders, at least with respect to ethnic partitioning.

Second, we examine the effect of ethnic partitioning on civil conflict, as this has been conjectured to be its major consequence. We exploit a new dataset that reports precisely geocoded information for 64,650 conflict events of various types over the period 1997–2013 for all African countries. Exploiting within-country across-ethnic-homeland variation, we uncover that political violence is prevalent in partitioned homelands which experience deadly incidents over prolonged periods of violence.

Third, we take advantage of the richness of the data to shed some light on the mechanisms at work. We present evidence suggesting that neighboring countries use the homelands of partitioned groups to stage military interventions. This suggests that ethnic partitioning is associated with a lower opportunity cost of fighting, as neighboring countries often offer military, political, and economic support to their co-ethnics on the other side of the border. We also find that ethnic partitioning is mostly associated with state-driven conflict, where government troops (or state-backed militias) clash with rebels opposing the national government. Ethnic partitioning is also linked to increased violence against the civilian population. In contrast, there is no association between ethnic partitioning and conflict involving non-state actors, rioters, and protesters.

Fourth, using data from the Ethnic Power Relations database that reports information on ethnic-based discrimination from the national government and civil wars with an explicit ethnic angle for politically relevant groups in 40 countries post independence, we examine in detail the ethnic partitioning-political violence nexus. Partitioned ethnicities are significantly more likely to experience political discrimination and are more likely to participate in ethnic-based civil wars. The impact of ethnic partitioning on conflict is relatively stronger, as compared to its impact on one-sided political violence/discrimination and is particularly salient in periods when split groups are excluded from the central government.

Fifth, using micro-data from the Demographic and Health Surveys, covering more than 85,000 respondents in 20 African countries, we document that individuals identifying with partitioned groups have fewer household assets, poorer access to public utilities, and lower education. This pattern is not due to a generalized decline in standards of living of all households residing in split homelands; rather it is driven by the poorer economic circumstances of members of split ethnicities irrespective of their actual residence.

Our work calls for future research examining the impact of ethnic partitioning on other aspects of economic and institutional development and on the precise mechanisms via which the Scramble for Africa has affected long-run countrywide economic performance.[40] And, since border artificiality and ethnic partitioning are not an exclusive African phenomenon, subsequent works could study their effect in other world regions, such as the Middle East and the Caucasus.

[40] For example, ethnic partitioning may offer some economic benefit insomuch as ethnic networks facilitate cross-border trade. As more bilateral border-specific trade data become available one may be able to quantify this dimension; see Aker et al. (2014) for such evidence from the Niger–Nigeria border.

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