Strategies of Christian Growth: Evidence from Locational Choices in Ghana 1751-1932

Remi Jedwab (George Washington University)
Felix Meier zu Selhausen (University of Sussex & University of Southern Denmark)
Alexander Moradi (University of Sussex)

(Preliminary and unfinished draft 21/03/2016)

Abstract

Recent economic history literature emphasised the impact of historical Christian mission presence on various outcomes in present day Africa such as human capital, culture, social mobility, and income. However, little is known about the strategies that missionary societies followed when making their choice of location. Using panel data of mission stations 1751-1932 in Ghana and taking inspiration from industrial organization theory we explore the covariates of mission locations and how they changed over time. We test the correlation with population density, urbanisation, health environment, communication methods, strategic choice under competition from contending denominations, and simple geographic diffusion. We also examine exits from the market.

"The colonial market ... is literally glutted with missionaries" David Livingstone 1847

1. Motivation

One of the most powerful cultural transformations in Africa's modern history has been the rapid growth of Christianity during the nineteenth and twentieth century, that was facilitated by vast Christian missionary efforts (Hastings 1994, Park 1994, Sundkler and Steed 2000).[1] In recent years, a growing literature has emerged that explores the long-term effects of historical missionary presence in Africa. This literature claims that the social and economic effects of missionary activities in colonial Africa were substantial (Frankema 2012, Iliffe 2007, p. 232-235, Meier zu Selhausen 2014, Meier zu Selhausen, et al. 2015) and continue to affect outcomes today including religion (Nunn 2010), educational attainment (Cogneau and Moradi 2014, Fourie, et al. 2014, Gallego and Woodberry 2010, Nunn 2014, Wantchekon, et al. 2015), democracy (Woodberry 2012), newspaper readership (Cagé and Rueda forthcoming) and health behaviour (Mantovanelli 2013).

A large part of this growing literature utilises district or country level information and correlates snapshots of historical missionary presence in one particular year (e.g. 1910 or 1924) with contemporary African development outcomes.[2] This literature fails to do justice to the complex dynamics of Christianization. They ignore that mission stations have exited the religious market.[3] They fail to acknowledge that strategies and determinants vary over time. Overall, compressing different historical periods and countries into one regression framework, may complicate our understanding of particular contexts and over-simplifies the various causal mechanisms of missionary influence on African long-term development (Austin 2008).

While there is a long-standing literature on the expansion of Christian missions in Africa (Park 1994), and the decisive role of missionary personalities in particular (Ballard 2008,

[1] In the future, Christianity will increasingly become an African religion with 38% of Christians worldwide projected to be African by 2050 (Pew Research Centre 2015).
[2] Naïve view of missionary placement include (Caicedo 2014, Chen et al 2014, Menon & McQueeney 2015, Okoye & Opong 2015). The typical set of controls includes railway, soil suitability, explorer routes, ethnic controls, slave exports, distance to sea/rivers/lakes. The validity of instruments given controls is uncertain.
[3] The lack of information of failed stations may introduce a survival bias which overestimates the actual impact of historical mission presence.

Bartels 1965, Kretzmann 1923), little is known about the factors that influenced the missionary choice of location in Africa and thus the expansion and diffusion of Christianity on the continent. Johnson (1967) represents the most serious effort to describe the determinants of mission location pointing to the importance of geography (altitude, distance to the sea and rivers), population densities, communication infrastructure (overland routes, railway), pre-colonial presence of slave trading and the benevolence of local chiefs to missionary efforts determining the choice of mission locations. There are also attempts to test covariates of mission locations at a particular point in time. For a sample of six African countries (DRC, Kenya, Malawi, Tanzania, Zambia, Zimbabwe) Mantovanelli (2013) found that Catholic and Protestant mission stations in ca. 1910 are more likely to be placed along pre-colonial explorer routes, roads, railways, lakes (only for Catholics whereas Protestants avoided them), and high altitudes. However, these attempts suffer from a *compression of history* (Austin 2008). Determinants may be time variant. To the best of our knowledge, no quantification of missionary strategies in Africa has been attempted nor has been shown how and whether the determinants of mission location vary across time. Why did Christian missionaries choose particular locations? Why did missions "exit the market"? What role did competition between missions play and the Africanization of mission staff?

Using a new panel data set (at a very fine spatial level) of mission church locations in Ghana (i.e. Gold Coast) from 1751 to 1932, this article provides a fresh view on the determinants of the choice of mission locations and thus the growth of Christianity in Ghana. Ghana presents a fascinating case-study for the investigation of the determinants of the initial location of mission churches as well missionary expansion due to the comparatively early presence of missionaries, Ghana's diverse geography and ethnic composition, the presence of different central states (e.g. Ashante kingdom), the development of various communication innovations over the colonial era (railroad), the dynamic development of the economy in the early 20th century, as well as the presence of various contending missionary societies.

2. Data

The annual **church data** 1846-1932 has been retrieved from the ecclesiastical returns that the missionary societies based in the Gold Coast submitted to the colonial administration on

an annual basis and that were published in the British colonial Blue Books. Information is lacking for some years such as 1871, 1873-74 (Third Asante War) and 1917-19 (World War I) and 1862-66 (for Methodist Mission). We identified mission stations that were destroyed or abandoned during the Asante War and assumed that those not mentioned continued to operate (source?). The Catholic White Fathers in the Northern Territories started reporting only in 1930. We reconstructed their presence 1906-1929 using detailed qualitative evidence provided in Debrunner (1967) and Der (1974). Mission stations in the Western part of German Togoland that became British Togoland in 1922 were only included in the Gold Coast Blue Books from 1920 onwards. We reconstructed Togoland mission stations for the years 1894, 1897, 1901, 1905 and 1911 using a wide range of sources (Fitzner 1901, Kolonialabteilung des Auswärtigen Amtes various years, Reimer 1911).[4]

Source of **data on death of missionaries**. The Blue Books also recorded the names of missionaries and where they were stationed between 1857 and 1890. We added information from multiple other sources, to complement and cross-check (Basel Mission 1879, Basel Mission Archives , Debrunner 1967, Martin and Sheldon 1964).

The school data comes from the educational returns published in the Blue Books and the Reports of the Education Department of the Gold Coast Colony.[5] The colonial administration heavily relied on mission societies to provide schooling (Cogneau and Moradi 2014, Frankema 2012). At first, a lump sum was given. From 1904 on, oversight was tightened and schools had to meet certain quality standards in order to qualify for government grants, e.g. they had to follow a curriculum and students had to pass reading and maths tests (Education Reports). We construct a school measure that is fairly comparable over time by including all mission schools that reported to the government until 1902, and thereafter we restrict the schools to "assisted schools" only.[6] As there were few schools before 1900, inconsistencies are negligible.

This is the first attempt to construct annual panel data of mission stations over a long period of time. The data represents a significant improvement to what has been used in previous

[4] We plan to enter all years and update our results at a later point in time.
[5] Data missing for the years 1862-66, 1873-74, 1917-23.
[6] Unassisted schools were not required to report to the Government and therefore did not do so systematically." In the 1920s, the colonial administration decided to close schools of very poor quality. School data for 1927/28 and 1928/29 is currently missing and will be entered at a later date.

(cross-sectional) studies. For example, Nunn (2010) used a map by Roome (1924) that indicated 27 mission stations in 1924 Gold Coast. In contrast, our data shows 122 main stations and 1,048 outpost for the same year and territory.[7] Nevertheless, concerns remain regarding quality. How reliable is the data from the Blue Books? The data of "assisted schools" can be considered as very reliable as the government had a duty to be accurate about their expenditures. In fact, grants were listed by individual schools between # and 1930. As for the **churches**, the Blue Books recorded what the mission societies reported to the government. Hence, the data refers to "officially" recognised mission stations. Informal reading groups are disregarded. These are always difficult to observe. However, if informal groups grow, and the mission society acknowledge their existence, their status is changed and we observe them in our data. Nevertheless, there is a concern that mission societies may have not updated their lists on a yearly basis or that they have changed their structure and reporting in other respects.

To assess data quality, we compared our data with information in Debrunner (1967) and the *Encyclopedia of Missions* by Dwight, et al. (1904) for the period 1840-1900. We get a common support of 38 missions. The sources largely agree. The difference in the start-up year averages 3 years, which means that churches show up earlier in the Blue Books (the standard deviation being 10.7).

Data on geography (distance to coast, rivers, altitude, ruggedness), communications (roads and railroads), location of mines are largely drawn from the GIS database used in Jedwab and Moradi (forthcoming). Data on the historical disease environment (tsetse, malaria) was added from Alsan (2015) and Depetris-Chauvin and Weil (2013). For a detailed description, see the data web appendix.

[7] The literature is typically using Protestant and Catholic Atlases that are covering main stations only - not outstations. This is never acknowledged and potentially misleading. Main stations are at more commercial and urban places in the first place. Results may be influenced by the omission of about 90% of churches.

3. Supply meets demand

a. Supply: Target function and constraints

In order to better understand the various missionary strategies an analytical framework is helpful. Following the theological and historical literature (Debrunner 1967, Miller 2003, Smith 1966, Welbourn 1971) we consider mission societies as not-for-profit organisations. Their principal aim was to achieve or "produce" conversions to Christianity. A production function can be specified as $C=F(I)$. Inputs I are not free, but they cause costs. Overall, missionaries maximise conversions subject to a cost constraint K. Missionaries would then choose to open a new station at location j if marginal costs of conversions at location j are smaller than at location i. Hence, to understand supply of mission stations at certain locations, we need to understand inputs I and their respective costs K. We assume that different mission societies faced the same or similar cost functions.

- Africa's disease environment is one of the deadliest in the world: Malaria, yellow fever, sleeping sickness, worms, dysentery, small-pox caused a high death toll. Missionary agents are an important input to achieve conversions. High mortality rates increase the costs of sending European missionaries, certainly in the sense of opportunity costs: the same missionary could have been sent somewhere else and - by living longer - saving more souls elsewhere. African missionaries, priests and catechists were cheaper (in terms of wages and mortality inflicted replacement costs). African staff also had local specific human capital such as speaking the vernacular that could be useful in the conversion process. First, however, suitable candidates must have been recruited and trained.
- Missionaries, convenience goods, bibles had to be shipped to Africa. Also, missionaries relied on communications with their society. Coastal locations were almost always cheaper to reach than hinterland locations. As for the latter, one would expect mission stations to follow trade routes, rivers, railroads and roads.
- Building a church represents a large fixed cost. Therefore, higher population densities can give rise to locally decreasing average costs.
- The missionary's choice of location was restricted by local political support. At the beginning, African chiefs had the political power to grant (or deny) protection and

support, i.e. land, labour (Hastings 1994, p. 424-427). Over time, the political weight of chiefs decreased.[8] The British colonial administration generally allowed missionary activities of various denominations.[9] Therefore, with the expansion of the British sphere of influence the set of possible locations increased.

While we view conversions as the output of mission societies, they were obviously not sold to a market. Who financed the input costs? This is important, because financial sources must have determined expansion.

- Catholics had the financial backing of the Vatican (Debrunner 1967).[10]
- Protestant mission societies depended on private donations. These were coming from Western congregations and philanthropists (Miller 2003, Quartey 2007).[11] This source was certainly limited. Moreover, the mission societies' declared goal was to develop African churches that would become "self-supporting". From the beginning, it was expected that African congregations should contribute to the costs. But how prosperous were African communities? While various export crops (palm oil, palm kernel) and mining (gold) were important, it was clearly cocoa that increased the income of Ghanaians (Austin 2003, Hill 1963).[12] Debrunner (1967, p. 54) made it clear: "Cocoa money helped the African Christians to pay school fees and church taxes and to pay off old debts from the building of schools and chapels." In this respect, the Basel Mission may have been fortunate to have been rooted in the area of the best cocoa soils.

Every denomination values conversions to their own denomination strictly higher than conversions to a different denomination. However, from this we cannot expect a competitive outcome. Just like firms, denominations may collude and share the market. The consequences are less conversions and poorer services. In the 19th century the market was

[8] For Africa as a whole, the role of chiefs in the colonial system varied (Mamdani 1996). In Ghana, chiefs lost their influence in the Southern Cold Coast Colony, while they were still influential in Ashanti and the Northern Territories.
[9] Colonial powers agreed at the Berlin Conference of 1884/85 on the "freedom of conscience and religious toleration". In practice, this was implemented very differently.
[10] Information on financial sources are scarce, particularly for the Catholic mission societies.
[11] Mission societies also founded trading companies. Sources emphasise the aim of promoting legitimate trade and improving living standards rather than profit maximisation.
[12] Jedwab and Moradi (forthcoming) estimated that switching from subsistence to cocoa farming would increase income by about 90%.

characterised by heavy concentration, with two Protestant players (Basel Mission and Wesleyan Mission) indeed dividing the Gold Coast into "spheres of influence". The Roman Catholics entered as a third player breaking up the monopoly only at the turn of the 20th century.

b. Demand for Missionary Services

So far we have outlined what determines the supply of religion. What about demand? Before the arrival of missionaries, the demand for religious services was met by traditional African religions.[13]

- The colonial economy created jobs that required literacy and formal education – particularly in areas associated with cocoa and urbanization. Schooling was largely provided by mission schools (Cogneau and Moradi 2014). Thus, Christianity was a source of upward mobility (Meier zu Selhausen, et al. 2015).
- Christianity meant a break with traditional power structures and elites. There were instances, for example, were Christians refused communal labor – about which chiefs bitterly complained.
- Some Christian values fundamentally oppose existing institutions such as polygyny and slavery (Fenske 2015).
- Population densities. Simple diffusion. #

4. Missionary expansion 1481-1844

European missionary endeavours at the Gold Coast began with the arrival of the Portuguese in 1481. Along the West African coast, at Cape Coast, the Portuguese erected Elmina Castle in 1482 as a trade-post (i.e. gold and slaves). Between 1482 and 1751 Elmina hosted different mission denominations, including Roman Catholics, Augustinians (1572), Franciscan Capuchins (1638), the Dutch Reformed Church (1643) and the Anglican Church (1690s) (Bartels 1965, pp.1-4, Odamtten 1978, p. 12-13). The Roman Catholic chaplains at the fort

[13] Christianity is not a fixed set of beliefs, but it is incorporating values and preferences of.

essentially served the garrisons and European merchants and as such mission work did not diffuse outside the walls of the fort (Odamtten 1978, p. 16).

There were two Protestant missionary initiatives at the Gold Coast in the 18th century. Between 1737 and 1770 the English Moravian Church sent nine missionaries to the Gold Coast who all died of malaria rapidly after their arrival, except for Christian Protten who summarized that "The Lord had so clearly closed up the road to the country with thorns..." (Isichei 1995, p. 59). In 1752, Thomas Thompson of the Society of the Propagation of the Gospel in Foreign Parts (SPG) arrived at Cape Coast Castle. Thompson was the first missionary to spread the gospel beyond the walls of Elmina Castle (Wiltgen 1956, p. 14-32) and to realize that evangelization efforts were more effectively carried out by local catechists. He sent Philip Quaque, the son of a local chief, to Britain for clerical instruction and who on his return in 1766 revived the Elmina Castle's mission school (Odamtten 1978, p. 15), although with limited success in terms of Christian conversions (Hastings 1994, p. 178-179). However, over three centuries, evangelization efforts rarely spread beyond the European merchant and slaving community of Elmina Castle (Hastings 1994, p. 179, Odamtten 1978, p. 16).

This changed in the early 19th century, when evangelizing efforts intensified with missionaries of the Swiss-based Basel Mission and the Wesleyan Methodist Church from England reaching the Gold Coast in 1828 and 1835 respectively. However, malaria took a heavy toll. Between 1828 and 1845 fifteen European missionaries of the Basel Mission arrived at the Gold Coast. Nine of them died of malaria - five within their first year and four before the end of their third year (Parsons 1963, Witschi and Schlatter 1965). Equally, between 1835 and 1845, twelve out of twenty-four Methodist missionaries died and many returned to Europe due to poor health. Typically, any group of European newcomers to the West African coast in the late 18th and early 19th century were struck down by malaria or yellow fever, earning the West African coast the reputation as the 'White Man's Grave' (Curtin 1961). It was only until the 1840s when quinine, became the regular prophylaxis against malaria, which reduced European mortality significantly on the Gold Coast (Bryson 1854, Curtin 1961, Thomson 1846). This resulted in renewed optimism for future missionary expansion (Curtin 1961).

While the Methodists initially served the merchandising Fante along the western coast, the Basel missionaries went to the eastern Ga and Twi peoples in the east, building their Church in the agricultural hinterland, following principles of 'the Bible and the plough' (Sundkler and

Steed 2000, p. 203-207).[14] After the opening of a mission school at Christiansborg (Accra), Basel missionary Andreas Riis founded the first inland mission station in 1835 at inland Akropong in the Akwapim Mountains which for its altitude and cooler climate was believed to represent a healthier disease environment. While the Basel Mission recruited Christian families from Jamaica, for their seemingly increased life expectancy in the tropics, to revive evangelical work (Sundkler and Steed 2000, p. 207-209), the Wesleyan Methodists missionaries, led by T.B. Freeman, in many ways started their work in more favourable circumstances. They benefitted from earlier African converts made at the coastal merchant centres who carried the gospel inland along the trade routes. As a result, by 1848 the Basel Mission had 40 Christian followers at Akawpim and the Methodist 1857 in1850, scattered in small congregations along the western Fante area (Isichei 1995, p. 169).

5. Mortality of European Missionaries and African Agency

There is a large literature documenting how deadly the West African disease environment was for Europeans (Curtin 1998, 1961). Estimates vary across space, time and population groups. For 18th century Cold Coast, Feinberg (1974) indicated crude death rates of ca. 200 for employees of the Netherlands Second West India Company. More recent estimates by Rönnbäck and Öberg (2015), in contrast, indicate crude death rates in the order of 420-480 for employees of the English Royal African Company. Malaria, yellow fever, dysentery and smallpox were among the major killers. The large scale use of quinine by the 1850s reduced mortality rates prompting Curtin (1990) to declare the 19th century as the "end of white man's grave".

How did mortality rates shape missionary strategies? The supply of missionaries was not infinite and there were opportunity costs: the same missionary could have been sent somewhere else and - by living longer - saving more souls elsewhere. Using a sample of 300 missionaries who worked in the Gold Coast 1751-1890, we first document mortality patterns. We then relate this to the expansion of mission stations in the 19th century.

[14] From 1857 the Basel agricultural station at Akropong successfully experimented with cocoa seeds.

Figure 2 displays estimated survival probabilities as a function of time serving at mission stations in the Gold Coast. We can indeed observe a marked increase in survival probabilities in the post-quine era defined here as post-1850.[15] The likelihood to survive longer than four years in pre-quinine era Gold Coast was about 50%, whereas in the post-quinine era about 80% of the missionaries survived the first four years. Slopes are steeper at the beginning indicating relatively higher mortality risks during the first years of service. We thus find the pattern confirmed by which Europeans faced particularly high mortality risks in the first years of arrival. Europeans may have acquired immunity to local diseases and therefore death rates fell. Interestingly, this pattern can be observed in both eras, but it is more pronounced in the pre-quinine era.

Next we test covariates in a multivariate analysis using a Cox proportional hazard model. Estimates are reported in the form of hazard ratios: the probability that an individual in a specified group dies relative to the probability of the comparison group exposed to the same years of (death free) service. A coefficients larger than 1 implies a higher risk of death, and vice versa for estimates smaller than 1. Table 1, column 1 confirms that mortality risk in the pre-quinine era was 2.8 times higher than in the post-quinine era. We also find that African missionaries had mortality risks that were at 20% of what Europeans faced. In column 2, we find evidence that mortality risks differed across mission societies. The Methodists (Wesleyan Mission) that were concentrated in the Western part of the Gold Coast had half as many deaths as compared to Bremen and Basel Mission that operated in the Eastern part.[16] We also find evidence of age related patterns of mortality. In column 3 we add the age of the missionary as a covariate and obtain a coefficient that indicates a 3.5% increase in mortality risks for every 1-year older in age.[17]

To summarize, Europeans faced a high mortality risk, particularly in the pre-quinine era. Mortality rates dropped markedly in the post-quinine era. If mortality was an important

[15] Mortality rates slightly declined between 1850 and 1890, but not significantly so. This justifies the use of just two periods, the pre- and post-quinine era.

[16] In our sample, missionaries belong to the Anglican Church (N=11), Bremen Mission (N=31), Wesleyan Mission (N=126) and Basel Mission (N=132). The regression largely reflects a comparison between the latter two missions. We only have 49 African missionaries and catechists in our sample, but this is largely a reporting bias.

[17] Age data was missing for 163 missionaries, particularly for those who survived. To avoid selection biases, we assumed an age of 25 at first mission. This is unproblematic, as ages are heavily clustered between 23 and 29. In the sample 80% of missionaries are between 21 and 31.

constraint we should observe an expansion in European missionaries as soon as the constraint was lifted. This was indeed the case. The number of European missionaries increased from about 5 to 30 between 1846 and 1860 but then stagnated at this level 1870-1890. With these small numbers, it is difficult to imagine how a population of roughly 2 million Ghanaians could be ever evangelized (Frankema and Jerven 2014). On similar grounds, we should observe more Methodists as the replacement rate must have been smaller. However, this was not the case. There was no qualitative difference in the numbers between the Wesleyan Mission (Methodists) and Basel Mission (Presbyterians). Using African missionaries was at all times a more efficient way to spread the gospel. This strategy was indeed recognized by mission societies: they sought to train Africans to become catechists and priests (#). When did Africans come forward to play that decisive role?

Figure 3 shows the ratio of mission stations to European missionaries. For the Presbyterians the ratio is about 0.6 and fairly constant until 1878. This means that on average slightly less than two European missionaries manned one station. For the Methodists, for every station there was one missionary. While even at a 1:1 ratio missionaries required and probably had African staff, there is a marked change in 1869 and 1878.[18] In 1890 there are about four stations for every European missionary. Moreover, the ratio most certainly increased much further. By 1932 the total number of European missionaries remained below 100 (Census 1931), whereas the number of stations increased to 2,200. This clearly required African agency which had little to do with quinine.[19]

6. Competition between denominations

Gallego and Woodberry (2010) argued that the laissez-fare policy in British African colonies led to competition between denominations. This competition increased conversions.

[18] The Bremen Mission reported the number of "*Gehülfen*" by mission station. In ca. 1895 one mission is typically manned between 1 and 3 helpers(Kolonialabteilung des Auswärtigen Amtes various years). (# this needs to be confirmed). The Encyclopedia of Mission 1902 reported the number of African employees. From this, we calculated a ratio of Europeans to African clergy of 1:20.

[19] Jenkins (1974a), (1974b) documented how Anglican Church spread through bible groups. Killingray (2011) emphasised the development of indigenous African churches.

Because supplying education was an important way to attract and convert Africans, it also led to an increased number of mission schools.

How was the situation in the Gold Coast? Protestants found an informal agreement to share the religious market. They literally divided the territory into spheres of influence (Debrunner 1967, Samwini 2003). The Wesleyan Mission took charge of the Fante areas and the area east of it. The Basel Mission focused on the Ga, Akuapim and Akim and moved also into Ewe areas (Samwini 2003, p.58). The Bremen Mission was centred east of the Basel Mission aiming to create an Ewe Church. At first, there was an overlap between Bremen and Basel Mission. However, around 1900 the Basel Mission gave up their mission stations in German Togoland and literally handed them over to the Bremen Mission (Kolonialabteilung des Auswärtigen Amtes 1904). The Bremen mission was nevertheless still active in British ruled Gold Coast.

Agreement does not imply that collusion worked. There is an incentive to invade the territory of competitors if mission societies value conversion to their own denomination more than conversions to Christianity in general. In fact, Debrunner (1967) complained that Methodists were encroaching into Basel areas. This is partly owed to a simple diffusion process of religion. Also, migrants tended to keep their own denomination (Debrunner 1967, p. 183).

The Catholics were not part of this agreement and they perceived Protestants as competitors. Debrunner (1967, p. 226) wrote that “the competition between the Roman Catholics and the Bremen Mission in Togo often took antagonistic forms-each mission raced to occupy villages, since the German Government tolerated only one denomination in any one village.” In the Gold Cost, there was no such formal restriction so that competition could in principle take also place in the same village. Nevertheless, this does not seem a cost-effective strategy if marginal costs of conversion are increasing with the share of converted.

Figure 4 presents the market shares of the denominations active in the Gold Coast. While Presbyterians (Basel & Bremen) and Methodists divided the market between themselves, the former were more successful in expanding in their sphere. Between 1890 and 1908 one can observe a stable equilibrium. Their combined market share was close to about 90%. This

changed around 1908 with the Catholic Church and other mission societies entering into competition, pushing down the market share of Presbyterians and Methodists to 40% and 30% by 1932, respectively.

7. The Missionaries' Choice of Location

a. Empirical strategy

b. Results:

See table 2-4 (text to be written).

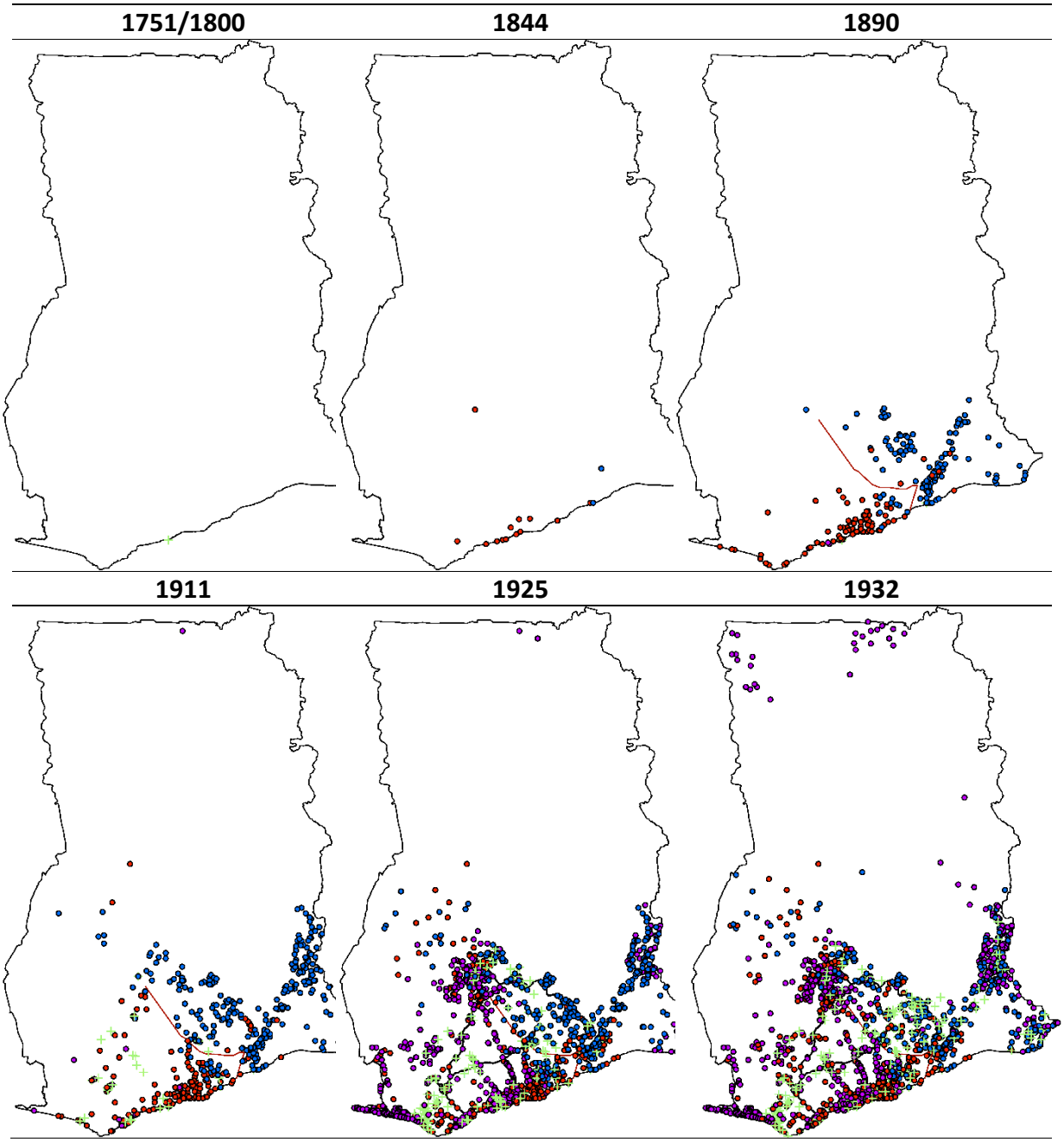
8. Mission station exits

To be included next draft.

9. Relevance for 2000 outcomes

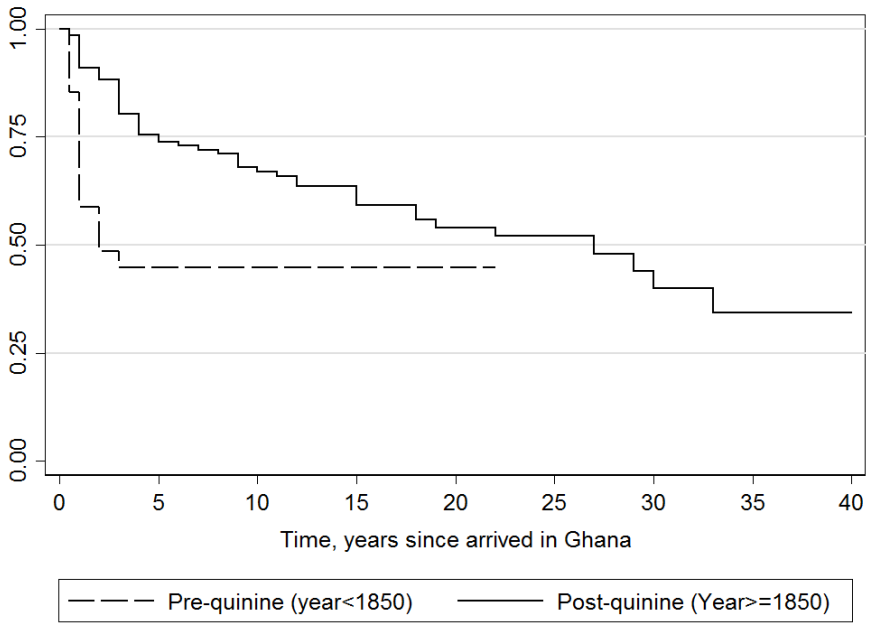
Figure 5

Figure 1: Map of churches in 1751, 1800, 1844, 1890, 1914, 1932?



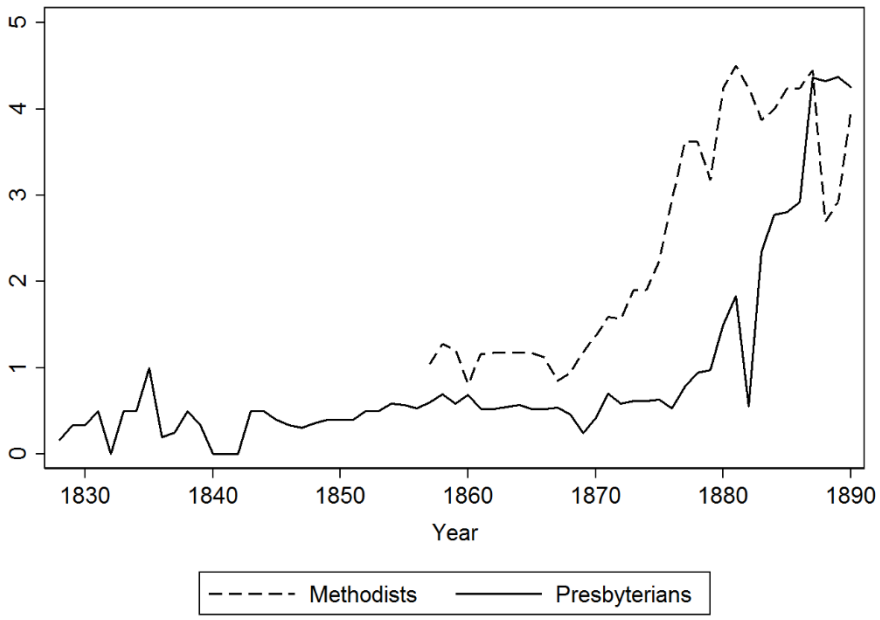
Notes: These maps show the location of mission stations of the Methodist (red circle), Presbyterian (blue circle), Catholics (purple circle) and others (green cross). The red line shows the border of the spheres of influence between Presbyterians and Methodists. The black line shows the location of the railroad.

Figure 2: Kaplan-Meier Survival estimates for European Missionaries 1742-1891



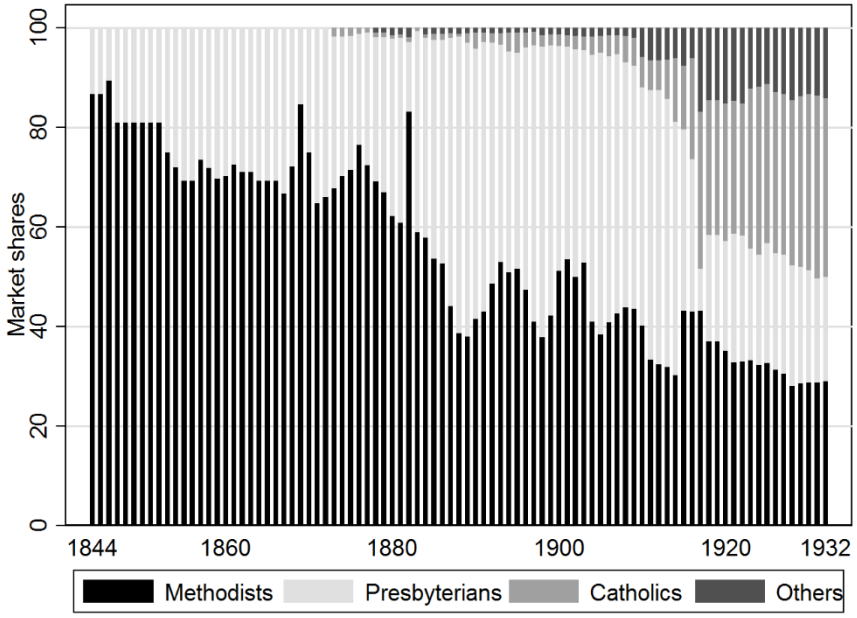
Notes: African missionaries were excluded. The horizontal axis denotes time in years, the vertical axis denotes the survival probability. Missionaries are defined to become at risk of dying with taking up their missionary activities in the Gold Coast. Missionaries who left the Gold Coast alive are treated as censored. Hence, all deaths occurred while stationed in the Gold Coast. The Kaplan Meier estimates are to be interpreted as the probability to survive past year t. For example, the likelihood to survive longer than 5 years in the pre-quinine and post-quinine era Gold Coast is about 50% and 75% respectively.
Sources: Ecclesiastical returns (Blue Books) and other sources (mission websites). See text for details.

Figure 3: Ratio of Mission Stations to European Missionaries



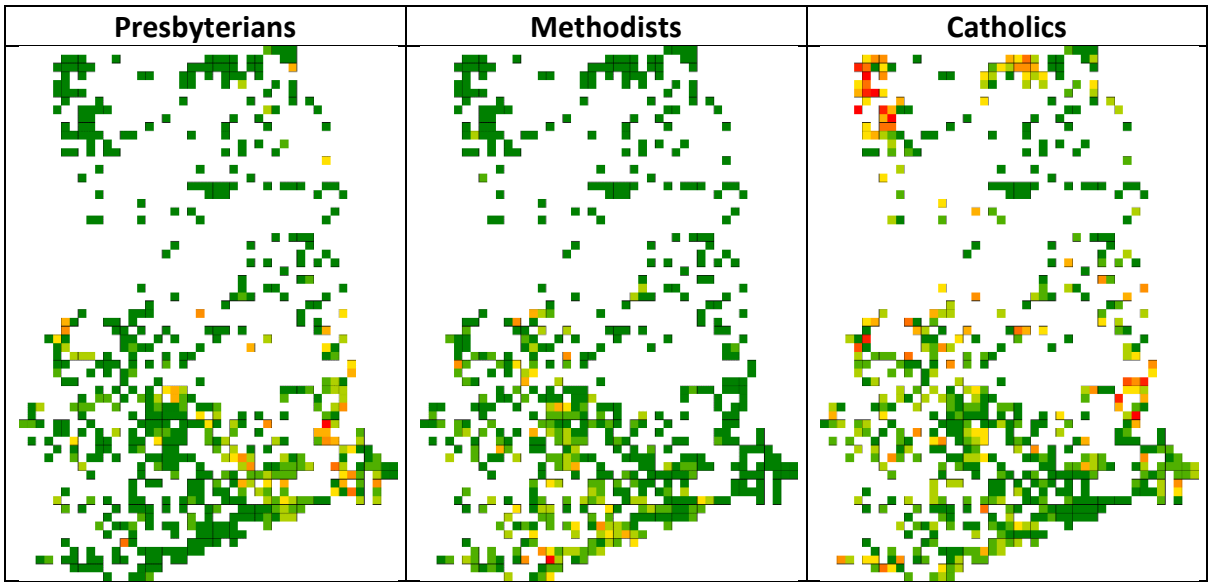
Notes: African missionaries were excluded. Mission stations include main stations as well as outposts.
Sources: Number of stations 1844-1890 and priests 1857-1890 are reconstructed from the Gold Coast Blue Books. Data for Presbyterian priests 1828-1943 was added from #.

Figure 4: Denominations and their Market Shares in the Gold Coast 1844-1932



Notes: market share in terms of mission stations

Figure 5: Denominations and their Followers in Ghana 2000



Source: DHS Ghana.
Notes: Denominations shares increase from dark green to red.

Table 1: Multivariate analysis of missionaries' deaths 1751-1890

	(1)	(2)	(3)
Pre-quinine era	2.843***	3.033***	3.016***
	(4.572)	(4.797)	(4.834)
African missionary	0.201***	0.166***	0.162***
	(-4.023)	(-3.943)	(-4.524)
Methodist		0.525***	0.548***
		(-2.927)	(-2.721)
Age (in years)			1.035*
			(1.762)
N deaths	97	97	97
N subjects	300	300	300

Notes: Cox proportional hazards model. Reported coefficients are hazard ratios; robust z-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 2: Multivariate analysis of mission locations 1875, 1900, 1932

	Mission location			N (stations)		
	1875	1900	1932	1875	1900	1932
	(1)	(3)	(5)	(2)	(4)	(6)
dummy coastal cell	0.210***	0.313***	0.100*	0.343***	0.634**	1.966***
	[0.059]	[0.066]	[0.061]	[0.121]	[0.267]	[0.715]
distance to coast (100km)	0.101	0.156	0.270	0.274	0.853	5.780**
	[0.203]	[0.257]	[0.335]	[0.314]	[0.795]	[2.244]
forest dummy	0.045*	0.069*	0.064*	0.093**	0.499***	0.437
	[0.024]	[0.037]	[0.038]	[0.044]	[0.168]	[0.268]
mean altitude (m)	-0.000	0.000	-0.000*	-0.000	0.000	-0.003***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]
SD of altitude (m)	0.000	0.001*	-0.000	0.000*	0.002**	0.007***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]	[0.002]
rainfall (mms)	-0.000***	-0.000	0.000	-0.000***	-0.001***	-0.000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
historical malaria burden (Depetris-Chauvin & Weil)	-0.642	0.836	-1.220	-0.776	-1.739	13.528
	[0.542]	[0.839]	[1.471]	[0.758]	[3.235]	[8.860]
historical tse tse fly index (Alsan)	-0.006	-0.016	0.023	-0.030	-0.154	0.341
	[0.020]	[0.038]	[0.070]	[0.032]	[0.127]	[0.385]
distance to river (100 km)	0.050***	0.056***	0.108***	0.081***	0.209***	0.805***
	[0.011]	[0.018]	[0.023]	[0.019]	[0.054]	[0.172]
distance to trade route in 1850 (100 km)	-0.087***	-0.124***	0.161***	-0.128***	-0.370***	-0.060
	[0.019]	[0.026]	[0.057]	[0.031]	[0.092]	[0.402]
distance to port in 1900 (100 km)	-0.043	-0.028	-0.122	-0.198	-0.618	-5.478**
	[0.209]	[0.264]	[0.341]	[0.321]	[0.815]	[2.299]
Distance to rail in 1932 (100 km)			-0.424***			0.137
			[0.077]			[0.588]
Distances to class 1 road in 1931 (100 km)			0.020			0.164

			[0.044]			[0.241]
Distances to class 2 road in 1931 (100 km)			-0.210***			-0.875***
			[0.055]			[0.335]
Distances to class 3 road in 1931 (100 km)			-0.103***			-0.360*
			[0.036]			[0.184]
distance to a class 3 road in 1900 (100 km)		-0.022			-0.052	
		[0.015]			[0.046]	
dummy if within census 1901	-0.030	-0.079**		-0.077*	-0.430***	
	[0.020]	[0.035]		[0.040]	[0.124]	
dummy if head chief village	0.026	0.072		0.059	0.215	
	[0.049]	[0.066]		[0.121]	[0.266]	
log of urban pop + 1 (because of the 0s)	0.033***	0.036***		0.053***	0.115***	
	[0.006]	[0.005]		[0.011]	[0.021]	
log rural pop + 1 (South only, when information available)		0.026***			0.050***	
		[0.003]			[0.010]	
log urban pop +1 1931			0.032***			0.185***
			[0.004]			[0.022]
log rural pop+1 1931			0.026***			0.085***
			[0.002]			[0.010]
distance to accra (100 km)	-0.070***	-0.158***	-0.045	-0.093***	-0.394***	-0.367
	[0.020]	[0.029]	[0.039]	[0.030]	[0.090]	[0.256]
distance to kumasi (100 km)	0.076***	0.170***	0.396***	0.105***	0.435***	1.055***
	[0.018]	[0.028]	[0.051]	[0.028]	[0.093]	[0.380]
share land suitable for cocoa		-0.052	0.055		-0.389***	-0.484
		[0.037]	[0.060]		[0.147]	[0.337]
highly suitable		0.068**	0.051		0.186**	0.819***
		[0.034]	[0.053]		[0.078]	[0.282]
very highly suitable		0.086	0.158**		0.230	0.539
		[0.058]	[0.067]		[0.211]	[0.507]
log cocoa prod 1927 + 1			0.030***			0.305***
			[0.006]			[0.039]
mine dummy 1900		0.632***			2.144***	
		[0.046]			[0.162]	
mine dummy 1931			-0.004			3.537**
			[0.051]			[1.482]
ashanti dummy	0.001	-0.019	0.120***	-0.002	-0.074	0.650***
	[0.010]	[0.024]	[0.036]	[0.015]	[0.047]	[0.173]
northern territories dummy	-0.008	-0.045*	0.195***	-0.021	-0.164***	1.138***
	[0.012]	[0.027]	[0.041]	[0.016]	[0.053]	[0.207]
british togoland dummy	-0.028*	-0.063**	0.136***	-0.045**	-0.244***	0.601**
	[0.014]	[0.030]	[0.041]	[0.018]	[0.062]	[0.249]
Observations	2,091	2,091	2,091	2,091	2,091	2,091
R-squared	0.36	0.46	0.57	0.32	0.40	0.47
Fixed effects	Region	Region	Region	Region	Region	Region

Robust standard errors in brackets.

*** p<0.01, ** p<0.05, * p<0.1

Table 3: Differences across denominations 1932

	(1) Methodist	(2) Presbyterian	(3) Catholics	(4) N methodist	(5) N presbyterians	(6) N catholics
distance to first Methodist station	-0.277***			-1.187***		
	[0.042]			[0.202]		
distance to first Presbyterian station		-0.588			-1.468	
		[0.395]			[0.933]	
distance to first Catholic station			-0.148***			-0.545***
			[0.044]			[0.170]
dummy coastal cell	0.134**	-0.131**	0.097	0.593**	-0.272**	0.902***
	[0.063]	[0.055]	[0.069]	[0.285]	[0.125]	[0.335]
distance to coast (100km)	0.312	-0.370	1.344***	1.759**	-1.106**	4.696***
	[0.275]	[0.276]	[0.281]	[0.865]	[0.562]	[1.253]
forest dummy	-0.003	0.040	0.019	0.211**	0.159	-0.157
	[0.034]	[0.035]	[0.040]	[0.099]	[0.101]	[0.124]
mean altitude (m)	-0.000	-0.000	-0.000**	-0.000	0.000	-0.001***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
SD of altitude (m)	0.000	0.001*	0.000	0.001	0.004***	0.001
	[0.000]	[0.000]	[0.000]	[0.001]	[0.001]	[0.001]
rainfall (mms)	-0.000***	0.000	0.000***	-0.001***	-0.000	0.001***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
historical malaria burden (Depetris-Chauvin & Weil)	-0.916	1.881	-1.802	4.329	4.440	-9.386*
	[1.276]	[1.311]	[1.517]	[3.328]	[3.168]	[4.802]
historical tse tse fly index (Alsan)	-0.008	-0.131***	-0.071	-0.094	-0.332***	-0.041
	[0.056]	[0.050]	[0.066]	[0.140]	[0.122]	[0.187]
distance to river (100 km)	0.101***	0.026	0.014	0.271***	0.025	-0.056
	[0.019]	[0.019]	[0.023]	[0.060]	[0.050]	[0.080]
distance to trade route in 1850 (100 km)	-0.060	0.083	0.253***	-0.045	0.147	0.511**
	[0.052]	[0.058]	[0.062]	[0.132]	[0.153]	[0.209]
distance to port in 1900 (100 km)	-0.069	0.466	-1.370***	-1.145	1.202**	-5.075***
	[0.286]	[0.286]	[0.290]	[0.884]	[0.578]	[1.286]
Distance to rail in 1932 (100 km)	-0.014	-0.078	0.108	1.207***	-0.196	0.896**
	[0.088]	[0.074]	[0.104]	[0.395]	[0.167]	[0.362]
Distances to class 1 road in 1931 (100 km)	-0.045	0.008	0.051	-0.178*	-0.061	0.406***
	[0.039]	[0.036]	[0.046]	[0.091]	[0.092]	[0.146]
Distances to class 2 road in 1931 (100 km)	0.021	-0.132**	-0.178***	-0.007	-0.372***	-0.463**
	[0.052]	[0.052]	[0.057]	[0.116]	[0.116]	[0.181]
Distances to class 3 road in 1931 (100 km)	-0.020	-0.073**	-0.173***	-0.181**	-0.112	-0.419***
	[0.031]	[0.029]	[0.035]	[0.076]	[0.072]	[0.098]

log urban pop +1 1931	0.020***	0.023***	0.024***	0.053***	0.046***	0.054***
	[0.003]	[0.003]	[0.004]	[0.009]	[0.008]	[0.011]
log rural pop+1 1931	0.012***	0.006***	0.017***	0.022***	0.008**	0.042***
	[0.002]	[0.002]	[0.002]	[0.004]	[0.003]	[0.006]
distance to accra (100 km)	-0.102***	0.472	-0.006	-0.469***	1.397	0.071
	[0.036]	[0.420]	[0.046]	[0.130]	[0.977]	[0.139]
distance to kumasi (100 km)	0.202***	0.162***	0.058	0.186	0.452***	-0.271
	[0.053]	[0.049]	[0.061]	[0.166]	[0.125]	[0.178]
share land suitable for cocoa	-0.104*	0.046	0.039	-0.637***	0.013	-0.197
	[0.056]	[0.043]	[0.064]	[0.146]	[0.120]	[0.180]
highly suitable	0.061	0.078**	0.014	0.376***	0.081	0.282*
	[0.049]	[0.038]	[0.054]	[0.113]	[0.092]	[0.146]
very highly suitable	0.262***	0.111	0.020	0.532**	-0.008	-0.156
	[0.072]	[0.071]	[0.086]	[0.252]	[0.163]	[0.226]
log cocoa prod 1927 + 1	0.034***	0.023***	0.030***	0.079***	0.094***	0.101***
	[0.006]	[0.005]	[0.007]	[0.016]	[0.014]	[0.019]
mine dummy 1931	0.291***	-0.174	-0.056	1.980***	-0.496	0.450
	[0.058]	[0.169]	[0.217]	[0.703]	[0.375]	[0.843]
ashanti dummy	0.058*	0.041	0.179***	0.299***	0.095	0.546***
	[0.032]	[0.031]	[0.037]	[0.071]	[0.079]	[0.096]
northern territories dummy	0.048	0.073**	0.266***	0.221***	0.139	0.881***
	[0.032]	[0.037]	[0.041]	[0.069]	[0.096]	[0.118]
british togoland dummy	0.067**	0.039	0.255***	0.253***	0.046	0.932***
	[0.030]	[0.041]	[0.044]	[0.076]	[0.119]	[0.147]
Observations	2,091	2,091	2,091	2,091	2,091	2,091
R-squared	0.48	0.41	0.38	0.44	0.36	0.33
Fixed effects	Region	Region	Region	Region	Region	Region

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Diffusion across denominations

Panel A: Methodists	(1)	(2)	
dummy if own mission in cell in previous year	0.946***	0.933***	0
	[0.003]	[0.004]	
dummy if mission from another denomination in cell in previous year		0.027***	0
		[0.002]	
dummy if own mission in neighboring cell 10-20km in previous year			0
dummy if mission from another denomination in neighboring cell 10-20km in previous year			
Distance to first own mission station (in 1000 km) x year t			
Observations	219,555	219,555	2
Adjusted R-squared	0.86	0.87	

Panel B: Presbyterians	(6)	(7)	
dummy if own mission in cell in previous year	0.902***	0.892***	0
	[0.004]	[0.005]	
dummy if mission from another denomination in cell in previous year		0.029***	0
		[0.003]	
dummy if own mission in neighboring cell 10-20km in previous year			0
dummy if mission from another denomination in neighboring cell 10-20km in previous year			
Distance to first own mission station (in 1000 km) x year t			
Observations	219,555	219,555	2
Adjusted R-squared	0.79	0.79	

Panel C: Catholics	(11)	(12)	
dummy if own mission in cell in previous year	0.980***	0.970***	0
	[0.002]	[0.002]	
dummy if mission from another denomination in cell in previous year		0.020***	0
		[0.002]	
dummy if own mission in neighboring cell 10-20km in previous year			0
dummy if mission from another denomination in neighboring cell 10-20km in previous year			
Distance to first own mission station (in 1000 km) x year t			
Observations	219,555	219,555	2
Adjusted R-squared	0.89	0.89	

References

Alsan, Marcella. "The Effect of the Tsetse Fly on African Development." *American Economic Review* 105, no. 1 (2015): 382-410.

Austin, Gareth. "African Rural Capitalism, Cocoa Farming and Economic Growth in Colonial Ghana." In *Ghana in Africa and the World : Essays in Honor of Adu Boahen*, edited by Toyin Falola, 437-53. Trenton, NJ: Africa World Press, 2003.

———. "The 'Reversal of Fortune' Thesis and the Compression of History: Perspectives from African and Comparative Economic History." *Journal of International Development* 20, no. 8 (2008): 996–1027.

Ballard, Martin. *White Men's God: The Extraordinary Story of Missionaries in Africa*. Oxford, England ; Westport, Conn.: Greenwood World Pub., 2008.

Bartels, Francis L. *The Roots of Ghana Methodism*. Cambridge: Cambridge University Press, 1965.

Basel Mission. *The Basel Mission on the Gold-Coast, Western Africa on the 1st January 1879: A Retrospect on Fifty Years of Mission Work*. Felix Schneider, 1879.

Basel Mission Archives. "Basel Mission Archives in Basel (Switzerland)."

Bryson, A. "The Prophylactic Influence of Quinine." *Medical Times and Gazette* 8 (1854): 6-7.

Cagé, Julia, and Valeria Rueda. "The Long-Term Effects of the Printing Press in Sub-Saharan Africa." *American Economic Journal: Applied Economics* (forthcoming).

Cogneau, Denis, and Alexander Moradi. "Borders That Divide: Education and Religion in Ghana and Togo since Colonial Times." *The Journal of Economic History* 74, no. 3 (2014): 694-729.

Curtin, Philip D. *Disease and Empire: The Health of European Troops in the Conquest of Africa*. Cambridge: Cambridge University Press, 1998.

———. "The End of the "White Man's Grave"? Nineteenth-Century Mortality in West Africa." *The Journal of Interdisciplinary History* 21, no. 1 (1990): 63-88.

———. *"The White Man's Grave", Image and Reality, 1780-1850*. London, 1961.

Debrunner, Hans W. *A History of Christianity in Ghana*. Accra: Waterville Publishing House, 1967.

Depetris-Chauvin, Emilio, and David N. Weil. "Malaria and Early African Development: Evidence from the Sickle Cell Trait." *NBER Working Paper 19603* (2013).

Der, Benedict. "Church-State Relations in Northern Ghana, 1906-1940." *Transactions of the Historical Society of Ghana* 15, no. 1 (1974): 41-61.

Dwight, Henry Otis, H. Allen Tupper, and Edwin Munsell Bliss. *The Encyclopedia of Missions : Descriptive, Historical, Biographical, Statistical*. New York: Funk & Wagnalls, 1904.

Feinberg, H. M. "New Data on European Mortality in West Africa: The Dutch on the Gold Coast, 1719-1760." *The Journal of African History* 15, no. 3 (1974): 357-71.

Fenske, James. "African Polygamy: Past and Present." *Journal of Development Economics* 117 (2015): 58-73.

Fitzner, Rudolf. *Deutsches Kolonial-Handbuch*. Berlin: Hermann Paetel, 1901.

Fourie, Johan, R Ross, and R Viljoen. "Literacy at South African Mission Stations." *Journal of Southern African Studies* 40, no. 4 (2014): 781-800.

Frankema, Ewout. "The Origins of Formal Education in Sub-Saharan Africa: Was British Rule More Benign?" *European Review of Economic History* 16, no. 4 (2012): 335-55.

Frankema, Ewout, and Morten Jerven. "Writing History Backwards or Sideways: Towards a Consensus on African Population, 1850–2010." *The Economic History Review* 67, no. 4 (2014): 907-31.

Gallego, Francisco A., and Robert Woodberry. "Christian Missionaries and Education in Former African Colonies: How Competition Mattered." *Journal of African Economies* 19, no. 3 (2010): 294-329.

Hastings, Adrian. *The Church in Africa, 1450-1950*. Oxford: Clarendon Press, 1994.

Hill, Polly. *The Migrant Cocoa-Farmers of Southern Ghana: A Study in Rural Capitalism*. Cambridge: Cambridge University Press, 1963.

Iliffe, John. *Africans : The History of a Continent*. Cambridge: Cambridge University Press, 2007.

Isichei, Elizabeth Allo. *A History of Christianity in Africa: From Antiquity to the Present*. London: SPCK, 1995.
Jedwab, Remi, and Alexander Moradi. "The Permanent Effects of Transportation Revolutions in Poor Countries: Evidence from Africa." *Review of Economics and Statistics* (forthcoming).
Jenkins, Paul. "The Anglican Church in Ghana, 1905-24 (I)." *Transactions of the Historical Society of Ghana* 15, no. 1 (1974a): 23-39.
———. "The Anglican Church in Ghana, 1905-24 (Ii)." *Transactions of the Historical Society of Ghana* 15, no. 2 (1974b): 177-200.
Johnson, Hildegard Binder. "The Location of Christian Missions in Africa." *Geographical Review* 57, no. 2 (1967): 168-202.
Killingray, David. "Passing on the Gospel: Indigenous Mission in Africa." *Transformation: An International Journal of Holistic Mission Studies* 28, no. 2 (2011): 93-102.
Kolonialabteilung des Auswärtigen Amtes. *Deutsches Kolonialblatt. Amtsblatt Für Die Schutzgebiete Des Deutschen Reichs*. Berlin: Ernst Siegfried Mittler & Sohn, 1904.
———. *Deutsches Kolonialblatt. Amtsblatt Für Die Schutzgebiete Des Deutschen Reichs*. Berlin: Ernst Siegfried Mittler & Sohn, various years.
Kretzmann, Paul E. *John Ludwig Krapf : The Explorer-Missionary of Northeastern Africa*. Columbus (Ohio): The Book Concern, 1923.
Mamdani, Mahmood. *Citizen and Subject: Contemporary Africa and the Legacy of Late Colonialism*. Princeton, N.J.: Princeton University Press, 1996.
Mantovanelli, Federico G. "Christian Missions, Hiv and Sexual Behavior in Sub-Saharan Africa." *Working Paper* (2013).
Martin, James Henry, and J. Bernard Sheldon. *Ministers and Probationers of the Methodist Church, Formerly Wesleyan, Primitive, and United Methodist, with Their Appointments in Chronological and Alphabetical Order; Also Lists of the Presidents, Vice-Presidents, and the Secretaries of the Several Conferences, Together with an Alphabetical List of Deceased Ministers*. London,: Methodist Pub. House, 1964.
Meier zu Selhausen, Felix. "Missionaries and Female Empowerment in Colonial Uganda: New Evidence from Protestant Marriage Registers, 1880–1945." *Economic History of Developing Regions* (2014): 1-39.
Meier zu Selhausen, Felix P., Marco H.D. van Leeuwen, and Jacob L. Weisdorf. "Social Mobility among Christian Africans: Evidence from Ugandan Marriage Registers, 1895-2011." *Working Paper* (2015).
Miller, Jon. *Missionary Zeal and Institutional Control: Organizational Contradictions in the Basel Mission on the Gold Coast, 1828-1917*. Grand Rapids, Michigan ; Cambridge, U.K.: William B. Eerdmans, 2003.
Nunn, Nathan. "Gender and Missionary Activity in Colonial Africa." In *Africa's Development in Historical Perspective*, edited by Emmanuel Akyeampong, Robert H. Bates, Nathan Nunn and James Robinson, 489-512: Cambridge University Press, 2014.
———. "Religious Conversion in Colonial Africa." *American Economic Review Papers and Proceedings* 100, no. 2 (2010): 147-52.
Odamtten, S. K. *The Missionary Factor in Ghana's Development up to the 1880's*. Accra: Waterville Pub. House, 1978.
Park, Chris C. *Sacred Worlds: An Introduction to Geography and Religion*. London: Routledge, 1994.
Parsons, Robert Thomas. *The Churches and Ghana Society, 1918-1955*. Leiden,: Brill, 1963.
Quartey, Seth. *Missionary Practices on the Gold Coast, 1832-1895 : Discourse, Gaze, and Gender in the Basel Mission in Pre-Colonial West Africa*. Youngstown, N.Y.: Cambria Press, 2007.
Reimer, Dietrich. "Arbeitsgebiet Der Norddeutschen Mission in Süd-Togo Und Auf Der Goldküste. Stand Beim 75-Jährigen Jubiläum 1911." Berlin: Ernst Vohsen, 1911.
Rönnbäck, Klas, and Stefan Öberg. "The White Man's Grave Revisited - Settler Mortality Rates on the Pre-Colonial Gold Coast." *Working Paper presented EHES conference in Pisa* (2015).

Roome, William R. M. . "Ethnographic Survey of Africa: Showing the Tribes and Languages; Also the Stations of Missionary Societies." 1924.
Samwini, Nathan Iddrisu. "The Muslim Resurgence in Ghana since 1950 and Its Effects Upon Muslims and Muslim-Christian Relations." DPhil, Birmingham, 2003.
Smith, Noel T. *The Presbyterian Church of Ghana, 1835-1960: A Younger Church in a Changing Society*. Accra: Ghana Universities Press, 1966.
Sundkler, Bengt, and Christopher Steed. *A History of the Church in Africa*. Cambridge, UK ; New York: Cambridge University Press, 2000.
Thomson, Thomas R H. "On the Value of Quinine in African Remittent Fever." *The Lancet* 47, no. 1174 (1846): 244-45.
Wantchekon, Leonard, Natalija Novta, and Marko Klašnja. "Education and Human Capital Externalities: Evidence from Colonial Benin." *The Quarterly Journal of Economics* 130, no. 2 (2015): 703-57.
Welbourn, F. B. "Missionary Stimulus and African Responses." In *Colonialism in Africa: 1870-1960*, edited by Lewis H. Gann and Peter Duignan, 310-45. Cambridge: Cambridge University Press, 1971.
Wiltgen, Ralph M. *Gold Coast Mission History, 1471-1880*. Techny, Ill.: Divine Word Publications, 1956.
Witschi, Hermann, and Wilhelm Schlatter. *Geschichte Der Basler Mission Bd. 4 Des Gesamtwerkes*. Basel: Basileia Verlag, 1965.
Woodberry, Robert D. "The Missionary Roots of Liberal Democracy." *American Political Science Review* 106, no. 2 (2012): 244-74.