State-Church Synergies in Colonial Empires: Longitudinal Evidence on Missionary Expansion in Africa

African Economic History Working Paper Series

No. 64/2021

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ISBN 978-91-981477-9-7

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This version: July 16, 2021

Abstract

Christian missions played an essential role for European colonial empires, often entering territories before European powers officially claimed control. While interactions between governmental and religious actors and their long-term consequences have been subject to earlier studies, little is known about the temporal dynamics of colonization. This paper uses new historical data (1792-1924) to explore the timing of Protestant mission entries on the African continent as well as their geographic distribution. It is found that the establishment of a colonial state through a European power more than tripled the number of missions entering a territory. This effect is largely limited to missions from the colonizer's metropole. These national missions also became more likely to set up stations in more advantageous locations than their foreign counterparts. The findings attest to State-Church synergies in colonies and demonstrate the importance of national networks. These findings improve our understanding of how colonial empires expanded and have important implications for the study of colonial and missionary legacies of contemporary outcomes. Future research avenues are discussed.

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I thank Dean Dulay, Jalale Getachew-Birru, Felix Meier zu Selhausen, Moritz Marbach, Pau Vall-Prat, Carina Schmitt, and the participants at EPSA 2021 and SASE 2021 for helpful comments and suggestions. Josefine Dehn, Christine Hedde-von Westernhagen, and Mariam Patsatsia provided outstanding research assistance. This study has been funded by the European Research Council (ERC) under the European Union's Horizon 2020 program (Grant agreement No. 755129). No conflicts of interest declared.

INTRODUCTION

Christian missions played an essential role for European colonial empires (Abernethy, 2000; Hastings, 1994; Haynes, 1996). They spread Christianity, contributed to the legitimization of colonialism, acted as interlocutors with local populations, provided basic social services, and were essential in building a labor force for emerging colonial markets. The scramble for Africa at the end of the 19th century not only saw European governments encroach on the continent but also Christian missions, who were eager to spread the gospel. Missionaries frequently did so even before colonial states were established.

The new colonial administrations often supported missionary work by providing transportation opportunities, financial support, and military protection (Carey, 2011; Etherington, 2005; Njoku, 2005; O. White & Daughton, 2012). Nevertheless, they also harbored concerns regarding missions' commitment to the colonial project and loyalty to the colonial power. Such concerns were often pronounced for missions that did not come from the colonizer's metropole. To shed light on these interactions, the present paper asks how the establishment of colonial states affected the advancement of Christian missions in Africa. It is argued that colonization boosted missionary activity and that missions from the respective metropole were the main beneficiaries.

This argument is supported with newly collected historical data from the latest installment of the *World Missionary Atlas* (WMA). The 1925-WMA (Beach & Fahs, 1925) features information on almost two thousand Protestant mission stations including the year of entry. The data captures the exponential expansion of missionary work in Africa over the course of more than a century, covering the entirety of the *modern missionary movement* (Porter, 2004). Such a longitudinal perspective has been largely absent from recent scholarship which focused on cross-sectional comparisons instead.

In order to determine what effect the establishment of colonial states, or colonization for short, had on missionary expansion, I employ a regression discontinuity framework with the year of colonization as cut-off point. The causal interpretation of the colonization effect is helped by the temporal variation in cut-off points across colonies. The precise effects are estimated with local linear and polynomial regressions. The results are corroborated by additional robustness checks and placebo tests.

Several findings stand out. First, colonization led to a considerable increase in the entry rate of Protestant missions. In the decade before colonization, an average of 1.5 missions entered a territory. This more than tripled, to an average of five entries, in the decade after colonization. Second, not all missions benefited equally from the colonization. In particular, it was mainly national missions, whose sending society were based in the colonizer's metropole, that entered at a higher rate. Foreign missions, whose sending societies were based elsewhere, entered at the same pace as before. Third, national missions also had some success in acquiring access to better locations. Following colonization they moved into locations that were more suitable to agriculture and more exposed to Islam, which Christian missions were eager to contain.

The findings have important implications for the literature. First, temporal dynamics of missionary presence in Africa has received little attention in recent scholarship. A surge in available historical data, due to new methods and a growing interest in the topic, have allowed comparative work to explore causes and consequences of colonialism in greater detail. These explorations have focused on cross-sectional differences within and across colonies. Abernethy (2000) has suggested that the synergetic interactions between governmental and religious actors were key to the growth of European colonial empires. This study is the first to provide systematic continent-wide evidence of such synergies and how they affected the timing of the modern missionary movement in Africa.

Second, recent scholarship has moved away from a unitary perspective on colonizing powers. It is now appreciated that administrations, firms, and missions all had important but disparate functions. They therefore also shaped the colonial project in different ways, both in the short and long-term (B. Becker, 2021; Dell & Olken, 2019; Lechler & McNamee, 2018; Pierskalla, Juan, & Montgomery, 2017; Woodberry, 2012). The findings of this paper show that this work can further benefit from exploring interactions between actors. Investigating actors and their effects in isolation can otherwise lead to conflated explanations.

Finally, the findings of this paper demonstrate the importance of national networks. While the national identity of colonizers has been issue to some debate (Cogneau & Moradi, 2014; Frankema & Waijenburg, 2014; La Porta, López-de-Silanes, Pop-Eleches, & Shleifer, 2004; Lange, Mahoney, & vom Hau, 2006; Lee & Schultz, 2012), scholarship on Christian

missions has emphasized differences across denominations (Gallego & Woodberry, 2010; Montgomery, 2017; Nunn, 2014). The current paper sidelines denominational differences by focusing exclusively on Protestant missions. Protestant missions were more active on the African continent before colonization and therefore well-suited to empirically test how colonial state formation affected missionary expansion. It is important for future work to explore the broader relevance of national networks in colonial empires and thus to go beyond Protestant missions and the immediate colonization period.

The paper is structured as follows. The next section introduces the related literature and presents the hypotheses guiding this paper. The third section presents the data and results pertaining to the timing of mission entries as well as their geographic distribution. The fourth section discusses the findings, and the final section offers conclusions and paths for future research.

LITERATURE

The past two decades have seen a surge in studies on colonialism across the social sciences. Among them is a body of research that Pepinsky (2015) refers to as *The New Political Economy of Colonialism*. It builds on a shared positivist epistemology, heavily relies on quantitative data and seeks to understand the foundational role of colonialism in the development of modern political economies. While most early studies have been particularly interested in explaining differences in contemporary economic development (Acemoglu, Johnson, & Robinson, 2001; Engerman & Sokoloff, 2002), they have been completed by research on numerous other contemporary outcomes, including conflict, democracy, and public goods provision (recent reviews include De Juan & Pierskalla, 2017; Michalopoulos & Papaioannou, 2018; Nunn, 2020; Robinson, 2019)

Recently there has been a push in the literature to explore historical developments in more detail. There are at least two reasons for this. First, simplifications about historical phenomena and processes threaten the validity of the existing research. Particularly noteworthy are endogeneity concerns that result from insufficient consideration of pre-colonial conditions (Michalopoulos & Papaioannou, 2013) and the so-called "compression of history" problem that results from simplistic lumping of cases across long stretches of time (Austin, 2008). As such, it is important to correctly identify and classify cases, events,

and their causal relationships.

Second, historical research itself can make important contributions. The methods used by quantitative political economists often allow for a more rigorous assessment of long-standing arguments. Here, it is particularly valuable to turn to work by historians and anthropologists who have developed a more intricate understanding and sets of hypotheses than what can be found in the political economy literature (Pepinsky, 2015). Insights from such exercises can have important implications, even if no contemporary data is used. Studies of historical phenomena might entail lessons for contemporary policy-making and open up new pathways for research on historical roots of contemporary political economies.

The present paper follows this second strategy. In the remainder of this chapter I draw on work from the social sciences, history and anthropology to elaborate the State-Church dynamics that were at play in colonial empires. Hypotheses regarding the synergetic interaction of colonial administrations and Christian missions in the process of empire-building and the importance of shared national identities are derived. These insights are not only relevant for better understanding the historical process of colonial and missionary expansion but carry important implications for future work on contemporary outcomes.

Numerous political economy studies attest to the social, economic, and political legacies of Christian missions all across the globe (B. Becker, 2021; Cagé & Rueda, 2016; Calvi, Hoehn-Velasco, & Mantovanelli, 2020; Dahlum & Wig, 2019; Fenske, 2015; Gallego & Woodberry, 2010; Lankina & Getachew, 2012; Meier zu Selhausen, 2019; Nunn, 2014; Okoye, 2021; Valencia Caicedo, 2019; Wantchekon, Klanja, & Novta, 2015; Woodberry, 2012). However, none of them explores how the timing and duration of missionary presence or national identities and networks affected such legacies. In fact, temporal dynamics and national networks are surprisingly absent from the broader literature.[1] The present paper suggests that exploring them is an important way forward.

The specific question this paper addresses is: *How did the establishment of colonial states in Africa affect the advancement of Christian missions?* In the following sections,

[1]Some studies use temporal dynamics for the purpose of causal identification (e.g. Iyer, 2010; Lee, 2017). Pierskalla et al. (2017) explore how the colonial administration in German East Africa extended its territorial control over time. (Jedwab, Meier zu Selhausen, & Moradi, 2019) study missionary expansion in Ghana.

the first revisits the manifold roles Christianity played in European colonial empires. Subsequently, the strategic interaction of Church and State actors in colonies is discussed. Finally, hypotheses with regards to the research question are formulated.

Colonialism and Christianity. In the early phases of European colonialism, Spanish conquistadors relied on the approval of the Catholic Church. This was not only a reflection of the powerful status of the Church in Europe but also the desire to legitimize colonial conquest and violence. Sanctioned by the pope, a statement containing the following sentence was read to newly contacted people: "We protest that the deaths and losses which shall accrue from this are your fault, and not that of their Highnesses, or ours, nor of these cavaliers who came with us" (cited in Abernethy, 2000, p.232). Adding to its grotesqueness, the statement was read in Spanish and was thus unintelligible to those being addressed.

At later stages, religion continued to be used to legitimize the existence of colonies. Colonial powers embraced what is generally referred to as *civilizational mission*. It alleged that imparting Western and Christian values upon colonial subjects would elevate their social and economic well-being (Haynes, 2014). This legitimated the undemocratic rule and subjugation of foreign people, reassured colonial agents and soothed increasingly skeptical metropolitan publics (Carey, 2011; Daughton, 2008; Porter, 2004). Similar to nation-building processes in Europe, religion thus served as a *deep cultural resource* to colonial agents (Smith, 2003).

Beyond its legitimizing function, religion was also key to the consolidation of control by European states over colonized territories (Comaroff & Comaroff, 1991; Haynes, 1996). In Europe, religion has contributed to nation building through what Durkheim referred to as *normative pacification*. Shared values and identities increased social cohesion and made it easier to organize societies collectively (Gellner, 1994; Mann, 1986).[2] In colonies, this process played out somewhat differently. While Christianization and peaceful contact with missions increased the acceptance of the colonial project, it also led to new cleavages within colonized societies. Disputes between those amicable and those opposed to Western influence undermined capacities to resist colonial subjugation. This dynamic was further

[2]Hastings (1995) argues that similar processes were initiated in colonial Africa but eventually proved unsuccessful in consolidating peoples that were arbitrarily mixed up as a result of externally imposed border.

aggravated by competition between Catholics and Protestants (Love, 2006).

Religion also influenced the agency of local subjects within the colonial project (Gifford, 1998; Porter, 2004; Sabar-Friedman, 2002). Although religion was initially used to preserve and demonstrate European superiority, new converts increasingly adapted religion to local needs and used it to demand greater recognition. In fact, local priests and catechists are responsible for the lion share of conversions greatly amplifying the rather limited success of many European missionaries. Still, European missionaries put in great effort to quell local claims to religious authority, which they feared would lead to a degenerate form of Christianity and a resurgence of traditional customs and lifestyles. Such conflicts made churches some of the first sites of decolonization efforts by local populations.

Throughout the colonial period, Europe itself underwent massive societal changes (Haynes, 2014). As the role of the Catholic Church weakened, modern nation states emerged. Their dominant position was cemented through the Peace of Westphalia in 1648, which guaranteed states sovereign control over their territories. The secularization of European societies also entailed the emergence of autonomous political, economic, and religious sectors and their increasing differentiation (Gorski, 2000). Abernethy argues that each of these sectors had developed sufficiently strong institutional bases to independently project power beyond Europe, and that the resulting *triple assault* is key to explaining the effectiveness of European colonialism: "The capacity of multiple sectoral institutions to operate autonomously *and* cooperatively gave Europeans enormous tactical exibility in penetrating other societies." (Abernethy, 2000, p.231)

In sum, Christianity has facilitated European-style state formation on both the African and European continent, be it in different shapes: colonial states and nation states (Haynes, 2014). This is striking as colonial states in Africa were built only after European nation states had formed and the separation between Church and state in Europe was well advanced. It appears that a shared value system and the benefits from cooperation outweighed any benefits enlightened rule or a separation of powers might have brought (Comaroff & Comaroff, 1991; Suret-Canale, 1971; van der Veer, 1999). In 1876, Léon Gambetta, who would later become prime minister of France, famously pronounced that "anti-clericalism is not an item for export" (cited in Daughton, 2008, p.5). The next section discusses the specific State-Church interactions that the colonization of overseas

territories entailed and where one might look to better understand their cooperation.

State-Church Interactions in Colonial Empires. European colonial empires decisively shaped world history since the 16th century. A first wave was driven by Portugal and Spain and mainly affected the Americas. From the middle of the 19th century, Britain and France became the dominant colonial power in a second wave that extended European control over African and Asian territories. A large number of European actors where involved in the colonization of overseas territories. These included state actors, but also many private entities such as trade firms, scientific expeditions, Christian missions, and settlers.

Scholars often struggle in pin-pointing exact dates for the establishment of colonies (Lange et al., 2006). While all colonized territories were eventually colonized by state actors, who then claimed sovereign control, they were frequently preceded by other actors who had already set up extensive operations. Examples include the British East India Company and its activities on the subcontinent as well as the establishment of the Cape Colony through the United East India Company. Similarly, numerous Christian missionaries set out to overseas territories before colonial states were established (Isichei, 1995).

European nation states built colonial empires for several reasons (Abernethy, 2000; Herbst, 2000). On the one hand, economic and social pressures at home paired with maritime technologies that allowed for easier, faster and safer sea journeys led states to expand trade and pursue more economic opportunities outside of Europe. On the other, states also stood in competition with their neighbors and they feared that lacking colonies might tip the balance of power within Europe.

The Church, hoping to expand *God's empire*, embraced the new possibilities of long-distance travel. Initially, only a small number of missionaries set out with explorers and merchants to settle in overseas territories. However, their numbers steadily grew and the efforts become more and more professionalized. The spread of Christianity over the past centuries is evidence of global impact of missions (Etherington, 2005).

Anticipating support from colonial administrations, missions welcomed or even encouraged the colonization of the territories they were working in. Hastings (1994) describes the attitudes of missions during the Scramble for Africa as follows.

> "Essentially [missionaries] shared in the expansionist imperialism of the age, an easy belief that within the providence of history Africa had now to be conquered for its own good. Their immediate concern was that it should be conquered in a humane way and by the *right power*. By the latter most Protestant missionaries meant Britain, though once Germany had entered the imperialist game German missionaries naturally transferred their loyalties to it, while most Catholic missionaries more hesitantly meant France, though once Italy had entered the game Italian missionaries naturally again transferred their loyalties [emphasis added]" (ibid., p.413).

Christian missions contributed to the colonial project in numerous ways (Comaroff & Comaroff, 1991). Reports by missionaries were often the first or only information colonial powers had about territories over which they still had to establish control. As such, these reports helped colonial powers device military and political strategies. Missionaries were well aware of this fact. As the London Missionary Society was expanding their activities in South Africa, an 1815-letter requesting support from the colonial administration states "We hope that the information [this mission] may obtain respecting remote nations will be gratifying to your Excellency" (cited in Comaroff & Comaroff, 1991, p.253). Being the first point of contact, missionaries also operated as intermediaries between local populations and colonial administrations. Despite skepticism regarding the political nature of being in this position, it was generally regarded as conducive to their own goals and therefore accepted in missionary circles.

Missionaries generally engaged in voluntary interactions with locals and sought to convince them of the superiority of European and Christian values. Their activities often helped to legitimize the exploitative and violent interventions of colonial firms and administrations. Furthermore, missions frequently provided educational and health services in order to attract converts (Meier zu Selhausen, 2019). Their converts and pupils often proceeded to work in the colonial economy, which otherwise frequently suffered from labor shortages.

Colonial administrations realized the benefits of missionary and encouraged the expansion of their activities by offering direct support to Christian missions (Njoku, 2005).

In order to establish control over their territories, colonial administrations built military and police forces that consisted of Europeans and also local recruits. These forces not only secured administrative personnel and infrastructure but also provided protection to other European actors including Christian missions, who earlier relied primarily on cooperation and protection from local chiefs (Hastings, 1994). Further support entailed transportation within colonies but also to and from the metropole. As labor shortages became more prevalent and international pressures for a more humanitarian colonialism increased, administrations also started supporting missions financially, especially their educational activities.

The establishment of colonial states brought many advantages to mission especially those from the colonizer's metropole. The ensuing dynamic is captured well in an official report on the establishment of Swaziland as a British colony:

> "When the country was taken over by the Crown, after the South African war, and law and order became more established, the missions had a better opportunity. The Wesleyans developed their work very largely with good schools; the Church of England also extended from Usutu to various outstations, while the South African General Mission [a British-American mission] enlarged its sphere of work. In addition to these, the Scandinavian Alliance Mission, and later on the Roman Catholic Church, established missions in various parts of the Territory." (*Official Yearbook of the Union of South Africa*, No. 6, 1923, pp.1054–5.)

There were also notable policy differences between colonial powers, especially during the period under study here (Cogneau & Moradi, 2014; Frankema, 2012). British administrations were generally more supportive of missionary activities, regulated them much less strictly than the French, and integrated them more effectively in the expansion of the educational sector. Considerable financial support was provided through so-called grant-in-aid, government funds used to invest in select projects, especially mission schools. In French political circles the ideal of neutrality between religions, including local ones, enjoyed some popularity. While this ideal was far from ever being fully practiced, a colonial administrator in 1916 warned that "neutrality explains in part the lack of success

for religious missions established in French colonies, in relation to those in the British colonies in Africa who, subventioned or acting quasi-officially, have obtained undeniable results."[3] Following World War 1, France furthermore restricted the activities of Christian missions, requiring government licensing of mission schools and French as the language of instruction, and limiting financial support to compliant missions (B. White, 1996).

It was common for colonial powers to privilege mission societies from their own metropole. The German colonial empire is a good example. Germany established colonies only in the late 19th century was particularly eager to cooperate with German societies and encouraged, and sometimes pressured, them to send missionaries to the newly acquired territories (Abernethy, 2000). Occasionally, other missionaries were expelled or withdrew, such as in the case of British Baptists in Cameroon or the London Missionary Society in German East Africa. Later on, German missionaries were also the first to be expelled from the colonies after, as a result of World War I, they were mandated to other colonial powers.

Similar dynamics can be observed in other parts of Africa, although their intensity varied in degree. Notwithstanding some efforts in France to not interfere with religious actors, the insistence on French as language of instruction, often made it impossible for non-French missions to continue their operations (Buell, 1928). Britain's more liberal approach generally made it easier for missions that were not from the British isles to enter its colonies. Nevertheless, it was primarily British societies that felt encouraged to send larger number of missionaries to newly colonized territories. It has also been suggested that these dynamics depended on global politics, and in particular the political and military power of colonizers. As such, it was more common in Belgian and Portuguese colonies that foreign missions continued their operations (Hastings, 1994).

Although cooperation prevailed, the relationship between colonial administrations and Christian missions was not without conflict (Haynes, 1996; Porter, 2004). For example, the Church took a strong stance on slavery and some of the more violent labor practices only became known through reports of missionaries. At the same time, some Christian missionaries suspected colonial administrations, who prohibited them access to predominantly Muslim regions in an effort to avoid religious conflicts and social unrest, of

[3]Cited in Buell (1928, p.71).

conspiring with non-Christian faiths.

Administrations were also concerned that providing too much education, especially beyond the primary level, might not be conducive to the colonial project. Missionaries themselves had to cope with the empowering effects of literacy as some of their followers began challenging them, for example regarding their stance on polygamy. However, putting greater value on independent bible study, missions continued to insist on literacy as a crucial element to the school curriculum.

Colonial administrations were often most wary about missions whose sending societies were not from the administration's metropole. These missions were frequently suspected of spying and of instigating social unrest and opposition to the colonial power (Njoku, 2005; Suret-Canale, 1971). Such tendencies became more pronounced with rising nationalism within Europe. Not only were national identities strengthened, the organization of the Church and its sending societies was also strengthened along national lines (Anderson, 1991).

According to one contemporary observer, the preference for national missions can also explain why Protestants were over-represented in British colonies, and Catholics in their French counterparts:

> "The present superiority of Catholic over Protestant work in French territory is partly due to the fact that the Catholics strongly intrenched [sic] themselves under the old régime and to the fact that most Catholic missionaries are Frenchmen, while the Protestant missionaries are, except for those under the Paris Missionary Society, foreigners who often are regarded as political agents of 'Anglo-Saxonism'." (Buell, 1928, p.70)

Theory. Principal-agent problems in colonial empires were plentiful (Pierskalla et al., 2017). They existed between metropolitan governments and their representative governments in the colonies (Abernethy, 2000), but also between colonial governments and traditional rulers, especially in Africa where indirect rule was common (Herbst, 2000).

Similarly, Christian missions were important agents to colonial governments (Dulay, 2021). Missionaries were regarded as useful to maintaining social order, providing basic social services, and supplying governments with local intelligence. To make sure they

fulfilled these functions, colonial governments sanctioned their presence and regulated their activities. In return, they offered incentives in the form of protection and financial support. Such support could be withheld and missions expelled if they did not deliver. However, it was difficult for colonial governments to effectively monitor the activities of missions due to their often remote locations and low state capacity in general.

I argue that the monitoring of missions was eased by shared national ties and colonial governments therefore preferred working with missions who were sent by societies based in their metropole. First, monitoring costs were lower due to a common language. Second, they were further reduced by higher levels of trust due to a shared national interest and prior interactions as well as institutional links in the metropole. Furthermore, metropolitan linkages also gave governments an additional instrument to penalize misbehavior of national missions that was not available for foreign missions whose headquarters were outside of the own metropole. While both national and foreign missions could be useful to colonial governments, according to the principal agent logic, national missions should have been preferred and colonial governments should have offered more support to them, thus also increasing incentives to set up new stations.

To test the theory, I devise hypotheses which focus on the formal colonization of territories and the effects on missionary expansion. This captures the shift from the pre-colonial era in which Christian missions expanded in the absence of state authority to the colonial era in which they became agents of colonial governments. The first hypothesis tests how Christian missions generally responded to colonization. Assuming that the new set-up provides greater benefits than costs, I hypothesize that *the establishment of colonial states increased the rate at which missions enter a territory (H1).* Furthermore, given the above discussed preferential treatment of national missions, should have led them to be particularly responsive to the establishment of colonial states: *The establishment of colonial states increased the entry rates of national missions more than that of foreign missions (H2).*

As most colonies encompassed vast territories, they provided missionaries with many locations to settle and establish new stations. However, certain locations were more advantageous for missions as they promised more converts and more favorable living conditions (proximity to urban centers, accessibility, agricultural land, fewer diseases, etc.). Colonial

administrations were also involved in these decisions. It is thus not unlikely that missions with better connections to administrations might have been able to secure better locations for the establishment of new stations. Therefore, the following hypothesis shall also be explored: *the establishment of colonial states led to national mission stations being set up in more advantageous locations (H3).*

Although this hypothesis is exploratory, it might have important implications for scholarship on the long-term legacies of missionary activities. Studies in this area frequently discuss whether missions actually had long-term effects or whether statistical associations merely result from locational choices. This issue is taken up in more detail in the discussion of the results.

Finally, colonial powers varied in their approach towards Christian missions. The British empire is commonly regarded to have practiced greater religious freedom. Such freedom would suggest that colonial administrations did not discriminate between national and foreign missions. The following hypothesis can be formulated: *The establishment of colonial states in the British empire did not affect national and foreign missions differently (H4).* As such, this hypothesis tests whether national linkages matter where they would be least expected.

DATA

For the purposes of this paper, new historical data on the establishment of mission stations has been collected. The data comes from the 1925-WMA (Beach & Fahs, 1925), which provides detailed information on all Protestant mission stations, including their dates of establishment.[4] The WMA focuses on so-called residence stations, where at least one European missionary was present. The WMA includes an index of all stations, a directory of the sending societies, and maps showing their locations. The year of establishment is drawn from the index and complemented with information from the directory on the metropolitan origin of the sending society. The exact colony in which the station was placed is determined by identifying each station on the map and comparing it to a

[4]The World Missionary Atlas has been published in several version. The one used here was edited by Harlan Beach and Charles Fahs and published by the Institute of Social and Religious Research in New York.

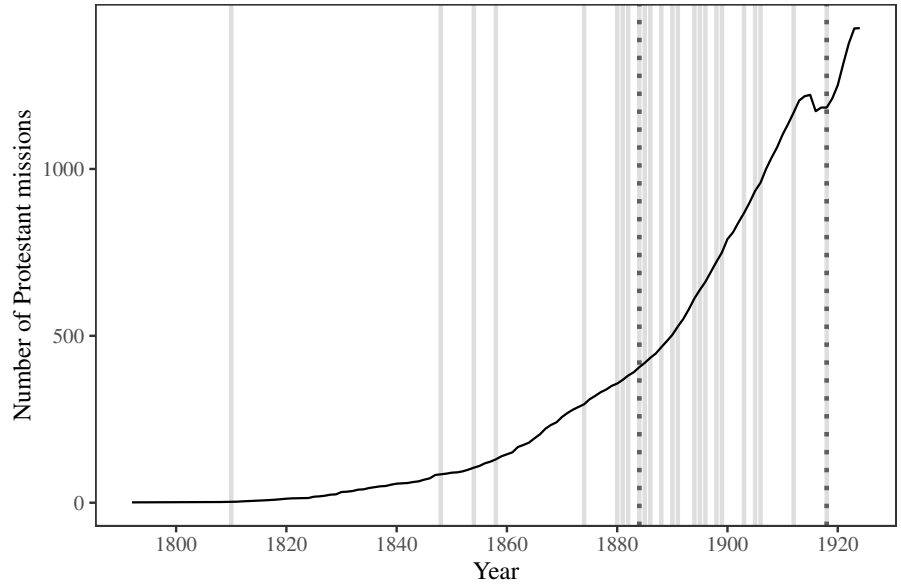

***Figure 1*. Protestant missionary expansion in Africa (1792-1924).**
Note: The graph shows the net total number of Protestant mission stations on the African continent. The dotted lines mark the years of the Berlin conference (1884) and the end of World War I (1918); the grey lines mark years in which a colony was established.

map of colonial territories. In total the WMA includes 1,907 mission stations in Africa, although for 305 of them no year of establishment is indicated.

Mission atlases have been criticized for providing an incomplete picture of African Christianity. First, many atlases were produced when missionary activity was still expanding. However, this applies less to the atlas used here, which reflects Protestant missionary expansion up until 1924. Two atlases that are frequently used in related studies are also from the beginning of the twentieth century but feature a smaller number of missions.[5] Second, mission atlases usually only include European mission stations and ignore those run by African priests. If one seeks to capture the complete expansion of African Christianity, this is a huge omission (Jedwab et al., 2019). However, the focus here is on entries of European missions and the WMA is perfectly suited for this purpose.

Figure 1 summarizes the expansion of missionary activity on the African continent. It can be seen that missions entered both before and after the establishment of colonial states. However, the largest growth coincides with the colonization of African territories through European governments. The dip in the early twentieth century corresponds to the

[5]Cagé and Rueda (2016) use an earlier version of the World Missionary Atlas and their data features 723 Protestant mission stations. Nunn (2014) digitized a map by William Roome from 1924, which includes 933 Protestant mission stations as well as another 361 Catholic stations.

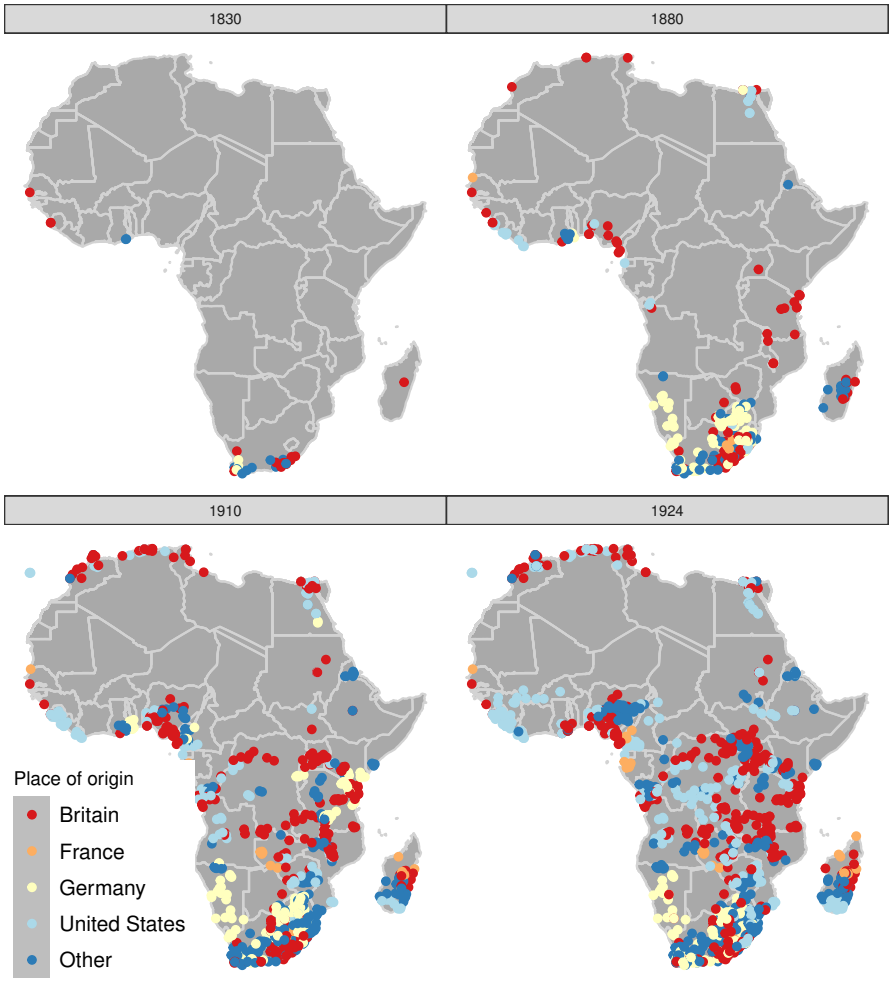

***Figure 2*. Protestant mission stations in Africa, 1792-1924.**
Note: Digitized map based on the *World Missionary Atlas* (Beach & Fahs, 1925).

first world war and largely reflects the expulsion of German missionaries after the defeat of Nazi Germany. Despite the massive growth of mission stations during the period of observation, only a moderate number of missions entered each colony in any given year. This is not surprising considering the large number of colonies being established at the time and the considerable costs and efforts required to set up new stations.

To get a better understanding of the geographic distribution of Protestant mission stations and their origins, Figure 2 provides snapshots of the continent at important time points. In 1830, four decades after the establishment of the first Protestant mission station, missionary activity remains largely focused on South Africa. The presence of British and other missions, many of them Dutch, mirrors the colonial ambitions of the respective

metropoles.[6] Other early mission stations can be found in West Africa (Gambia, Sierra Leone, and Gold Coast) and one in Madagascar.

Missionary expansion accelerates considerably as quinine, an anti-malarial drug, comes into wider use from around 1860 onward. This can also be seen in Figure 1. Furthermore, the reduction of mortality rates among Europeans allows missionaries to venture into new territories that previously posed too much of a danger to their lives (Jedwab et al., 2019). By 1880, just four years before the Berlin conference, Protestant missions have expanded in the South and the West, and established first stations in the North and the East. The following scramble for Africa gives another push to the missionary enterprise, with more and more of them moving inland. By 1910, Protestant missions are present in most inhabited territories on the African continent. Mission stations continue being set up, even around the first world war. In the final year for which data is available (1924), a dense network of missions across most of the habitable parts of the continent has emerged.

In the analysis, every colony is treated as an independent case, with multiple yearly observations. The sample includes only first colonizations, thus excluding the British colonization of South Africa as well as the takeover of German colonies by other European powers in the course of the first world war. Furthermore, only colonies that saw at least one national and one foreign Protestant mission enter within fifty years of colonization are included. These sample inclusion criteria are fulfilled by 37 colonizations that also fall into the time frame covered by the mission data. An overview is included in Appendix C.

The data is analyzed using a regression discontinuity design with the beginning of the year a territory was colonized as cut-off point. For the main analysis, the data is limited to the fifty year period before and after the colonization of each territory.[7] In total the data features 3,118 colony-year observations. The effect at the discontinuity, and thus of the establishment of colonial states, is estimated with local linear and polynomial regressions; it corresponds to the local average treatment effect (LATE). For the causal interpretation, it is of great advantage that years of colonization vary widely. This minimizes the risk of

[6] From 1652 onward, South Africa, in particular the Cape, was under the control of the Dutch United East India Company (VOC). After several years of conflict, Britain assumed control in 1814.

[7] Dates of colonization are taken from B. Becker (2019). Colonies established after 1919 are excluded as there would be less than five observations after colonization.

Table 1
Descriptive statistics of analytical dataset.

Statistic	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Entries, all	0.293	0.910	0	0	0	13
Entries, national	0.093	0.416	0	0	0	6
Entries, foreign	0.199	0.758	0	0	0	13
Colonization	0.407	0.491	0	0	1	1
Age	−7.608	25.499	−50	−29	13	49
Post-WW1	0.063	0.243	0	0	0	1
Post-Berlin	0.441	0.497	0	0	1	1

any global events confounding the results (Hausman & Rapson, 2018).

The descriptive statistics in Table 1 show, each colony saw an annual growth rate of about 0.293 missions in the 50-year period before and after its colonization. Put differently, on average colonies saw the establishment of a new station almost every three years. Rates at which mission stations were established also varied by origin. For missions from the colonizer's metropole, the rate was 0.093, implying the establishment of a new station every ten years. Missions from other metropoles entered at a higher rate of 0.199, which corresponds to the establishment of a new station every five years.

The data features two variables to capture temporal developments within each colony. First, there is a binary variable to indicate whether the territory is currently colonized (*colonization*), i.e. all years from the year of colonization onward. Second, *age* indicates how many years have passed since the respective colonization. Two binary variables capture period effects, *post-Berlin* marking observations after the Berlin conference (1884) as well as *post-WW1* for observations subsequent to the first world war (1918).

RESULTS

Colonial states and missionary expansion. The main results and their continent-wide implications are summarized in Figure 3.[8] The graph shows the number of mission entries by year since colonization. It can be seen that there are more entries after colonization. Overall, twice as many missions enter a territory the decade following colonization than in the one preceding it. The annual entry rate increases from 0.15 to 0.52.[9] However, there are marked differences of missions originating from the colonizer's metropole and those from other countries. The establishment of colonial states primar-

[8]Separate plots of mission entries in each colony are included in Appendix A.
[9]The entry rate refers to the number of missions entering a territory per year.

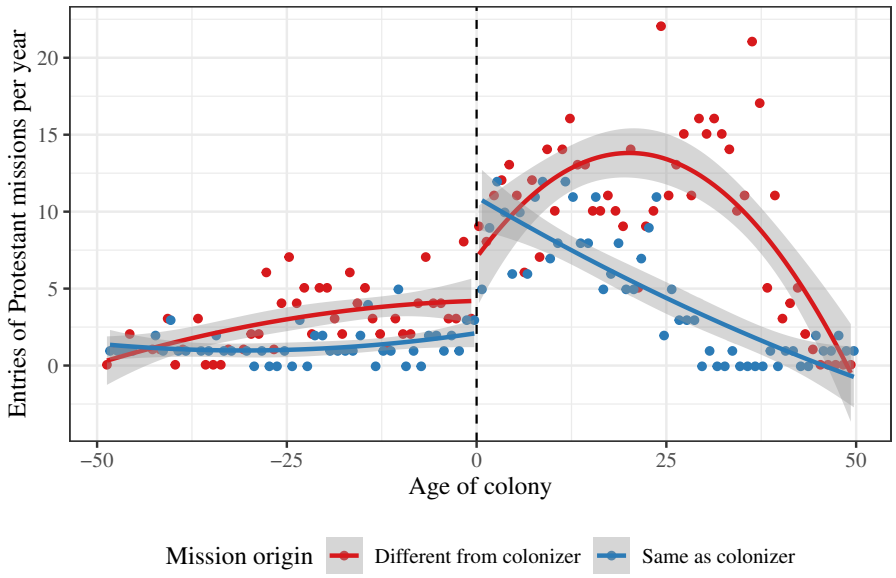

***Figure 3*. Entries of Protestant missions on the African continent, by age of colony.**
Note: Age zero corresponds to the respective year of colonization. Regression discontinuity lines with quadratic polynomial; shading indicates 95%-confidence intervals.

ily leads to an influx in national missions, from the colonizer's metropole. Their entry rate increases sixfold, from 0.04 in the decade before colonization to 0.24 in the subsequent decade. The entry rate of foreign missions also increases although less markedly, from 0.11 to 0.28. In the following, more precise estimations of these relationships are presented.

The first hypothesis states that colonization leads to an increased rate of mission entries. To test this hypothesis the the year of colonization is used as cut-off point in a regression discontinuity analysis. The following estimation framework is employed:

$$\text{entries}_{ti} = \alpha_i + \beta(\text{col}_{ti} + \text{col}_{ti} \times \text{age}_{ti} + \text{col}_{ti} \times \text{age}_{ti}^2) + \gamma \text{Z}_{ti} + \epsilon_{ti}$$

Subscripts t and i refer to the year and colony of an observation. The dependent variable, **entries**, indicates the number of mission entries. α is a colony-specific intercept. **col** indicates whether a colony was colonized during a given year. The corresponding β thus indicates the intercept shift, or LATE, at the discontinuity. To capture other temporal discontinuities, interactions with the **age** of the colony are included. **Z** are a set of controls that account for possibly confounding trends. Errors, ϵ, are assumed to be normally distributed.

Table 2
Timing of Mission Entries (Regression discontinuity results, OLS).

	Entries, all			
	Model 1	Model 2	Model 3	Model 4
Colonization (LATE)	0.316*	0.289*	0.282*	0.278*
	[0.171; 0.460]	[0.145; 0.432]	[0.115; 0.449]	[0.110; 0.445]
Age	0.002	−0.005	0.005	0.003
	[−0.004; 0.009]	[−0.011; 0.001]	[−0.007; 0.016]	[−0.008; 0.015]
Age^2	−0.000	−0.000		
	[−0.000; 0.000]	[−0.000; 0.000]		
Colonization × Age	0.004	0.007	0.008	0.009
	[−0.011; 0.019]	[−0.007; 0.022]	[−0.013; 0.030]	[−0.011; 0.030]
Colonization × Age^2	−0.000	0.000		
	[−0.000; 0.000]	[−0.000; 0.000]		
Post-WW1		0.406*		−0.030
		[0.149; 0.664]		[−0.408; 0.349]
Post-Berlin		0.223*		0.047
		[0.158; 0.289]		[−0.097; 0.192]
Colony FE	✓	✓	✓	✓
Bandwidth [years]	50	50	15	15
R^2	0.248	0.260	0.368	0.368
Adj. R^2	0.238	0.250	0.345	0.344
Num. obs.	3118	3118	1098	1098
RMSE	0.794	0.788	0.735	0.735

Note: Dependent variable is the number of mission entries. Bandwidth set limits on years since colonization (i.e. absolute value of *age*). 95%-confidence interval based on robust standard errors. ($^*p < 0.05$)

The main results are presented in Table 2. The first model attests to a positive, statistically significant LATE of colonization. As evinced by the interaction terms there is no other change in temporal trends. The second model adds further temporal controls. In line with existing scholarship (e.g. Njoku, 2005), it can be seen that the Berlin conference also led to an increase in missionary activities. While the effect of colonization is slightly reduced, the results are substantively the same.

The third and fourth model are re-estimations of the first two models using a narrower bandwidth of 15 years (i.e. allowing for 30 observations per colony). Due to the smaller number of observations for each colonization, interactions with quadratic trends are not estimated. The results attest to the stability of the first two models. Overall, these results provide strong support for the first hypothesis.

Results of local regressions can be highly sensitive to the number of polynomials applied to the running variable as well as bandwidth choices. To assess the robustness of the findings, I re-estimate the linear and quadratic specifications using a large range of bandwidths. Figure 4 displays the estimated LATE (i.e. *colonization* in Table 2). As expected

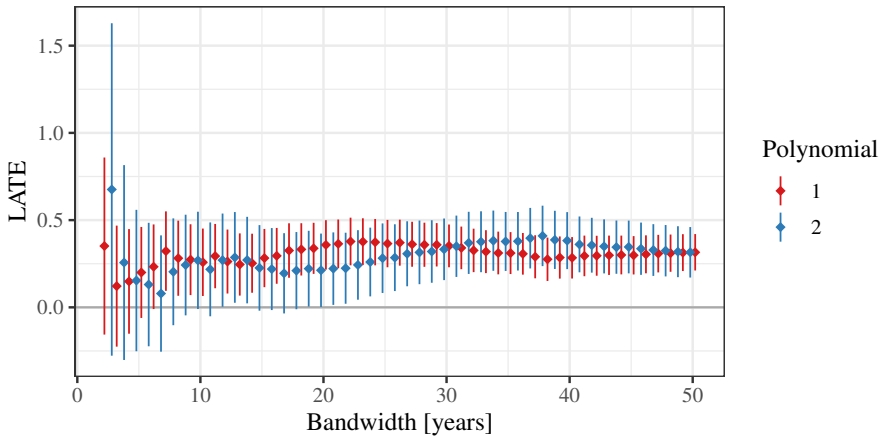

***Figure 4*. Robustness of main results to alternative bandwidths.**
Note: Re-estimations of models 1 and 3 in Table 2.

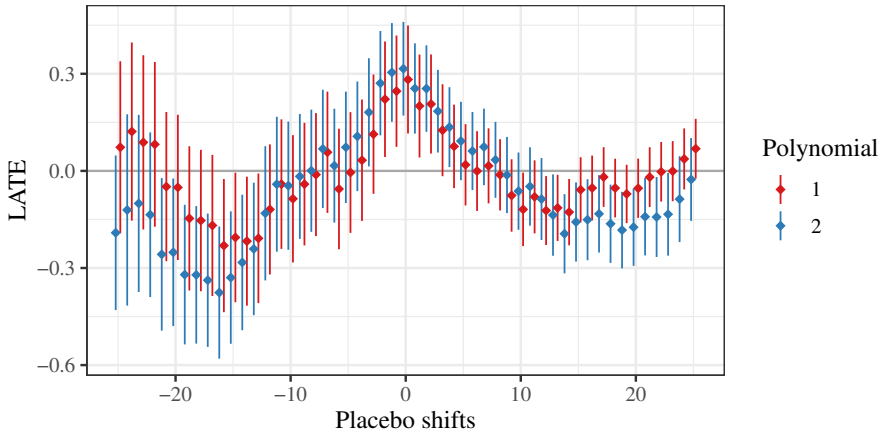

***Figure 5*. Placebo tests based on arbitrary shifts of cut-off point.**
Note: Re-estimations of models 1 and 3, keeping the bandwidth at 50 and 15 respectively, in Table 2.

due to reduction in the sample size, the estimated LATEs fluctuate and have larger confidence intervals for small bandwidths, and more so for the quadratic specification. However, the estimation stabilizes quickly for bandwidths above five (linear specification) and ten (quadratic specification), thus attesting to the robustness of the results.

Another way to probe the robustness of the results is to apply placebo tests by arbitrarily shifting the cut-off point. As one moves away from the theoretically identified point, the estimated LATE should quickly become insignificant, especially for smaller bandwidths. The results of this test are summarized in Figure 5. It can be seen that all estimated coefficient already becomes insignificant if the cut-off points are shifted by two years up or four years down from their actual value. For example, in the Belgian Congo

Table 3
Timing of National and Foreign Mission Entries (Regression discontinuity results, OLS).

	Entries, national		Entries, foreign	
	Model 5	Model 6	Model 7	Model 8
Colonization (LATE)	0.228*	0.215*	0.088	0.074
	[0.140; 0.316]	[0.127; 0.302]	[−0.023; 0.198]	[−0.037; 0.185]
Age	0.002	−0.001	0.001	−0.004
	[−0.001; 0.005]	[−0.004; 0.002]	[−0.005; 0.006]	[−0.009; 0.001]
Age^2	0.000	−0.000	−0.000	−0.000
	[−0.000; 0.000]	[−0.000; 0.000]	[−0.000; 0.000]	[−0.000; 0.000]
Colonization × Age	−0.009	−0.007	0.013*	0.014*
	[−0.018; 0.000]	[−0.015; 0.002]	[0.000; 0.025]	[0.002; 0.026]
Colonization × Age^2	0.000	0.000	−0.000	−0.000
	[−0.000; 0.000]	[−0.000; 0.000]	[−0.000; 0.000]	[−0.000; 0.000]
Post-WW1		−0.013		0.419*
		[−0.088; 0.062]		[0.166; 0.673]
Post-Berlin		0.092*		0.131*
		[0.058; 0.126]		[0.078; 0.185]
Colony FE	✓	✓	✓	✓
Bandwidth [years]	50	50	50	50
R^2	0.184	0.187	0.195	0.209
Adj. R^2	0.173	0.176	0.184	0.198
Num. obs.	3118	3118	3118	3118
RMSE	0.378	0.378	0.685	0.679

Note: Dependent variable is the number of entries by national missions (models 5–6) and foreign missions (models 7–8). Bandwidth set limits on years since colonization (i.e. absolute value of *age*). 95%-confidence interval based on robust standard errors. ($^*p < 0.05$)

this would be placebo cut-offs at 1881 and 1887 respectively, rather than the actual 1885. Overall, the placebo test suggests that the observed effect is specific to the theoretically identified cut-off.

The second hypothesis suggests that the entry rate should increase more for national than foreign missions. To test this hypothesis the same estimation strategy is employed but models are estimated separately for both mission types. The results are summarized in Table 3. The first two models show that colonization has a positive effect on the entry rate of national missions. The latter two models attest to no effect on foreign missions. While the effect still points in a positive direction, it does not attain statistical significance. These results are again robust to using a narrower bandwidth (see Appendix B).

Consequences for the locations of missions. This section expands on the previous one and explores whether the establishment of colonial states did not only affect the timing of mission entries but also their geographic distribution. In particular, national missions might have become more able to secure desirable locations. On the one hand, missionaries preferred locations that made life easier for themselves. On the other, they

also preferred locations where they could better spread the Christian faith. In the following, I analyze several geographic factors that might have been important for locational choices.

The analysis in this section draws on the map accompanying the WMA (see Figure 2 for the digitized version). However, the analysis is limited to colonies in which at least one national and one foreign mission entered in the 50 years before and after colonization. With the exact mission locations at hand, other geographic data sources are used to determine characteristics of the locations. These include distances to the coast and the nearest city as well as measures of agricultural suitability and the disease environment. All measures are standardized by colony to account for differences in their distribution, which results in particular from the different sizes of colonies. A full description of all geographic variables, their sources, and corresponding statistical summaries are included in Appendix B.

The adjusted discontinuity framework used in this section corresponds to the following equation:

$$\text{geo}_{ij} = \alpha_{i[j]} + \beta(\text{col}_{i[j]} + \text{col}_{i[j]} \times \text{age}_{i[j]} + \text{col}_{i[j]} \times \text{age}^2_{i[j]}) + \gamma \text{Z}_{i[j]} + \epsilon_j$$

Subscripts i again refers to colonies and j enumerates all mission entries (i.e. missions are observed during their year of entry). The dependent variable, **geo**, are geographic characteristics of the location at which the new mission station was set up. α is a colony-specific intercept. **col** indicates whether a colony was colonized in the year a mission entered. The corresponding β thus indicates the intercept shift, or LATE, at the discontinuity. To capture other temporal discontinuities, interactions with the colony's **age** at the time of mission entry are included. **Z** are a set of controls that account for possibly confounding trends. Errors, ϵ, are assumed to be normally distributed.

A first set of models looks at discontinuities in the geographic characteristics of new locations (see Table 4). Models are separately estimated for national and foreign mission entries. The first two models estimate effects on the agricultural suitability of locations. They show that upon colonization, national missions set up stations in locations that are more suitable to agriculture. However, no statistically significant effect are revealed for malaria burden, terrain ruggedness, altitude, or exposure to the transatlantic slave trade.

Table 4
Geographic covariates of new mission stations I (Regression discontinuity results, OLS)

	Agriculture		Malaria		Ruggedness		Altitude		Slaves	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Colonization (LATE)	0.674*	0.382	0.430	−0.620	0.030	−0.019	−0.804	−0.198	−0.279	−0.269
Age	−0.029	−0.015	−0.026	0.020	−0.118*	−0.003	0.002	0.033	−0.032	0.005
Age^2	−0.001	−0.001	−0.001	−0.000	−0.002*	−0.000	0.000	0.000	−0.001	0.000
Colonization × Age	0.043	0.023	0.062	0.023	0.159*	−0.012	0.027	−0.004	0.008	−0.027
Colonization × Age^2	0.001	0.001	0.000	−0.001	0.001	0.000	−0.001	−0.001	0.001	−0.000
Post-WW1	−0.114	0.149	−0.231	0.091	−0.084	0.425*	−0.159	0.036	0.095	0.163
Post-Berlin	−0.455	−0.372	−0.008	−0.288	0.693	0.089	0.828	−0.023	0.550	0.532
Missions	National	Foreign	National	Foreign	National	Foreign	National	Foreign	National	Foreign
Colony FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bandwidth [years]	50	50	50	50	50	50	50	50	50	50
R^2	0.161	0.140	0.204	0.113	0.131	0.089	0.110	0.089	0.188	0.163
Adj. R^2	0.085	0.087	0.132	0.058	0.052	0.032	0.029	0.033	0.113	0.111
Num. obs.	276	412	276	412	276	412	276	412	276	412
RMSE	0.879	0.953	0.871	0.975	0.895	1.025	1.005	0.946	0.896	0.917

Note: Dependent variables are geographic characteristics of the locations in which new missions stations are set up. Bandwidth set limits on years since colonization (i.e. absolute value of *age*). ($^*p < 0.05$)

Table 5
Geographic covariates of new mission stations II (Regression discontinuity results, OLS)

	Dist. Coast		Dist. City		Dist. Railway		Dist. Water		Dist. Islam	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Colonization (LATE)	−0.165	0.006	−0.019	−0.008	0.295	0.470	0.761*	0.482	−0.746*	−0.257
Age	0.050	0.010	−0.006	0.041	−0.007	0.039	0.017	0.030	0.100*	−0.017
Age^2	0.001	0.000	−0.000	0.001	−0.000	0.000	0.000	0.000	0.002*	−0.001
Colonization × Age	−0.083	−0.034	0.021	−0.072	0.001	−0.081*	−0.016	−0.022	−0.120*	0.041
Colonization × Age^2	0.000	0.000	0.000	0.000	0.000	0.001	−0.000	−0.000	−0.001	0.000
Post-WW1	0.065	0.502*	−0.518	0.330	0.308	0.097	0.222	−0.104	−0.215	−0.050
Post-Berlin	−0.133	0.272	0.156	−0.347	0.003	−0.776*	−0.795*	−1.109*	−0.276	−0.166
Missions	National	Foreign	National	Foreign	National	Foreign	National	Foreign	National	Foreign
Colony FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bandwidth [years]	50	50	50	50	50	50	50	50	50	50
R^2	0.094	0.096	0.060	0.050	0.070	0.075	0.115	0.097	0.165	0.095
Adj. R^2	0.011	0.040	−0.025	−0.011	−0.015	0.018	0.035	0.042	0.098	0.043
Num. obs.	276	412	253	345	276	412	276	412	232	315
RMSE	0.981	0.976	0.922	0.985	1.011	1.000	0.953	0.978	0.820	1.067

Note: Dependent variables are geographic characteristics of the locations in which new missions stations are set up. Bandwidth set limits on years since colonization (i.e. absolute value of *age*). ($^*p < 0.05$)

The effect on different distance measures is summarized in Table 5. The first two models estimate how far from the coast new mission stations are set up. Colonization has no statistically significant effect on the locations of either national or foreign missions. Similarly, distances to the nearest city and the nearest railway line are also not affected. That being said, national missions are increasingly set up further away from navigable rivers or lakes and move more into Muslim dominated territory.

In sum, for most of the geographic factors frequently discussed in relation to the location of mission stations, no evidence of a discontinuity as a result of colonization is found. Exceptions are limited to differences in the locations of national missions, which suggests that colonization might have been more consequential for national than foreign missions. Improvements in agricultural suitability and greater proximity to Muslim pilgrimage routes is in line with preferential treatment by colonial administrations. However, the greater distance to navigable rivers and lakes is unexpected.

Religious freedom in the British empire? Colonial powers took different stances on religious freedom. While France tightly regulated who could enter its colonies and closely supervised their activities, Britain had a more liberal approach. There were few regulations missions had to comply with and they received more support, especially grants-in-aid to finance their activities. Therefore, it is worthwhile asking whether Britain's more liberal approach also entailed a more equal treatment of national and foreign missions. If this was the case, missionary activity should also expand equally with the onset of colonization.

The results here indicate that Britains liberal approach did not translate into an equal treatment of national and foreign missions. When the estimation is limited to British colonies only, the effect sizes for both kinds of missions increase (see Table 6). Still, they remain twice as large for national missions. That being said, a statistically significant effect on the entry rates of foreign missions in model 4 suggests that they might have also benefited from colonization. This should be interpreted very carefully though as this results is not robust to narrowing the bandwidth from 50 to 15 years (see Appendix B).

Appendix B also includes re-estimates of the LATEs of colonization on the geographic distribution of entering mission stations. There is no evidence of any statistically

Table 6
Timing of National and Foreign Mission Entries in British Colonies (Regression discontinuity results, OLS).

	Entries, national		Entries, foreign	
	Model 1	Model 2	Model 3	Model 4
Colonization (LATE)	0.341*	0.346*	0.166	0.176*
	[0.161; 0.521]	[0.167; 0.525]	[−0.004; 0.336]	[0.007; 0.345]
Age	0.006	−0.001	0.000	−0.003
	[−0.002; 0.013]	[−0.008; 0.007]	[−0.007; 0.008]	[−0.010; 0.005]
Age^2	0.000	−0.000	−0.000	−0.000
	[−0.000; 0.000]	[−0.000; 0.000]	[−0.000; 0.000]	[−0.000; 0.000]
Colonization × Age	−0.025*	−0.021*	0.017	0.016
	[−0.043; −0.007]	[−0.038; −0.004]	[−0.003; 0.038]	[−0.003; 0.036]
Colonization × Age^2	0.000	0.000*	−0.000	−0.000
	[−0.000; 0.001]	[0.000; 0.001]	[−0.001; 0.000]	[−0.001; 0.000]
Post-WW1		0.067		0.341
		[−0.102; 0.236]		[−0.004; 0.685]
Post-Berlin		0.140*		0.073
		[0.059; 0.221]		[−0.016; 0.163]
Colony FE	✓	✓	✓	✓
Bandwidth [years]	50	50	50	50
R^2	0.197	0.202	0.152	0.163
Adj. R^2	0.184	0.188	0.138	0.149
Num. obs.	1156	1156	1156	1156
RMSE	0.473	0.471	0.630	0.626

Note: Dependent variable is the number of entries by national missions (models 1–2) and foreign missions (models 3–4). Bandwidth set limits on years since colonization (i.e. absolute value of *age*). 95%-confidence interval based on robust standard errors. ($^*p < 0.05$)

significant effects. Overall, the results demonstrate that within the British empire national and foreign missions are also affected differently by colonization, but that these effects are limited to the timing of mission entries.

DISCUSSION

The preceding empirical analysis has shown that the establishment of colonial states and Christian missionary expansion in Africa were closely intertwined. Colonization led to an influx in Protestant mission entries, especially from the colonizer's metropole. These dynamics were also present in the British empire. As such, the hypothesis that greater religious freedom led to a more equal treatment of national and foreign missions has to be rejected. The findings also show that colonization can affect in what locations new missions are set up, even though these effects disappear when limiting the analysis to British colonies only. National missions from the colonizer's metropole acquired access to locations more suitable to agriculture and closer to Muslim pilgrimage routes, which were of high priority for conversion efforts. Surprisingly, they also move further away from

navigable rivers and lakes.

An important caveat of this study is its empirical focus on Protestant missions. This limits its ability to fully assess the hypotheses for colonizers that were predominantly Catholic, i.e. France and Portugal. Their colonies had a larger number of Catholic missions, whose entries could not be assessed. As such, findings for "Catholic colonies" must be considered preliminary.

The omission of Catholic missions raises another important question: Would we expect them to be equally affected by colonization? While it is likely that Catholic colonizers preferred Catholic missions, especially when they came from their metropole, it should also be considered that the Catholic Church is and was characterized by a higher degree of centralization. As such, Catholic missions might be guided by greater allegiance to Rome than to Paris or Lisbon. As allegiance to Rome might undermine the importance of national networks, it remains an open question whether synergies between colonial administrations and Catholic missions are as strong as with Protestant missions.

How important were the effects revealed in this paper for the missionary expansion and colonialism more generally? While the effects might appear small at first sight, it is important to consider that missionary expansion was a process that lasted for centuries. Setting up new mission stations required considerable institutional and individual effort. In this light, the demonstrated effects of colonization are considerable. They are likely to have left a lasting imprint on different missionary landscapes and to define their long-term legacies.

A related question is whether the establishment of colonial states has a lasting effect on mission entries or whether it disappears after a honeymoon period. Statistically, the empirical analysis focused on the effect at the discontinuity, i.e. LATE, and it cannot simply be assumed to persist. Instead, the initial discontinuity plot (see Figure 3) suggests that the effect does not persist, at least not beyond a period of thirty years. This is in fact supported by the statistical evidence on the interaction between colonization and the age of colony. In almost all models for national missions a negative interaction, and an associated falling trend after colonization, is found.

This suggests that missionary expansion is boosted by colonization and that this effect disappears over the following decades. This lines up well with the assessment by

Porter (2004): “Imperial expansion might appear promising in its early phases, but cease to be once it had settled down. Officials, initially uncertain of their ground, might welcome missionary advice and local knowledge to start with, but abandon it as their confidence grew” (ibid., p.281). Nevertheless, the missionary landscape, i.e. increased presence especially of national missions, was altered lastingly.

The findings also carry methodological implications for future research, especially on long-term colonial legacies. Most importantly, it has been demonstrated that colonial actors condition each others behavior. Earlier studies have paid little attention to such interactions or accounted for the endogeneity that might result from them. Further exploring the role of national networks in colonial empires is a promising path for advancing research on colonialism.

Insights from earlier studies on the long-term benefits of Christian missions have recently been challenged by Jedwab et al. (2019). The authors show that much of the positive educational effects disappear when a more comprehensive set of geographic control variables is included. They argue that educational differences in the long-term result from missions settling in better locations rather than from missionary activity itself.

While the study by Jedwab et al. (2019) is meticulously executed, it rests on an important assumption: No differences in the educational abilities and inputs between missions in better and worse locations. If however, missions that were better able to provide education also settled in better locations, this assumption breaks down and missionary effects would be unduly discounted by including a large set of controls. Discussing the locational choices of missions, Njoku (2005) suggests those better qualified often assumed positions in better locations with higher priority to the sending societies.

The findings presented in this paper further question this assumption. Following colonization, national missions were able to capture better locations. It is not unlikely that these missions also benefited from other support that improved their educational performance, such as increased financial aid. While assessing these implications is beyond the present study, it is clear that the jury is still out on the missions-versus-geography debate.

CONCLUSION

Christian missions have been an essential building block to European colonial empires and define much of its contemporary legacies. This paper has used new historical data to bring light to the synergetic relationship of Church and State in colonial empires, in particular to explain the expansion of missionary activity on the African continent. It could be shown that such synergies work primarily through national networks.

National networks have received little attention in earlier studies, including qualitative work, which identified religious denominations and imperial strategies as more important lines of demarcation. The present paper suggests that more empirical and theoretical work on the importance of national networks in colonial empires is needed.

While this paper was limited to demonstrating effects of the establishment of colonial states on Protestant missionary expansion, it remains an open question how national networks affected the day-to-day operation of colonies. It is known that missions received support from colonial administrations, but there is no systematic study that explores whether all missions received the same kind and amount of support, or what such support meant for their effectiveness, be it in converting local populations or in building up schools.

A better understanding of national networks in the colonial era would also advance our grasp of colonial legacies. Christian missions, and in particular Protestants, have been shown to positively impact human capital, economic development, and democracy in the long-run. However, it is unclear to what extent these legacies reflect past national networks rather than denominational differences or religious aspects more generally.

More generally, a network perspective might also help our understanding of other aspects and periods of colonialism (see also S. O. Becker, Pfaff, & Rubin, 2016). Missionary societies were instrumental in building transnational networks many of which survived colonial states. Although national origins mattered for cooperation among missions, international connections among broader denominational groups gained prominence in the late 19th century and was increasingly formally organized (Porter, 2004). Such cooperation also shaped the emergence of transnational actor networks, religious and secular (Stamatov, 2010).

As much as networks mattered for the expansion and day-to-day operations of colo-

nial empires, they are likely to also play an important role in their decline. Independence brought about a sharp cut in the political sector of the formerly colonized countries. While other sectors were also affected, they are marked by greater persistence. This applies to the religious as well as the economic sector. Berthou and Ehrhart (2017) have shown that countries continue to trade more with their former colonizers for decades. How such continuities in non-political sectors define post-colonial actor networks is an open question. Research on this would not only improve our understanding of the mechanisms associated with decolonization but also the opportunities and constraints that post-colonial governments face.

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Appendix A

Additional figures

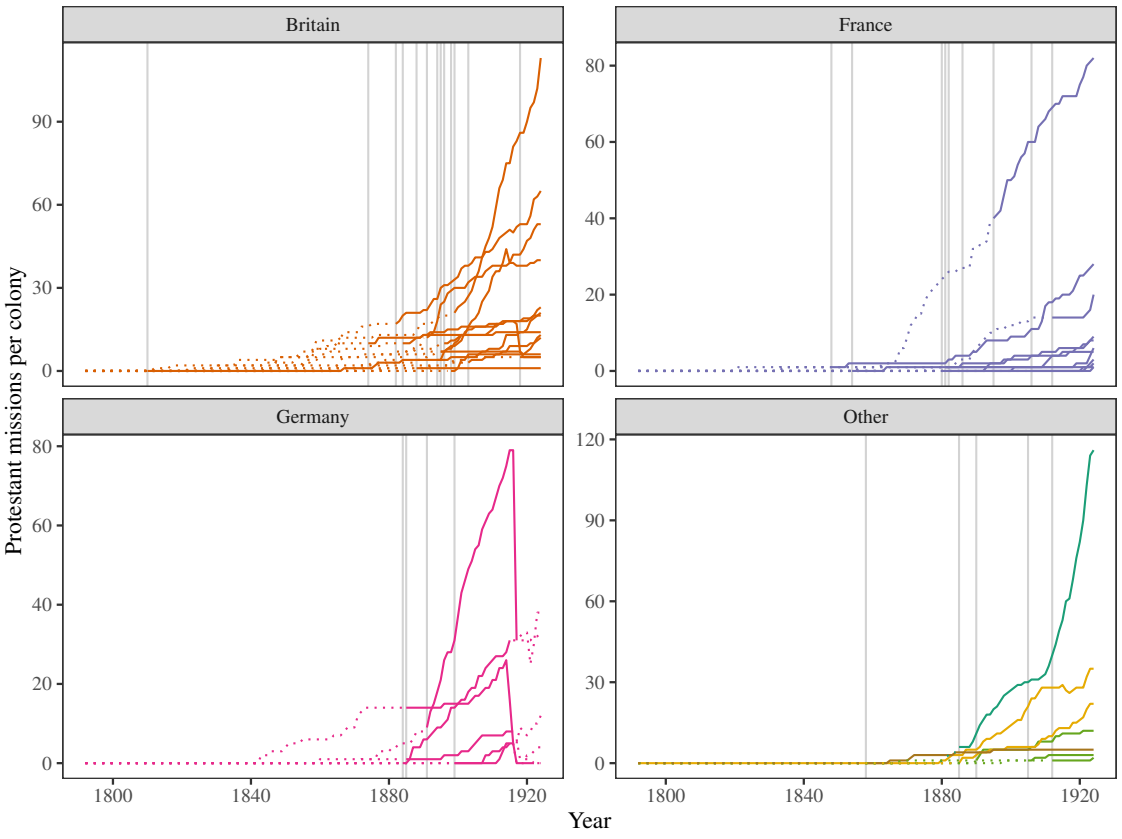

***Figure A1*. Protestant missions across European empires (1800-1924). Colored lines correspond to colonies; solid during colonial period, and dashed before/after. Horizontal lines mark years of colonization. Bottom-right panel includes Belgian, Portuguese and Spanish colonies.**

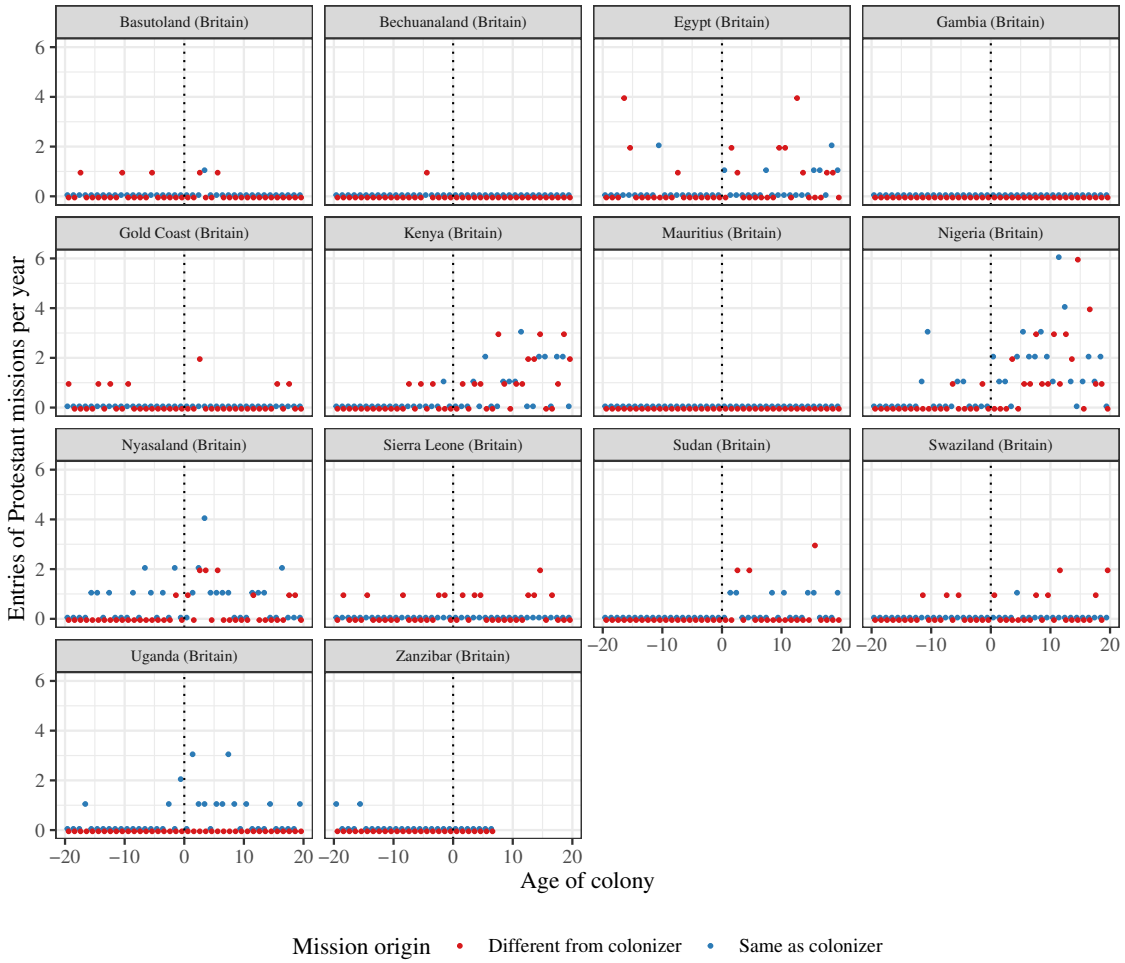

***Figure A2*. Entries of Protestant missions in British colonies, by age of colony. Age zero corresponds to the respective year of colonization.**

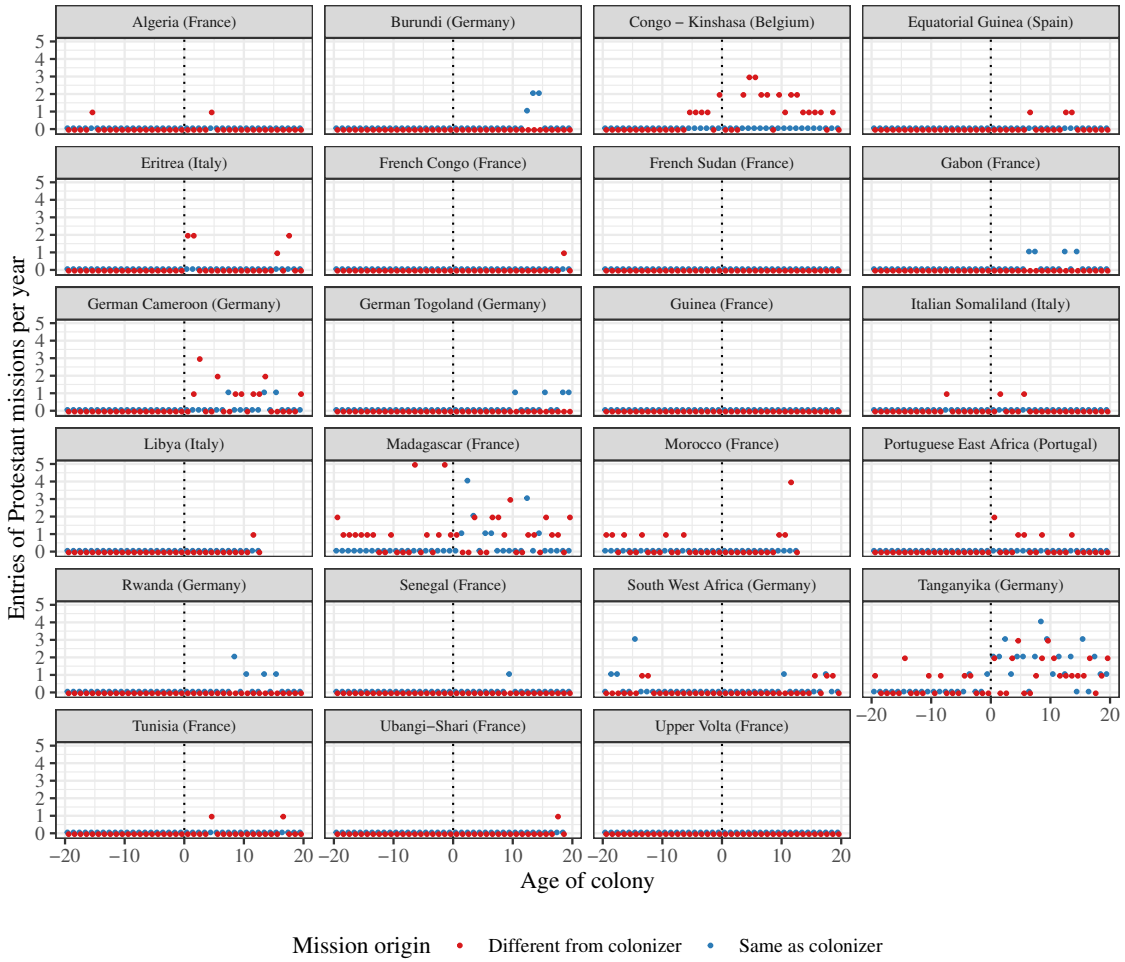

***Figure A3*. Entries of Protestant missions in non-British colonies, by age of colony. Age zero corresponds to the respective year of colonization.**

Appendix B

Additional tables

Table A1
Descriptive statistics of second analytical dataset.

Statistic	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Colonization	0.770	0.421	0	1	1	1
Age	8.427	18.958	−49	1	22	49
National	0.401	0.490	0	0	1	1
Post-WW1	0.172	0.377	0	0	0	1
Post-Berlin	0.821	0.383	0	1	1	1
Geographic variables						
Distance City 1900	0.013	0.981	−3.107	−0.695	0.720	2.715
Distance Coast	−0.007	0.985	−2.505	−0.808	0.731	4.300
Malaria	0.028	0.950	−5.140	0.119	0.395	2.667
Agriculture	0.032	0.998	−2.445	−0.638	0.631	6.769
Distance Water	0.002	0.985	−1.738	−0.817	0.587	3.527
Altitude	0.005	0.990	−2.665	−0.696	0.577	3.836
Ruggedness	0.019	1.006	−1.469	−0.621	0.367	5.929
Distance Railway	0.018	0.996	−2.855	−0.789	0.786	3.325
Distance Islam	−0.007	0.979	−3.353	−0.761	0.729	2.348
Slaves	−0.0004	1.000	−1.183	−0.660	0.373	4.992

Note: All geographic variables have been transformed to z-scores (by country).

Description of geographic variables

All geographic variables are computed based on the exact geographic location of each mission and secondary geocoded data sources.

Distance Coast. Distance to nearest coastline. Based on data from www.naturalearth.com; retrieved through the R package `rnaturalearth`.

Distance City 1900. Distance to nearest urban center with more than 10,000 inhabitants in 1900. Data based on locations included in Jedwab and Moradi (2016); missing information for Madagascar and South Africa is added manually from primary sources.

Distance Railway. Distance to nearest railway line. Based on data from Nunn and Wantchekon (2011).

Distance Water. Distance to nearest body of water. Based on information about rivers and lakes in Africa from www.naturalearth.com; data retrieved through the R package `rnaturalearth`.

Distance Islam. Distance to nearest Muslim pilgrimage route. Based on pilgrimage routes from Al-Naqar (1972); geocoded by Ciolek (2012).

Agriculture. Indicator for agricultural suitability. Based on raster data from FAO/IIASA (2011) with a 5 arc-minute resolution.

Altitude. Altitude of terrain. Based on raster data from FAO/IIASA (2011) with a 5 arc-minute resolution.

Ruggedness. Ruggedness of terrain. Based on coarsened raster data provided by Shaver, Carter, and Shawa (2016).

Malaria. Malaria burden at 1900. Based on data from `www.malariaatlas.org`.

Slaves. Number of slaves taken during Transatlantic slave trade. Based on ethnicity-level data from Nunn (2008).

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Table A2
Timing of National and Foreign Mission Entries, Robustness (Regression discontinuity results, OLS).

	Entries, national		Entries, foreign	
	Model 9	Model 10	Model 11	Model 12
Colonization (LATE)	0.172*	0.178*	0.110	0.100
	[0.071; 0.273]	[0.077; 0.279]	[−0.018; 0.239]	[−0.028; 0.228]
Age	0.001	0.002	0.004	0.002
	[−0.006; 0.008]	[−0.005; 0.009]	[−0.004; 0.012]	[−0.006; 0.009]
Colonization × Age	0.002	0.003	0.006	0.007
	[−0.011; 0.015]	[−0.010; 0.015]	[−0.010; 0.022]	[−0.009; 0.022]
Post-WW1		−0.172*		0.143
		[−0.248; −0.097]		[−0.227; 0.513]
Post-Berlin		−0.037		0.084
		[−0.118; 0.045]		[−0.028; 0.196]
Colony FE	✓	✓	✓	✓
Bandwidth [years]	15	15	15	15
R^2	0.309	0.310	0.252	0.253
Adj. R^2	0.283	0.284	0.224	0.224
Num. obs.	1098	1098	1098	1098
RMSE	0.458	0.458	0.537	0.537

Note: Dependent variable is the number of entries by national missions (models 9–10) and foreign missions (models 11–12). Bandwidth set limits on years since colonization (i.e. absolute value of *age*). 95%-confidence interval based on robust standard errors. ($^*p < 0.05$)

Table A3
Timing of National and Foreign Mission Entries in British Colonies, Robustness (Regression discontinuity results, OLS).

	Entries, national		Entries, foreign	
	Model 1	Model 2	Model 3	Model 4
Colonization (LATE)	0.248*	0.260*	0.107	0.117
	[0.043; 0.452]	[0.048; 0.473]	[−0.102; 0.315]	[−0.098; 0.332]
Age	0.005	0.008	0.002	0.005
	[−0.009; 0.018]	[−0.007; 0.023]	[−0.009; 0.013]	[−0.009; 0.019]
Colonization × Age	−0.006	−0.010	0.023	0.020
	[−0.032; 0.020]	[−0.034; 0.015]	[−0.008; 0.054]	[−0.011; 0.052]
Post-WW1		−0.301*		−0.233*
		[−0.441; −0.162]		[−0.376; −0.090]
Post-Berlin		−0.087		−0.065
		[−0.254; 0.079]		[−0.265; 0.136]
Colony FE	✓	✓	✓	✓
Bandwidth [years]	15	15	15	15
R^2	0.318	0.321	0.213	0.215
Adj. R^2	0.291	0.290	0.181	0.179
Num. obs.	412	412	412	412
RMSE	0.571	0.571	0.595	0.596

Note: Dependent variable is the number of entries by national missions (models 1–2) and foreign missions (models 3–4). Bandwidth set limits on years since colonization (i.e. absolute value of *age*). 95%-confidence interval based on robust standard errors. ($^*p < 0.05$)

Appendix C

Additional information

Table A1
Colonizations included in analytical dataset

Colonizer	Colony	Year of colonization	Obs. before colonization	Obs. after colonization
Belgium	Congo - Kinshasa	1885	50	40
Britain	Basutoland	1884	50	41
Britain	Bechuanaland	1895	50	30
Britain	Egypt	1882	50	43
Britain	Gambia	1888	50	37
Britain	Gold Coast	1874	50	50
Britain	Kenya	1895	50	30
Britain	Mauritius	1810	49	50
Britain	Nigeria	1899	50	26
Britain	Nyasaland	1891	50	34
Britain	Sierra Leone	1896	50	29
Britain	Sudan	1898	50	27
Britain	Swaziland	1903	50	22
Britain	Uganda	1894	50	31
Britain	Zanzibar	1918	50	7
France	Algeria	1848	50	50
France	French Congo	1882	50	43
France	French Sudan	1880	50	45
France	Gabon	1886	50	39
France	Guinea	1881	50	44
France	Madagascar	1895	50	30
France	Morocco	1912	50	13
France	Senegal	1854	50	50
France	Tunisia	1881	50	44
France	Ubangi-Shari	1906	50	19
France	Upper Volta	1895	50	30
Germany	Burundi	1899	50	26
Germany	German Cameroon	1884	50	41
Germany	German Togoland	1885	50	40
Germany	Rwanda	1899	50	26
Germany	South West Africa	1885	50	40
Germany	Tanganyika	1891	50	34
Italy	Eritrea	1890	50	35
Italy	Italian Somaliland	1905	50	20
Italy	Libya	1912	50	13
Portugal	Portuguese East Africa	1885	50	40
Spain	Equatorial Guinea	1858	50	50

Table A2
Mission societies appearing in World Missionary Atlas.

Society	Place of origin	Count
American Board of Commissioners for Foreign Missions	USA	8
American Baptist Foreign Mission Society	USA	8
American Bible Society	USA	1
Angola Evangelical Mission	England	5
American Friends Board of Foreign Missions	USA	5
Assemblies of God, Foreign Mission Deptartment, General Council	USA	9
Africa Inland Mission	International	45
Algiers Mission Band	USA	8
African Methodist Episcopal Church, Home and Foreign Department	USA	1
African Methodist Episcopal Zion Church, Foreign Mission Board	USA	1
Norwegian Lutheran Church of America, Board of Foreign Missions	USA	9
American University at Cairo	USA	1
Evangelische Missionsgesellschaft zu Basel	Switzerland	34
Burning Bush Mission	USA	1
British and Foreign Bible Society	England	8
Bethel Mission	Germany	13
Baptist Missionary Society	England	15

Society	Place of origin	Count
Berliner Missionsgesellschaft	Germany	22
Schleswig-holsteinische envangelisch-lutherische Missionsgesellschaft zu Breklum	Germany	3
General Council of Cooperating Baptist Missions	USA	2
Congo Evangelistic Mission	England	5
Church of God, Missionary Board	USA	2
Holiness Movement Church	Canada	2
Holiness Movement Church	Canada	2
Christian and Missionary Alliance	USA	16
Church Mission to Jews	England	4
Christian Missions in Many Lands	England	34
Church Missionary Society (for Africa and the East)	England	92
Church of the Nazarene, General Board of Foreign Missions	USA	5
Congo Inland Mission	USA	4
Church of Scotland Foreign Mission Committee	Scotland	9
Church of Scotland Women's Association for Foreign Missions	Scotland	5
Church of Scotland Committee for der Conversion of the Jews	Scotland	1
Church of Scotland Women's Association for Jewish Missions	Scotland	1
Diocese of Kimberley and Kuruman	England	1
Diocese of Mauritius	England	7
Evangelische Missionsgesellschaft für Deutsch-Ostafrika	Germany	2
Nederduitsche Geref. Kerk in Z.-A., Alg. Zend. Com.	Netherlands	18
Nederduitsche Her. Geref. Kerk Z.-A., Zend. Com.	Netherlands	3
Evangeliska Fosterlands-Stiftelsen	Sweden	11
Egypt General Mission	England	9
Pittsburg Bible Institute, Evangelization Socitey	USA	2
Brethren Church, Foreign Missionary Society	USA	1
French Evangelistic Mission	France	1
Friends' Foreign Mission Association	England	6
Fria Missionsförbundet	Finland	1
Free Methodist Church, General Missionary Board	USA	2
Board of Foreign Missions of the Augustana Synod	USA	8
Finska Missionssällskapet	Finland	8
Church of the Brethren, General Mission Board	USA	1
Gossnersche Missionsgesellschaft	Germany	1
Gospel Missionary Society	USA	2
Gospel Missionary Union	USA	5
Heart of Africa Mission	England	12
Evangelisch-lutherische Missionsanstalt zu Hermannsburg	Germany	2
International Holiness Mission	England	1
Independent	Independent	12
Föreningen Kvinnliga Missions Arbetare	Sweden	1
Church of the Lutheran Brethren, Board of Missions	USA	2
Lutheran Board of Missions (Lutheran Free Church)	USA	7
London Missionary Society	England	14
Evangelisch-lutherische Mission zu Leipzig	Germany	17
Missionssällskapet Bibeltrogna Vänner	Sweden	3
Missionsgesellschaft der Deutschen Baptisten	Germany	6
Methodist Episcopal Chruch, Board of Foreign Missions	USA	20
Methodist Episcopal Chruch, South, Board of Foreign Missions	USA	6
Mildway Mission to the Jews	England	1
Mission der Brüdergemeinde	International	14
Trust Society, Furtherance of Gospel (Moravians)	England	3
Mission Philafricaine	Switzerland	2
Mission Suisse Romande	Switzerland	7
North Africa Mission	England	19
Norges Frie Evangeliske Hedningemission	Norway	4
Nyassa Industrial Mission	England	3
Neukirchener Waisen- und Missionsanstalt	Germany	10
Norddeutsche Missionsgesellschaft	Germany	9
Nile Mission Press	England	1
Nile Mission Press	England	1
Norske Missionsselskap	Norway	30
Örebro Missionsförening	Sweden	2
Société des Missions évangéliques de Paris	France	39
Pentecostal Assemblies of the World, Foreign Mission	USA	2
Pentecost Faith Mission	USA	3
Primitive Methodist Missionary Society	England	13
Peniel Missionary Society	USA	1
Pentecostal Missionary Union for Great Britain	England	1

Society	Place of origin	Count
Presbyterian Church in U.S.A., Board of Foreign Missions	USA	9
Presbyterian Church in U.S., Exec. Com. of Foreign Missions	USA	4
Qua Iboe Mission	Ireland	12
Regions Beyond Missionary Union	England	7
Reformed Chruch in America, Board of Foreign Missions	USA	1
Board of Foreign Missions of the Reformed Church of America	USA	1
Rheinisch-westfälischer Diskonissenverein	Germany	2
Raymund Lull Home	Morocco	1
Rheinische Missionsgesellschaft	Germany	28
Salvation Army	England	3
South African Missionary Society	Britain	3
Scandinavian Assemblies of God (Pentecostal)	USA	2
South Africa General Mission	International	12
Scandinavian Alliance Mission of North America	USA	4
Southern Baptist Convention, Foreign Mission Board	USA	6
Société Belge de Missions Protestantes au Congo	Belgium	2
Standard Church of America	Canada	1
Seventh-Day Adventist Denomination, General Conference	USA	30
Swedish Evangelical Free Church of U.S.	USA	1
Svenska Fria Missionen	Sweden	1
Sudan Interior Mission	Canada	20
Sierra Leone Mission	England	1
Svenska Mongolmissionen	Sweden	1
Swedish Mission in Egypt	Sweden	3
Svenska Missionsförbundet	Sweden	11
Sudan Mission	USA	1
Southern Morocco Mission	Scotland	4
Church of England - Province of South Africa	England	24
Society for the Propagation of the Gospel	England	24
Sudan Pioneer Mission	Germany	3
Sällskapet Svenska Baptistmissionen	Sweden	2
Sudan United Mission	International	21
United Brethren in Christ, Foreign Missionary Society	USA	7
United Brethren in Christ, Domestic and Foreign Missionary Society	USA	2
United Christian Missionary Society	USA	4
United Free Church of Scotland, Foreign Mission Com.	Scotland	30
United Methodist Church Missionary Society	England	4
Universities' Mission to Central Africa	England	24
Mennonite Brethren in Christ Church, United Missionary Society	USA	5
	International	1
United Presbyterian Church, Board of Foreign Missions	USA	15
United Presbyterian Church, Women's General Missionary Society	USA	14
Ver. tot Uitbreiding v. het Evangelie in Egypte	Netherlands	1
Vereeinigung voor Soendaneesche Meisjescholen	Netherlands	1
West Indian African Mission	England	4
Westcott Mission	Belgian Congo	2
Wesleyan Methodist Conn. of America, Missionary Society	USA	4
Wesleyan Methodist Missionary Society	England	20
World Sunday School Association	USA	1
World's Sunday School Association	USA	1
Y. M. C. A., International Community, Foreign Department	USA	1
Y. M. C. A., Foreign Department, English National Council	England	1
Foreign and Overseas Department of the English National Council of the Young Men's Christian Associations	England	1
Y. M. C. A., Local Association	Egypt	1
Zambesi Industrial Mission	England	6