Borders That Divide: Education and Religion in Ghana and Togo Since Colonial Times

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The partition of German Togoland after World War I provides a natural experiment to test the impact of British and French colonization. Using data of recruits to the Ghanaian colonial army 1908–1955, we find that literacy and religious affiliation diverge at the border between the parts of Togoland under British and French control as early as in the 1920s. We partly attribute this to policies towards missionary schools. The divergence is only visible in the South where educational and evangelization efforts were strong. Contemporary survey data show that border effects that began in colonial times still persist today.

When African countries gained independence, former British colonies had on average higher school enrollment rates than former French colonies (Benavot and Riddle 1988; Brown 2000; Grier 1999). A significant educational disparity still exists today. In 2000 former British colonies enrolled 70 percent of their school-age population in primary schools, 15 percent more than former French colonies (Garnier and Schafer 2006). Many scholars argue that the persistent difference in education is a legacy of the colonial past whereby countries inherited and more or less followed the very distinct education models that their colonizers implanted (Bolt and Bezemer 2009; Cogneau 2003; Garnier and Schafer 2006; Gifford and Weiskel 1971; Grier 1999; White 1996).

The conventional story can be summarized as follows: The British were interested in containing the costs of their colonies and saw mission societies as institutions that provided education cheaply. While the missionaries' primary concern was to "save the souls of African pagans," providing education was a vehicle to attract and convert people (Berman 1974; Foster 1965). Missions had considerable freedom in how they ran their schools, recruited teachers, taught religion, and adjusted teaching contents to local conditions. Overall, the educational system was decentralized. Furthermore, in all primary schools instruction was in the local vernacular in the first grades, with English as a subject.[1] The French followed a different model aimed at assimilation. To turn Africans into Frenchmen, education was key. Schools could not operate without government permission, they had to employ government-certified teachers, follow a government curriculum and French was the only language of instruction (White 1996). The 1905 Law on the Separation between the State and the Churches limited the activities of mission schools, and the state became the main provider of education.

However, attributing educational outcomes to the identity of colonizers may be grossly misleading because Britain and France colonized territories with different conditions. Although Britain eventually engaged in the competition for "spheres of influence" and colonies in Africa, in general policymakers were reluctant to acquire poor colonies that would become financial burdens (Wesseling 1996). Instead, the British approach remained primarily commercial; acquisitions were often driven by private companies—the flag followed the trade. The French case was the opposite: the state decided to establish an empire reaching from Algeria, to Senegal and the Congo through military conquest. Thus, Britain tended to acquire territories with a higher potential for trade and commerce where the demand for education was higher and growing faster than the "light land" and poorer areas that the French took over.[2] Furthermore, British territories offered more favorable conditions for missionary settlement, and hence missionary schooling. Ewout Frankema (2012) pointed to a healthier ecology and higher indigenous population densities in British colonies. Acceptance of missionaries also depended on native institutions and

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[1] In British Gold Coast government schools, teaching in vernacular languages (Twi, Fante, Ewe, and Ga) was made compulsory for the first three elementary grades in 1925 (Newell 2002). Education specialists tend to view the use of the vernacular as learning-facilitating.

[2] Lord Salisbury, British Prime Minister at the turn of the century, used the phrase "light land" in a debate in the House of Lords to defend the Anglo-French convention of 1890, in which France had been allocated much bigger tracts of territory in West Africa (Roberts 1999).

gains associated for various social groups.[3] Islamized societies tended to be more hostile; there, *all* colonizers sought to avoid provocations and restricted missionary activities (Bening 1990; Skinner 2010). In West Africa, the most fertile ground for missionaries was where Islam did not extend—the tropical rainforest and much of the coastal South, which just happened to be colonized by Britain.

Existing studies of the educational (and economic) disparity in Africa have largely relied on cross-country regressions. These are ill-suited to estimate "the potential for trade and commerce" or to disentangle it from British colonization, given the small sample of African countries colonized. There are large idiosyncratic differences between territories that have nothing to do with educational models or institutions "created by" and specific to one colonizer. For instance, one does observe that within West Africa education tends to decrease as one moves further away from the more urbanized coastal areas. Thus, geography or Islam extension might be much more important than differences in colonial policies.

To get at this problem, we rely on a border discontinuity between a French and a British territory. While the choice of colony was not random, the *exact* location of the border—up to some distance— was. In the partitioning process, colonizers drew borders without accurate knowledge of the terrain, disregarding local circumstances and cutting through homogeneous geographic, cultural, and ethnic entities (Englebert, Tarango, and Carter 2002; Hargreaves 1985).[4] The colonial boundaries had no antecedent as even the concept of territorial states was new—pre-colonial African states had based their power on ruling people, not territory (Herbst 2000). Thus, the drawing of borders provides a situation of a quasi-ideal natural experiment, where, by historical accident, individuals with otherwise identical background found themselves randomly divided into two groups: one group that was subjected to French policies and one group that was ruled by Britain.

In this article, we use this approach to identify the effect of colonizer's policies. We analyze religion, literacy, and nutritional status across the border between the British Gold Coast and French Togo. Using a newly collected data set of African recruits to the Ghana colonial army, we are able to measure border effects before the "start of the experiment" and thus test the assumption that the comparison and treatment groups were identical. This is important as recent research

[3] Christian missionaries offered a powerful alliance to deal with European colonizers (Oliver 1952). Ekechi (1971) and Der (1974) emphasized the ability to escape the chiefs' authority as an important motive.

[4] As exception to the rule, there were instances where African rulers actively shaped the border, see Touval (1966) and Griffiths (1986).

contested the idea that colonial rule "changed everything," emphasizing instead deeper roots that existed before (Herbst 2000; Nunn 2008; Michalopoulos and Papaioannou 2013). Moreover, we follow the same groups during colonial rule observing when border effects appeared or disappeared. Hence, we mitigate the problem of compression of history that Gareth Austin (2008) warned against.

COLONIZATION AND BORDERS

Togoland[5] came into being in 1884 when Germany declared a protectorate over the coastal zone and the hinterland (Brownlie 1979).[6] British and French forces conquered German Togoland at the outset of World War I and split it into two occupation zones. The Treaty of Versailles in 1919 decided that Togoland would be split 60/40 into British Trans-Volta Togoland (TVT) and French Togo. Under the terms of treaty, France and Britain had the right to administer countries "as integral portions of its territory" and for most practical purposes they were treated as if they were colonial possessions (Nugent 2002).[7] In most respects, TVT was integrated into the Gold Coast and Togo into *Afrique Occidentale Française*.

The Milner-Simon agreement of 1919 set the new border (Figure 1). It was made of straight lines running between border stones and in other parts followed small rivers or watersheds. Although it avoided splitting villages, geographic or tribal considerations were not paramount and the paper border cut through "cultural areas."[8] Ethnic groups divided by the frontier include from north to south the Moba, Anufo, Konkomba, Adele, Akposso, and Ewe.

Nevertheless, the partitioning did not result in two exactly equal parts. Trans-Volta Togoland (TVT) did not include the capital Lomé.

The 308 kilometers of railroad built during German rule were placed in Togo, and TVT roads did initially not connect to the Gold Coast

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[5] Throughout this article we use "Togoland" for the territory that was German Togoland (1884–1914), and we use "Trans-Volta Togoland" (TVT) and "Togo" for the British and French mandated parts of Togoland respectively. We use the term "Gold Coast" and "Ghana" for the colony and independent Ghana respectively.

[6] This section draws heavily on discussion of the colonial borders in Nugent (2002, pp. 21–38).

[7] In a contemporary study, famous Ralph J. Bunche (1934) concluded the same with respect to education.

[8] Though the Boundary Commission was allowed to make modifications where practical, the final demarcation in 1929 followed the 1919 agreement with the exception of one village (Kuma-Bala) that would have been split otherwise. The treaty also allowed members of border communities to settle across the border. Nugent (2002) however, does not report such changes of residence to have happened.
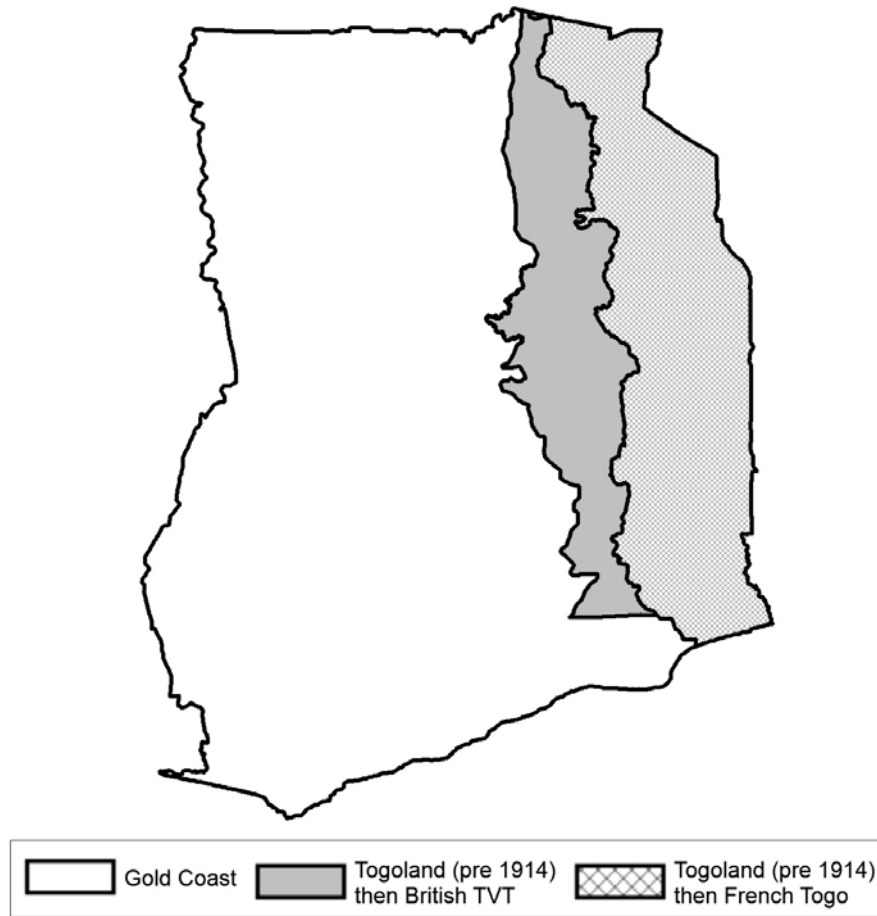
FIGURE 1
CHANGES IN COLONIZER AND BORDERS, 1914–1919

Sources: Shapefiles of Ghana and Togo are from Diva-GIS (http://www.diva-gis.org/gdata). The Togo border was digitized from Schnee (1920).

but were directed eastwards to Togo. The latter circumstances were more transitory, because roads were built in the 1930s integrating TVT into the Gold Coast colony. We will be able to evaluate the potentially confounding effects of partition, like differences in geography, infrastructure, and ethnicity. We will also use the 1914 Gold Coast-Togoland border as placebo check testing whether the old Anglo-German border left any persistent effect in TVT.

MISSIONARIES AND PROSELYTIZING

Missionary activities followed European penetration. Early missionary efforts were confined to the coast reaching only a tiny number of Africans (Foster 1965). From 1850 on evangelizing movements gained momentum in Western countries, and more and more mission stations were established. African agency played an important role in proselytization. Normally, the endogeneity in mission location would raise serious identification problems. In our study, however, we can rule out geography and customs or other unobservable confounding factors, as we can positively assume that initial conditions were fairly similar on either side of the border. Colonizers profoundly shaped missionary activities.[9] The British administration largely pursued an open-door policy (Smith 1966). French colonial authorities were basically anticlerical and to the extent they allowed missionaries they favored Catholics and French over non-French Protestants (Debrunner 1965; Mumford and Orde-Browne 1937).

All colonizing powers restricted Christian missionary activities in the North.[10] The area's inhabitants had resisted colonial authorities who wanted to avoid conflict in recently pacified areas. Islam was strong among traditional elites—chiefs, traders—on which colonial rule rested. There were also views that Islam would suit the native population, stimulate trade and help to spread "civilization."[11] German authorities did not allow Christian missions into northern Togo until 1910 and even then areas north of Sokode were off limit (Debrunner 1967). The French largely continued this policy (Adotevi 2011). The British long opposed and then heavily regulated missionary activities in the Gold Coast's Northern Territories. Effectively only the Catholic White Fathers Mission was allowed in (Der 1974; Thomas 1974). Restrictions were lifted only in the late 1940s and Protestant missionaries started evangelizing in the early 1950s.

After independence, mission societies lost ground: Churches developed into "African" churches, which were "self-supporting, self-governing, and self-propagating" (Welbourn 1971).

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[9] All four mission societies in Togoland (Methodists, Bremen Mission, Basel Mission, and Roman Catholics) were also present in the Gold Coast. Gallego and Woodberry (2010) argued that competition among different denominations prompted larger efforts in the scramble for souls.

[10] Muslim societies such as the Ahmadiyya movement did enter the North, but the number of mission schools remained negligible in the first half of the twentieth century (Samwini 2003).

[11] In early twentieth century Ghana and Togo, the great majority of the Northern population were in fact adherents of African traditional religions. According to 1930 estimates Muslims represented less than 3 percent in Ghana's Northern Territories and Togo's districts of Mango and Sokodé (Adotevi 2011; Gold Coast 1931; Gouvernement Français 1930).

As a result, the trajectories of Christianization varied widely. In 1925 about 9 percent of the population was reported to be Christians in the Gold Coast, whereas in Togo it was only 6 percent (Gold Coast 1926; Gouvernement Français 1926).[12] In 1995 Christians were 64 percent of the population of Ghana and 43 percent of Togo (Hildebrandt 1996).

EDUCATION

The educational systems of the different regions are highlighted in Table 1. About 90 percent of all students in the Gold Coast were enrolled in mission schools throughout the colonial period. Many of the schools received grants-in-aid from the state. German colonial administration in Togo also relied heavily on government subsidized mission schools (Lange 1998). The pattern in French administered Togo, in contrast, stands out. From the start there were more government schools and their role grew over time, so that in 1955 more than 50 percent of students went to government schools.

In 1902 Gold Coast schools were eligible to receive grants if they could show a minimum daily average attendance of 20 students and proper school accounts. Capitation grants were proportional to average attendance and to students' grades in "Reading and Writing of the English Language and Arithmetic" at the annual inspection (Gold Coast 1920). By 1925 grants conditions had become tougher, more subjects had to be taught and teacher qualifications also mattered. Not all mission schools met these requirements, but they could still operate unassisted until an Education Ordinance in 1927 introduced a minimum of formal teacher qualification for all schools. There were 136 "bush schools" closed down (Williams 1964).

In Togo, in 1925 subsidies were given to registered schools teaching in French and following the official curriculum, as a fixed amount for each pupil succeeding at the exams for the end of primary school (Gouvernement Français 1925). In 1929/30 mission schools were put under direct governmental supervision and had to follow the same rules as government schools (Gouvernement Français 1930). The teaching of the vernacular was first prohibited and then limited to one hour per school day. In compensation, the government paid for two-thirds of qualified teachers' wages. More than two-thirds of mission schools did not comply, were deauthorized, and closed or transferred into catechumenates. These establishments could teach basic reading,

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[12] These are numbers reported by the mission societies and may be unreliable. Among Christians the proportion of Protestants was relatively stable between 1920 and 1955, representing about 65 percent and 20 percent in Ghana and Togo respectively.

TABLE 1
FEATURES OF THE EDUCATIONAL SYSTEMS IN GHANA AND TOGO

	Gold Coast (British)				Togoland (German)	Togo (French)		
		Post-WW1: Gold Coast + TVT						
Year	1902	1925[b,c]	1938[c]	1955	1902	1925	1938	1955
Total population in 1,000[a]	2,085	2,749	3,745	5,827	625	651	887	1,380
Gross enrol. ratio[a], primary (%)	3.5	9.3	10.5	36.9	2.2	7.7	5.8	22.5
Contribution of each type of school to enrollment in primary (%)								
Government schools	12.5	9.6	8.2	13.1[d]	2.1	30.4	42.6	50.7
Mission schools (assisted)	68.8	54.0	65.2	84.5	97.9	69.6	57.4	49.3
Mission schools (non-assisted)	18.7	36.4	26.5	2.4[e]				
Government education expenditure								
As % of total spending (all schools)	1.3	2.8	6.1	11.1	0.8	4.2	6.3	15.9
Per primary school child (1925£)[f]								
Government schools	3.7	7.6	7.5			1.7	2.4	4.9
Mission schools (assisted)[g]	0.7	1.0	2.6	2.1		0.1	0.2	2.3
Mission schools (all)	0.6	0.6	1.8	2.0	0.3	0.1	0.2	2.3
Student-teacher ratio								
Government schools						44	43	54
Mission schools (assisted)						41		57
Gov. and mission (assisted)		24	21	31		42		
Average teacher annual salary in primary (1925£)								
Government schools			152			62[h]	77[h]	
Mission (assisted)			88				32[i]	

[a] Because colonial censuses underestimated the population, the figures were derived by extrapolating from 1960 numbers reported by UN Population Division (2011), assuming Ghana's demographic growth 1901–1960 as estimated by Austin (2007, p. 107) indiscriminately for all territories. We used Manning's (2010) estimate of the TVT/Togo population ratio of 37.4/62.6 to calculate Togoland population in 1902. School enrollment rates are very similar when based on alternative population estimates from Manning (2010) and Frankema and Jerven (2013). School-age population is assumed to be 20 percent of the total population.
[b] 1925/26 excludes Ewe Presbyterian schools (in British Togoland). Though salaries were paid by the government, Ewe Mission schools were not listed in Education reports or Blue Books.
[c] 1925 and 1938 Gold Coast figures include "upper primary schools" (class 7–10), but exclude middle schools (also class 7–10).
[d] Includes 568 "Local Authority Schools" equivalent to government schools.
[e] Figure refers to private schools.
[f] French Togo expenditures were transferred into pounds using the official exchange rate; both series were expressed in constant 1925 £ using the UK retail price index as deflator (Times Newspaper, 1971).
[g] Costs borne by the government through grants-in-aid.
[h] Total personnel expenditures divided by number of teachers.
[i] In 1938 the French government paid a subsidy of two-thirds of the wages for 62 teachers in the mission sector; this represented a per-teacher grant of £21 in 1925£, from which we infer 32 = 21/(2/3).
Sources: Gold Coast (various years-a, b); Kolonialamt (1903); and Gouvernement Français (various years).

writing, numeration, hygiene, and "morality" in vernacular languages, but received no government support (Gbikpi-Benissan 2011).

We hypothesize that the political choice of school mix had a profound impact on school supply and literacy. For governments using mission schools cut cost over public schools (Table 1). First, subsidies did not cover the full costs of mission schools. From the accounts schools submitted in the Gold Coast, we can infer that subsidies covered about 50 percent of costs in 1902 and 1925, then 66 percent in 1938 and 100 percent in 1955 respectively (Gold Coast 1903a, 1926a, 1939a). The rest was made up by school fees and voluntary contributions. For Togo, the situation is less clear. In 1938 subsidies covered two-thirds of the teacher salary if qualified. Education was free, which meant that mission schools could not fall back on school fees. Secondly, mission schools had lower costs than public schools. Teacher salaries in 1938, for example, were about half of what teachers received in the government school sector.

Contrary to the stylized facts about colonial educational systems, total expenditure on education was higher in the British colony. Although comparisons are difficult because of exchange rate variability, the Gold Coast spent much more than Togo on education (3 to 4 times more in per capita terms in 1925 or 1938).[13] It was richer and could use cocoa export taxes to raise revenue. However pre-World War II British Cameroons where fiscal income per capita was much lower and at par with French Togo had the same high level of spending for education as the Gold Coast (Dupraz 2013). Higher subsidization of mission schools not only translated in higher enrollment, but also in lower student to teacher ratios: 20 to 30 on the British side, relative to 40 to 50 on the French side. This also implies that one should not dismiss an impact on literacy from quality of schooling—if costs (including teachers' wages) and student-teacher ratios are correlated with quality. But the fact remains, the Gold Coast government kept per pupil expenditures low by using mission schools and with a fixed budget that should have increased school supply.

Education was a similar share of government budgets and followed a similar trend in both colonies; the share was low in the pre-World War II period, but increased steadily, to 11 percent and 16 percent in 1955 in

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[13] The variability of the franc to pound exchange rate was large between 1920 and 1939. For instance, taking the 1925 instead of 1938 exchange rate would put average public spending per school child in Togo at par with Gold Coast in 1938; taking the 1936 rate puts it higher. The exchange rate development did not follow metropolitan differences in inflation between 1925 and 1938. Even if it did, it may not be indicative of purchasing powers in peripheral colonies. Nothing is known about true differences in prices between Gold Coast and Togo.

Ghana and Togo respectively.[14] Enrollment rates were generally low before 1940s, probably less than 20 percent. Before World War I, the Gold Coast's enrollment rates were roughly on par with Togoland; during the interwar period enrollment rates in the Gold Coast exceeded the ones in Togo. Ghana's education programs started during World War II whereas Togo took off one decade later. The aggregate figures give a first indication of the role of missions, but they are not conclusive. Estimates of the school age population are crude approximations. In the Gold Coast, unassisted schools were not required to report their enrollments until 1945 and therefore did not do so systematically. Gold Coast and Togo schools may lack comparability both in terms of what constituted a school and in terms of efficiency and quality. Table 1 also masks pronounced spatial differences.[15] Figure 2 shows the location of primary schools in 1938. In the Gold Coast, schools were concentrated in the south, and only a handful of mostly government schools were located in the north. Togo showed little difference in the geographic pattern.

DATA

Colonial Army Recruits Data

For the colonial period, we use a new data source: attestation papers of men recruited to the Gold Coast Regiment (GCR), the British colonial army in Ghana. The data was collected from military personnel records held by the General Headquarters of the Ghana Armed Forces in Accra, Ghana. The army data represents the best available "survey style" records of the colonial time providing a wealth of information on the recruit's background such as age, place of birth, ethnicity, and previous occupation.

We measure literacy by the ability to sign one's name. Every recruit had to take an oath of allegiance and sign a declaration which legally subjected him to military rules and regulations. Here we find recruits'

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[14] For comparison, in the 1970s public spending on education was slightly below 20 percent in both countries, and in 1995 (1998) the governments of Ghana (Togo) spent 21 percent (24 percent) for education (World Bank 2011).

[15] Enrollment rates were also much higher in urban areas (Foster 1965). Furthermore, marked differences between genders existed. In Ghana, the ratio of boys to girls in 1900, 1930, and 1960, for example, was 4.8, 3.2, and 2.0 respectively (Gold Coast, 1901b, 1931b, 1963b). Corresponding figures for Togo in 1930 and 1955 were 7.6 and 3.4 respectively (Gouvernement Français 1931, 1955). For a micro-level study about the missionary impact on women in Uganda, see Meier zu Selhausen (forthcoming).

N Mission schools   N Government schools

◇ 10   ● 10

◇ 5   ● 5

◌ 1   · 1
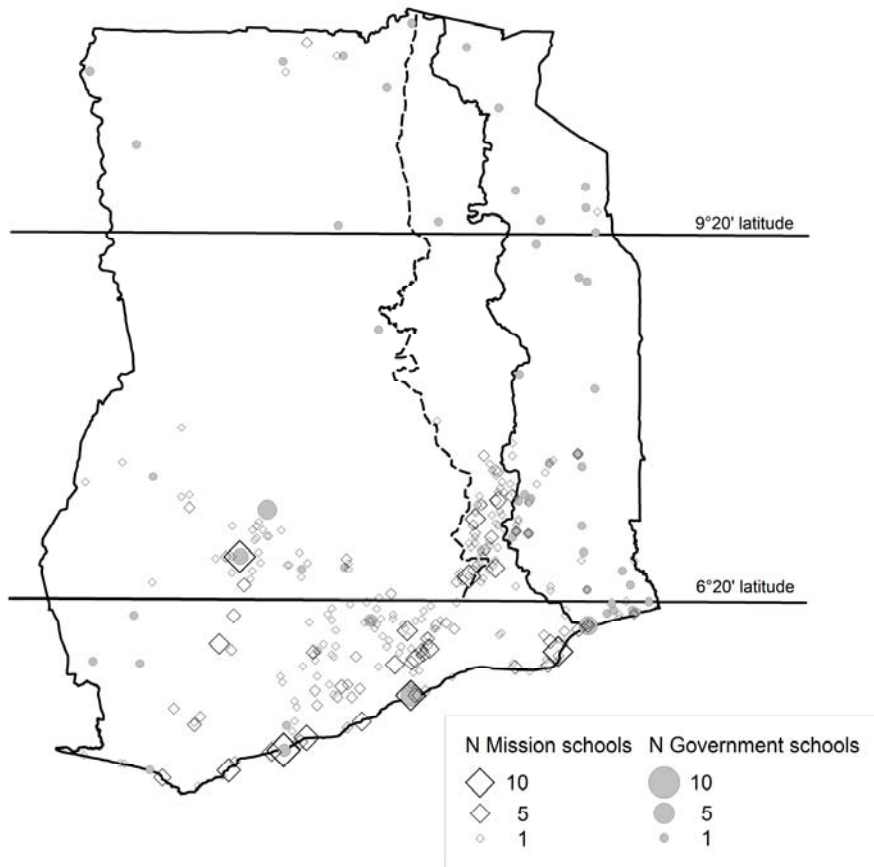
FIGURE 2

GEOGRAPHICAL LOCATION OF GOVERNMENT AND MISSION SCHOOLS 1938

Notes: Only assisted mission schools on the British side. On the French side, the Togo reports contain a map of schools in 1929. We could reconstruct the location of all newly established schools from subsequent reports except three government schools in the North that are consequently missing.

Sources: Gold Coast (1938-b: Map 1 and 2) and Gouvernement Français (various years).

signatures, x marks, or thumbnails. Signature literacy is widely used by historians (Rachal 1987); it measures the outcome of schooling which, in our context of possibly wide differences in quality of schooling, is a good property (Wagner 1990). The level of signature literacy usually falls below reading skills and above writing skills (Rachal 1987). In our sample, signature literacy is strongly correlated with self-reported formal schooling.[16] The army measured recruits' height and we use this

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[16] School attainment is recorded only after 1945: 40.9 percent and 22.9 percent of TVT and Togo born recruits attended school, 51 percent and 39 percent were signature literate. Signature literacy thus favors Togo born recruits. Moreover, 90 percent of recruits who attended

as indicator of nutritional status (Moradi 2009; Steckel 2008). Finally, the recruits' religion informs us about the missions' direct impact and the channel from proselytization to literacy.

We retrieved the geographic coordinates of recruits' birth places by matching place names from the GEONet Names Server (National Geospatial-Intelligence Agency 2007). We identified 77 percent of the places of the ethnic groups who mostly resided in Togo. Much of the attrition is due to duplicate place names (a regular feature of Africa), that prevent identifying the location, stating place names in local languages and misspellings. British officers also did not follow French and German spellings of place names, which made it particularly difficult to identify small places in the GEONet database.[17] Hence, there is a somewhat higher attrition of recruits born in rural areas outside Gold Coast. Assuming less access to schooling, missionary activities, and health in rural areas, this selection effect tends to bias our estimates of religion, education, and height in German Togoland and French Togo against our hypothesis.

The GCR data set consists of a complete sample of recruits enlisted between 1908 and 1939. We under sampled the 1939–1945 enlistment period as more than 60,000 men served in the GCR during World War II. For the post-World War II, period only odd regimental numbers were selected. From the original sample of 24,984 recruits, only 22,410 have year of birth reported. We limit our analysis to recruits who were born between 1890 and 1930, as sample sizes are too small for years outside that range, especially from peripheral regions; this again removes 2,826 observations. Then, over a total of 19,584 recruits, the place of birth could be retrieved for 15,193, of whom 11,940 were born in either Togo or Ghana.

Present-Day Survey Data

For the post-independence period, we use the nationally representative household members' samples and males' samples from the 1998 Demographic and Health Survey (DHS). We complement the sample with the 1998 Ghana Living Standards Measurement Survey (GLSS4). These two surveys provide comparable figures on educational attainment, (self-declared) ability to read, and religion.

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school signed with their name. In this respect, there is no difference between Togo and TVT born recruits.

[17] GEONet provides alternative place names including British and German spellings of places in Togo, but those variants are not available for small and unimportant settlements.

Colonial School Data

To more fully investigate school supply, particularly exposure to government and mission schools, we collected information on school location in 1902, 1925, and 1938. Education reports and statistical yearbooks recorded the number of schools by locality (Gold Coast 1926b, 1939b; Gouvernement Français 1925, 1938; Kolonialamt 1902/03); their geographic coordinates were retrieved from the GEONet data base. The location of government schools is always precise, but information on mission schools is less detailed and partly incomplete. For the Gold Coast, we only have information on mission schools that were on the assisted list. Hence, we omit non-assisted mission schools. Moreover, locations of a few mission schools had to be assumed either at mission stations or at the district capital (see Table 4 footnote). In total, we have 127 government and 1,039 mission schools in 400 localities.

STATISTICAL METHODS

Colonial Period Divergence

To analyze the natural experiment generated by the post-World War I partition of German Togoland, we implement two difference-in-difference strategies, in levels and in trends, on the cohorts of soldiers born in border areas.

To draw causal inference about the impact of British and French education policies, we can start with a simple strategy: compare the British Trans-Volta Togoland (TVT) area with the French Togo area before and after the partition. As primary schooling starts at age six, 1914 can be taken as the cutoff birth year: military recruits born after 1914 were only exposed to either British or French educational policies after 1920, whereas recruits born before 1914 could have started their school curriculum under German rule.

We restrict the comparison to recruits born close to the borders. As TVT is a rather narrow strip, we include all recruits from this area. We add recruits from Togo and the Gold Coast whose place of birth lies less than 50 km from the borders of TVT. Furthermore, as the southern border of TVT follows a straight latitudinal line at 6°20' (6.3 degrees), we exclude from our main estimation sample any recruit born below this line. We define two subsamples: born in South, i.e., between 6.3 and 9.3 degrees of latitude; born in North, between 9.3 and 11.3, to reflect the North-South divide in evangelization efforts and school supply. The TVT strip is narrow so nearly 90 percent of recruits were

born no further than 50 km from the eastern border with Togo; likewise, out of the 439 recruits born above the 6.3 parallel in Togo, the 50 km bandwidth selects nearly three quarters of them. Finally, Gold Coast recruits play a very minor role, as they mainly contribute to the identification of some control variables' coefficients like latitude. They are however useful for interpretation.

We estimate a standard difference-in-difference (DiD) regression

$$Y = \sum_{j=0}^{2} \delta_j^{pre} B_j \cdot 1\{T < T_0\} + \sum_{j=0}^{2} \delta_j^{post} B_j \cdot 1\{T \geq T_0\} + X\theta + u \qquad (1)$$

where Y is the outcome under study (literacy, religion, height). j indexes the areas of birth: $0 =$ Gold Coast, $1 =$ TVT and $2 =$ Togo. B is a dummy for that area of birth, T is the year of birth, and $T_0 = 1914$. X is a set of control variables. With those notations, the parameter of interest (double-difference) is $\left(\delta_2^{post} - \delta_2^{pre}\right) - \left(\delta_1^{post} - \delta_1^{pre}\right)$. Errors u are clustered by place of birth.

Birth cohort size is an important issue. Figure 3 shows large variations across time in the number of soldiers recruited. In particular, the two World Wars generated peaks (bottom panel graphs), and unsurprisingly the World War II peak is more pronounced in TVT and the Gold Coast. Many recruits of World War II were born in the 1910s, the average age at enlistment being 24-year-old (top panel graphs). As a result, early years (1914–1924) represent a disproportionate share of the post-1914 group compared to later years (post-1925). To correct for this, we reweigh recruits according to year of birth, assuming a 2 percent demographic growth rate in each of the six areas defined by the historical partition and by the North-South disaggregation.[18] Unweighted estimates are nonetheless also considered. Our simplest DiD estimates are first computed without controls, on each of the two subsamples, North and South separately. We then implement a series of tests to explore their validity and robustness.

To interpret the DiD estimates as causal inference requires assuming that literacy rates follow a common trend. The equality of pre-1914 levels $\delta_1^{pre} = \delta_2^{pre}$ is consistent with that assumption. However, our data allow us to go further and instead of looking at *levels*, to test for a differential break in the *trends* of outcomes at the cutoff birth year 1914. We call this alternative model by the acronym DiD-T, and estimate the following linear probability regression

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[18] Hence, if $s = 0$, 1 indexes the North-South divide, the birth year cohort T in area (j, s) has a weight proportional to $N_{j,s} 1.02^{(T-1890)}$ where $N_{j,s}$ is the size of the 1890 cohort in area (j, s). These growth rates are based on Austin (2007) estimates for the Gold Coast.
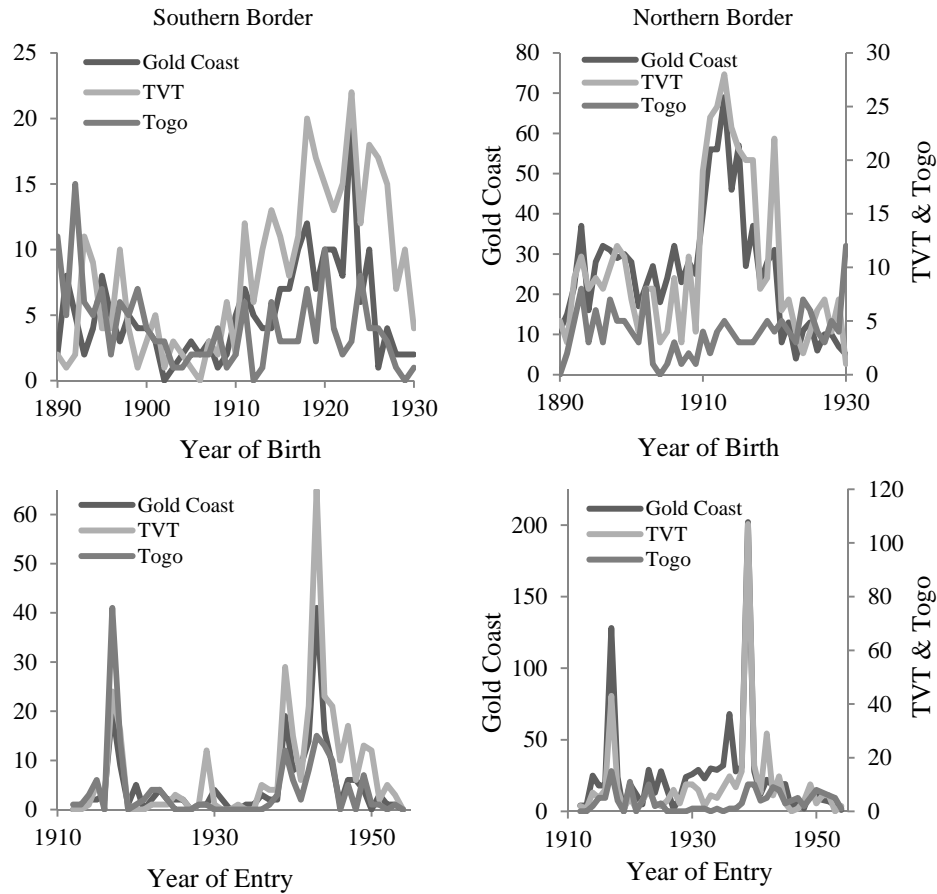
FIGURE 3
NUMBER OF RECRUITS FROM EACH BORDER AREA, PLOTTED BY YEAR OF BIRTH
AND OF ENTRY

Source and Coverage: Gold Coast Regiment data. Recruits enlisted 1908–1955, born 1890–1930. Geographical coverage for places of birth: TVT, Gold Coast 50 km and Togo 50 km, see Table 2.

$$Y = \sum_{j=0}^{2} \alpha_j B_j + \sum_{j=0}^{2} \beta_j^{pre} B_j \cdot (T_j - T_0) \cdot 1\{T < T_0\} + \\ \sum_{j=0}^{2} \beta_j^{post} B_j \cdot (T_j - T_0) \cdot 1\{T \geq T_0\} + v \quad (2)$$

where, as above j indexes the area of birth and B is a dummy for it; T is the year of birth, and $T_0 = 1914$ is the kink-point year chosen for the trend break tests. Errors v are clustered by place of birth. Ideally, we wish to show first that the two groups born in German Togoland did not differ in level in 1914 ($\alpha_1 = \alpha_2$); second that the same two groups had the same trend under German rule ($\beta_1^{pre} = \beta_2^{pre}$); that TVT after being merged

with the Gold Coast had the same trend ($\beta_1^{post} = \beta_0^{post}$). We provide statistical tests for these three requirements (and check that they indeed hold for all our estimates). Finally, the double-difference in trends $\left(\beta_2^{post} - \beta_2^{pre}\right) - \left(\beta_1^{post} - \beta_1^{pre}\right)$ will measure the extent of a break due to differential policies.

Present-Day Border Discontinuities

In order to maximize comparability with the estimates for the colonial period, we apply the same sample selection rules to present-day survey data: we restrict to the 100 km wide strip lying across the Ghana/Togo border, and drop localities located below the 6°20' latitude. We first test for the significance of difference in means across the border. Then, following the methodology for regression discontinuity designs (Hahn, Todd, Van der Klauuw 2001; Lee and Lemieux 2010), we identify border discontinuities using locally quadratic regressions

$$Y = \gamma B + \alpha_0 + \beta_0 D + (\beta_1 - \beta_0)B.D + \beta_2 D^2 + (\beta_3 - \beta_2)B.D^2 + X\theta + \varepsilon \quad (3)$$

where Y is the outcome of interest, $B = 0, 1$, is the border side (or country) of residence, and D is the distance to the border, positively signed for $B = 1$ and negatively signed for $B = 0$, so that: $B = 1\{D \geq 0\}$. X is a set of geographical controls (latitude and altitude). Errors ε are clustered by surveys' primary sample units.[19]

For border discontinuities to reflect the causal impact of national policies (even locally), it is required that border localities are not sorted into "types" by the boundary alignment, where "type" determines outcomes. This first requires this alignment to have been sufficiently hazardous in 1919.[20] Another important condition is that types of people did not "manipulate" their distance to the border through migration. International migration from Togo to Ghana was not rare during the colonial period up until 1965, although part of it was only seasonal.[21] After 1965 and until the 1990s, flows reverted because of economic and political crises in Ghana, however Ghanaians mostly emigrated to Nigeria (Anarfi and Kwankye 2003). Internal migration could generate

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[19] Alternatively to locally quadratic regressions, we also follow Dell (2010) and use a cubic polynomial in latitude and longitude, see Table 5.

[20] As with the GCR data, we tested for, and found no discontinuities in geographical and anthropological variables like altitude, latitude, and Ewe ethnic group at the Togo border.

[21] The 1960 population census enumerated 14,171 (respectively 5,234) Togolese nationals born before 1940 (resp. 1930) and living in Ghana, representing about 1.2 percent (resp. 0.5 percent) of the population from the same birth cohorts living in 1960 Togo (Anarfi and Kwankye 2003, and authors' calculations).

a larger bias, because one country capital city can be more attractive than the other. Lomé is much closer to the border than Accra, but including all Lomé residents in the border discontinuity estimation would rather reverse the bias than cancel it. Surveys unfortunately did not collect the place of birth. Yet, to account for internal migration, we can compare partitioned ethnic group members, in particular Ewe, whatever their place of residence (within the border area or elsewhere in each country).

COLONIAL ORIGINS OF BORDER DISCONTINUITIES

We first make the case for the divergence in literacy and religion after the 1919 partition, using the GCR data. We then relate this divergence to the school supply channel.

Table 2 shows DiD estimates at the TVT-Togo border for literacy, Christian religion, and height. The top panel looks at recruits born in the northern border area, the bottom panel at recruits born in South. The table suggests that partition had no effect in the North. For recruits born after 1914, the share of literate individuals increases by more than 10 percent everywhere while the share of Christians remains negligible; height variations are insignificant. In the South, all three outcomes are the same for cohorts born before World War I on both sides of the border. In contrast to the North, however, around one third of recruits declared themselves as Christians. After World War I, TVT outcomes rise to Gold Coast levels, whereas Togo's literacy rate and share of Christians lag behind. The DiD estimates point to a more than 20 percentage points divergence between 1914–1930 cohorts born on either side of the partition border: 24 pp for literacy, and 22 pp for Christian religion, the latter estimate being statistically imprecise. Finally, we find no significant divergence in height.[22]

Table 3 presents DiD-T estimates, for the same outcomes and populations. Results are in line with those of Table 2. The statistical tests for the pre-treatment comparability of the two areas are convincing: TVT and Togo recruits born around the kink-point year 1914 displayed close levels of outcomes ($\alpha_1 = \alpha_2$), and were located on common pre-treatment trends (1890–1914) for these outcomes ($\beta_1^{pre} = \beta_2^{pre}$). As with the DiD estimates, the northern areas show no change in those trends after partition. Again, it is in the South that we

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[22] Non-reweighed estimates, which give too much weight to early post-1914 cohorts, display lower magnitudes (13–14 pp), however the double-difference in literacy remains statistically significant.

TABLE 2
AT THE TOGOLAND BORDERS BEFORE AND AFTER WORLD WAR I:
DOUBLE-DIFFERENCES

	N		Literate (%)		Christian (%)		Height (cm)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Panel A: Born in North: 9.3 to less than 11.3 degrees of latitude								
G.Coast 50km (level)[a]	716	336	3.8	12.4	1.1	1.3	171.70	169.82
			(0.4)	(2.0)	(0.3)	(0.6)	(0.91)	(0.28)
TVT[b]	243	171	+0.8	+2.7	–0.4	+1.5	–0.56	–0.03
			(1.6)	(5.3)	(0.6)	(1.5)	(1.07)	(0.69)
Togo 50km[b]	83	79	+2.8	–1.6	–1.1	+4.5**	–1.66	–0.63
			(2.2)	(3.7)	(0.3)	(2.0)	(1.48)	(0.54)
Double-difference TVT/Togo[c]			–6.3		+3.7		+0.50	
			(6.8)		(2.4)		(1.60)	
Idem, non-reweighed[d]			–1.4		+2.5		+1.26	
			(4.4)		(2.4)		(1.11)	
Panel B: Born in South: 6.3 to less than 9.3 degrees of latitude								
G.Coast 50km (level)[a]	88	122	12.7	44.8	29.0	73.0	168.46	167.99
			(5.0)	(6.9)	(13.7)	(8.2)	(0.98)	(0.62)
TVT[b]	104	228	–6.6	–2.9	+4.9	+1.2	+0.01	–0.27
			(6.0)	(8.1)	(14.9)	(9.2)	(1.50)	(0.74)
Togo 50km[b]	101	65	–8.5	–29***	+6.2	–19.9	–0.04	+0.75
			(5.5)	(8.7)	(17.9)	(16.4)	(1.45)	(0.85)
Double-difference TVT/Togo[c]			–24.3***		–22.5		+1.07	
			(8.4)		(14.7)		(1.79)	
Idem, non-reweighed[d]			–14.1*		–13.0		+1.08	
			(7.2)		(13.6)		(1.40)	

* $p < .10$.

** $p < .05$.

*** $p < .01$.

[a] Mean level of outcomes in Gold Coast 50 km. Statistical significance is not reported; all mean levels are different from zero at 95 percent confidence.

[b] Simple difference with Gold Coast 50km: $\left(\delta_k^p - \delta_0^p\right)$, where p = pre, post and k =1, 2.

[c] Double difference between French Togo and British Togoland: $\left(\delta_2^{post} - \delta_2^{pre}\right) - \left(\delta_1^{post} - \delta_1^{pre}\right)$.

[d] Raw estimates, without reweighing by demographic growth.

Notes: Clustered standard errors, by place of birth (in parentheses). "DiD" estimates, see equation 1. Pre = Born 1890–1913; Post = Born 1914–1930. Sample sizes (*N*) are for the "Literate" outcome (North = 1,628; South = 708); a few missing values reduce the sample sizes for "Christian" (Nth.= 1,503; Sth.= 676) and "Height" (Nth.= 1,593; Sth.= 683). Year of birth cohort sizes are reweighed assuming a 2 percent demographic growth rate from 1890 to 1930 in each of the six areas.

Source and Coverage: Gold Coast Regiment data. Recruits enlisted 1908–1955, born 1890–1930. TVT: Whole area. Gold Coast (resp. Togo) 50km: recruits born in Gold Coast (resp. French Togo), no further than 50 kilometers from the border with TVT.

TABLE 3
AT THE TOGOLAND BORDERS BEFORE AND AFTER WORLD WAR I:
TREND BREAKS

	Literate (%)	Christian (%)	Height (cm)
Panel A: Born in North: 9.3 to less than 11.3 degrees of latitude			
Double-difference in trends[a]	–0.07	–0.71	–0.01
	(1.24)	(0.47)	(0.19)
Idem, non-reweighed[b]	–0.82	–0.86	+0.15
	(0.90)	(0.45)	(0.18)
Tests (*p*-values):[c]			
1914: TVT = Togo[d]	0.78	0.10	0.55
1890–1914: TVT = Togo[e]	0.53	0.08	0.89
1914–1930: TVT = G. Coast[f]	0.63	0.56	0.10
Panel B: Born in South: 6.3 to less than 9.3 degrees of latitude			
Double-difference in trends[a]	–4.16***	–3.53	+0.22
	(1.31)	(3.14)	(0.21)
Idem, non-reweighed[b]	–2.55**	–0.92	+0.12
	(1.19)	(2.06)	(0.23)
Tests (*p*-values):[c]			
1914: TVT = Togo[d]	0.38	0.78	0.68
1890–1914: TVT = Togo[e]	0.19	0.66	0.44
1914–1930: TVT = G. Coast[f]	0.68	0.45	0.55

* $p < .10$.
** $p < .05$.
*** $p < .01$.
[a] Coefficient $\left(\beta_2^{post} - \beta_2^{pre}\right) - \left(\beta_1^{post} - \beta_1^{pre}\right)$, in percentage points per year, see the text.
[b] Raw estimates, without reweighing by demographic growth.
[c] Tests are for reweighed estimates.
[d] Test $\alpha_1 = \alpha_2$, see the text.
[e] Test $\beta_1^{pre} = \beta_2^{pre}$, see the text.
[f] Test $\beta_1^{post} = \beta_0^{post}$, see the text.
Notes: Clustered standard errors, by place of birth (in parentheses). "DiD-T" estimates, see equation 2. Birth year trends are connected and centered at the kink-point 1914. Sample sizes: see Table 2. Cohort sizes are reweighed assuming a 2 percent annual demographic growth over 1890–1930, see Table 2.
Source and Coverage: Gold Coast Regiment data. Recruits enlisted 1908−1955, born 1890−1930. TVT: Whole area. Gold Coast (resp. Togo) 50km: recruits born in Gold Coast (resp. French Togo), no further than 50 kilometers from the border with TVT.

find a differential trend break for literacy. DiD-T estimates point to a high rate of divergence after 1914, about 4.2 percentage points per year over 15 years (2.5 for the non-reweighed estimate). While very large, this order of magnitude is broadly consistent with the 20–25 percentage points DiD estimate, as the latter figure is an average between early cohorts born just after 1914 and late cohorts born at the end of the 1920s. Of course, this pace of 4 pp a year could not be sustained

forever, as literacy rates are bounded between 0 and 100 percent. Sample sizes however preclude identifying nonlinear dynamics.[23] These results mainly reflect Togo lack of progress in literacy before World War II, as post-1914 trends are about zero. In contrast, TVT caught up with the Gold Coast; it always records a positive rate of increase, even higher than Gold Coast proper, although never significantly so according to the third row of tests ($\beta_1^{post} = \beta_0^{post}$).

Evangelization exhibits the same divergence (–3.5 pp a year) as literacy, but is again not precisely estimated. Finally, DiD-T estimates confirm that height stature evolutions were not affected by the Togoland partition. As OLS estimates could be biased due to minimum height requirements at entry (Komlos 2004), we estimated truncated regressions with a variety of height minima from 60 to 65 inches and found this result to be robust.

We now turn to divergence in school supply. Table 4 summarizes the school data that we collected for the years 1902, 1925, and 1938. Recall that the count of mission schools is restricted to assisted schools on the British side, and authorized schools ("*écoles reconnues*") on the French side. We disregard unassisted schools because they were not accurately recorded. Table 4 offers three lessons: First, mission schools constituted the bulk of school supply in all areas, especially in TVT where only one government school was settled before World War II. Second, the number of mission schools grew between 1902 and 1925, even in the former German Togoland where the British and the French had expelled German and Swiss missionaries and this growth continued between 1925 and 1938 in the British part. Third, in French Togo nearly three- forths of the authorized mission schools were deauthorized between 1925 and 1938. Yearly aggregate figures show that collapse occurred in the years 1930/31 after the French administration imposed new regulations on private schools.

In each panel of Table 4, a fourth row proposes an alternative count of mission schools for Togo. In 1930, as already explained, some deauthorized schools were closed, others were transformed into catechumenates. The decision was based on the assessed poor quality of teaching, so that one could think that even before 1930 those schools were not comparable to British assisted schools. This fourth row then provides an alternative evolution of school supply in Togo, by only counting authorized schools as of 1938 for all years. By construction, we then no longer observe a collapse, but rather stagnation in "true" mission school supply between 1925 and 1938.

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[23] Logit and probit estimators delivered the same magnitude.

TABLE 4
NUMBER OF SCHOOLS, 1902–1938

	Government			Mission		
	1902	1925	1938	1902	1925	1938
Panel A: All areas						
Gold Coast[b]	7	22	34	117	220	327
TVT[b]	0	0	1	24	52	81
Togo listed[c]	2	24	37	46	134	39
Togo authorized as of 1938[d]	2	24	37	23	37	39
Panel B: Southern border[a]						
Gold Coast[b]	0	0	0	6	11	9
TVT[b]	0	0	0	24	51	80
Togo listed[c]	0	10	14	19	51	22
Togo authorized as of 1938[d]	0	10	14	8	21	22

[a] From 6.3 degrees of latitude to less than 9.3. Schools no further than 55 km from the border of British Togoland with either Gold Coast or French Togo.

[b] Assisted mission schools only, according to British rules, except for TVT 1902.

[c] Authorized or approved mission schools in 1925 and 1938, according to French rules (*écoles 'reconnues'*).

[d] In 1930 the authorization policy was enforced much more stringently. Many mission schools lost authorization (and assistance), and were either closed or turned into catechist schools. This row proposes an alternative retropolated counting of schools for 1902 and 1925: non-approved mission schools as of 1938 are not counted in 1902 or 1925 either.

Notes: The 1902 German statistical yearbook did not list the schools of the Bremen Mission ("Norddeutsche Missionsgesellschaft"). We use the location of mission stations instead, i.e., we allocated 34 Bremen Mission schools to their 31 missions (hence 34/31 schools in each mission). Likewise, none of the schools of the "Ewe Presbyterian Church" was on the Gold Coast assisted list of 1925, despite teacher salaries being paid by the government. The Ewe mission had 49 schools, 17 of which we identified through a list of exam candidates, so that we assigned the remaining 32 schools to 36 mission stations locations (hence 32/36 school in each). Finally, the 1925 yearbook of French mandated Togo only gives summary statistics for the Catholic and Evangelic mission by district, not locality, whereas schools of the Wesleyan Mission (Methodist) were given by locality. We entered the geographic coordinates of the district capital.

Sources: Gold Coast (various years-a, b) and Gouvernement Français (various years).

For both alternative counts of mission schools, we create a variable giving the number of schools that were available to each GCR recruit at the age of 10 within a 5 kilometers radius around his place of birth and within the colony he was living in. Table 5 shows what the aggregate evolutions in school supply mean at the level of the individual recruit. It suggests that the school supply channel is a good candidate for explaining the observed divergence in education

TABLE 5
DIVERGENCE IN SCHOOL SUPPLY AT THE SOUTHERN TOGOLAND BORDER

	Number of schools in a 5 km radius around the place of birth[a]					
	Government		Mission		Total	
	Pre	Post	Pre	Post	Pre	Post
Double-difference pre and post-1914 (DiD)[b]						
G. Coast 50km (level)	0.22*	0.13	0.68*	3.21***	0.90***	3.33***
	(0.12)	(0.09)	(0.39)	(0.69)	(0.29)	(0.65)
TVT	–0.22*	–0.13	–0.32	–1.10	–0.54*	–1.22*
	(0.12)	(0.09)	(0.41)	(0.73)	(0.32)	(0.69)
Togo 50km	+0.08	+0.55***	+0.75	–1.68*	+0.83	–1.13
	(0.20)	(0.21)	(0.74)	(0.94)	(0.63)	(0.88)
"Authorized" variant[f]	+0.08	+0.55***	–0.19	–2.63***	–0.11	–2.07***
	(0.20)	(0.21)	(0.43)	(0.73)	(0.33)	(0.69)
Double-difference	+0.38***		–1.67**		–1.29*	
	(0.09)		(0.75)		(0.77)	
"Authorized" variant[f]	+0.38***		–1.67***		–1.29***	
	(0.09)		(0.31)		(0.34)	
Trend breaks (DiD-T)[c]						
Double-diff. in trends[d]	–0.00		–0.26**		–0.26**	
	(0.04)		(0.12)		(0.11)	
"Authorized" variant[f]	–0.00		–0.10		–0.10	
	(0.02)		(0.06)		(0.07)	
Diff. in post-1914 trends[e]	+0.02		–0.23***		–0.21***	
	(0.03)		(0.08)		(0.08)	
"Authorized" variant[f]	+0.02		–0.12***		–0.11**	
	(0.03)		(0.05)		(0.05)	

* $p < .10$.
** $p < .05$.
*** $p < .01$.
[a] and in the relevant colonial territory. For each recruit's place of birth in the GCR data set, we first compute the number of schools lying in the 5 km radius and in the relevant territory for 1902, 1925, and 1938. We take ten years as the benchmark age for primary school. Recruits born before 1892 (resp. after 1928) are matched with the 1902 (resp. 1938) number of schools in their place of birth. Then intermediate cohorts born 1892–1915 (resp. 1915–1928) are matched with an interpolation of the 1902 and 1925 (resp. 1925 and 1938) number of schools.
[b] See Table 2.
[c] See Table 3.
[d] $(\beta_2^{post} - \beta_2^{pre}) - (\beta_1^{post} - \beta_1^{pre})$.
[e] $\beta_2^{post} - \beta_1^{post}$.
[f] Non-authorized schools in 1938 are not counted in 1925 or 1902 either. See Table 4.
Notes: Clustered standard errors, by place of birth (in parentheses). Cohort sizes reweighed assuming a 2 percent annual demographic growth over 1890–1930, see Table 2 and text. Pre = Born 1890–1913; Post = Born 1914–1930.
Source and Coverage: Gold Coast Regiment data and school data (see Table 4). Recruits enlisted 1908–1955, born 1890–1930. TVT: Whole area. Gold Coast (resp. Togo) 50km: recruits born in Gold Coast (resp. Togo), no further than 50 kilometers from the border with TVT.

and religion.[24] We compute DiD estimates (top panel of Table 5) and DiD-T estimates (bottom panel) for the number of schools of each type. Both point to a post-1914 divergence in school supply between TVT and Togo. DiD suggests that Togo lagged behind TVT in school supply by more than one school on average; even if more government schools were opened on the French side (0.4 more schools on average), this did not compensate for the relative loss of 1.7 mission schools. The trend break estimates point to an even stronger divergence of around 0.2 schools per year between 1914 and 1930, i.e., a difference of three schools among recruits born in 1930. The "authorized" variant, using our alternative counting of Togo mission schools, tells a similar story: DiD estimates are unchanged, and by construction DiD-T point to a slower but still significant divergence of around 0.1 schools per year. We find no such divergence in the northern part of the border (result not shown), rather a tiny French advantage, visible on the map for 1938 (Figure 2).

BORDER DISCONTINUITIES AFTER 1940

We now turn to border discontinuities in adult literacy and religion in 1998, using a survey sample of males born between 1930 and 1979. At the national level, there is some convergence in primary school enrollment: among the youngest cohort (1955–1979), 85 and 77 percent of men had ever been to school in Ghana and Togo respectively, i.e., a gap of 8 pp. In contrast, a very persistent 29 pp gap in favor of Ghana is observed for primary level completion, despite much progress on both sides since the postwar period. As a consequence, the literacy rate, here measured by self-declared ability to read "easily," is 17 pp lower in Togo (74 percent vs. 57 percent). In terms of Christian religion, there is a similar difference with Ghana at 72 percent and Togo at 53 percent.

When restricting to border areas, in the northern part we do not find any discontinuity, neither in primary school attendance nor completion nor literacy (results not shown). In contrast, the southern part exhibits large discontinuities, as shown in Table 6. In the case of primary level completion (top panel), a very significant 32 pp difference is found

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[24] We checked that this school supply variable is positively correlated with the recruit's literacy and Christian religion, and not correlated with his height. In the southern border area, we found that having one school in the neighborhood at age 10 instead of none is associated with a 11 percentage points (resp. 17 pp.) higher likelihood of being literate (resp. being Christian). These estimates were obtained by regressing literacy and religion on number of schools and number of schools squared. We expectedly observed a slowly decreasing marginal impact of one additional school. We do not claim these associations are causal.

TABLE 6
AT THE BORDER OF TOGO WITH GHANA IN 1998 (SOUTH)

	Means		Border RD	
	Ghana Side (level) (1)	Togo Side (diff.) (2)	Locally Quadratic (3)	Polynomial (4)
Panel A: Men 20–69 years old born 1930–1979				
Born 1930–1954: Primary[a] (%)	58.2*** (5.4)	–31.9*** (6.1)	–23.1* (12.2)	–29.5*** (9.4)
N (PSUs)	208 (42)	521 (66)	729 (108)	729 (108)
Born 1955–1979: Primary[a] (%)	72.1*** (6.6)	–22.3*** (7.1)	–31.7** (13.1)	–34.0*** (7.4)
N (PSUs)	409 (42)	1,294 (66)	1,703 (108)	1,703 (108)
Panel B: Men 20–59 years old born 1940–1979[c]				
Born 1940–1979: Literate[b] (%)	69.0*** (7.4)	–13.2* (7.9)	–26.6** (11.4)	–29.6*** (7.4)
Born 1940–1979: Christian (%)	72.9*** (6.8)	–9.1 (7.7)	–15.9 (13.4)	–12.6 (8.4)
N (PSUs)	346 (42)	685 (66)	1,031 (108)	1,031 (108)
Panel C: Ewe ethnic group				
Born 1940–1979: Literate[b] (%)	85.1*** (3.8)	–26.3*** (5.3)	–31.8** (12.7)	–35.6*** (9.3)
Born 1940–1979: Christian (%)	91.1*** (3.5)	–26.0*** (6.4)	–38.5** (11.7)	–20.4** (9.4)
N (PSUs)	215 (31)	336 (47)	551 (78)	551 (78)

* $p < .10$.
** $p < .05$.
*** $p < .01$.
[a] Primary = Completed primary level.
[b] Literate (self-declared) = "Reads easily" in DHS, "Can read a letter" in GLSS.
[c] Only a subsample of males 15–59 years-old were surveyed on literacy and religion.
Notes: Clustered standard errors, by Primary Sample Units (in parentheses). Probabilistic sample weights used, adjusted for sample rate differences between the two countries. Column 1: Ghana 50 km sample means. Columns 2–4: Positive (resp. negative) numbers indicate differences in favor of Togo (resp. Ghana). Column 2: difference between Ghana 50 km and Togo 50 km sample means. Column 3: Locally quadratic regression in distance to the border on each side, coefficient γ in equation 3. Column 4: Cubic polynomial in latitude and longitude, see Dell (2010). Controls (only border RD): Dummies for each half degree of latitude, and for each 100 meters of elevation (from 0 to 300 or more).

among the 1930–1954 birth cohorts, that is only slightly decreased by true regression discontinuity (RD) estimates (–23 and –29 pp). Among 1955–1979 birth cohorts, the mean gap at the border (22 pp) is not far from the national level difference (29 pp), and it gets even larger with RD estimates (32 to 34 pp).

Literacy and religion were only collected for a reduced sample of men, which forced us to put all 1940–1979 cohorts together. Compared to the national level, the difference in means between the two border areas is reduced, especially for Christian religion (Panel B). However, RD estimates again point to a large difference in literacy (27–30 pp), meaning that distance to the border matters.

When restricting the comparison to the Ewe ethnic group (Panel C), then mean difference and border RDs become very consistent, and again point to a large handicap in literacy on the Togo side. Border discontinuities in Christian religion are also found to be large. The surveys unfortunately did not collect the place of birth of individuals. As results may be biased by selective migrations to places like capital cities where returns to education are higher, we compute the mean difference among all Ewe males from the same birth cohort, whether they are found in border areas or elsewhere in the two countries. For the 1940–1979 cohorts, the difference in literacy rates between Ewe living in Ghana and Ewe living in Togo is a highly significant 16pp; the figure for Christian religion is only 11pp but still very significant.

For cohorts born in the late colonial or the early post-colonial periods, these results are strikingly in line with what we found using the colonial military data for earlier cohorts (1914–1930): (i) a large gap in literacy, and a persistent shock on evangelization; (ii) no impact in the North, and no impact on height.[25]

INTERNAL VALIDITY OF THE HISTORICAL PARTITION AS A POLICY EXPERIMENT

Let us now return to the GCR data and explore the internal validity of our DiD and DiD-T estimates. We implement a series of tests to check the robustness of our specification of the border discontinuity.

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[25] Large and consistent differences in means and border RDs were found for women born 1950–1979, whose samples are of larger and less affected by migration bias. Besides, anthropometric data on mothers confirmed the absence of discontinuity in height.

We also want to exclude potentially confounding factors like geography, infrastructure, ethnicity, or skill-biased selection.

Geography

   We varied the bandwidth (50 km, then 25 km); then we extended the southern comparison below the 6.3 latitude line, hence including the capital city of Togo, Lomé, as place of birth. We also implemented our DiD and DiD-T estimators on geographical variables as outcomes, to examine whether variation in these variables could confound our estimates of the impact of partition on education or religion. We used a first set of variables to capture differences in natural geography: latitude, altitude, ruggedness of terrain (Nunn and Puga 2012), and a second set to capture infrastructure: distance to cities, railroad lines, and cocoa production. The estimates showed that ruggedness could pose a threat to causal inference, but only for the DiD estimate. We then introduced each of the two sets of geographical variables as controls in our main DiD and DiD-T estimates and the results did not change relative to those reported in Tables 2 and 3. We also produced a full-fledged border discontinuity estimate, using distance to the border as an additional control variable. Finally, we built a placebo test where we replaced the TVT/Togo border by the border between Gold Coast and German Togoland. At this placebo border, we showed that the divergence in literacy was statistically insignificant.[26]

Selection into the British Army

   A remaining concern with our results comes from changes in recruitment selectivity from each of the two areas, TVT and Togo. These evolutions could stem from recruitment policy, or, because GCR recruitment was voluntary, from differential self-selection of applicants linked to the changes in outside options in the French vs. British labor markets.
   To begin, labor markets were rather integrated during colonial times. The economy of the Gold Coast depended on the inflow of labor migrants and cross-border movement of labor was unrestricted (Cordell and Gregory 1982). Cocoa farms and mines in Ghana's forest region attracted large numbers of unskilled workers from Ghana's North

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[26] Please refer to the Online Appendix for detailed econometric estimates. With 1998 survey data, we also examined the same placebo border, that does not even correspond to any administrative boundary within Ghana today. We did not find any important difference in terms of literacy or evangelization, for cohorts of men born between 1930 and 1979, in the South or in the North.

and French West Africa, in particular Burkina Faso (Rouch 1957); Togolanders from both sides of the border migrated to the more dynamic areas in the West (Ward 1950). The GCR as an employer did not discriminate against non-British Africans: roughly 30 percent of servicemen were born outside of Ghana. Language was not a job requirement. English and Hausa were used to communicate in the army—languages that were not vernacular for British Gold Coasters (Killingray 1982). Furthermore, due to the League of Nations mandate, Togolese men were exempted from military service on the French just as on the British side. Despite of this, the army did not take everyone. Physical fitness was a requirement. British officers also believed that men of exceptional soldierly qualities came from certain ethnic groups (the so-called "martial races") and could have preferred them as long as enough men put themselves forward. Overall, our sample of recruits is not a random draw or representative of the male population. For our purpose, however, selection effects are less important than one might initially think, thanks to our econometric strategy. First, as the border divided ethnic groups, any preference for a certain ethnic group applies to their members on both sides of the border; one such "martial race," for example, was the Konkomba who straddled the border. Second, any time-invariant difference in selection across borders will be canceled out by double-differences in levels or in trends.

We checked with multiple sources that the TVT/Togo boundary does not correspond to delimitations between distinct precolonial polities or cultural areas. Even if ethnonyms and typologies vary between sources, all of them confirm that the border actually split many ethnic "homelands" (Brownlie 1979; Dickson 1969; Lewis and SIL International 2009; Murdock 1959; Nugent 2002; Olson 1996). GCR recruits were also asked about their ethnicity, so that we could directly identify partitioned ethnicities: One major group is the Ewe in the South, and from North to South, the Moba (Bimoba), Anufo (Chakossi), Konkomba, Basare, and Kotokoli (Tem). Our literacy estimates were robust to restricting analysis to the subsamples of Ewe recruits, or of partitioned ethnicities more generally.

Yet, the changing composition of the GCR sample over time remains a concern. The World War II increased the demand for skilled personnel, and just after World War II the professionalization of the army further accelerated. Among recruits from the border area, the average share of literate or skilled individuals exhibits large upward shifts after 1938 and after 1946. At the same time, fewer recruits were coming from Togo during World War II, while more Ewe recruits from the southeast were recruited from both sides after World War II.

As a first check for variations in recruitment, we included year of enlistment fixed effects as an additional control. This way we accounted for the fact that the GCR could have recruited more or less literate individuals during some periods, whatever their geographical origin. DiD and DiD-T were reassuringly unaffected.

The latter strategy, however, does not rule out time-varying differential selective recruitment according to geographic origin. Men of higher socioeconomic background found military service and wages less attractive compared to other employment opportunities. We believe that this general reluctance applied to each area. However, during World War II individuals with skilled occupations could have been coerced into the GCR more successfully within the Gold Coast territory, while at the same time the government of AOF, loyal to Vichy, had closed the borders with British colonies. Besides, improved job offers in post-World War II Togo could have induced skilled individuals to stay in the country rather than to apply to the GCR abroad. To deal with these possibilities, we dropped recruits who declared a skilled occupation, while still controlling for date of entry. This way we only compared recruits who entered the GCR the same year and who were originally working as farmers or in another unskilled/semiskilled occupation. We acknowledge that this strategy is not an unambiguous improvement, as it relies on the assumption of a constant correlation between literacy and skilled occupations (across time and space). Yet, our estimates passed this additional test and with these restrictions, the divergence in Christian religion increased. In fact, whatever their area of origin (TVT or Togo), 88 percent of skilled recruits born after 1914 are Christian. Our interpretation is that GCR recruitment was biased towards skilled men or even skilled Christians, so that including them blurs our estimates of the divergence in religion.

We also used data of recruits to the French army regiment based in neighboring Dahomey (today Benin). We selected Togolese volunteers for whom literacy and/or religion were recorded, and included them in the regressions, while controlling separately for year of entry in each of the two regiments. That way we allowed for the possibility that literate Togolese could have preferred joining the French army rather than the British. Results again remained unchanged.[27]

We still acknowledge that we do not entirely rule out the possibility of an upward bias on our estimate of post-partition divergence; indeed literate Togolese could have found the option to stay in Togo more and more attractive, compared to joining the GCR in Ghana. However, the divergence in school supply that we also identified is not affected by

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[27] We refer the interested reader to the Online Appendix for detailed econometric estimates.

these selection issues. The same is true of the differences in education that we observed in survey data, for the cohorts born after 1930 but before independence. These elements make us confident that the post-1914 divergence observed in soldiers data is not spurious.

CHANNELS OF CAUSATION AND EXTERNAL VALIDITY

We showed that differences in education and religion between Ghana and Togo can be traced back to the post-World War I partition, and that mission schools' supply makes a good candidate for explaining the divergence. We now examine alternative channels of causation, and discuss what is learnt more generally on the contrast between British and French policies in Africa.

One interpretation is that TVT simply benefitted from being merged with a wealthier and more dynamic region (cocoa producing Gold Coast), whereas Togo was left on her own. The difference in wealth should not be overstated however. TVT was not the most buoyant part of the Gold Coast. While cocoa production expanded from the Gold Coast into TVT in the 1920s, it reached the French side in the 1930s. The railroad that Germany started and France continued was on the Togo side. A large share of TVT cocoa beans were crossing the border to be transported to Lomé by railroad; besides, Togolese from the French side could cross the border to work in the Gold Coast on a seasonal basis (Goeh-Akue and Nabe 2011; Lawrance 2011; Nugent 2002).

Yet, could a difference in income growth have translated in higher demand for educational services? Several facts are at odds with a demand-driven story. First, a large divergence in parental wealth between TVT and Togo should have translated into height differences that we did not find. Further, according to our estimations military recruits from TVT cocoa producing areas did not tend to be more literate (see the Online Appendix). Second, if returns to education had increased more in TVT, we should observe that TVT recruits became more skilled at the same time. However, when we estimate our models with "unskilled occupation" as the outcome variable, we do not find a significant border effect. Instead, we find the same divergence of literacy when restricting the analysis to recruits with unskilled occupation.

We therefore favor a supply-driven story where British policies differed from the French in the southern non-Islamized areas. The British policies involve: (i) higher spending in education,

not necessarily linked to fiscal income;[28] (ii) higher contributions of subsidized mission schools. In northern areas, no such differences held.

We cannot determine exactly how much of the literacy divergence in southern areas was due to the level of spending in education on the one hand, and to the public/private mix on the other hand. The two elements are interlinked: the French authorities could have counterbalanced their opposition to missions with more secular government schools, i.e., by spending more in education, which they did not. Because of the Great Depression, the 1930s were not a good period for increasing public spending. After World War II, things could more easily change. In 1955 Togo, education expenditures had significantly increased and mission schools were receiving a substantial amount of subsidies, however the contribution of mission schools to total enrollment remained lower than in Gold Coast (Table 1).

We ran simple counterfactual simulations which suggest that, by having the same allocation of spending between government and mission schools as the British, while keeping with their own budget constraint, the French could have closed the gap in enrollment in Togo 1938, or 1955. Of course, observed student-teacher ratio would remain unchanged, so that equal enrollment rates could still translate in different literacy rates.

When thinking of the external validity of this Ghana-Togo comparison, two other pairs seem the most relevant ones, Ghana and its western neighbor Côte d'Ivoire on the one hand, the British and French Cameroons on the other hand. In the first case, survey data reveal that the cohorts born in the 1930s in the southern border counties of Côte d'Ivoire were also much less educated than their Ghanaian counterparts. However, quick convergence in literacy was observed among cohorts born in the 1940s. Côte d'Ivoire even significantly overtook Ghana in the 1970 cohorts, making another example of how "colonial legacy" can be overturned (see the Online Appendix, and also Cogneau, Mesplé-Somps, and Spielvogel, forthcoming). Beside Togo, Cameroon was the other German colony to be partitioned between the British and the French after World War I. Pre-World War II figures tell a similar story, with higher spending for education and stronger support of the missions on the British side (in French Cameroon, the colonial government chose to turn a blind eye to low-quality mission schools; Dupraz 2013). Using population census data and border discontinuity techniques, Yannick Dupraz (2013) observes that the French side

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[28] In the case of the partitioned Cameroons, Dupraz (2013) finds that before World War II the British part was spending more for education, while the French part was wealthier and had higher fiscal income.

was lagging behind the British side until World War II. In the 1950s however, it caught up in terms of education expenditures, adopted a similar public/private mix, and overtook its neighbor in terms of school enrollment.[29]

For the interwar period, the Côte d'Ivoire and Cameroon cases then appear very consistent with the Togo case. In that sense, the pre-World War II differences in educational policy and performance that we identify in the southern part of the Togo border have some external validity. Furthermore, in each case education outcomes were indistinguishable where colonizers chose fairly similar policies against missionaries, in the northern regions. The same is true for Ghana's northern border with French Upper Volta (later Burkina Faso).[30] We expect the same for northern Cameroon or Niger compared to Nigeria. However, the persistence after World War II was more country-specific. Convergence was achieved rather early in the cases of Côte d'Ivoire and Cameroon, while this process is still under way in today's Togo. In particular, in the 1950s Togo received less funding from the metropolis. Last, even though we favor a supply-driven story for the pre-World War II divergence between non-Islamized areas, and also for post-World War II cases of early convergence, we do not mean that channels of persistence do not involve demand effects. Indeed, it is fairly plausible that intergenerational transmission of preferences for education comes into play at some point, and relay initial supply shocks (see e.g., Wantchekon, Novta, and Klašnja 2013 on Benin). We do not mean either that the link between education and Christian religion has remained constant across time. In 1998 survey data, for cohorts born before 1959 near the TVT/Togo border, the odds of a Christian being literate rather than illiterate is nine times higher than for a non-Christian; this odds-ratio for Ghana being significantly higher (14) than for Togo (7). Yet, for cohorts born after 1960, it goes down to four for both areas.

The association between school and religion fades over time. On the one hand, other channels exist for evangelization, if only simple epidemiological diffusion. On the other hand, with secular state-led school expansion after World War II, more and more non-Christian children got enrolled in all areas.

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[29] After a 1961 plebiscite, the southern part of the British Cameroons joined independent Cameroon, while the northern part merged with Nigeria. In TVT, a similar plebiscite was held in 1956. Even if a majority in the South was for joining independent Togo, both North and South were merged with independent Ghana.

[30] For the pre-World War II colonial era, we used the GCR data, and for later periods, we again used survey data. For results, see earlier versions of this article.

CONCLUSION

The partition of German Togoland after World War I assigned subjects of otherwise homogeneous communities found themselves to either British or French rule, and later to independent Ghana and Togo. This provides us with an opportunity to study the impact of colonial policies on education. Using a new data set of recruits to the Ghana colonial army 1908–1955, we find that the two mandates of Togoland started to diverge in terms of literacy as early as in the 1920s.

Under the French mandate, a hostile stance was taken against missionary schools, a number of which were deauthorized in 1930/31 without being replaced by secular ones. The British government did spend more on education and at the same time pursued a cost effective policy of mission schools subsidization. This divergence is only visible in the southern parts of Togo and TVT. In the North, educational and evangelization efforts were weak on both sides, and did not produce any significant differences. Applying a border discontinuity analysis to contemporary survey data, we found that the border effects from the colonial times persist today.

This story of supply-driven divergence is able to account for other pairwise comparisons like the southern parts of anglophone and francophone Cameroons, or Côte d'Ivoire contrasted with Ghana, at least before World War II. In the 1950s and after the independences, the two latter examples demonstrate that policies could be changed and that early colonial legacy could be overturned; even today's Togo shows sign of convergence. In northern Islamized regions, our analysis suggests that a British Burkina Faso, Mali, or Niger would have achieved literacy levels no higher than they actually did under their French colonizer.

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Online Appendix

*Appendix 1: Natural and Constructed Geography
at the Ghana-Togo Border*

GCR Places of Birth   DHS/GLSS Places of Residence
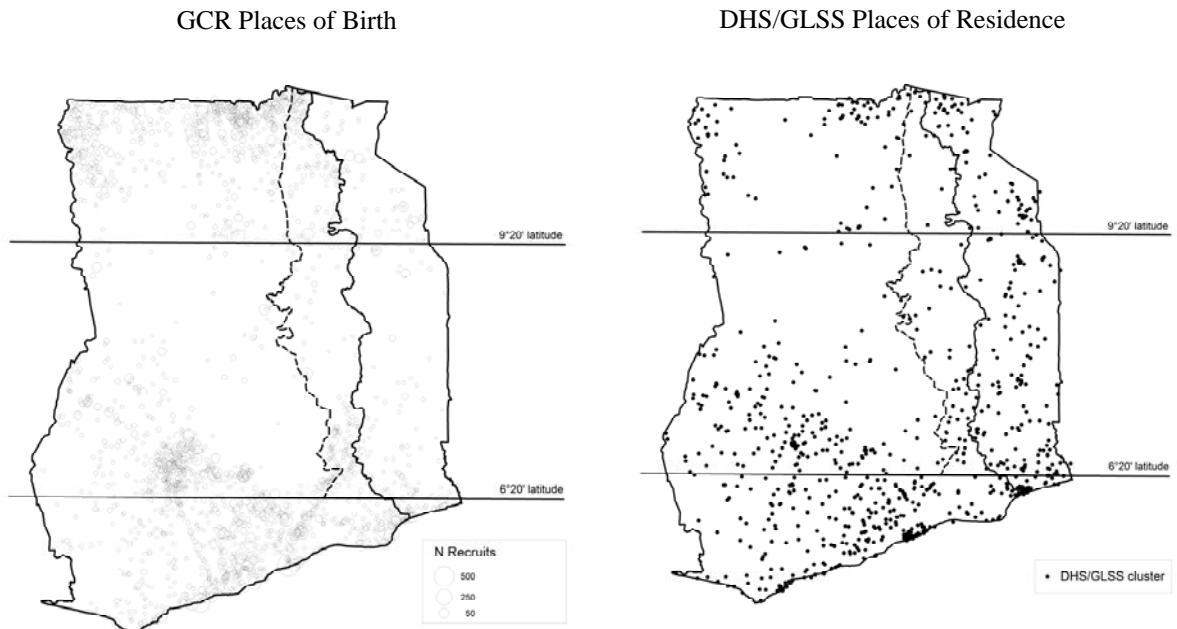
APPENDIX FIGURE 1
PLACE OF BIRTH / RESIDENCE IN THE DATA USED

Note: In the Gold Coast Regiment (GCR) data, a dot represents the place of birth of at least one recruit (Moradi 2008) In the Demographic and Health Surveys data, a dot shows the place of residence and is a primary sample unit PSU and survey cluster (Macro International).

   Appendix Table 1 looks at the differences in natural and constructed geography between the comparison areas, i.e., at the geographical characteristics of the places of birth of GCR recruits (lying within the 100 kilometers bandwidth across the TVT/Togo border and between the 6.3 and 11.3 parallels); here again, we distinguish the Northern (9.3–11.3 latitude) and Southern (6.3–9.3 latitude) subsamples. We use the GCR sample as in our analysis of literacy, Christian religion, or height stature. Even if the GCR is not a representative sample of populations, this analysis differs from a pure look at geographical maps as it takes into account the spatial distribution of people. It allows detecting whether geographical discontinuities could confound our double-difference estimates.

APPENDIX TABLE 1
DIFFERENCES IN NATURAL AND CONSTRUCTED GEOGRAPHY

	Latitude (degrees)	Altitude (meters)	Ruggedness[d] (meters)	Dist. Large Cities[e] 1990 (km)	Dist. Togo Railway[f] (km)	Cocoa 5 km Radius[g] 1927 (tons)
	(1)	(2)	(3)	(4)	(5)	(6)
Simple difference in level[a] (pre-1914 cohorts)						
North	+0.00	–5.5	+2.8	+58.3***	–17.6	0
	(0.23)	(26.3)	(5.5)	(11.6)	(23.4)	(–)
South	+0.13	+52.4	+2.4	+10.0*	–4.1	–130***
	(0.50)	(48.6)	(20.7)	(5.9)	(34.3)	(45)
Double-difference pre- and post-1914[b] (DID)						
North	–0.16	–28.2*	–1.7	–11.7	–17.4	0
	(0.13)	(17.0)	(4.8)	(7.9)	(15.0)	(–)
South	+0.06	–76.7**	–36.8**	–9.1	–1.8	+1.8
	(0.29)	(35.7)	(18.0)	(6.1)	(22.2)	(45.4)
Double-difference in trends[c] (DiD-T)						
North	–0.018	–2.39	–0.39	–1.18	–1.87	0
	(0.018)	(2.03)	(0.58)	(0.91)	(2.12)	(–)
South	–0.051	–3.92	–1.36	–2.76***	–1.67	+14.5*
	(0.055)	(7.90)	(3.08)	(0.93)	(2.9)	(7.8)
N	428	428	428	428	428	428

* $p < .10$.
** $p < .05$.
*** $p < .01$.
Notes: Clustered standard errors, by place of birth (in parentheses). Cohort sizes reweighed assuming a 2 percent annual demographic growth over 1890–1930, see Table 2 and the text. A positive coefficient means French Togo higher than British TVT.
[a] $\delta_2^{pre} - \delta_1^{pre}$, see the text.
[b] Double diff. between Fr. Togo and Br. Togoland, $\left(\delta_2^{post} - \delta_2^{pre}\right) - \left(\delta_1^{post} - \delta_1^{pre}\right)$, see Table 2.
[c] Coefficient $\left(\beta_2^{post} - \beta_2^{pre}\right) - \left(\beta_1^{post} - \beta_1^{pre}\right)$, in units per year, see the text and Table 3.
[d] Terrain ruggedness index for 30-arc-seconds grid. From Nunn and Puga (2012).
[e] Cities: Distance and squared distance to the closest city, taking cities with more than 30,000 inhabitants in 1990 (Africapolis): Atakpame, Ho, Kpalime, Lomé, Sokode, and Yendi.
[f] Railway: Distance and squared distance to Togo railway lines: For born before 1903, railway line as of 1913; if born after 1924, lines as of 1934; if born between 1903–1924, interpolated.
[g] Cocoa: Output and squared output of cocoa beans in 1927, 5 km radius around place of birth (only Gold Coast, French Togo not available).
Source and Coverage: Gold Coast Regiment data. Recruits enlisted 1908–1955, born 1890–1930. Except noted below: Place of birth in former Togoland area, 50 km or less from the border between TVT and Togo, and 6.3 to 9.3 degrees.

Three "natural geography" variables are considered: latitude, altitude, and an index of the "ruggedness" of terrain, taken from Nathan Nunn and Diego Puga.[1] The three other "constructed geography" variables are: (i) the distance to the closest "large city," defined as counting more than 30,000 inhabitants in 1990; (ii) the distance to the Togo railway lines that started to be built under German rule and were continued under French rule; (iii) the quantity of cocoa produced in a 5 kilometers radius around the place of birth, as of 1927. For each geographical variable in column, the top panel simply reports the average difference in level between the cohorts born before 1914 on each side, in the North and in the South. The middle panel then reports the DiD estimates. The bottom panel reports DiD-T (trend breaks) estimates.

Column 1 shows that no significant differences in latitude can be detected, whether in level or across time. Column 2 shows that southern pre-1914 Togo recruits are born in places that are on average more elevated by 52 meters than birth places of TVT recruits. This latter difference is reversed for post-1914 cohorts, with a significant DiD estimate (–77 meters) meaning that the variation in altitude could be a confounder, in case it has an impact on any of our three outcomes. However no significant double-differences in trends are identified, meaning that altitude should not confound the more refined DiD-T estimates. Column 3 on ruggedness basically brings the same conclusions as for altitude, except that there is no initial difference between pre-1914 places of birth: the DiD estimate signals that southern post-1914 Togo recruits are from less rugged (and less elevated) places, but no double-difference in trends (DiD-T) is detected. For DiD estimates at least, these variations in elevation and in ruggedness could be a concern as Nunn and Puga (2012) have argued that in the African context a more rugged terrain preserved people from slave trade raids. Then post-1914 recruits from TVT would originate from communities who were less affected by the slave trade, and could have ended up with better institutions, "trust," and/or human capital endowments. We checked that this variation in elevation or slope does not apply to the Ewe ethnic group, whose homeland lies in the less mountainous most southern area, and only to mountain people located between the Volta Lake and the TVT/Togo border. When restricting our estimation to Ewe recruits, as we do in column 1 of Appendix Table 2, we no longer find any significant DiD in altitude or ruggedness. According to Nunn's figures, the intensity of the slave trade was maximal for the Ewe, the Konkomba in the North coming second.

Last, in Appendix Table 2 below we provide estimates that control for altitude and ruggedness, both in the DiD and the DiD-T specifications (column 3). We find that those controls bring no change, or if anything rather a slight increase in the estimate of the literacy divergence.

We then turn to constructed geography. Column 4 suggests that pre-1914 Togo recruits were born further away from the small towns that turned into large cities (over 30,000 inhabitants) during the post-colonial period (Atakpame, Ho, Kpalime, Lomé, Sokode, and Yendi), especially in the North. In the South, the places of birth of recruits from Togo born before 1914 are on average 10 kilometers further from these future cities. For cohorts born after 1914, this difference more or less cancels out, so that the DiD estimate is negative (–9.1 km) although not significant; yet the DiD-T estimate is also negative and highly significant, reflecting a gain of 2.8 kilometers per year. As distance to urban centers is negatively correlated with literacy, evangelization or health, this kind of variation should generate a downward bias, i.e., attenuate the divergence we observe between TVT and Togo recruits.

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[1] We also tried the alternative "slope" measurement, however it is very much correlated with "ruggedness" so that using it instead makes little difference.

APPENDIX TABLE 2
ROBUSTNESS TO GEOGRAPHY
(southern areas)

	50km	25km bw	Latit., Altit. and Rugg. Controls	All South	Cities, Railway and Cocoa	Border RD[f]	Placebo Border RD[g]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Double-difference pre and post-1914 (DiD)[a]							
Literate (%)	–24.8***	–28.1***	–28.1***	–28.6**	–24.3**	–27.8*	–18.9
	(9.5)	(9.3)	(9.5)	(9.3)	(11.5)	(15.1)	(18.7)
Christian (%)	–23.2	–28.8	–28.0	–23.9	–29.6**	–53.2*	–8.2
	(16.0)	(19.9)	(18.8)	(17.0)	(14.2)	(29.6)	(20.7)
Double-difference in trends (DiD-T)[b]							
Literate (%)	–5.3***	–5.3***	–6.96***	–6.38***	–4.56**	–7.17***	+3.29
	(1.26)	(1.73)	(1.47)	(1.50)	(1.83)	(2.62)	(2.30)
Christian (%)	–3.13	–0.87	+3.99	+3.15	–4.53	+7.97	+1.49
	(3.12)	(3.07)	(2.46)	(2.33)	(2.83)	(5.01)	(2.73)
N	428	255	428	577	428	428	628
Latit., altit. and rugg.[c,g]	No	No	Yes	Yes	No	Yes	Yes
Cities, railway and cocoa[d,g]	No	No	No	No	Yes	No	No
Distance to border[e,f,g]	No	No	No	No	No	Yes	Yes

* $p < .10$.
** $p < .05$.
*** $p < .01$.

[a] Double diff. between Fr. Togo and Br. Togoland, $\left(\delta_2^{post} - \delta_2^{pre}\right) - \left(\delta_1^{post} - \delta_1^{pre}\right)$, see Table 2.

[b] Coefficient $\left(\beta_2^{post} - \beta_2^{pre}\right) - \left(\beta_1^{post} - \beta_1^{pre}\right)$, in percentage points per year, see Table 3.

[c] Dummies for each half degree of latitude, and for each 100 meters elevation above sea level (up to 300 meters), and dummies for quartiles of terrain ruggedness index (30-arc-seconds grid) from Nunn and Puga (2012).

[d] Cities: Distance and squared distance to the closest city, taking cities with more than 30,000 inhabitants in 1990 (Africapolis): Atakpame, Ho, Kpalime, Lomé, Sokode, and Yendi. Railway: Distance and squared distance to Togo railway lines: For born before 1903, railway line as of 1913; if born after 1924, lines as of 1934; if born between 1903–1924, interpolated. Cocoa: Output and squared output of cocoa beans in 1927, 5 km radius around place of birth (only Gold Coast, French Togo not available).

[e] Regression discontinuity design: distance to the British/French border, interacted with all the variables of the base model (area dummies, pre-post dummies, or birth year trends and their mutual interaction).

[f] Same as e, except British/German border as of 1914.

[g] Each geographical variable is interacted with pre-post dummies (top panel), or pre-post birth year trends (bottom panel).

Notes: Clustered standard errors, by place of birth (in parentheses). Cohort sizes reweighed assuming a 2 percent annual demographic growth over 1890–1930.

Source and Coverage: Gold Coast Regiment data. Recruits enlisted 1908–1955, born 1890–1930. Except noted below: Place of birth in Togoland area, 50 km or less from the border between TVT and Togo, and 6.3 to 9.3 degrees latitude. Column 2: 25 km or less from TVT/Togo border. Column 4: Includes Extreme South, i.e., below 6.3 latitude, and in particular the capital city of Togo, Lome. Column 7: 50 km or less from British/German border (as of 1914), still 6.3 to 9.3 degrees of latitude.

Column 5 shows that distance to the Togo railway lines should not be a great concern: recruits from Togo are not significantly born closer to the railway, so that we can't think that literate and skilled individuals on the French side have been more often diverted away from the GCR, thanks to the alternative labor opportunities opened by the railway.

Column 6 finally considers the potential impact of cocoa production that expanded from Gold Coast to British TVT around Ho and Kpandu in the 1920s, before to reach the French side at the end of the 1930s; of course, only southern forest areas are suitable for cocoa. A large share of the TVT cocoa beans were crossing the border to be transported to Lomé by railway; besides, people from the French side could also cross the border to work in TVT plantations on a seasonal basis. We only have data for cocoa production in TVT as of 1927, so that proximity to cocoa plantations is underestimated for Togo recruits. Unsurprisingly, TVT recruits are found to be born in places that are closer to the major cocoa plantations: while an average of 137 tons of cocoa is produced (in 1927) within 5 kilometers of their place of birth, the same figure is only 7 tons (=137–130) for French Togo recruits. However, the DiD-T estimate shows that the latest recruits from TVT tended to be recruited from places which were relatively further away from cocoa plantations, when compared to their French counterparts. Two issues are involved here. First, recruits who were at school age in the 1920s–1940s, i.e., recruits born after 1924, could have benefited from the income effect induced by the rise of cocoa production. Hence, part of the educational advantage of post-1914 TVT recruits could stem from the development of cocoa in this area. However, according to the DiD-T, this advantage should decrease over time. Second, cocoa could also have modified the labor market in the TVT area, by diverting more farmers or unskilled laborers out of the GCR recruitment. To check for this, we considered the occupation at entry in the GCR, and estimated the DiD and DiD-T model with "unskilled occupation" as the dependent variable (not shown). No significant variation is found, meaning that there is no sign that farming or unskilled occupations were more and more absorbed out of the GCR, in the cocoa sector or in other segments of the labor market.

Finally, in column 5 of Appendix Table 2 thereafter, we provide DiD and DiD-T estimates controlling for the three "constructed geography" variables: cities, railway, and cocoa. Estimates are very little affected. Collinearity issues explains why we refrained from controlling for all our six geographical variables together; still, when doing so, the double-difference estimates for literacy in the South become even larger and remain very significant: respectively –29.2** (s.e. = 12.8) for DiD, and a very high –10.64*** (s.e. = 2.52) for DiD-T.

Appendix 2: Selection into the Gold Coast Regiment (GCR)

GCR recruits were asked about their ethnicity, so that we can directly identify partitioned ethnicities in the data: One major group is the Ewe in the South, other include from North to South, the Moba (Bimoba), Anufo (Chakossi), Konkomba, Basare, and Kotokoli (Tem). Ewe are in particular the most Christianized ethnicity. We first applied our DiD and DiD-T estimators to the share of Ewe or of partitioned ethnic groups to check that the ethnic origin of GCR recruits is not a confounder (not shown). Then, in the two first columns of Appendix Table 3, we show that for literacy

our estimates are robust to restricting analysis to the subsamples of Ewe recruits or of partitioned ethnicities more generally. For Christian religion, the DiD estimate for Ewe collapses to an insignificant –3 pp. This is due to a kind of saturation effect: among recruits born before 1914, already 49 percent of Ewe recruits are Christian, and for those born after 1914 the proportion raises to 88 percent; the same figures hold for Ewe from both TVT and Togo.

As a second check for variations in recruitment, we then include year of enlistment fixed effects as an additional control. This way we account for the fact that the GCR could have recruited more or less literate individuals during some periods, whatever their geographical origin. DiD and DiD-T are reassuringly unaffected (column 3, Appendix Table 3). Our third check consists in dropping recruits having declared a skilled occupation, while still controlling for date of entry. This way we only compare recruits who entered the GCR the same year and who were originally working as farmers or in another unskilled/semiskilled occupation. We acknowledge that this strategy is not an unambiguous improvement, as it relies on the assumption of a constant correlation between literacy and skilled occupations (across time and space). Yet, our estimates pass this additional test (column 4, Appendix Table 3). The divergence in Christian religion even increases. In fact, whatever their area of origin (TVT or Togo), 88 percent of skilled recruits born after 1914 are Christian. Our interpretation is that GCR recruitment was biased towards skilled men or even skilled Christians, so that including them blurs our estimates of the divergence in religion. This blurring effect also holds for the Ewe-restricted mentioned estimates above, as when restricting to Ewe-unskilled the DiD estimate for divergence in religion recovers large magnitude, although on a small sample size (not shown).

We also use data of recruits to the French army regiment based in neighboring Dahomey (today's Benin). We select the volunteers originating from Togo for whom literacy and/or religion were recorded, and include them in estimations, while controlling separately for year of entry in each of the two regiments (columns 5–6, Appendix Table 3). That way we control for the possibility that literate Togolese could have preferred joining the French army rather than the British. Results again remain unchanged.

Finally, we considered selective migrations, aside to selective recruitment, as another potential confounding mechanism. Recall that we use place of birth, hence migration between school age and enlistment is not an issue. Yet, skilled parents from Togo might have migrated to the British side, before their child was born, to avoid French heavier direct taxes, or to have their children educated in TVT or Gold Coast. Some Togolese elites were clearly "anglophile," like for instance Sylvanus Olympio, the first president of independent Togo, or militants of Ewe reunification.[2] The GCR files also provide occupation of the recruit's father; then we also excluded from estimation the few recruits having declared a skilled father, and again our estimates are robust (not shown).

[2] See in particular: Assima-Kaptcha, Marguerat, and Sebald 2011.

APPENDIX TABLE 3
ROBUSTNESS TO SELECTION
(southern areas)

	Partitioned Ethnicities[c]		Recruitment Conditions[d,e]		French Army Outside Option[f]	
	Ewe	Ewe and Others	Year of Entry	Unskilled		Unskilled
	(1)	(2)	(3)	(4)	(5)	(6)
Double-difference pre and post-1914 (DiD)[a]						
Literate (%)	–22.0**	–30.9***	–17.9***	–20.2***	–16.0***	–19.8***
	(8.9)	(9.3)	(5.8)	(5.3)	(5.7)	(5.4)
Christian (%)	–3.1	–12.8	–24.0	–50.7***	–24.8	–51.7***
	(17.3)	(16.7)	(16.0)	(17.8)	(16.2)	(17.2)
Double-difference in trends (DiD-T)[b]						
Literate (%)	–3.77**	–3.86***	–3.22***	–3.46***	–2.54**	–3.32***
	(1.71)	(1.41)	(1.19)	(1.18)	(1.17)	(1.18)
Christian (%)	–3.02	–0.26	–0.40	–2.76	–0.52	–3.58
	(2.10)	(3.16)	(2.46)	(3.19)	(2.45)	(3.11)
N	250	316	428	275	451	292
FE Yr. of entry GCR[d]	No	No	Yes	Yes	Yes	Yes
FE Yr. of entry Fr. army[d]	—	—	—	—	Yes	Yes

* $p < .10$.
** $p < .05$.
*** $p < .01$.

[a] Double-diff. between Fr. Togo and Br. Togoland, $\left(\delta_2^{post} - \delta_2^{pre}\right) - \left(\delta_1^{post} - \delta_1^{pre}\right)$, see Table 2.

[b] Coefficient $\left(\beta_2^{post} - \beta_2^{pre}\right) - \left(\beta_1^{post} - \beta_1^{pre}\right)$, in percentage points per year, see the text and Table 3.

[c] Ewe: Subsample of recruits from Ewe ethnic group. Partitioned: Recruits from partitioned ethnic groups, i.e., ethnic groups for which significant numbers of recruits are found to be born on both sides. Partioned ethnicities are, in the Southern area: Ewe, then mainly Basare and Buem, Avatime, Konkomba, and Kotokoli.

[d] Year of entry into the GCR fixed effect. Columns 5–6: Year of entry into French army is a separate fixed effect.

[e] Recruits having an unskilled occupation.

[f] Including volunteers from Togo in the French military regiments located in Dahomey (present-day Benin).

Notes: Clustered standard errors, by place of birth (in parentheses). Cohort sizes reweighed assuming a 2 percent annual demographic growth over 1890–1930, see Table 2 and the text.

Source and Coverage: Gold Coast Regiment (GCR) data, and colonial French West Africa military data. (Cogneau and Moradi 2014) Place of birth in Togoland area, 50 km or less from the border between TVT and Togo, and 6.3 to 9.3 degrees latitude.
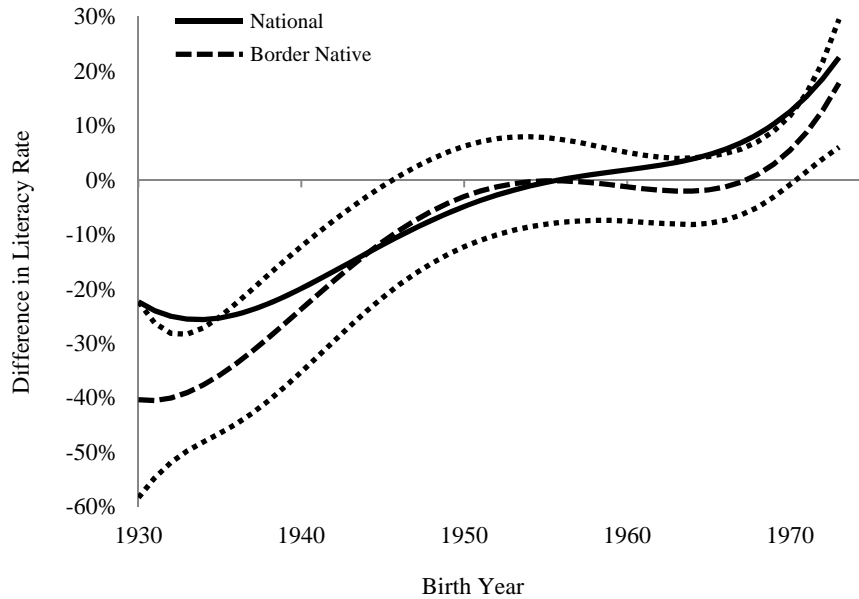
DIFFERENCES IN LITERACY IN THE SOUTHERN PART OF CÔTE D'IVOIRE/GHANA
BORDER

Notes: Difference in Literacy Rate between Côte d'Ivoire and Ghana, according to birth cohort.
Solid line = National difference: Men born 1930–1974 in the country. Dash line =
Border difference: Men born 1930–1974 in border districts. Lines are obtained using a
quartic polynomial smoothing.
Southern border districts: In Côte d'Ivoire: Aboisso, Abengourou, Adzope, Agboville,
Bongouanou; in Ghana: Western. Literacy: Capacity to read a newspaper. The literate dummy
variable is regressed on a quartic of date of birth, for each country and each population (country
natives or border natives).
Sources: Côte d'Ivoire Living Standard Surveys round 2 to 4 (1986–1989) and Ghana Living
Standard Surveys rounds 1 and 2 (1987–1989).

Appendix 3: Côte d'Ivoire and Ghana

Appendix Figure 2 below illustrates the literacy advantage of the Gold Coast colony
compared to its Western neighbor, the former French colony of Côte d'Ivoire. These
results come out from an analysis of household surveys that were implemented at the
end of the 1980s in the two countries.[3] The early date and the large sample size of
these surveys allow gathering unbiased representative samples of men born during the
colonial era in the districts lying at the border of the two countries. In the southern part
of the border, men born in the 1930s and the 1940s in Côte d'Ivoire are revealed to
be significantly less literate than their Ghanaian neighbors, by 20 percentage points
on average. No difference is observed in the northern part. The analysis of younger
cohorts then reveals that Côte d'Ivoire managed to catch up with its neighbor at the
turn of independence, i.e., for cohorts born around 1950.

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[3] See Cogneau, Mesplé-Somps, and Spielvogel forthcoming 2014.

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