

# Comparing British and French Colonial Legacies: A Discontinuity Analysis of Cameroon\*

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## ABSTRACT

Colonial institutions are thought to be an important determinates of post-independence levels of political stability, economic growth, and public goods provision. In particular, many scholars have suggested that British institutional and cultural legacies are more conducive to growth than those of France or other colonizers. Systematic tests of this hypothesis are complicated by unobserved heterogeneity among nations due to variable pre- and post-colonial histories. We focus on the West African nation of Cameroon, which includes regions colonized by both Britain and France, and use the artificial former colonial boundary as a discontinuity within a national demographic survey. We show that rural areas on the British side of discontinuity have higher levels of wealth

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and local public provision of piped water. Results for urban areas and centrally-provided public goods show no such effect, suggesting that post-independence policies also play a role in shaping outcomes. Though our ability to identify causal mechanisms is limited, the evidence suggests that communities on the British side benefited from a policy of indirect rule and lack of forced labor, which produced more vigorous local institutions.

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The men who built Europe's colonial empires thought they were doing a favor for those whom they conquered. They argued that the institutional package that they brought to the colonies — David Livingston's "Commerce, Christianity and Civilization" — would ultimately lead to a higher standard of living and quality of government than that provided by the institutions they destroyed (Livingston, 1868). While contemporary scholars no longer see colonialism as unambiguously positive, they do agree on its importance. A series of quantitative studies, both within and across nations, have linked colonial-era policies and institutions to post-independence variation in economic growth (Acemoglu *et al.*, 2001; LaPorta *et al.*, 1999), public goods provision (Banerjee and Iyer, 2005; Iyer, 2007), democracy (Lipset, 1994; Weiner, 1989), and corruption (Treisman, 2000). One strand of this literature suggests that colonization by the British led to better outcomes than colonization by the French or by the smaller colonial powers, because of either the adaptability of British legal institutions to the market economy or the higher levels of personal freedom provided by British political institutions and culture (Hayek, 1960; Lipset, 1994; North, 2005; La Porta *et al.*, 1998). The argument has become a common one, and dummy variables for colonial background have become a common feature of large-N studies in comparative politics.

A well-known shortcoming of such studies, however, is that they conceal a large amount of unobserved heterogeneity in (1) the pre-existing conditions of the areas colonized, (2) the institutions imposed by the colonizer, and (3) the post-independence political histories of these countries. As such, any estimation of colonizer effects may be biased, and this bias could be particularly strong with respect to the British Empire, the largest, oldest, and most heterogeneous of the imperial units. It could be, for example, that the British managed to take the "plum" colonies, which would have experienced better political and economic outcomes regardless of who colonized them.

To identify the effects of colonial legacy, we focus on one case, the West African nation of Cameroon. Originally colonized by Germany, Cameroon was divided between Britain and France during World War I at a boundary that was unrelated to existing political, economic, demographic, and physical features. The two countries' colonial practices in Cameroon differed on a number of dimensions identified as important in previous research: the legal system (common vs. civil law), the nature of colonial rule (direct vs. indirect), labor policies (paid vs. forced), and the prevailing religion. The two areas were reunited at independence in 1960, and despite a strong policy of centralization, they retain separate legal and education systems and a strong attachment to the language and culture of their respective colonizers. A comparison of these regions thus permits an excellent test of the colonizer influence hypothesis. The regions became British and French colonies due to an exogenous shock unrelated to local conditions and have similar post-independence histories. Any differences in pre-existing conditions are unlikely to be pronounced at the arbitrary internal boundary between them. Hence, we can exploit the natural experiment provided by the border to identify the effects, if any, of colonial legacy. While the use of a single case raises issues of external validity, we argue that the strategies pursued by the British and French in Cameroon present a hard case for the hypothesis of British superiority.

Using data from the 2004 Demographic and Health Survey of Cameroon, we compare communities near the former colonial border using a regression discontinuity research design and a comparison of neighboring villages near the boundary. We show that rural households on the British side have higher levels of wealth than their Francophone counterparts on the other side of the border. There is also evidence, though somewhat less robust, that Anglophone villages have better access to piped water, a locally provided public good. These results do not hold for urban areas or for centrally-provided public goods like roads and education, suggesting that the effect of colonial-era differences can be attenuated by post-colonial policies. While it is difficult to pinpoint with certainty the mechanism for these differences, the available evidence suggests that these differences are not due to "soft legacies" associated with religion and educational system but rather to the "hard legacies," including the lack of forced labor and indirect rule, which gave British Cameroon more vital local level institutions.

The remainder of the article reviews related literature, introduces the history of Cameroon's intercolonial border and the divergent practices of its colonizers, presents the main results and additional tests that assess the mechanism and alternative explanations, and concludes with a discussion of the broader relevance of the Cameroonian case.

### Previous Literature

Several scholars have argued that British colonial origin is associated with positive outcomes, though they have not always agreed on what these outcomes are or by what mechanism British colonialism produces them. The question is complicated by the fact that colonial legacies vary on multiple dimensions, and there is substantial variation not only across empires, but also within them. Nonetheless, theory and evidence suggest that practices and institutions generally associated with British colonial rule help generate superior development compared to those of other colonizers.<sup>1</sup>

The most influential strand of the literature has focused on economic growth, and argues that growth is in part determined by the legal system bequeathed by the colonizer (Hayek, 1960; North, 2005; La Porta *et al.*, 1998). In this view, British colonies benefited from the common law system, which provided greater rights to investors and property owners when compared to the civil law systems used by France and other imperial powers. The protections of common law are in turn thought to be buttressed by a cultural commitment to the rule of law and/or institutional checks (e.g., an independent judiciary, separation of powers) that protect individuals from expropriation by the state. Others have put greater emphasis in the cultural factors that are thought to encourage entrepreneurialism and other individual behaviors conducive to growth. The oldest such argument comes from Weber (1947 [1905]), who argued that Protestantism's emphasis on hard work and repression of consumption promoted markets and capital accumulation. Authors such as Ferguson (2003) have formulated the cultural argument even more expansively, arguing that the British Empire provided a long list of abstract benefits, including "the idea of liberty" and team sports,

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<sup>1</sup> It must be emphasized that we are comparing different forms of colonial rule. We can say nothing about what would have happened in these countries in the absence of European colonialism.

which contributed to the growth of market economies. Another strand of research has argued that British colonies are more likely to become democracies than are colonies of other nations (Weiner, 1989; Huntington, 1984). This effect is thought to be caused either by higher levels of political representation in former British colonies (Lipset, 1994), the more gradual process of decolonization in the British Empire (Smith, 1978), or the greater level of indirect rule in British territories (Whittlesey, 1962).

The most common way to test these hypotheses is through cross-country studies that look for correlations between colonizer identity or institutions and post-independence outcomes. Several studies show strong associations between the British common law system and policies that encourage economic growth. La Porta *et al.* (1998) found that both protections for investors and the enforcement of those protections are stronger in common law countries than in civil law countries, particularly French civil law countries. They also found that legal origin was correlated with “quality of government” (i.e., corruption and public goods outputs) and size of the public sector, with civil law countries having larger public sectors (La Porta *et al.*, 1999). Treisman (2000) finds that common law countries have lower levels of corruption, and he also finds some evidence that this effect is due to the enforcement-enhancing effects of British culture rather than legal tradition alone. The thesis that Protestantism encourages growth finds support in the work of Acemoglu *et al.* (2001), who found an effect of religion on per capita income.

In addition to these large- $N$  tests, some scholars have exploited the arbitrary nature of colonial boundaries in Africa to compare members of the same ethnic group on different sides of an imperial boundary (Posner, 2006). Notable examples include Miles (1994), who studied the Hausa of Nigeria and Niger, Welch (1966), who studied the Ewe of Togo and Ghana, and Asiwaju (1976), who studied the Yoruba of Nigeria and Benin. All argued that there were very marked differences in policy across empires, with the British-controlled areas being characterized by greater economic dynamism and respect for traditional political institutions than French-controlled areas.

While suggestive, cross-national studies are subject to three criticisms. First, there is generally a great deal of unobserved variation in pre-existing conditions in the colonized regions. Acemoglu *et al.* (2001, 2002) argue that the main determinant of colonial legacy is not the identity of the colonizer but environmental factors which determined whether a region was suitable

for settlement, which in turn influenced the institutions that the colonizer chose to impose. Controlling for settler mortality, they find that dummy variables for colonial origin have a jointly insignificant effect on per capita income. Similarly, Acemoglu *et al.* (2007) and Prezworski *et al.* (2000) find that these dummies did not have a significant effect on post-independence democracy. A related criticism is that cross-national studies ignore substantial variation in post-independence conditions, particularly state policies (e.g. Henry and Miller, 2008). Finally, substantial within-empire variation in colonial institutions makes it hard to make general claims about the advantages of a particular brand of colonialism. Wilkinson (2009) argues that intra-empire variation in elections and the development of an indigenous military and civil service is at least as important as inter-empire variation.

Partly in response to these concerns, a recent literature has exploited internal variation within colonial empires to study the effect of institutions and policies on post-independence outcomes. By confining their attention to a single colony and taking advantage of the often exogenous and arbitrary nature of internal colonial policies, researchers have managed to avoid many of the identification problems that plague the cross-national studies. Banerjee and Iyer (2005) examine the effect of different land tenure institutions in colonial India and find that areas that featured intermediate layers of revenue collectors had lower levels of agricultural productivity and public goods provision in the post-independence period. Berger (2009) finds that arbitrary differences in tax policy in colonial Nigeria have persistent effects on state penetration and health outcomes in the post-independence era.

Although these results suggest that interventionist colonial governments create better outcomes than those that allowed local actors a greater extractive role, the literature has not been unanimous on this point. Iyer (2007) finds that areas in India that were ruled indirectly have higher levels of public goods provision. Dell (2008) uses a regression discontinuity approach to show how the colonial forced labor system in Peru had led to lower levels of public goods provision and household consumption. This result echoes Nunn's (2008) finding that the African slave trade negatively affects per capita income in the modern period. The varied nature of these results suggests that more theoretical work needs to be done on the long-term effects of institutions, we adopt as our working hypothesis a composite view: local autonomy and freedom from arbitrary extraction should have positive effects

on income levels and on the provision of public goods, particularly when this autonomy is built into the structure of formal political institutions.

Being confined to one country with a single colonizer, these studies cannot directly address differences across colonizers; however, their results are helpful for this study because the “hard” institutions they examine — land tenure, forced labor, indirect rule — vary across as well as within empires, and because they have made clear both the importance of separating specific institutional differences from broad cultural and historical factors and the challenges of doing so empirically. Cameroon, a single country with multiple colonial legacies, provides a way of addressing the question of colonial influence while retaining the advantages of the within country studies.

### **The Case of Cameroon**

Even by African standards, the modern nation of Cameroon is an artificial construction. It unites four major ecological areas (coastal lowland, tropical highland, tropical plateau, and arid savanna), three major religious traditions (Islam, Christianity, and Animism), and hundreds of ethnic and linguistic groups. The creators of this mixture were the Germans, Cameroon’s first colonizers. Latecomers to the imperial game, the Germans were forced to shoehorn their new territory between the existing British sphere of influence in the Niger delta and those of the French in the Sahel and Lower Congo. Germany had acquired its empire for prestige rather than with a specific economic plan, and their initial policy emphasized exploration over administration (Chiabi, 1997, pp. 2–10; Rubin, 1971, pp. 23–43).

The dream of a German empire in Central Africa, and the careers of a generation of German-speaking Africans, were destroyed by the outbreak of the First World War. The Allies immediately invaded Cameroon from Chad, Nigeria, and Gabon, and the Germans surrendered in early 1916. The British and French provisionally administered the areas that they had occupied, with the French getting the lion’s share and the British contenting themselves with a narrow though densely populated strip along the Nigerian border. This arrangement was confirmed by the Treaty of Versailles, which gave the allies the ex-German colonies as “mandates” under the loose supervision of the League of Nations. For the next 42 years, “East” (French) and “West” (British) Cameroon would have separate histories.

### *The Colonial Border*

The British region of present-day Cameroon (West Cameroon) consisted of what are now the country's Northwest and Southwest provinces, while the French region (East Cameroon) covered the country's remaining eight provinces.<sup>2</sup> The border between these zones was drawn on the basis of a hastily made agreement in March 1916, which was then finalized after negotiations at Versailles.<sup>3</sup> This boundary (the Picot line) generally follows natural features such as elevation contours or, in the coastal zone, the river Mungo. None of these features are especially prominent, nor do they correspond to pre-existing cultural or political boundaries. Indeed, the most notable feature of the colonial border was the degree to which it cut across existing ethnic and religious boundaries. This is evident in Figure 1, which superimposes the boundary on ecological zones and (current) linguistic divisions. The artificiality of the boundary should not be surprising, as its general location had little to do with the territory it divided. More pertinent were the British desire to "round out" the territory of Nigeria, the superior performance of French troops during the Cameroon campaign, and a desire to compensate the French for British territorial gains elsewhere in Africa (LeVine, 1964, p. 32). This fact was not lost on British Colonial Secretary Lord Milner, who complained of the original Picot line that:

The boundaries of the zones of occupation are haphazard and, as a permanent arrangement, would be quite intolerable. They cut across tribal and administrative division, take no account of economic conditions, and are in every way objectionable.

(Quoted in Louis, 1967, p. 148)

Despite Milner's complaint, the final border differed only slightly from that in the provisional agreement.

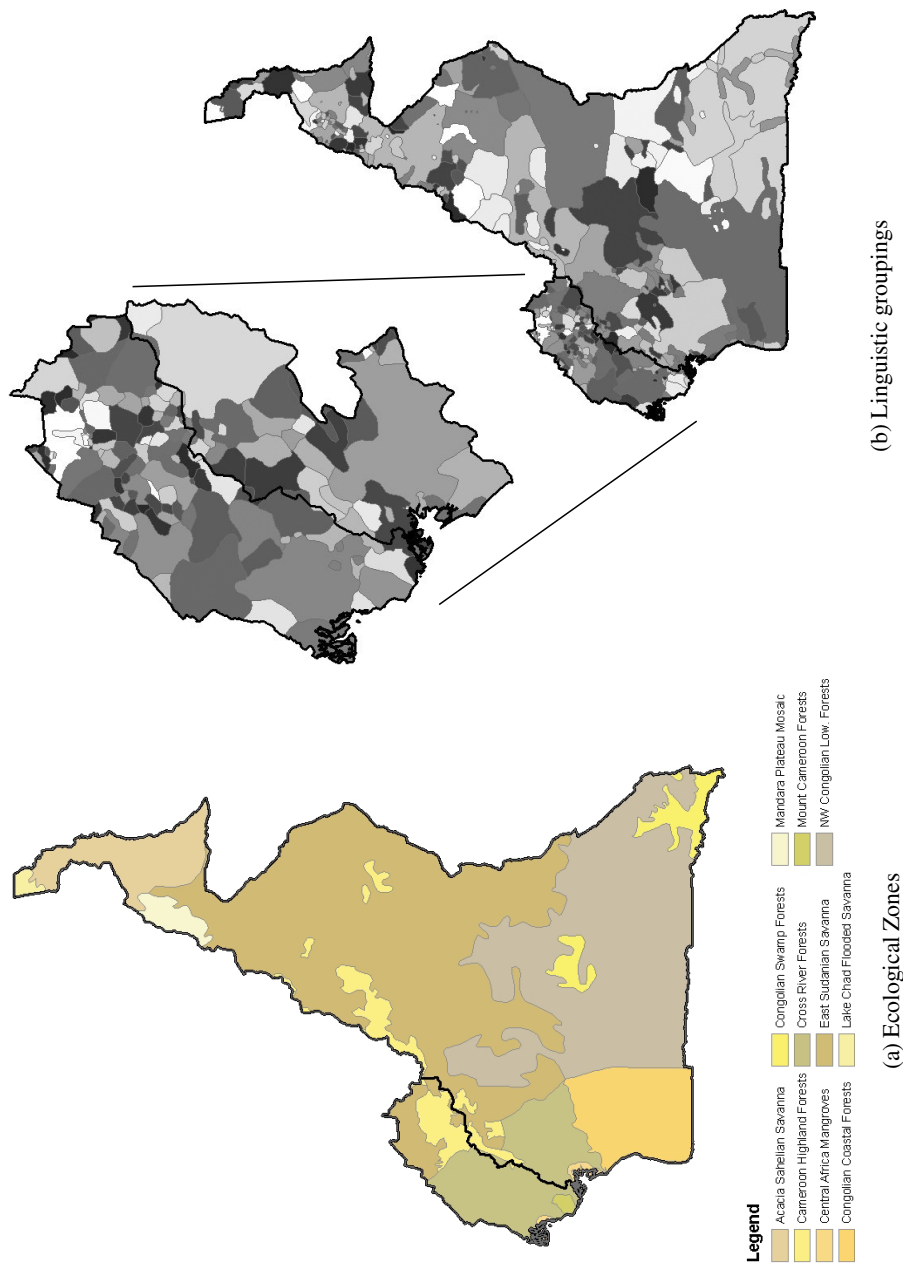
Though the 1919 negotiations over the final border show that both sides were attentive to the characteristics of the territory being divided, there is no reason to believe that the line was drawn in a way that would systematically affect contemporary outcomes (Prescott, 1962). If anything, the adjustments that were made favored the French, who in return gave concessions in other parts of the world. As the colonial office put it to the

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<sup>2</sup> The British also controlled North Cameroon, which upon independence became part of Nigeria.

<sup>3</sup> An exchange of notes in 1931 provided some additional clarification; see Brownlie (1979, pp. 568–578).





**Figure 1.** The intercolonial border, ecological zones, and linguistic groupings.  
*Sources:* Ecological zones from the Central African Regional Program for the Environment (CARPE). Language data from the World Language Mapping Service 2005: [www.gmi.org/wlms](http://www.gmi.org/wlms).

governor of Nigeria, “His Majesty’s Government will not be in a position, having regard for arrangements elsewhere, to obtain a considerably larger share of the Cameroons” (quoted in Prescott, 1962, p. 104). While sizable changes occurred in the north (now the international border with Nigeria), the current internal boundary was less affected. The main modifications concentrated under French control several areas that enabled them to command the trade route from Douala to Garua, which had been interrupted by the Picot line. The British got less than they had hoped for but managed to retain valuable plantations on the slopes of Mt. Cameroon and access to the Mungo River.<sup>4</sup>

The boundary makers generally tried to make the line correspond to what they knew of traditional political boundaries, though there were some major exceptions, and errors crept in due to the use of a German map that had numerous inaccuracies. For example, much of the central portion of the border was drawn along a low line of hills that had been described to the negotiators as an extremely steep escarpment (Prescott, 1962, p. 112). Even when the maps were accurate, they were an imperfect representation of the situation on the ground, where, as in much of pre-modern Africa, sovereignty was fissiparous and did not necessarily follow linear boundaries (Herbst, 2000).

Moreover, the local units that were being divided were both small in scale and culturally homogenous. In coastal Cameroon, most ethnic groups did not have political structures beyond the village level. These village polities were not only poorly institutionalized but also exhibited a high degree of interlinkage, with many of the chiefs in tributary or kinship relations with each other (see Johnson, 1970, pp. 42–45). The highlands had recently seen the proliferation of slightly larger chieftaincies, though here too the boundary disrupted traditional relationships. The most cohesive and centralized kingdom, the Bamoun sultanate, was placed on the French side, while their sometime allies of the Nso kingdom were placed on the British side (Levine, 1964, pp. 42–45). It is unlikely that these units differed systematically in ways that have affected contemporary outcomes.

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<sup>4</sup> These plantations were originally placed on the French side of the Picot line, but were occupied by Britain after the fighting ended (Prescott, 1962, pp. 112–113). In the regression models, we control for the Mt. Cameroon ecological zone to capture the favorable climate and soil conditions in that region.

*Divergent Colonial Practices*

The regions on either side of this boundary were exposed to very different colonial policies and institutions. Here, we highlight the main differences, especially those identified in previous research as having an effect on post-independence outcomes.

*Direct vs. Indirect Rule:* British administration in Cameroon was based on the concept of indirect rule, allowing native chiefs to perform most executive and judicial functions. Indirect rule was standard practice in Nigeria, and it appealed to the British both because it appeared to respect native traditions and because it economized on money and manpower (Rubin, 1971, p. 74). Implementing indirect rule was relatively easy in Northern Cameroon (now part of Nigeria), which was controlled by well-established Fulani Emirates that had been little affected by German rule. In what was then known as the Southern Cameroons (present day West Cameroon) the situation was more confused, with a wide variety of ethnic groups, many of whom did not possess centralized political institutions (Chiabi, 1997, pp. 15–18). The British persevered regardless, administering through “headmen” who often had no traditional political status. As a native educated elite emerged, the British integrated them into the existing structure through the creation of elected advisory councils. After 1945, the British strengthened the native authorities by amalgamating them into larger units and granting them increased autonomy (Chiabi, 1997, pp. 18–19), which gave them a relatively high degree of legitimacy (Geschiere, 1993).

French policy, by contrast, was focused on the closer integration of the colonies with the metropole. The mechanism for this was the policy of assimilation, by which Africans who had received a western education (*évolués*) were granted French citizenship and the legal rights of Frenchmen, including participation in elections to urban councils and the French parliament. Though the French found it impossible to immediately dispense with the services of the German-era chiefs, they steadily reduced their autonomy and authority, treating them as petty bureaucrats who could be hired and fired at will (LeVine, 1964, pp. 92–98; Rubin, 1971, pp. 49–50). Hence, the French administrative system was in practice “quasi-direct” (LeVine, 1964, p. 98). It is notable that the nationalist movement in French Cameroon was led by urban *évolués*, rather than (as in the British Cameroons) by the chiefs.

Modern scholars have attributed the greater vitality of local political institutions in Western Cameroon to the effect of indirect rule. For example,

Fonchingon and Fonjong (2003, p. 85) argue that traditional authorities left in place under British rule had the capacity to rally the inhabitants for local development, leading to greater community-level participation. In French Cameroon, by contrast, scholars have argued that colonial era assimilative policies led to fewer and less active local associations (see Geschiere, 1995).

*Civil vs. Common Law:* Like nearly all African colonies, both British and French Cameroon had two-track legal systems (see Mamdani, 1996). Europeans and *évolués* were subject to the laws of the mother country, while “natives” were subject to local customary law, though this law was usually interpreted and enforced by the colonial administration. Customary law was abolished in the late colonial period, though contemporary Cameroon still uses it as a source of land and personal law (Anyangwe, 1987, p. 234). For other types of disputes, Cameroon retains two legal systems, a common law system in West Cameroon and a system based on French civil law in East Cameroon (Anyangwe, 1987, pp. 251–260). The differences between civil law and common law are the subject of an extensive literature (see Merryman, 1969), but a few are particularly salient: common law attributes legal standing to judicial opinions and traditions, while civil law decisions are supposed to be based entirely on the codified legal text. While civil law thus grants less autonomy to judges, it grants greater autonomy to prosecutors and investigating magistrates, who are given great freedom in investigating crimes. Civil law is also somewhat less solicitous of private property than common law, placing a greater emphasis on the perceived needs of the public.

*Labor policy:* The Germans had imposed a labor tax on the native population and used the conscripted men to build the country’s first roads, railways, and plantations. The British abolished the system when they acquired West Cameroon and in its place recruited workers by offering cash wages, which were needed to pay the tax demands of the colonial state. In fact, plantation labor in West Cameroon was a relatively attractive prospect by local standards throughout the colonial period, and it attracted many migrants from southern Nigeria (LeVine, 1964, pp. 196–197). The French, by contrast, swiftly re-imposed the labor tax in a disguised form, the *prestation*, mostly for railway construction. The workers were unpaid and badly treated, with the death rate averaging around 60 per thousand workers (LeVine, 1964, pp. 104–110). Chiefs and colonial officials used kidnapping and corporal punishment to fulfill labor demands and were particularly enthusiastic in enforcement because they were often able to divert laborers for work on

private farms and plantations. The worst aspects of the system were repealed under international pressure in 1930, but the *prestation* continued in various forms until 1952, and it remains a bitter folk memory for many Cameroonians (Rubin, 1971, p. 57).

*Education and religion:* Missionary groups had been active in Cameroon under the German regime and had already made many converts. The British encouraged this activity, and English speaking Protestants predominated among the missionaries and their converts. Even today West Cameroon is the most Protestant part of the country. The colonial government, always anxious to save money, allowed the missionaries to monopolize educational and social provision — nearly 90% of students in West Cameroon attended mission schools (Johnson, 1970, p. 84). The French government played a marginally larger social role in East Cameroon, where only two-thirds of students attended mission schools (Johnson, 1970, p. 84). The most important government policy, however, was conscious favoritism of the Catholic Church over the Protestants. The Catholics developed a large and successful network of secondary schools, while the Protestants tended to remain focused at the primary level (Johnson, 1970, pp. 82–88).

The colonizers naturally spread their own languages and educational practices, and these differences remain important in Cameroon today despite strenuous government attempts at national integration. English is the common second language of Western Cameroon, and Westerners remain oriented towards international Anglophone culture, while the East is French-speaking and oriented towards France. The two parts of the country also retain separate educational systems: Western students study for A-levels, Eastern students for the *bacalaureat*.

### ***Post-Colonial Cameroon***

France granted Cameroon its independence in 1960, leaving in charge a Northern politician, Ahmadou Ahidjo. A year later, a plebiscite was held in the British zone on whether to join Nigeria or Cameroon. The north elected to stay in Nigeria, but the south (present day West Cameroon) chose to “reunite” with the Francophone east. As part of the reunification agreement, Cameroon was made a federal state, with Westerners granted substantial autonomy (Chiabi, 1997, pp. 105–156; LeVine, 1964).

This autonomy proved ephemeral. Cameroon under Ahidjo rapidly developed into a one-party state, and the central government worked to

undermine the West Cameroon government, culminating with the official abolition of the federal system in 1972. Anglophone Cameroonians complained that they were discriminated against in public employment and public goods provision (Tajoche, 2003). As we shall see, these complaints are borne out by the available data on centrally provided public goods. These discriminatory policies were intensified under Ahidjo's successor, Paul Biya (1980–present), whose position was strengthened by a flood of offshore oil revenue in the mid-1980s. A protest movement exists in the West against the government's discriminatory policies, but it has gained little traction in Cameroon's authoritarian political climate (Takougang and Krieger, 1998).

The government's favoritism toward the French side makes Cameroon a hard case for testing the British institutions hypothesis. Whatever the institutional inheritance of colonialism, the government's favoritism towards the Francophone area biases us against the finding British institutions have superior outcomes. This effect is reinforced by the fact that the natural centers of economic activity in any underdeveloped country, the capital (Yaoundé) the major port (Douala), and the country's main railway (which connects them) are all located in the East.

## Research Design and Data

Given its historical experience, the Cameroonian case presents a good natural experiment for identifying the effect, if any, of different colonial legacies. In the process, we avoid some of the methodological problems associated with cross-country studies. In particular, the arbitrary nature of inter-colonial border minimizes concern about heterogeneity in pre-existing conditions. The within-country design ensures that the two regions were subjected to similar post-independence policies, and the differences that do exist are likely to bias us against finding a positive British effect.

That said, there are three limitations to this research design which we mention at the outset and will revisit in subsequent sections. First, as with any study of a single nation, there will be concerns about whether the results generalize beyond the Cameroonian case to reveal broad differences in British and French colonial legacies. This concern is particularly pressing given the significant variation in colonial policies within these two empires. Nevertheless, as we argue in the Conclusion, the comparison between West and East Cameroon is not just a comparison between a British colonized

region and a French one but a comparison between a relatively poor and peripheral British colony and an average to well-off French one. For this reason, the Cameroonian case presents a hard test of the hypothesis of British superiority.

A second limitation is that, while this design permits us to identify an effect associated with the colonial border, it does not directly identify the mechanism(s) driving that effect, a problem common to border based studies (Posner, 2006). British and French colonial policies in Cameroon varied along a number of dimensions, and we have limited ability to say exactly which aspects of colonial policy were responsible for any effects we find, though we can eliminate some mechanisms that do not fit with the existing data.

Finally, this comparison only allows us to test for colonial legacies that operate through local institutions (both formal and informal). To the extent that some colonial legacies are thought to operate through central government institutions like national legislatures, supreme courts, and militaries, the fact that the central government of Cameroon was overwhelmingly influenced by one colonizer, the French, is an obvious limitation. Therefore, this research design means that we cannot speak to whether the colonizer affects institutions and policies at the *national* level, such as whether a country is democratic or how much it spends on national public goods. We can, however, assess whether different colonial-era practices have led to persistent local differences in the lives and well-being of the people who live on either side of the inter-colonial boundary.

### **Data**

To estimate the effect of colonizer identity, we use the 2004 Demographic and Health Survey (DHS) for Cameroon. The 2004 Cameroon survey was carried out for DHS by the Government's National Statistical Institute (INS), with funding from USAID and the World Bank (Cameroun INS, 2005). For the purposes of the survey, the country was divided into 22 sampling strata: the rural and urban regions of each of Cameroon's 10 provinces plus its 2 major cities, Yaoundé and Douala. Within each stratum, clusters (rural villages or urban neighborhoods) were chosen by random sampling from the universe of census enumeration zones, with the probability of selection proportional to the number of households in the zone. Households were then randomly selected from each cluster so that, within each stratum, the households are

all equally weighted. A number of variables were measured at the household level. In addition, detailed individual surveys were administered to all women in each household aged 15–49, and, in half of the households sampled, an individual survey was given to all men in the same age range. The final sample included 10,656 women and 5280 men, selected from 10,462 households, which are in turn sampled from within 467 clusters. To correct for differences in sampling probabilities, DHS provides weights for each observation, which were used throughout the analysis.

The survey takers recorded the location of each cluster using handheld GPS units. Using ArcGIS software, we are able to plot the location of each cluster relative the former colonial border, as well as other features such as cities, major roads, rivers, and ecological zones. One complication is that the location of each cluster is only known with error: in order to prevent users from recontacting respondents, DHS displaced the location of each cluster in a randomly chosen direction by a randomly chosen distance, 0–2 km for urban clusters and 0–5 km for rural clusters. The true positions of each cluster were then destroyed. Fortunately, the data record the true province in which the cluster is located, so there is no danger of misclassifying a cluster on the wrong side of the intercolonial border. Nevertheless, the “jittering” of cluster location introduces measurement error, which we account for both by using publically available information to correct obviously incorrect reported locations (“corrected locations”) and using imputation techniques to sample from the universe of possible locations (“imputed locations”). In the case of urban clusters, each was matched to an identifiable city or town. The methodology used is discussed in the Supplementary appendix.

Throughout this analysis we run separate tests for urban and rural areas. This distinction is mandated by both methodological and theoretical concerns. As we will see, the rural observations are more smoothly distributed geographically than urban observations, making any discontinuity at the colonial boundary easier to estimate. Moreover, we expect that it is in rural areas that the effects of decades-old colonial policies, or any other institutional variation, are most likely to persist. Like other African countries, Cameroon has in the post-independence era experienced a bewildering number of economic and social changes, a wide variety of governmental interventions, and internal migration. Urban areas, as centers of formal sector production and government administration, are much more likely to be affected by these changes than rural areas, where social and economic practices are less likely to have been transformed. We should thus expect



these factors to attenuate the influence of colonialism in urban areas. This does not mean that the urban areas are unimportant for our results, since the difference between the urban and the rural results will help us rule out some potential explanations for differences between the East and West.

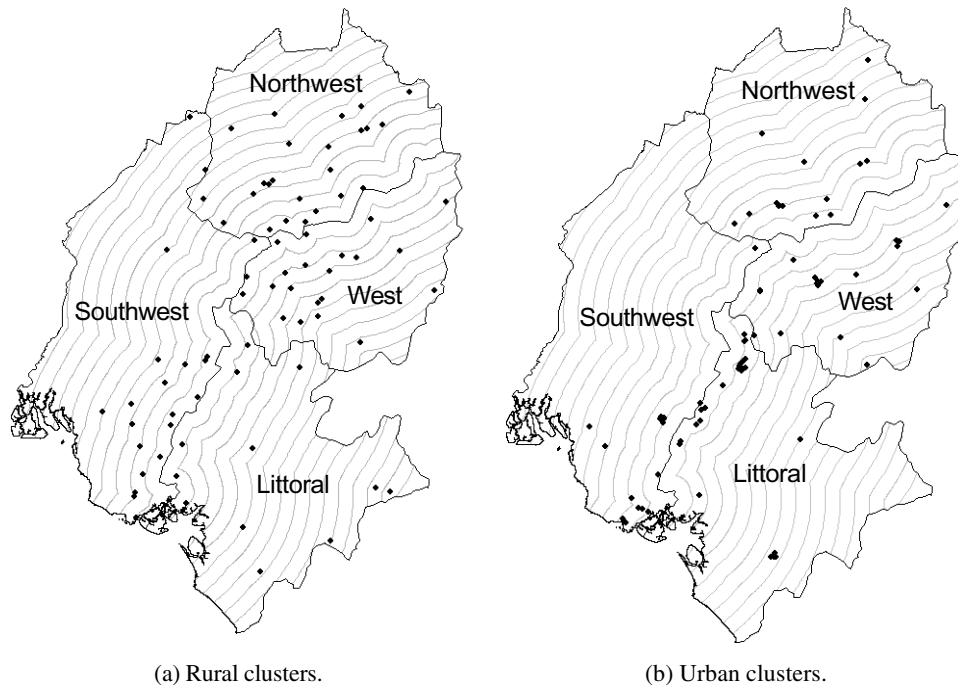
### ***Regression Discontinuity Research Design***

When the probability of treatment depends on an exogenous cutoff of some other variable, comparing outcomes in the neighborhood of the cutoff is an attractive way to identify the treatment's causal effects. Here, we exploit the fact that communities received different colonial-era treatments depending on which side of the British–French boundary they were on, even though communities in the vicinity of the border should be similar in pre-existing conditions. We restrict attention to only four provinces: the two British provinces, Northwest and Southwest, and the two French provinces that share most of the inter-colonial boundary, West and Littoral.<sup>5</sup> The overall sample includes clusters that are no more 100 km from the border on the British side and no more than 150 km from the border on the French side, though most tests, as described below, focus on even narrower bands. These four provinces contain 78 rural clusters, 33 French and 45 British, with 1987 total households; there are 77 urban clusters, 45 French and 32 British, containing 1545 households. Figure 2 shows the reported location of the rural and urban clusters in the four provinces of interest. Note that the urban clusters do not include those in Douala, Cameroon's largest city. These clusters, which were sampled separately from the rest of Littoral province, are not included in tests performed on urban observations, which should be seen as comparisons of small cities and towns.

In principle, the RD technique allows us to identify the effect of the colonial treatment while controlling for underlying conditions that also affect economic and social outcomes. That said, there are three features of our data that complicate this analysis. First, while in most RD designs, the discontinuity is a point on a line, in our case, the discontinuity is a line on a surface: a border that runs roughly north–south for about 350 km. Even if conditions do not change as one crosses the border at any particular point, conditions vary quite dramatically along the length of the border. The line

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<sup>5</sup> Although Adamoua province touches the inter-colonial border at the far north, there is only one cluster close to the border in that region, so we drop observations from Adamoua.



**Figure 2.** Corrected locations of rural and urban clusters.

*Note:* Grey lines indicate 10 km bands from the intercolonial border.

cuts through different ecological and climate zones, elevations, and regions with varying ethnic, linguistic, and religious composition. Thus, at a given distance from the border, there can be substantial heterogeneity. We deal with this challenge in two ways. First, we will present comparisons of near neighbors along the border: clusters that were not only close the boundary, but also close to one another. This not only permits a clean test of the boundary effect, but it also substantially reduces the sample size. The second way we deal with this challenge is by including in the regression models a host of controls, discussed below, for spatial factors that determine economic and social outcomes.

A second consideration that complicates the RD design is that the observations are not spread uniformly in space. Because of the survey sampling design, households are bunched together in clusters, and every household within a cluster has the same location. As a result, the number of households at each distance from the border is lumpy. This is particularly true of urban

clusters, since urban areas are few and far between, but, where they do exist, they can contain a number of clusters. Indeed, there are very few pairs of urban clusters that are neighbors on opposite sides of the border, so the near neighbor comparison is not done for this sample. More generally, the lumpiness of the observations complicates estimating the relationship between outcomes of interest and distance from the discontinuity. While standard practice often involves estimating this relationship non-parametrically or using polynomials, overly flexible estimation techniques may end up overfitting the data by attempting to “chase” the lumps. Our discontinuity analysis is done through local linear regressions performed on bands of varying widths around the border (Imbens and Lemieux 2007). Narrower bands reduce the number of observations while wider bands increase the risk that the estimated discontinuity is overly influenced by points far from the border.

### *Dependent Variables*

Though the DHS surveys are designed for the use of epidemiologists and public health workers, some of their questions can be related to concepts in the literature on colonialism. Here we identify two such concepts and the survey questions that provide the best chance of measuring them.

### *Economic Development and Wealth*

As we have seen, the most common argument in the existing literature is that colonialism created a cultural or institutional environment favorable to entrepreneurship and economic growth. Most studies have measured this effect by using either the outcome variable (change in GDP per capita) or specific policies that are presumed to lead to it (e.g., shareholder rights). As both these variables are measured at the national level, they are unsuitable for measuring differences between regions of Cameroon. To get at these differences, we measure economic growth indirectly, through its effect on household wealth.<sup>6</sup> This approach presents its own problems. In a poor country,

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<sup>6</sup> This approach is flawed if households on the British side had higher levels of wealth to begin with (i.e., during the colonial period). In the Conclusion, we present evidence that this was not the case. An alternative measure of wealth might be the use of electric lights at night (see Posner, 2011). However, our review of this data found that night lighting in Cameroon is both extremely sparse and almost exclusively urban, making it unsuitable for measuring rural development.

individuals are likely to receive a large portion of their income in kind and may have only a hazy notion of the cash value of either their income or their assets. The usual solution, followed by DHS, has been to study consumption. The survey records whether each household has a variety of possessions, such a car, oven, television, etc.; the type of flooring material and number of rooms in the house; and the household's source of drinking water. DHS distributes a wealth factor score based on these inputs. Since source of drinking water is analyzed separately as an indicator of local public goods provision (see below), we created our own measure of household wealth which does not include water source as a component.<sup>7</sup> The use of this alternative wealth measure ensures that our results on wealth and water are not the same result presented twice. The wealth score was normalized to have mean 0 and standard deviation of 1 in the full sample of all households.

### *Local Public Goods*

Public goods present a particularly good case for the colonial influence hypothesis, as they are the direct products of political institutions. We follow Banerjee and Iyer (2005) in assuming that certain public goods reflect the actions of local actors, through their direct financial contributions, their ability to organize collective action, and/or their ability to lobby government agencies and NGOs. The ability to coordinate this sort of collective action, and the ability of local actors to influence governments, should be correlated with colonial policies, which, as we have seen, had very different approaches to the relationship between central institutions and local communities.

In order to isolate the effect of local actors and institutions, we focus on one public good in particular: the provision of piped drinking water. Unlike other public goods, such as roads, electricity, schools, and hospitals, the

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<sup>7</sup> Specifically, the household wealth score was derived from 12 questions in the survey. Nine of the variables are indicators for whether or not the household had each of the following goods: a car, a bicycle, a motorcycle, a television, a radio, a refrigerator, a gas/electric oven, a mobile phone, and electricity. Two ordinal variables indicate the type of flooring (0 = earth/sand, 1 = rudimentary, 3 = finished) and type of toilet (0 = none, 1 = pit toilet/latrine, 2 = flush toilet). Finally, there is a variable counting the number of rooms for sleeping, which we logged. We then performed principal component analysis, and created a score based on the first component. This dimension explained 28.4 percent of the variation, and the loadings were all positive, except for that on bicycle ownership. This alternative wealth measure has a correlation of 0.92 with the wealth score provided by DHS, but ours is not as strongly correlated with access to piped water.

institutions governing water supply in Cameroon are relatively decentralized. The National Water Corporation (SNEC) does not monopolize water provision, as a variety of other public and private entities are active in this area, particularly in rural villages (Njoh, 2003, p. 56). Communities must generally commit labor and money to projects, thus requiring some degree of local organization and initiative (Page, 2005, pp. 62–63). In addition, water improvements do not require the government to hire and pay large numbers of people to maintain them, which gives the center increased control over other categories of public goods, such as education.

The importance of local initiative also helps address the potentially confounding role of a large international effort in water provision. From 1962 to 2007, the Swiss NGO Helvetas helped build some 550 water projects in Cameroon, providing local communities with technical assistance and training. As most (though not all) of these projects were in West Cameroon, any superiority of local public water provision in the West could reflect an externally-generated phenomenon. However, there is reason to believe that the success of these efforts were mediated by local capacity. The NGO had a “community development” philosophy, meaning that they supported “self-help initiatives” of the rural villages. After a successful start in West Cameroon, the (French speaking) NGO sought to extend its efforts to francophone zone, but was unable to find cooperative partners there. Moreover, while Helvetas was the most active NGO in this field, other regions received assistance from other NGOs, as well as from the central government (Helvetas, 2007).<sup>8</sup>

Access to piped water was determined by a question in the household survey in which respondents were asked about their source of drinking water. For each household, we created a dichotomous indicator for access to piped water, which could be available in the respondent’s house, in a neighbor’s house, or from a standpipe along the road. It would be a mistake, however, to treat households within a cluster as independent of one another, since the same roadside spigot may serve multiple households and, if there are no pipes a cluster, no household will have access to piped water. Moreover, we are interested in variation across villages in public goods provision, not in variation within clusters who have access to piped water. Thus, the analysis of water supply is done at the cluster level, and the main variable of interest

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<sup>8</sup> The Supplementary appendix describes tests which assess whether Helvetas interventions account for results.

is the proportion of households within a cluster that have access to piped water. Among rural clusters nationwide, 40.5 percent of clusters had any households reporting access to piped water, and in those clusters, the average coverage of the piped water system was 35 percent. Among urban clusters, the story is very different, with 93 percent of clusters reporting some piped water, and the average coverage in those clusters was 75 percent.

### *Centrally Provided Goods*

While it may be possible to find a British advantage when it comes to locally provided public goods, this effect should not be apparent in public goods provided predominantly by the central government. For these goods, we expect any advantage to be on the French side, due to political dominance of Francophones in post-independence politics. To assess this, we briefly examine two other public goods in which the central government plays a relatively larger role: education and paved roads. Though we do not have a direct measure of inputs into schools, we can measure educational attainment using (male) literacy rates, which were assessed in the individual-level survey. This measure is admittedly imperfect, since literacy is a function of a number of factors, including individual circumstances and job opportunities, in addition to public policy. With respect to roads, village level streets (on which we have no data) may be a product of local initiative, but paved roads and highways are the responsibility of the central state (Njoh, 2003, Chapter 8). A digital map of the road network (circa, 1994), was obtained from Central African Regional Program for the Environment (CARPE), a program of USAID.<sup>9</sup>

### *Control Variables*

A number of other geographical variables are known to affect economic performance. The first is *Distance to the capital*, Yaoundé. Following Herbst (2000), many scholars have argued that African states devote resources to the areas close to the capital, while neglecting the periphery. In the Cameroonian case, we might expect areas closer to Yaoundé to be better developed than areas closer to the Nigeria. Controlling for this event is important because the British region is more peripheral, and could experience worse

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<sup>9</sup> The map data were obtained from <http://carpe.umd.edu>.

outcomes as a result. Indeed, this argument reinforces the need to focus on outcomes in the vicinity of the discontinuity, since distance to the capital does not vary much in that region. It should be noted, however, that distance from the capital is highly collinear with distance to the colonial border, which appears in most specifications to control for distance from the discontinuity. Hence, the independent effects of distance to the capital and distance to the border are hard to tease out.

A second geographic control is *Distance to the coast*, which is virtually identical to distance from the port cities of Douala (on the French side) and Limbe (on the British side). Clusters close to the coast have superior access to transportation and export agriculture. Rural areas closer to urban areas may also enjoy superior employment opportunity and access to urban markets. *Distance to city* is the distance from each cluster to the nearest provincial capital or city with population over 100,000. Since communications and trade are more difficult for locations at a high elevation, we include a control for *Altitude*, which is reported in the DHS data and measured in meters. Rural clusters also vary in terms of how densely populated they are, with higher densities tending to promote development and public goods provision. We capture this using LandScan 2008, which provides population distribution data with a spatial resolution of 30 arc-seconds (approximately 1 km). These data are based on census counts, which are then disaggregated within administrative boundaries using spatial data on settlements, roads, land use, night-time lights, etc.<sup>10</sup> For each rural cluster, we sum the population within six grid units (just over 5 km) of its corrected or imputed location. The raw population totals range from 808 to just over 60,000, and they are highly left skewed, so *Population density* is set equal to the logged count.

As noted earlier, the region around the inter-colonial border includes a variety of different ecological zones, which differ in terms of vegetation, climate, and soil quality. Variation in ecology can have a large effect on economic and social outcomes, through both the productivity of agriculture and the level of disease. To control for this, we code each cluster according to its *Ecological zone*, as defined by CARPE. To deal with the measurement error in cluster location and the fact that borders between ecological zones

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<sup>10</sup> This product was made utilizing the LandScan 2008™ High Resolution global Population Data Set copyrighted by UT-Battelle, LLC, operator of Oak Ridge National Laboratory under Contract No. DE-AC05-00OR22725 with the United States Department of Energy. See <http://www.ornl.gov/sci/landscan/index.shtml>.

are not as sharply delineated as political borders, the coding of ecological zones was smoothed using the clipped buffers described in the Appendix. For each rural cluster, we calculate what fraction of the buffer's area was located in each ecological zone.

The survey data include a number of variables measured at household and individual levels that can have an effect on socio-economic status. The main one we include in models of household wealth is an indicator for *Male Head of Household*. Households headed by women tend to be poorer than those headed by men, due to their having fewer wage earners. The individual level survey also contains information about respondents' religion and ethnicity, factors which could influence socio-economic outcomes. Because of the large number of ethnic groups in the country, however, many have only a small number of respondents in the sample, and their geographic compactness makes ethnic effects hard to separate from other factors. Moreover, since not every household contained an individual who received the individual survey, data on ethnicity are missing for about a quarter of households.<sup>11</sup> Hence, while all results pertaining to household wealth are robust the inclusion of controls for ethnicity and religion, the main reported results do not include them (see Table A1 in the supplementary Appendix). Given that religion has been cited as a potential source of British colonial advantage, we will give additional attention to this variable in "Mechanisms and alternative explanations" section.

## Results

This section presents the main results. Each dependent variable was analyzed using two techniques: a regression discontinuity analysis using corrected and imputed locations on clusters within bands of varying width around the border (for both urban and rural households) and paired comparisons of neighbors on either side of the border (for rural households only).

### *Household Wealth*

In aggregate, there is no difference in rural household wealth when we compare the two British provinces (Southwest and Northwest) and the two

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<sup>11</sup> Since questions about ethnicity and religion were only asked in the individual-level surveys, these traits were connected to households by determining the ethnicity and religion of the head of household, oldest male member, or oldest female member in the survey.



neighboring French provinces (West and Littoral). Among rural households, the average wealth score in the British region is  $-0.47$  while the average in the nearby French regions is  $-0.45$ , a statistically insignificant difference. The British region is, however, more peripherally located, so the overall aggregates may conceal effects that hold at the discontinuity.

To conduct a comparison of neighboring clusters, we identified all pairs of rural clusters whose corrected locations were no more than 30 km apart. In the four provinces of interest, there are 136 such pairs, 21 of which involve clusters on opposite sides of the border. The cross border pairs are “treated” by the colonial difference, while the remaining pairs serve as untreated controls. For each cluster pair in both groups, we subtract the average household wealth of the cluster closest to Yaoundé from the average household wealth of the cluster farther from Yaoundé. Because the British cluster is always farther from Yaoundé in cross border pairs, this procedure allows us to test whether the distribution of wealth differences in treated pairs is different from that in comparably ordered untreated pairs. The hypothesis of British superiority predicts that the wealth difference will, on average, be greater in the former than the latter.

Among the 21 cross border pairs, average household wealth was higher in the British cluster in 16 pairs, with the difference significant (at the 10 percent level) in 10 of them; the French cluster had higher average wealth in the five remaining pairs, with the difference significant in three.<sup>12</sup> A systematic comparison between treatment and control groups is complicated by the fact that many clusters appear in more than one pairing, meaning that observations are not independent. To deal with this, we performed tests using subsets of unique pairs — that is, sets of pairs in which no cluster appears more than once. There are 476 subsets of unique cross border pairs, each containing 6–8 pairs, and there are many thousands of subsets of unique untreated pairs. For each possible subset of unique cross border pairs, we randomly drew a subset of unique untreated pairs, containing 37–45 untreated pairs. For each of the 476 comparisons, let  $\tilde{\mu}_k^T$  denote the average wealth difference in treated (cross border) pairs in the  $k$ th sample and  $\tilde{\mu}_k^U$  denote the average wealth difference in untreated pairs. We find that, in every sample,  $\tilde{\mu}_k^T > \tilde{\mu}_k^U$ , meaning that the average wealth difference in cross border pairs was greater than that of the untreated pairs. Given the relatively low number of unique cross border pairs, this comparison was significant (at the

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<sup>12</sup> All comparisons of means tests conducted here assume that variances are unequal across groups.

10 percent level) in 56 percent of the samples. Letting  $\tilde{\Delta}_k = \tilde{\mu}_k^T - \tilde{\mu}_k^U$  denote the difference in differences, we find that  $\tilde{\Delta}_k$  ranges from 0.16 to 0.67 with a mean of 0.40. Combining the within- and between-sample variances, the standard error on this estimated mean is 0.24 ( $p = 0.103$ ). Thus, among pairs of neighboring clusters, the difference in wealth between the cluster that is farther from the capital and the cluster that is closer to the capital is, on average, larger if those clusters are on opposite sides of the border than if they are on the same side. This pattern is consistent with hypothesis that British colonial legacies are better for economic growth, though the small number of observations in this test means that the results sit at the edge of conventional statistical significance.

It could be, of course, that pairs of villages in different provinces would be more varied than within province pairings even if the provincial boundary did not trace the colonial border. To test this idea, we identified 11 pairs of nearby clusters that span other provincial boundaries elsewhere in the country. These can be thought of as a placebo group because they were “treated” by a boundary that we have no reason to believe matters. Because the number of such pairs is low, it is hard to make statistical inferences, but in all tests these pairs were indistinguishable from the control group.

We now turn to the multiple regression estimates of rural households. Table 1 reports the results of models estimated on four different samples: the full set of clusters in the four provinces of interest plus progressively smaller subsamples located within 30 km, 20 km, and 10 km of inter-colonial border. For each sample, estimates were obtained using both corrected locations and imputed locations, as described in the Appendix. In all cases, ordinary least squares regression was used with weights to correct for different sampling probabilities across provinces and with standard errors clustered by survey cluster. When using imputed data, regressions were fit to each of 200 data sets, and the estimates were combined using the equations derived by Rubin (1987, Chapter 4).<sup>13</sup> Except when looking at the narrowest band, we estimate the effect of distance from the border, on either side, as well as the effect of the discontinuity, which is captured by the coefficient on the dummy variable *British side*.

The results are consistent across all models, with the estimated effect of being on the British side positive and statistically significant in every

<sup>13</sup> T-tests were performed using the small sample correction for degrees of freedom derived in Barnard and Rubin (1999).

**Table 1.** Regression analysis of rural household wealth.

Variable	Full sample		<30 km from border		<20 km from border		<10 km from border	
	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed
British side	0.19* (0.083)	0.24** (0.078)	0.37** (0.12)	0.27* (0.12)	0.39** (0.13)	0.40** (0.13)	0.33** (0.11)	0.36** (0.10)
Dist. from border (Brit)	-0.0055 (0.0034)	-0.0061 (0.004)	-0.013 (0.009)	-0.01 (0.012)	-0.014 (0.0088)	-0.02 (0.014)		
Dist. from border (Fr.)	0.0065 <sup>†</sup> (0.0036)	0.010* (0.0041)	0.023 (0.014)	0.014 (0.015)	0.019 (0.021)	0.027 (0.022)		
Distance to capital	0.0028 (0.0029)	0.0033 (0.0035)	0.0047 (0.0071)	0.0060 (0.0093)	0.0019 (0.0074)	0.0056 (0.01)	-0.0073 (0.0067)	-0.0046 (0.0089)
Distance to coast	-0.0020* (0.00099)	-0.0011 (0.0011)	-0.0039* (0.0016)	-0.0039* (0.0018)	-0.004 <sup>†</sup> (0.0022)	-0.0037 (0.0025)	-0.0055* (0.002)	-0.0062* (0.0022)
Distance to city	-0.00064 (0.0015)	-0.0013 (0.0019)	0.0024 (0.0045)	0.0014 (0.0051)	0.0011 (0.0046)	0.0002 (0.0063)	-0.0014 (0.0073)	0.0039 (0.0068)
Altitude	0.000057 (0.00007)	0.000033 (0.000084)	0.00019 (0.00014)	0.00018 (0.0002)	0.00023 (0.00016)	0.00017 (0.00026)	0.00045** (0.00013)	0.00045* (0.0002)
Population density	0.057 <sup>†</sup> (0.032)	0.056 <sup>†</sup> (0.032)	0.049 (0.071)	0.061 (0.082)	0.045 (0.071)	0.026 (0.10)	0.13* (0.052)	0.14 <sup>†</sup> (0.074)
Male household	0.20** (0.020)	0.21** (0.020)	0.26** (0.029)	0.26** (0.028)	0.27** (0.033)	0.26** (0.031)	0.25** (0.034)	0.25** (0.038)
R <sup>2</sup>	0.25	0.26	0.32	0.31	0.32	0.35	0.31	0.31
No. observations	1959	1847	907	911–1024	732	651–800	491	392–529

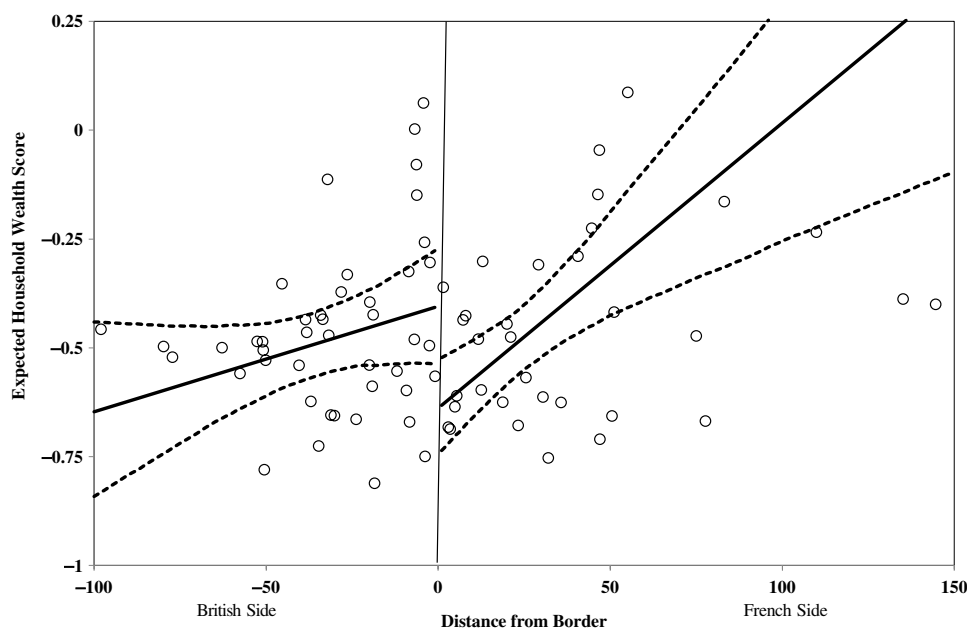
*Note:* Constant and controls for ecological zone included but not reported. Observations weighted by household weight. Standard errors corrected for clustering on survey clusters.  
 \*\*  $p < 0.01$ , \*  $p < 0.05$ , <sup>†</sup>  $p < 0.1$ .

column. Recall that the dependent variable is a factor score with a standard deviation of 1, which means that moving across the border from the French to the British side is associated with an increase in expected household wealth equivalent to roughly a third of the national standard deviation. To give the coefficient magnitudes some substantive interpretation, an increase in the wealth score on the order of 0.25 is equivalent to gaining a television, and increase on the order of 0.35 is equivalent to gaining a car and an oven. Notice that this estimate is similar to that obtained using the neighboring pairs analysis.

In all models, wealth is negatively correlated with distance from the border on the British side and positively correlated with distance from the border on the French side, though the effects are not always significant. This pattern is consistent with Herbst's (2000) expectation that economic development decreases with distance from the capital, even though the direct effect of this distance sometimes incorrectly signed and never statistically significant. More robust is the effect of distance from the coast, which is consistently negative and significant. Contrary to the expectations, the estimated effect of altitude is positive, though it is significant in only some models. This is likely because altitude and distance from the coast are very highly correlated, as the highlands are all inland, with the exception of the relatively wealthy coastal area near Mt. Cameroon. Population density has a positive sign, as expected, and is significant in some models.

Figure 3 shows the actual and estimated levels of cluster wealth plotted against distance to the border. The data points were generated by regressing household wealth on all of the control variables other than those capturing distance to the border and the discontinuity, calculating the residuals, averaging across households within each cluster, and then re-centering by adding back average household wealth. Thus, each point represents that average household wealth of a rural cluster, once the effects of other covariates are purged. The lines show the estimated effect of distance to the border, and their 95 percent confidence intervals, using parameter estimates from the full sample, with imputed locations. Other variables were set at their means, except for *Distance to capital*, which was allowed to vary linearly with distance to the border.

Turning briefly to urban observations, we find that, in the aggregate, there is no statistically significant difference in average household wealth in the two British provinces (0.41) and the two neighboring French



**Figure 3.** The estimated and observed discontinuity in rural household wealth.

*Note:* Points depict the average household wealth in each cluster, once the effects of other covariates have been purged.. Solid line represents predicted wealth of a household at each distance, using the estimates from Table 1, column 2. Dashed lines reflect 95 percent confidence intervals based on simulations using draws from the posterior distribution of coefficients.

provinces (0.38). Table 2 reports multiple regression results with specification similar to those presented above. As before, four samples were used, but in this case, and each cluster was given the location of its matched city or town, and standard errors are clustered by the matched city. It is clear that there is no significant effect, in either direction, associated with the border. The colonizer effect that shows up in rural households is not present in the urban sample.

#### *Access to Piped Water*

Using our second dependent variable, access to piped drinking water, the British side's advantage is evident even in the provincial aggregates. Among rural households in the two British provinces, 39.4 percent have access to

**Table 2.** Regression analysis of urban household wealth.

Variable	Full sample	<30 km from border	<20 km from border	<10 km from border
British side	-0.15 (0.23)	-0.15 (0.289)	0.085 (0.33)	-0.043 (0.074)
Dist. from border (Brit)	-0.0099 (0.011)	0.021 (0.034)	0.019 (0.030)	
Dist. from border (Fr.)	0.022 <sup>†</sup> (0.011)	0.0074 (0.013)	0.068 (0.051)	
Distance to capital	0.019 <sup>†</sup> (0.010)	0.0072 (0.015)	0.020 (0.016)	0.015 (0.013)
Distance to coast	-0.010** (0.0021)	-0.0088** (0.0027)	-0.0054 (0.0046)	-0.00058 (0.0053)
Distance to road	-0.0065 (0.022)	-0.044 (0.049)	-0.030 (0.062)	-0.022 (0.037)
Altitude	0.00068* (0.00032)	0.00055 (0.00039)	8.08E-05 (0.00073)	-0.00039 (0.00045)
Male household	0.29** (0.071)	0.28* (0.10)	0.22* (0.10)	0.26* (0.11)
$R^2$	0.20	0.20	0.16	0.23
No. observations	1527	1017	935	333

*Note:* Constant and controls for ecological zone included but not reported. Observations weighted by household weight. Standard errors corrected for clustering on matched cities and towns. \*\* $p < 0.01$ , \* $p < 0.05$ , <sup>†</sup> $p < 0.1$ .

pipd water; in the two neighboring French provinces, the corresponding number is 14.7 percent. The modal cluster in both regions have no households reporting piped water, something which is true of 37.8 percent of British clusters and 45.5 percent of French clusters, a difference which is not statistically significant. However, there are substantial differences in the coverage of piped water systems that do exist. Among French clusters with at least one house reporting piped water, the average coverage is 28 percent of households, and no cluster has more than 65 percent covered. Among British clusters with some piped water, the average coverage is 67 percent, and in about 30 percent (8 out of 28), every surveyed household had access. Thus, rural clusters on the British side that have piped water enjoy broader coverage than do clusters with piped water on the French side.

We first consider the comparison of neighboring pairs, as above. In the 21 cross border pairs, the proportion of households with piped water was significantly higher in the British cluster in 10 pairs; the French cluster had a significantly higher proportion in three pairs, with rest have equal or insignificantly different proportions. We once again examine the 476 subsets of unique cross border pairs and compare each to a randomly drawn set of unique untreated pairs. As with household wealth, the average difference in access to piped water within cross border pairs was greater than the average difference within untreated pairs in all 476 samples, and the comparison was statistically significant (at the 10 percent level) in 65 percent of samples. Again defining  $\hat{\Delta}_k$  as the difference in differences in each sample, this estimate ranges from 0.09 to 0.65, with a mean of 0.35. This standard error on this estimate is 0.20 ( $p = 0.085$ ). Thus, the British advantage that was evident in the aggregate numbers holds up when comparing nearby clusters that straddle the border.

Turning to multiple regression analysis, one of the most important factors missing from the neighbor comparison is a measure of wealth, since richer villages are better able to provide public goods than poorer villages. We can capture this effect by including a measure of average household wealth in the cluster. Introducing such a variable, however, raises two potential concerns. First, because we have already seen that colonizer identity affects household wealth, there is a danger of post-treatment bias, which occurs when a model controls for a mediating factor that is (at least partly) a product of the treatment. Second, there is a danger of simultaneity bias owing to the fact that villages with cleaner water supplies might be healthier and therefore wealthier. Despite these concerns, there are compelling arguments for including this control. The most important is that we would like to know if the British side's advantage in water provision is simply a by-product of the already identified wealth effect or if the legacies associated with British colonialism also facilitate collective action, permitting superior public goods provision even when wealth is held constant. Thus, controlling for this mediating variable allows us to determine whether there is a causal path from colonizer identity to public goods provision in addition to the path that runs through wealth. Moreover, because wealth is higher on the British side of the discontinuity and cluster wealth is positively associated with piped water, the potential biases from including a wealth control should make it harder to detect a British advantage in water provision.

In fact, in Table A2 in the Supplementary appendix, we report estimates from models that exclude wealth, and in all cases, the estimated effect of the discontinuity is larger than what we report below. The inclusion of the wealth measure also eliminates the need to control for other determinants of development included above. In addition, the model includes a control for distance from Yaoundé, as more peripheral areas are less likely to receive central government assistance; altitude, because it is easier to build water systems in mountainous areas, where gravity can be used to generate water pressure; and, in rural areas, population density, since it may be easier to provide water in more densely populated areas.

Since the dependent variable records, for each cluster, the proportion of households with access to piped water, following Papke and Wooldridge (1996), we obtain estimates using a generalized linear model with a logit link function, binomial distribution, and Huber–White robust standard errors.<sup>14</sup> Table 3 presents the estimates. As before, estimates are reported for bands of varying widths around the border and using corrected and imputed locations. In every model, the estimated effect of being on the British side is positive, but the magnitude and significance of the coefficient is sensitive to the endpoints of the sample. A significant discontinuity is evident in the full and 10 km samples, but not in the two intermediate width samples. Figure 4 plots the actual and predicted proportion of houses with piped water in each rural cluster, as a function of its location relative to the border. The points represent the observed data, while the line reflects the predicted proportion using the estimates from the full sample, with imputed locations. All other variables were set to their means, but *Distance to the capital* was allowed to vary with distance from the border.

Because the discontinuity is not statistically significant in the intermediate width samples, this result is clearly less robust than the household wealth result. As Figure 4 shows, while clusters with complete coverage only start appearing on the British side of the border, there is a discernible upward trend as one approaches the border from the east, and the trend continues as one crosses to the British side. For this reason, in all models, the effect of distance from the border on the British side is positive and the effect of

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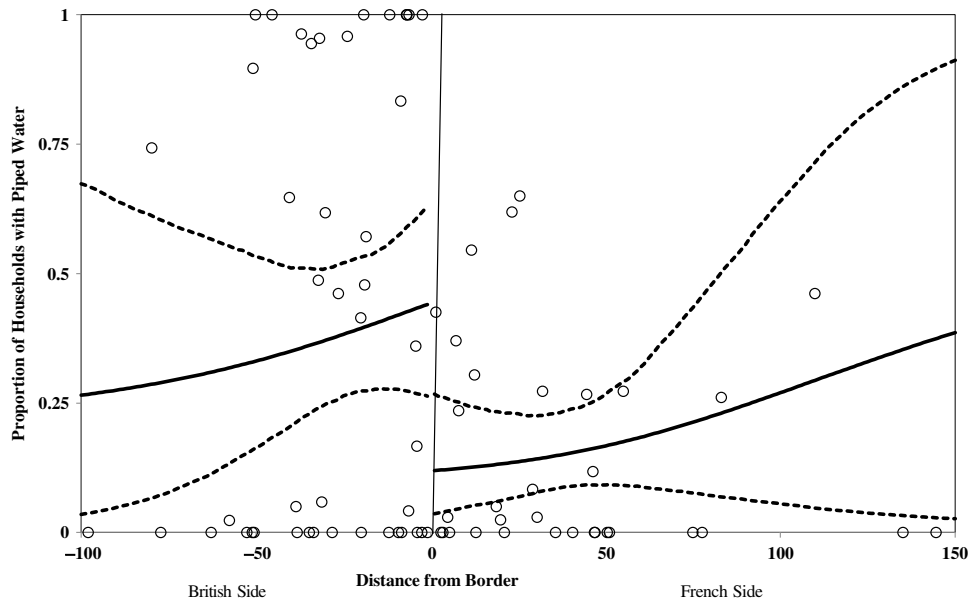
<sup>14</sup> Since the number of households per cluster is known, the estimator can take into account the binomial denominator, which varies across observations. In an earlier version of this paper, we used a zero-inflated binomial model to account for possible overdispersion of the dependent variable. The results, which are largely similar to those reported here, can be obtained from the authors.



Table 3. Regression analysis of access to piped water (rural clusters.)

Variable	Full sample				<30 km from border				<20 km from border				<10 km from border			
	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed
British side	1.30*	1.47*	1.95	1.34	1.26	1.63	2.73*	2.73†								
	(0.58)	(0.65)	(1.46)	(1.3)	(1.18)	(1.25)	(1.10)	(1.33)								
Dist. from border (Brit)	0.10*	0.096†	0.16*	0.19**	0.12†	0.11†										
	(0.046)	(0.053)	(0.051)	(0.054)	(0.063)	(0.058)										
Dist. from border (Fr.)	-0.090*	-0.085†	-0.12	-0.15*	-0.33*	-0.35*										
	(0.037)	(0.043)	(0.078)	(0.07)	(0.14)	(0.15)										
Average Cluster Wealth	0.95†	0.94†	1.12†	1.01	1.67*	1.72*	0.86	1.67								
	(0.5)	(0.51)	(0.60)	(0.60)	(0.65)	(0.75)	(1.1)	(1.75)								
Distance to capital	-0.088*	-0.088†	-0.18	-0.18**	-0.2**	-0.24†	-0.16*	-0.18†								
	(0.038)	(0.045)	(0.043)	(0.052)	(0.056)	(0.066)	(0.074)	(0.084)								
Altitude	0.0019**	0.002*	0.0032**	0.003**	0.0036**	0.004**	0.0033**	0.0034*								
	(0.00063)	(0.00075)	(0.00082)	(0.00091)	(0.00092)	(0.0012)	(0.001)	(0.0014)								
Population Density	0.14	0.092	-0.64†	-0.42	-0.32	-0.17	-0.16	-0.075								
	(0.27)	(0.24)	(0.35)	(0.38)	(0.48)	(0.38)	(0.73)	(0.83)								
Constant	16.7*	17†	44.9**	43.1**	48.1**	54.1**	35.4*	38.2†								
(7.65)	(9.46)	(10.1)	(12.9)	(11.9)	(15)	(14.3)	(19.1)									
No. observations	78	73	39	38-42	31	29-33	20	16-22								

Note: Robust standard errors reported in parentheses.  
 \*\*  $p < 0.01$ , \*  $p < 0.05$ , †  $p < 0.1$ .



**Figure 4.** The presence and coverage of piped water in rural clusters.

*Note:* Points depict actual proportion of households in each cluster reporting access to piped water. Solid line represents predicted share of households with piped water, using the estimates from Table 3, column 2. Dashed lines reflect 95 percent confidence intervals based on simulations using draws from the posterior distribution of coefficients.

distance on the French side is negative. The result is that British clusters have better access to water on average, but the effect does not necessarily manifest as a significant discontinuity. Hence, we cannot rule out that the apparent British advantage is an artifact of some other, unmeasured factor which increases continuously as one moves from the French side toward the British side and beyond. That said, in the absence of any conjecture as to what that factor could be, and given the significant discontinuities in the 10 km band, there is qualified evidence of a colonizer effect on the coverage of piped water systems.

Another possible limitation of the piped water result is that a significant number of the French rural clusters near the border are home to the Bamileke, the dominant ethnic group in West Province. This group has had a contentious relationship with the central government and complains of discrimination in public services. The colonizer effect identified here is not robust to the inclusion of an indicator for Bamileke region, though we note

that the result does hold when the comparison is confined to the two southern provinces, Southwest and Littoral. This issue is discussed at greater length in the Supplementary appendix.

Turning to urban observations, there is again no evidence of a colonizer effect. Overall, the proportion of urban households with piped water is virtually identical in the two regions: 79 percent in the British zone, 77 percent in the French. Urban areas show considerably less variation than do rural areas in their access to this public good: only 5 of 77 urban clusters (2 on the French side, 3 on the British) have no households reporting access to pipes, and 38 report full coverage. The regression estimates are reported in Table 4. The main thing to notice is that the results are very sensitive to the width of the band. There is no significant discontinuity in the full and 30 km samples, a significant negative discontinuity in the 20 km sample, and a significant positive discontinuity in the 10 km sample. To underscore how unstable these results are, estimates on a 15 km sample show no significant effect. Given the low variation in access to piped water, the estimated effects

**Table 4.** Regression analysis of access to piped water (urban clusters.)

Variable	Full sample	<30 km from border	<20 km from border	<10 km from border
British side	0.30 (0.68)	-1.16 (1.56)	-4.66* (1.79)	9.22† (4.11)
Dist. from border (Brit)	-0.038 (0.053)	0.13 (0.090)	0.21* (0.10)	
Dist. from border (Fr.)	-0.0071 (0.034)	-0.10 (0.080)	-0.60** (0.17)	
Average cluster wealth	1.76** (0.45)	1.75** (0.66)	3.07** (0.96)	12.64* (3.77)
Distance to capital	0.014 (0.036)	-0.017 (0.042)	-0.12* (0.055)	-0.30* (0.13)
Altitude	-0.0010† (0.00051)	-0.0020† (0.00094)	0.00045 (0.0011)	-0.00085 (0.0013)
Constant	-1.29 (8.37)	7.59 (9.22)	32.6* (13.0)	73.7** (28.1)
No. observations	77	51	47	13

*Note:* Robust standard errors reported in parentheses.

\*\* $p < 0.01$ , \* $p < 0.05$ , † $p < 0.1$ .

are heavily influenced by small changes in the sample. It would be a mistake to draw conclusions in either direction from the urban data.

### ***Centrally Provided Public Goods***

The differences in results on water provision in urban and rural areas may reflect the fact that the central government, through SNEC, has played a much larger role in the former (Njoh, 2003, p. 56). As noted earlier, we have no reason to expect that formerly British areas should have higher levels of centrally provided public goods, and some reason to think that they would have lower levels due to a Francophone bias on the part of the central government. This pattern is broadly borne out for the two other centrally provided public goods: education, proxied by male literacy, and roads.

*Literacy:* there are no significant differences between the British and French zones in literacy rates among male survey respondents in either rural or urban clusters. In the rural sample, the literacy rate in the Anglophone zone was 62 percent, compared to 68 percent in the two neighboring Francophone provinces; the rates are 59 and 62 percent, respectively, when the sample is restricted to those living within 10 km of the border. As evident from Table 5, a probit model with the same controls as in the household wealth equations shows no consistent evidence of a discontinuity, in either direction, at the border. Considering the British side's advantage in wealth — which is positively correlated with literacy, though the causal arrow certainly runs both ways — the absence of a corresponding advantage in literacy suggests that education provision is no better and may in fact be worse.

*Roads:* with respect to paved and permanent roads, the aggregate data are unambiguous: West Cameroon is poorly served by paved and permanent roads relative to neighboring areas of East Cameroon. Based on data from the 1990s, West Cameroon had 0.036 km of paved road per square kilometer, while the two neighboring French provinces (West and Littoral) had a road density of 0.063 km per sq. km. This disparity is large even when we account for the fact that West Cameroon had a lower road density during the colonial period, as post-independence policies did little to redress the lack of infrastructure investment under British rule. In fact, the Limbe–Bamenda road that had spanned West Cameroon in colonial times was abandoned by

**Table 5.** Regression analysis of male literacy (rural observations).

Variable	Full sample		<30 km from border		<20 km from border		<10 km from border	
	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed	Corrected	Imputed
British side	-0.25 (0.22)	-0.26 (0.23)	-0.4 (0.31)	-0.071 (0.26)	-0.42 (0.32)	-0.21 (0.34)	0.34 <sup>†</sup> (0.20)	0.088 (0.28)
Dist. from border (Brit)	0.015 (0.012)	0.014 (0.014)	0.034* (0.013)	0.042* (0.019)	0.032* (0.015)	0.035 (0.023)		
Dist. from border (Fr.)	-0.0098 (0.011)	-0.01 (0.013)	-0.092** (0.032)	-0.056 <sup>†</sup> (0.031)	-0.091* (0.04)	-0.072 (0.049)		
Distance to capital	-0.011 (0.0097)	-0.012 (0.011)	-0.056** (0.01)	-0.052** (0.014)	-0.054** (0.011)	-0.052** (0.014)	-0.055** (0.01)	-0.041* (0.017)
Distance to coast	0.0011 (0.0022)	0.0016 (0.0028)	-0.0039 (0.0033)	-0.003 (0.0039)	-0.0042 (0.0038)	-0.00094 (0.0054)	-0.00055 (0.0048)	-0.0016 (0.0064)
Distance to city	-0.006 (0.005)	-0.0069 (0.0057)	-0.011 (0.008)	-0.0054 (0.01)	-0.015 <sup>†</sup> (0.0082)	-0.012 (0.011)	-0.0078 (0.0071)	-0.026 <sup>†</sup> (0.013)
Altitude	0.000089 (0.00018)	-0.000017 (0.00025)	0.00065** (0.00024)	0.00069 <sup>†</sup> (0.00036)	0.00066* (0.00028)	0.00048 (0.00047)	0.00054 (0.00037)	0.00049 (0.00052)
Population Density	-0.091 (0.073)	-0.092 (0.073)	-0.29** (0.1)	-0.012 (0.13)	-0.3* (0.13)	-0.14 (0.15)	-0.22 <sup>†</sup> (0.12)	-0.16 (0.16)
Male household	-0.23* (0.1)	-0.2 <sup>†</sup> (0.11)	-0.25 (0.17)	-0.17 (0.17)	-0.24 (0.19)	-0.21 (0.18)	-0.55* (0.24)	-0.34 (0.26)
No. observations	939	879	461	454-504	383	357-408	257	199-273

*Note:* Constant and controls for ecological zone included but not reported. Observations weighted by individual weight. Standard errors corrected for clustering on survey clusters.

\*\*  $p < 0.01$ , \*  $p < 0.05$ , <sup>†</sup>  $p < 0.1$ .

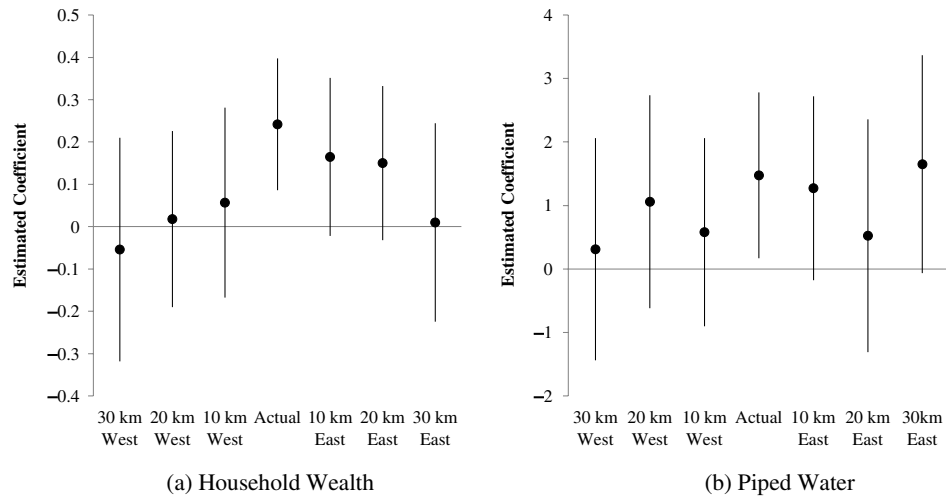
the Yaoundé government, forcing the two Anglophone provinces to be connected by a less direct route through the Francophone region (Njoh, 2003, pp.207–210). Thus, the data on centrally provided goods suggest, not surprisingly, that national level political factors also play a role in outcomes. These national level factors cannot, however, explain the local level differences in wealth we observe, since they would, if anything bias us against finding a persistent positive effect of British colonialism.

### Mechanisms and Alternative Explanations

The tests performed here allow us to identify effects on development and public goods provision that are associated with the colonial-era border. Although the results suggest a (relatively) positive legacy of British colonialism, the evidence cannot speak to the precise mechanism at work. Moreover, it is possible to think of reasons why the two sides would exhibit different outcomes that are not a product of the institutional legacy of colonialism. Here, we briefly assess a few possible mechanisms. For reasons of space, a number of additional alternative explanations (differential levels of macropolitical autonomy, the presence of the Bamileke ethnic group, individual migration, ethnic diversity, NGO intervention and proximity to the Nigerian border) are discussed in the Supplementary appendix.

*Placebo borders:* One possibility that we need to rule out is that there is some feature of the region such that any line running in a roughly southeast to northwest direction would generate a similar effect. To assess this, we re-estimated the models using six placebo borders, generated by displacing the actual border 10, 20, and 30 km in both directions (i.e., the three grey lines on either side of the border in Figure 2). Figure 5 shows the estimated coefficient on *British side*, as a function of the actual and placebo borders, with panel (a) corresponding to the household wealth model and panel (b) the piped water model. In both cases, the estimates were obtained using the full sample with imputed locations, but the same pattern holds in smaller samples. As the figure shows, the estimated discontinuity is positive and statistically significant only at the actual border.

*Religion and education:* With respect to mechanisms, two of the easier to test deal with the effects of religion and educational system, two areas where the colonial legacies are quite obvious today. In addition to having



**Figure 5.** The estimated discontinuity at the actual and placebo borders.  
*Note:* These figures depict the estimated coefficients on British side, along with their 95 percent confidence intervals, from a series of tests using the actual border and six placebo borders (the actual border displaced by the distance and direction shown). Panel (a) shows the results on rural household wealth, replicating the sample and specification from Table 1, column 2. Panel (b) shows the results using piped water, replicating the sample and specification from Table 3, column 2.

different school systems, Cameroonians on the British side of the border are, compared to their Francophone neighbors, more likely to Protestant and less likely to be Muslim or Animist (the percentage of Catholics is about the same). If Weber (1947 [1905]) is correct, this difference might account for the British side's advantage in household wealth. We can assess this hypothesis by including controls for the religion in the household in the wealth equation. Doing so, we find no support for this mechanism (see Table A3 in the Supplementary appendix). The coefficients on the religion dummies are individually and/or collectively significant in some, but not all, samples, and the relative magnitude of the coefficients suggests, if anything, an advantage for Muslim households. Moreover, including the religion variables has no substantive impact on the estimated discontinuity. Hence, Protestantism neither increases household wealth, nor accounts for our results. We can similarly rule out education as the underlying mechanism. As we already saw, there is no Anglophone advantage in male literacy, and an indicator for literacy has a positive effect on household wealth, but does not explain effect of the estimated discontinuity (see Table A3).

*Colonial Endowments:* Another possible explanation is that differences we identified are not a persistent legacy of colonial-era institutions, but reflect different endowments left behind by the colonizers. If the British side was wealthier in the colonial period or if the British built extensive piped water systems, our results would reflect a material rather than an institutional legacy.

In fact, however, it was the French side that received more investment during the colonial era. As Mahwood (1993, p. 189) writes, reflecting a general consensus in the literature, “For the forty years of divided existence, Eastern Cameroon was something of a showpiece in French colonial administration, while the western unit was almost forgotten as a small outlying part of the administration of Nigeria.” The British colonial policy was generally *laissez-faire*, which in the Cameroonian case shaded into neglect. Historical accounts are unanimous that West Cameroon was ruled in an offhand and indirect fashion that did little to expose its inhabitants to modern political institutions. Smaller and poorer than neighboring Nigeria, West Cameroon became known as a haven for incompetent or unambitious bureaucrats, and locals complained that the administration in Lagos starved them of development funds and educational opportunities (Chiabi, 1997, pp. 12–15). West Cameroon received relatively few of the investment inputs that other colonies received: there were no standard gage railways, few roads, and no irrigation projects. Development grants from Britain were minimal and usually flowed to other areas. From 1955 to 1960 the Colonial Development Corporation invested only £ 2.2 million in West Cameroon, 6.2% of what the French were putting into the east (Ndongko, 1986).<sup>15</sup> By contrast, East Cameroon was a relatively well positioned to attract Franc-denominated investments. The flow of money intensified after 1946, when the French government established the *Fondsd’ Investissements pour le Developpement Economique et Social* (FIDES) (Atangana, 2009). Over \$500 million was invested in Cameroon from 1947 to 1959, triggering an economic boom and large scale urbanization; in the 1950s, imports increased 700%, exports 250%, and the population of Douala 200% (Rubin, 1971, p. 58). FIDES aid built infrastructure such as roads and railways, areas in which the French side still enjoys advantages over the British side.

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<sup>15</sup> A holding company, the Cameroon Development Corporation, also controlled (and still controls) the appropriated estates of German planters. However, the CDC has lost money throughout most of its history, and its influence was confined to the lowland areas of British Cameroon.



Speaking directly to our empirical results, we have no data on the scale of rural water provision under colonialism. Descriptive evidence suggests that water provision was rare even in urban areas up until the 1950s and would have been virtually unheard of in a village (Page, 2005). In any event, it is unlikely that investment in rural water provision was dramatically higher in British areas than in French ones, given what we know about other types of public goods. Table 5 compares the zones in terms of public expenditures and public goods per capita in 1957. As the data show, public expenditure was substantially higher in the French zone in the late colonial era, and public goods provision was generally better (with the exception of post offices). The highly aggregated nature of the data makes it impossible to assess public goods provision in the border area; however, the French aggregates include

**Table 6.** Public goods and incomes in pre-independence cameroon.

Public goods	British zone	Whole French zone		
Government and native authority expenditure (pounds/capita)	0.865	5.0080		
Post offices per capita	0.00004	0.00003		
Medical institutions per capita	0.00012	0.00016		
Hospital Beds per capita	0.0015	0.0028		
Students per capita	0.054	0.095		
Average income	British zone	Douala	Littoral	West
Unskilled salaried private sector (ratio to British zone)	4	14.46 (3.85)	9.40 (2.35)	7.23 (1.80)
Semi-skilled salaried private sector (ratio to British zone)	5.6	20.98 (3.75)	13.64 (2.44)	10.49 (1.87)
Skilled salaried private sector (ratio to British zone)	13.25	26.04 (1.97)	16.93 (1.28)	13.02 (0.98)

*Notes:* Incomes are based on surveys of salaried private sector employees reported to the League of Nations. French incomes were converted into pounds using the nominal CFA Franc/Franc and Franc/Sterling exchange rates on Jan. 1, 1958.

*Source:* Great Britain (1957), France (1957).

the poor Northern provinces, and it is likely that figures for relatively prosperous Littoral and West would be even larger.

With respect to income and wealth, the colonial-era data are fragmentary and focused on urban areas. A partial picture comes from the reports of the mandating powers in 1957, at the end of the colonial era. Both sides report income for the mainly urban salaried labor force, which can be compared using nominal exchange rates. As Table 6 shows, both semi-skilled and skilled workers in the British zone earned less in nominal terms than their French equivalents in 1957. This is true for all groups in the French zone except skilled workers in West Province, whose earnings were equal to those on the British side. Although these data do not speak to conditions in villages or to price levels, it is unlikely that British rural areas enjoyed an income advantage when their salaried compatriots in cities and towns were making about half the income of those in nearby French urban areas.

## Conclusions

The results we have presented suggest that despite administrative neglect in both the colonial and post-independence eras, rural areas of West Cameroon perform better than rural areas of East Cameroon with essentially similar pre-existing conditions. In these areas, the West appears to have higher levels of economic dynamism, evidenced by greater household wealth, and better functioning local government institutions, evidenced by its higher level of public goods provision. These findings are consistent with the hypothesis that the mix of institutions and practices associated with British colonial rule generated superior outcomes. This does not imply, of course, that British-colonized areas always perform better or that West Cameroon is an elysia of wealth and strong institutions. The Eastern advantage in colonial and post-colonial investment and the centralization of most government functions in this zone have had substantial effects. In aggregate, East Cameroon is *richer* than the West, due to its larger concentration of urban areas and less peripheral location. The East also has slightly higher levels of centrally-provided public goods like roads. The effect of colonial institutions thus coexists with the effects of government policy — where the capital is located and how money is spent. If colonial institutions matter, modern institutions certainly matter as well.

What is the mechanism behind the colonizer effect? On this point, there are limits to what we can conclude, and to a large extent we have to proceed by exclusion. We have shown that colonial legacies in education systems and religion do not account for the results. It also seems unlikely that the mechanism operates through the main formal institutional legacy — the different legal systems. If this mechanism were important, one would expect the wealth difference to be stronger in urban areas, where these courts are based and where most of the disputes for the western legal system originate; by contrast, many rural disputes are decided in special tribal courts. The fact that we observe a difference in wealth in rural rather than urban areas is an argument against both the civil law explanation and any other explanation that rests on institutions above the village level.

So what is left? We hypothesize, in line with some anthropological evidence, that West Cameroon enjoys much better functioning local political and social institutions than East Cameroon (Fonchingon and Fonjong, 2003; Geschiere, 1995). In particular, these institutions are more responsive to the wishes of ordinary people, in part because of their congruence with traditional political institutions. Not only were the British marginally more respectful of traditional political arrangements, but they also allowed both traditional and non-traditional leaders a greater degree of autonomy than the French did, enabling them to develop deeper relationships with their communities and defining a higher level of social expectation with respect to state obligations. The presence of forced labor on the French side only exacerbated this difference by associating local level leaders with the enforcement of a highly unpopular policy and giving them a potent area for the exercise of unconstrained individual power. We have some descriptive evidence that due to this higher level of institutional development, villages in West Cameroon find it easier to overcome the free rider problems involved in raising the quasi-voluntary money and labor contributions needed to build small scale public works (Rist, 2001). This view would be in line with the broader political economy literature: in areas characterized by greater levels of political participation, the works that are built are likely to be more broadly beneficial. In areas without effective local institutions, communities are dependent for public goods provision on the state bureaucracy; and in Cameroon it appears that the state has limited capacity to provide services even in favored areas.

The data do not permit us to examine directly the link between local level institutions and individual wealth; however, the broader literature

in development economics provides some ideas for how high quality local institutions could contribute to the wealth of individuals. Empowered local communities could have higher levels of investment in growth-promoting public goods that are not measured in our data, such as village access roads. Stronger local level institutions may also reduce the ability of officials to expropriate private property or misappropriate public funds: the “grabbing hand” of the state is constrained the threat of social or political sanctions (Shleifer and Vishney, 2002). Such a difference would in the long run lead to higher levels of investment, lower levels of rent seeking and superior levels of economic growth. Of course, even if such a dynamic does operate in Cameroon, this growth is constrained by the fact that we have no reason to expect that medium and high level officials in the West are any less predatory than in the East; in fact, our data with respect to centrally provided public goods indicates that the macropolitical climate is more hostile in the West. While colonialism can have substantial effects on institutions, these effects are part of a complex range of social and political factors that affect development outcomes.

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