

RELIGION AND THE SCOPE OF MORALITY: EVIDENCE FROM EXPOSURE TO MISSIONS IN THE DRC[†]

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December 1, 2019

Preliminary and Incomplete

Abstract

Across the social sciences, a key question is whether religion facilitates cooperation and pro-social behavior. In this paper, I examine if religion has long-term effects on individual’s “scope of morality” defined as (i) the extent to which an individual favors or is biased towards in-group members (e.g. family and coethnics) over out-group members (e.g. non coethnics, strangers, foreigners), (ii) whether individuals have more communal or more universal moral values. To study this question, I use archival records of the location of European Christian missions, as well as novel survey questions, and a lab-in-the-field referral experiment conducted with over 1,000 respondents in the Democratic Republic of the Congo. I find that exposure to Christian missions results in less bias against out-group members, relative to in-group members. Similarly, I show that exposure to Christian missions leads to broader social networks - defined as a lower fraction of family members and coethnics in the respondent’s network. Finally, I find that Christian missions are associated with the adoption of less communal and more universal moral values. The identification of the effect of Christian missions emerges after comparing them with neighboring abandoned missions. The enduring effect of Christian missions on individuals’ scope of morality are better explained by an increase in religiosity and in the moralizing role of the Christian god, the adoption of universal Christian moral values and the development of a Christian in-group identity than by changes in respondent’s education or income.

[†]I thank Emily Breza, Julia Cagé, Melissa Dell, Ben Enke, Edward Glaeser, Claudia Goldin, Asim Khwaja, Horacio Larreguy, Eduardo Montero, Nathan Nunn, Jean-Philippe Platteau, Gautam Rao, Valeria Rueda, Jonathan Weigel, and participants at the Harvard Economic History Lunch for excellent feedback. I would like to thank Xaviera Steele for excellent research assistance. I thank Jonathan Weigel for sharing historical data on mission location. I would also like to thank Lydia Asouad, Stephanie Bonds, Moya Chin, Manon Delvaux, Casey Kearney, Mateo Montenegro, Tzachi Raz, Ambra Seck and Clara Sievert for helpful comments and suggestions. Finally, I thank my amazing team of enumerators in Kananga: Benjamin Badibanga, Augustin Dikebele, Jean Kalala, Théodore Kalamba, Jacques Kazadi, Joseph Kazadi, Dieudonné Kupa, John Mufuta and Costantin Tshimanga. I am grateful for the financial support from the Harvard Lab for Economic Applications and Policy (LEAP) and the Harvard Foundations of Human Behavior Initiative (FHB). This study has been approved by the Harvard Institutional Review Board (Protocol 24087).

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1 Introduction

Across the social sciences, a key question is whether religion facilitates cooperation and pro-social behavior (Atran and Henrich, 2010; Henrich et al., 2010; Hruschka and Henrich, 2013; Norenzayan and Shariff, 2008; Norenzayan et al., 2010; Purzycki et al., 2016; Xygalatas et al., 2018; Lang et al., 2019). In this paper, I examine more broadly if religion - Christianity in the context studied here - has long-term consequences on individual's "scope of morality" defined as (i) the extent to which an individual favors or is biased towards in-group members (e.g. family and coethnics) over out-group members (e.g. non coethnics, strangers, foreigners), (ii) whether individuals have more communal or more universal moral values. This is especially important given the growing literature that shows how strong in-group preferences can have adverse economic effects, for example in the context of ethnic ties (Aker et al., 2014; Anderson, 2011; Barr and Oduro, 2002; Hjort, 2014) or family and kinship ties (Alesina and Giuliano, 2011, 2013; Alesina et al., 2015; Jakiela and Ozier, 2016; Schulz et al., 2019; Squires, 2019), and might result in the development of communal moral values that are also associated with lower economic outcomes (Enke, 2019a).

To study how Christianity changes individuals' scope of morality, I exploit a historical experiment. More specifically, I study religious missions, which resulted in widespread conversions to Christianity and were founded - through colonial enterprises - in developing countries worldwide. I focus on the Democratic Republic of the Congo (DRC) since it allegedly had the highest number of European missionaries in tropical Africa¹. To assess the effect of exposure to Christian missions on individuals' scope of morality, I assemble a new data set of archival informations about Catholic and Protestant missions in the DRC. To complement this dataset, I also implement surveys and a lab-in-the-field referral experiment to measure the scope of morality of over 1,000 respondents currently living in the city of Kananga, in the DRC. To quantify the Christian missionary treatment, I use distance of individual's village of origin to the nearest mission as the main explanatory variable. The main advantage of this approach is that it keeps individual's current institutional environment fixed and helps isolate the cultural component of the effect of Christian missions on individual's outcomes. I then estimate an econometric model of contemporary outcomes based on this measure of exposure to Christian missions, while controlling for geographic and historical characteristics of the respondent's village of origin.

I find that exposure to Christian missions results in a broader scope of morality today. First, I show that having a village of origin closer to a Christian mission leads to a greater sense of closeness, more favorable views and more trust towards out-group members (non-coethnics, strangers, foreigners) but does not affect attitudes towards in-group members (nuclear family, extended family, coethnics). I find similar results when using self-reported survey measures as well as when using an experimental measure of in-group bias based on a lab-in-the-field referral experiment, which is less likely to suffer from experimenter demand effects. Second, I find that having a village of origin that is closer to a

¹Frankema and Buelens (2013) counts for the Belgian Congo 500 foreign missionaries in 1908, while by 1938 and 1950 the number of foreign missionaries had rapidly grown to 3732 and 5336, respectively.

Christian mission changes the composition of respondent's social network and, in particular, results in a lower fraction of family members and coethnics in their social network. Finally, I show that respondents whose village of origin is closer to a Christian mission have more universal and less communal moral values today. Taken together, these findings constitute the core result of this paper and show that exposure to Christian missions resulted in individuals having a broader scope of morality today.

Despite extensive geographic and historical controls, the initial location of Christian missions can still be nonrandom. To address the potential endogeneity of mission placement, I conduct two robustness tests. The first one is a placebo-type test that looks at missions originally founded by the Catholics or the Protestants but were abandoned early on and is similar to the method used by [Valencia Caicedo \(2019\)](#). I thereby compare places that were initially picked by Christian missionaries but ended up not being treated with those that received the full missionary "treatment". I find no significant or consistent effects for missions that were abandoned early on, which suggests that what mattered in the long run were the activities carried out by the missions and not where they were settled. The second test consists in using the technique developed by [Altonji et al. \(2005\)](#) to show that on average selection based on unobservables would have to be at least 5 times greater than selection on observables in order for the effect of exposure to Christian missions on individuals' scope of morality to be completely spurious.

Finally, I present empirical evidence on religion and religiosity as mechanisms of transmission. I first document that exposure to Christian missions increased individual's faith in the Christian god as well as how moralizing they consider the Christian god to be. I then investigate if Christian missions favored the adoption of Christian moral values. I find this to be the case and provide evidence that these Christian moral values tend to be universal rather than communal. I also investigate whether religion and religiosity affected respondent's scope of morality by altering who they consider to be part of their in-group, e.g. from family and coethnics to coreligionists and parishioners. I only find weak evidence that exposure to Christian missions resulted in more favorable views and more trust towards Christians relative to non-Christians and parishioners relative to non-parishioners. Taken together, these results suggest that religiosity and in particular the adoption of Christian moral values and the development of a Christian in-group identity might explain a substantive part of the historical effects of exposure to Christian missions on individual's scope of morality. Finally, I use several strategies to show that differences in education and income today, which were most likely affected by exposure to Christian missions, are unlikely to explain away the entire effects of exposure to Christian missions on individual's scope of morality today.

Related Literature - This paper is related to several literature. First, it contributes to the literature that examines the effect of religion on economic outcomes. Across countries, [Barro and McCleary \(2003, 2006\)](#) show that economic growth responds positively to religious beliefs, notably beliefs in hell and heaven. In the USA, [Glaeser and Sacerdote \(2008\)](#) document a positive relationship between education and religion at the individual level and a negative one at the aggregate level. [Benjamin et al. \(2016\)](#) use laboratory experiments to show that primes that make religion salient cause subjects to

identify more with their religion and affect their economic choices. [Bryan et al. \(2018\)](#) randomized an evangelical protestant Christian values and theology education program and find that it significantly increased religiosity and income. I contribute to this literature by proposing changes in individual's scope of morality as a novel channel through which religion can potentially affect economic outcomes. In that respect, this paper is closely related to [Clingsmith et al. \(2018\)](#) who show that participating to the Hajj induces a shift from localized beliefs and practices toward global Islamic practices, increases tolerance and peaceful inclinations. It is also linked to the literature in anthropology and psychology documenting that believing in a moralizing god is associated with higher levels of prosocial behaviors ([Atran and Henrich, 2010](#); [Henrich et al., 2010](#); [Hruschka and Henrich, 2013](#); [Norenzayan and Shariff, 2008](#); [Norenzayan et al., 2010](#); [Purzycki et al., 2016](#); [Xygalatas et al., 2018](#); [Lang et al., 2019](#)).

Second, this paper is related to the growing literature documenting the role of family ties and kinship practices in explaining patterns of economic development. In particular, it is related to studies showing that strong family and kinship ties can be detrimental to development ([Banfield, 1958](#); [Alesina and Giuliano, 2011, 2013](#); [Alesina et al., 2015](#)). It also relates to the literature documenting the magnitude of kinship taxation and the important inefficiencies that kinship taxes introduce in developing countries ([Jakiela and Ozier, 2016](#); [Boltz et al., 2019](#); [Squires, 2019](#)). Rather than focusing on the consequences of family ties for development, this paper shows how Christianity weakened the salience of family and kinship ties, which might have in turn positively affected individual's economic outcomes. In that perspective, the article closest to this study is [Schulz et al. \(2019\)](#), which documents how the Western Church transformed European kinship structures during the Middle-Ages and that this transformation was a key factor behind the shift towards a Western, Educated, Industrialized, Rich, and Democratic (WEIRD) psychology. This paper is also linked to the small literature showing how loose kinship ties and universal moral values are important determinants of long-run development ([Enke, 2019a](#)). I contribute to this literature by showing that exposure to Christian missions resulted in the adoption of more universal moral values, which might subsequently have had positive economic consequences.

Third, this paper relates to the literature documenting the effect of ethnic ties on economic development. [Alesina et al. \(1999\)](#), [Miguel and Gugerty \(2005\)](#) and [Habyarimana et al. \(2007, 2009\)](#) show that ethnic fragmentation is negatively associated with public good provision. [Barr and Oduro \(2002\)](#), [Aker et al. \(2014\)](#) and [Anderson \(2011\)](#) find that the salience of ethnicity and caste can prevent trade in Ghana, Nigeria and India respectively. [Hjort \(2014\)](#) studies team production in Kenya firms and shows that the salience of ethnic identities limits economic growth. I contribute to this literature by showing that religion in general and Christianity in particular weakens the salience of ethnicity, which might subsequently have positive economic consequences. In that respect, this paper is closely related to the recent literature that has studied other determinants of ethnic identity. [Blouin and Mukand \(2011\)](#) show that individuals exposed to government propaganda in post-genocide Rwanda report less awareness of ethnicity and have higher inter-ethnic trust. [Depetris-Chauvin et al. \(2018\)](#) find that shared collective experiences in the form of national football team's victories in sub-Saharan Africa lower the salience

of ethnicity, increase inter-ethnic trust and reduce violence.

Fourth, this paper is also related to the literature on the long-term effects of missionary orders. Across countries, [Woodberry \(2004, 2012\)](#) and [Lankina and Getachew \(2012\)](#) find a positive effect of protestant missions on democracy. Across Africa, [Gallego and Woodberry \(2010\)](#), [Nunn \(2014\)](#), [Wantchekon et al. \(2010\)](#) and [Alesina et al. \(2019\)](#) have found a positive association between historical Western missionary activities and African education and occupational outcomes today². [Cage and Rueda \(2016, 2019\)](#) finds a positive impact on newspaper readership and mixed effects on likelihood of HIV. Outside Africa, [Waldinger \(2017\)](#) finds a positive effect of missions on education in Mexico and [Calvi and Mantovanelli \(2018\)](#) as well as [Castello-Climent et al. \(2018\)](#) find similar results for India. [Bai and Kung \(2014\)](#) find that missionaries had positive economic effects in China through their effect on knowledge diffusion. [Valencia Caicedo \(2019\)](#) finds positive long-term effects of Jesuit missions in present-day Argentine, Brazil and Paraguay on schooling and income through occupational specialization and technology adoption in agriculture. I contribute to this literature in several ways. First of all, this paper examines the effects of exposure to missions on social attitudes and culture, which has been overlooked by the recent wave of articles on the impact of missions' legacies. In that perspective, the article closest to this study is [Valencia Caicedo and Voth \(2019\)](#) who find higher non-cognitive skills and prosocial behavior in former Jesuit missionary areas in Southern Paraguay and Northern Argentina. Second, I conduct a novel household survey and a lab-in-the-field referral experiment to measure in-group and out-group preferences as well as moral values for 1,000 individuals in the DRC. Third, I use the location of abandoned missions in a new context as an identification strategy, building on [Valencia Caicedo \(2019\)](#). Last, I propose new mechanisms of transmissions, focusing on religiosity, the adoption of Christian moral values and the development of a Christian identity.

Plan - The rest of the paper is organized as follows. Section 2 provides the historical background. Section 3 describes the historical and contemporaneous data used in the paper. Section 4 presents the empirical strategy and contains the main results on the effect of exposure to Christian missions on individual's "scope of morality". Section 5 discusses the endogenous selection of mission locations and shows the result of a placebo test based on the location of abandoned Christian missions. Section 6 discusses the mechanisms of transmission of persistence. Section 7 concludes.

2 Historical Background

This section briefly draws on the historical literature to qualitatively illustrate how Christian missions might have influenced individuals' scope of morality in the long run.

Missions, Family and Ethnic Ties - During the twentieth century, Christianity expanded rapidly in Africa at the expense of traditional religions, leading to one of the most spectacular cultural transfor-

²Meier zu Selhausen (2019) traces the origins and long-term development of African mass education in colonial Africa

mation in the continent's modern history (Hasting, 1994; Sundkler and Steed 2000). The unique historical process of African mass conversion during the twentieth century was facilitated by vast Christian missionary efforts. Cultural change was a key aspect in missionary conversion strategies. It manifested itself in discouraging all practices related to traditional religions (Berman, 1974). In some case, missionaries used violent methods to repress such practices (Van Acker, 1924). Because ancestors' cult played a central role in traditional religions, missionaries' conversion efforts has been argued to have resulted in weaker family, kinship and ethnic ties (Claridge, 1922; Addison, 1924; Platteau, 2009).

Moreover, missionaries actively sought to gather individuals from different tribes and kinship groups which, through contact, might have also resulted in less coethnic, family and kinship bias. This would have affected all the individuals who settled at me mission, in particular the large number of children who went through the mission primary and secondary schools (Depaepe and van Rompaey, 1995; Frankema, 2013; Meier zu Selhausen, 2019), catechumens and postulants who spent ³ (Corman, 1924, 1933) and married Christian couples who were invited to settle at the mission (Van Reybrouck, 2014).

Overall, mission stations were especially successful at religious conversions in part because they actively aimed at isolating individuals from their cultural and religious traditions and because they provided an alternative community centered on Christianity rather than family, kinship or ethnicity. This is summarized by the historian David Van Reybrouck (2014) who write in his book *Congo - The Epic history of a people* that in the DRC the "mission posts (...) led to the establishment of the first interethnic communities. Young people totally unfamiliar with each other's language and culture suddenly lived together closely (...) The mission emphasis lay on their relative isolation: they were to be kept away from their familiar culture long enough to prevent them from backsliding into "heathendom"

Missions and Moral Values - Missions in the DRC were successful at spreading Christianity, and put a great deal of emphasis on making sure that individuals adopted moral values associated with Christianity. Mission schools also put emphasis on religious and moral instructions ⁴. In particular, the notion of moral universalism was key to the missionaries' effort in converting heterogeneous populations (Stanley, 2000; Skeie 2011; Vallgarda, 2016)⁵. This emphasis on universal moral values over more communal moral values might have in turn weakened individual's bias towards their in-group (family and coethnics) by improving attitudes towards out-group members (non-coethnics, strangers,

³Catechumen are individuals who received instruction in the Christian religion in order to be baptized. Postulant is the term used to define individuals who are asking for admission into a monastery or a religious institute, before actual admission and for the period of time preceding their admission into the novitiate. The novitiate is the period of training and preparation that a Christian novice monastic, apostolic, or member of a religious order undergoes prior to taking vows in order to discern whether or not he or she is called to vowed religious life.

⁴Frankema and Buelens (2013) compares the colonial education in Indonesia and the Congo and argues that "the key distinction between the village school in Indonesia and the rural mission schools in the Congo relates to the secular nature of the curriculum on the former and the emphasis on religious and moral instruction in the later (...) The primary objective of the missions in Congo was to spread Christianity."

⁵As some scholars have pointed out, one of the greatest paradoxes in missionary societies was that this Christian universalism often worked hand in hand with a racialized thinking (Dirks, 2001; Cox, 2002; Tshurennev, 2011; Vallgarda 2001; Manktelow, 2013)

foreigners).

3 Data Collection

3.1 Historical Data

Different sources were used to construct the dataset of missions and historical controls. We describe them in turns in this section.

3.1.1 Mission Location

This paper construct a new dataset on the location of historical Christian missions in the Democratic Republic of Congo. I exploit the information from the 1951 *Atlas Classique* which is the official publication of the *Institut Cartographique (Cartografisch Instituut)* in Bruxelles. More specifically, I used the information from a map entitled *Carte du Congo Belge (Belgisch Kongo)*. This map locates all the Catholic and Protestant missionary stations in the Belgium Congo (Mantnieks, 1951). To the best of my knowledge, this map from the 1951 *Atlas Classique* constitutes the most accurate and systematic record of both Catholic and Protestant missions in the Democratic Republic of the Congo. The original map is provided in Figure 1 and the digitized map is shown in Figure 2. There are 62 Christian missions in the geographic area covered in this paper. These mission stations are indicated in Figure 3.

3.1.2 Abandoned Mission Location

For this paper, I also constructed a dataset of abandoned Christian mission stations in the Democratic Republic of Congo. To identify the name and location of abandoned Catholic and Protestant mission stations, I relied on several historical sources. I first used two directories of missions in the Congo: the *Annuaire des Missions Catholiques au Congo Belge* (Corman, 1924,1935) and the *Associations Religieuses au Congo Belge et au Ruanda-Urundi* (Heyse,1948). I complemented and cross-validated the information on abandoned missions from these directories using historical accounts of Christian missions in the Congo dating from the colonial period: *Dans la Brousse Congolaise - Les origines des Missions de Scheut au Congo* (Dieu, 1946) and *Les Missions Religieuses au Congo Belge* (Meeus and Steenberghen, 1947). Finally, I used historical accounts from the post-colonial period: *A History of European Penetration and African Reaction in the Kasai Region of Zaire, 1880-1908* (Martens, 1980) and *Presbyterian Reformers in Central Africa: A Documentary Account of the American Presbyterian Congo Mission* (Benedetto, 1996). These sources gave me the names of abandoned missions that I was able to locate using historical maps. In the geographic area covered in this paper, I was able to identify and locate 15 abandoned Christian missions.

Figure 1: 1951 Original Map of Mission Stations from the Atlas Classique

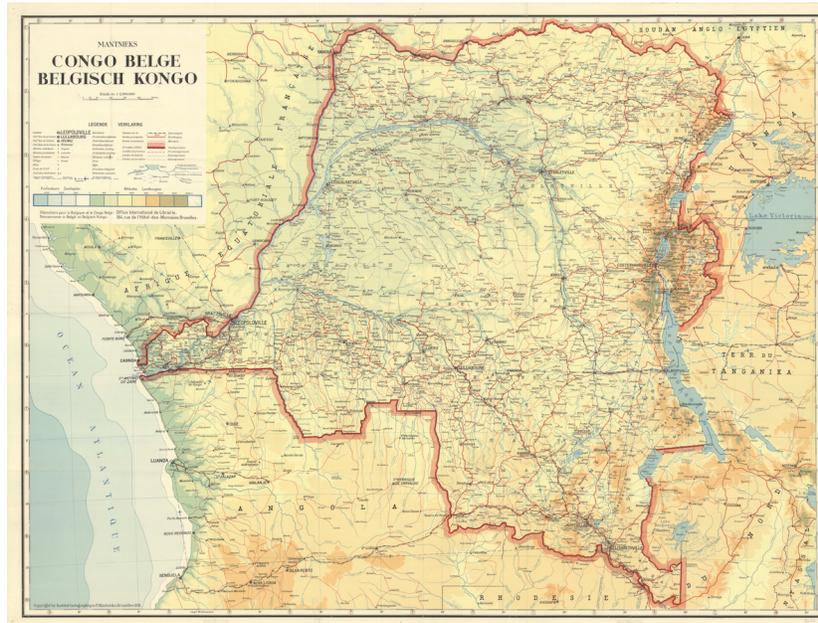
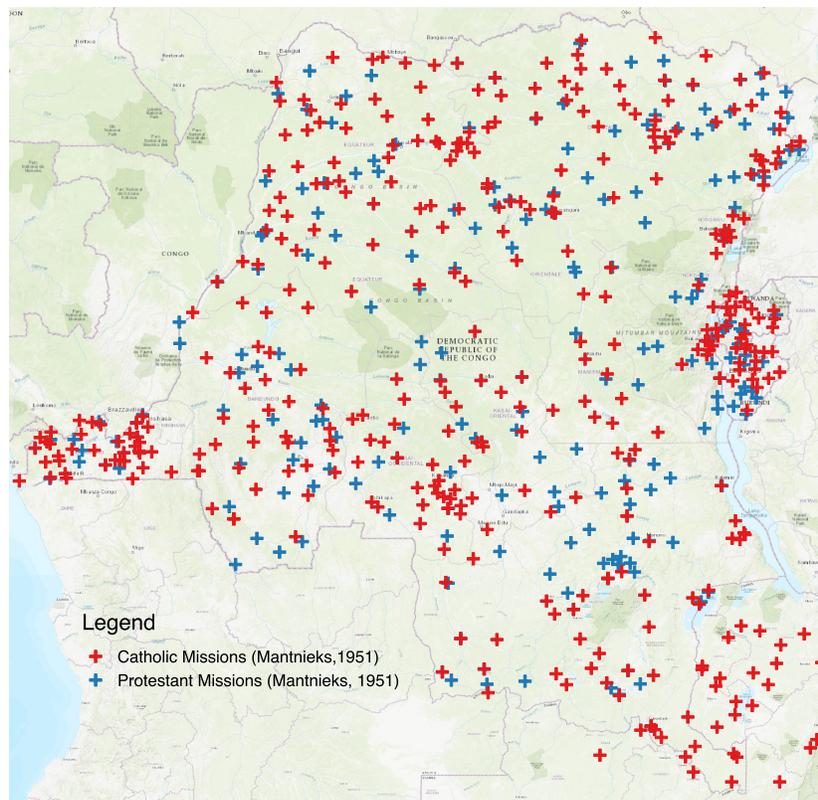


Figure 2: 1951 Digitized Map of Mission Stations from the Atlas Classique



3.1.3 Determinants of Missionary Location

According to the existing literature, Catholic and Protestant missionaries were more likely to locate in geographically and historically favored areas (Johnson, 1967; Jedwab et al., 2019). Due to potential selection in missionary location, our specifications always control for all the geographic and historical characteristics that may have influenced missionary location choice.

Geographic Controls - I control for elevation and ruggedness of the terrain as well as average temperature, average precipitation and length of the growing season in days⁶.

Historical Controls - I control for distance to the nearest city in 1400 and 1800 computed using the information from Chandler (1987). I also control for contact with explorers using the data from Nunn and Wantchekon (2011). Furthermore, I control for estimated population density in 1700 and 1800 from Goldewijk et al. (2011). Finally, I control for the malaria ecology index from Kiszewski et al. (2004)⁷ and the tsetse fly suitability index developed by Alsan (2015)⁸.

3.2 Contemporary Data Collection

3.2.1 Sampling

Existing data does not allow to measure how exposure to Christian missions affected individual's scope of morality. To study this question, I conducted surveys and collected experimental data in the city of Kananga, in the Democratic Republic of the Congo. Kananga is the capital of the Kasai-central province and is situated at the center of the Kasai region. The city (formerly known as *Luluabourg*) was created by colonial administrators in 1884 and therefore consists primarily of migrants from surrounding areas. Nearly all individuals in my sample identify their village of origin as a village outside the town of Kananga⁹.

The data was collected between June and September 2019. As there is no census available for the DRC, I created a sampling frame for Kananga using Google satellite imagery from 2016. I di-

⁶Elevation and ruggedness of the terrain are calculated using the second version of the Global Digital Elevation Model (GDEM) released by the Ministry of Economy, Trade and Industry (METI) of Japan and the United States National Aeronautics and Space Administration (NASA). Average temperature, average precipitation and length of the growing season in days are from the third version of the Global Agro-Ecological Zones (GAEZ) data developed by the Food and Agriculture Organization of the United Nations (FAO).

⁷Malaria spreads when a mosquito becomes infected with the disease after biting an infected person, and the infected mosquito then bites a non-infected person. Malaria has been shown to affect economic development (Bleakley, 2010). The malaria ecology index from Kiszewski et al. (2004) depicts the resiliency of malaria perpetuation.

⁸The tsetse fly transmits a parasite harmful to humans and lethal to livestock, and has been shown to affect economic performance (Alsan, 2015). The tsetse fly suitability index from Alsan (2015) is the standardized value of the steady-state tsetse population.

⁹A village of origin is the village where an individual's family or ancestors are from. This is a commonly understood concept in this area, and all respondents knew their village of origin. A village of origin is not necessarily synonymous with where an individual is born.

vided Kananga into 363 polygons and estimated the number of households in each polygon. I selected polygons to visit using two-stage clustered sampling. The probability of selecting a particular polygon was proportional to its estimated population. The sampling of respondents inside a selected polygon occurred in two steps. First, enumerators conducted a short screening survey of 15 surveys per neighborhood for a total of 3,372 respondents in 225 polygons¹⁰. Second, I selected 1,1019 respondents to receive a second visit, during which the main survey module and the referral experiment were implemented. Respondents were selected to receive the second visit if their village of origin was in one of the five provinces of the Kasai region and if their self-reported ethnicity was one of the main four ethnicities in their province of origin¹¹. For more details on sampling and survey methods, see the online Appendix.

3.2.2 Variations in Village of Origin

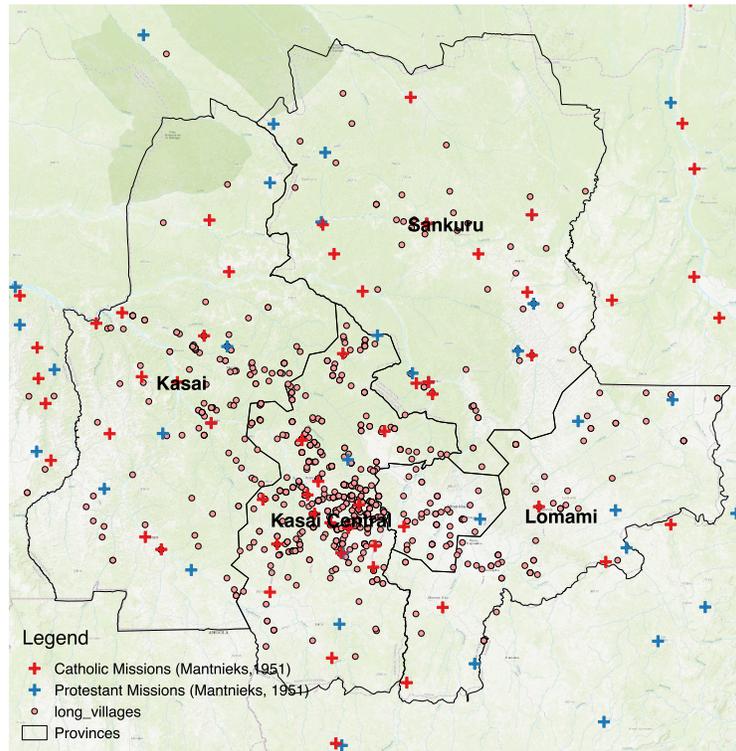
I use this Kananga-based sample to compare individuals whose village of origin was close to a Christian mission to individuals whose village of origin was far from a Christian mission. In other words I compare individuals whose ancestors lived close to mission stations to individuals whose ancestors lived far away from mission stations. Figure 3 presents a map of the locations of villages of origin of the respondents, the location of Kananga and the location of the historical Catholic and Protestant mission stations. For more details on how I located respondents' village of origin, see the online Appendix.

This approach has two main advantages. First, logistically, it is considerably easier to collect data in the city of Kananga than in the neighboring villages given the poor transportation infrastructure of the region. Second, by examining individuals removed from their original institutional environment but now living in the same city, we can be more confident that any differences in responses to survey questions or in behavior in experimental measures are capturing differences in internalized cultural norms. This approach follows previous studies that have also used a similar strategy, including [Alesina et al. \(2013\)](#), [Lowe et al. \(2017\)](#), [Lowe \(2018\)](#) and [Lowe and Montero \(2018a\)](#).

¹⁰The total number of screening survey is not equal to 3,375 because in fifteen polygons 1-4 too many respondents were surveyed by mistake, in five polygons 1-2 respondents were not surveyed by mistake and in one polygon the enumerator did not manage to find 15 respondents to work with and only did 9 surveys.

¹¹The five provinces of the Kasai region are Kasai Central, Kasai, Kasai Oriental, Sankuru and Lomami. The main ethnicities in the Kasai Central province are Luluwa, Luntu, Bindi and Kete. In the Kasai province the main ethnicities are Luluwa, Kete, Kuba, Lele and in the Kasai Oriental, Sankuru and Lomami provinces the main ethnicities are Luba, Tetela, Songe.

Figure 3: Kananga, Mission Stations, and Location of Origin Villages within the Sample



3.2.3 Outcomes

Respondents answered a series of survey questions on demographics, education and income as well as questions about their village of origin. In addition, I measure the extent to which an individual favors or is biased towards in-group members over out-group members by asking respondents their closeness, views (positive or negative) and trust towards nuclear family members, extended family members, coethnics, non coethnics, strangers and foreigners as described in section 4.2.1. Because such self-reported outcomes might suffer from experimenter demand effects, I also elicit respondent's in-group bias using a referral experiment, which is described in detail in section 4.2.2 below. To measure changes in the broadness of respondent's social network I measure the size and composition of respondents' social network for 5 financial activities and 4 non-financial activities as described in detail in section 4.2.3. Finally, I analyze respondents' scope of morality using the Moral Foundations Questionnaire as described in detail in section 4.2.4. By comparing respondents whose village of origin are at different levels of proximity to historical Christian missions, these survey questions and the referral experiment allow us to understand whether exposure of the respondents' village of origin to Christian missions resulted in a broader scope of morality today, i.e. less in-group bias, broader social networks and more universal moral values.

4 Empirical Analysis

4.1 Specification

I use the following econometric specification to estimate the effect of exposure of the respondents' village of origin to Christian missions on their scope of morality :

$$y_{iv} = \alpha + \beta \ln(\text{Dist Mission})_v + X_i' \gamma + Y_v' \delta + \epsilon_{iv} \quad (1)$$

where y_{iv} is the outcome of interest for respondent i whose village of origin is v . $\ln(\text{Dist Mission})_v$ is the logarithm of the distance between the respondent's village of origin v and the the closest mission. The vector X_i contains individual level controls that are not “bad controls” in the sense of [Angrist and Pischke \(2009\)](#): sex, age, age square. Y_v contains geographical and historical-level controls for village v . The geographical controls are elevation and ruggedness of the terrain, average temperature, average precipitation and length of the growing season in days. I also include the malaria ecology index ([Kiszewski et al., 2004](#)) and the tsetse fly suitability index ([Alsan, 2015](#)). The historical controls are the distances to cities in 1400 and 1800 ([Chandler, 1987](#)), population density in 1700 and 1800, contact with initial explorer routes ([Nunn and Wantchekon, 2011](#)) and contact with colonial railway, mines and power stations (Mantnieks, 1951). Because they are potential “bad controls”, our baseline specification does not include the last three variables, which are proxies for colonial investments. However the results are robust to including these controls as shown in the online Appendix. ϵ is an idiosyncratic error term. To actually estimate equation (1), I use OLS. All the regressions' standard errors are clustered at the village of origin level but I also report Conley (spatial) standard errors in the online Appendix.

4.2 Results

4.2.1 Self-Reported Attitude Towards In-groups and Out-groups

In this section, I rely on measures of self-reported attitudes towards in-group members (nuclear family, extended family, coethnics) and out-group members (non-coethnics, strangers, foreigners) to analyze if exposure of respondent's village of origin to Christian missions results in less in-group bias.

Closeness, View and Trust - To measure respondent's attitude towards in-group members and out-group members, I use self-reported attitude towards groups with different level of proximity to the respondent: nuclear family members, extended family members, coethnics, non-coethnics, strangers and foreigners. I consider the first three groups as the respondent's in-group and the last three as the respondent's out-group. I use the following self-reported measures of attitude towards each group:

1. Closeness: “How close you feel to [group]: very close, close, a little bit close, a little bit distant,

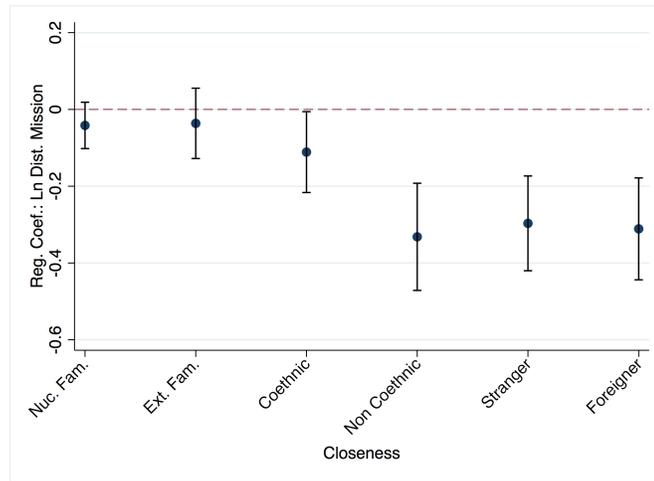
distant, very distant?”

2. View: “In which of the following ways do you view [group]: very positively, somewhat positively, neutral, somewhat negatively or very negatively”
3. Trust: “Could you tell me whether you trust [Group]: completely, somewhat, not very much or not at all”

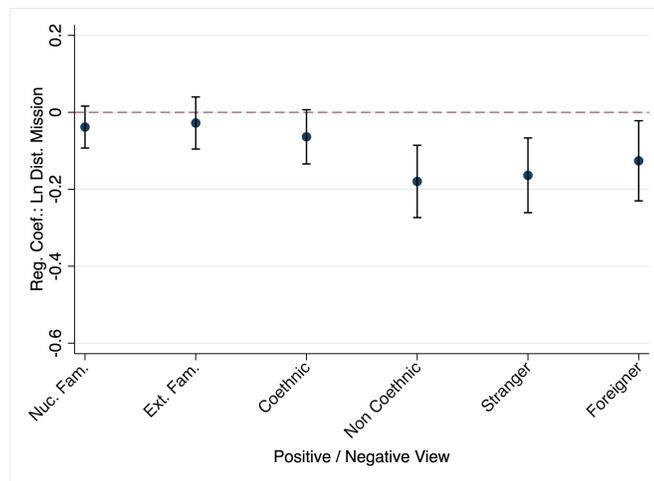
Results - In Figure 4, I analyze whether exposure to Christian missions changed respondents’ attitudes towards in-group and out-group members using each of the survey questions described above: closeness in Figure 4a, view in Figure 4b and trust in Figure 4c. Two results stand out. First, the coefficients on in-group members as well as out-group members are negative, suggesting that respondents whose village of origin is further away from mission stations have more negative attitudes towards both in-group and out-group members, i.e. exposure to Christian missions resulted in more positive attitudes towards both in-group and out-group members. Second, only the coefficients on out-group members are large and significant, which suggests that exposure to Christian missions resulted in significantly more positive attitudes towards out-group members only. Taken together, these two results suggest that exposure to Christian missions decreased in-group bias due to a reduction in out-group avoidance rather than an decrease in in-group loyalty.

Figure 4: Effect of Exposure to Missions on Self-Reported Closeness, Positive View and Trust

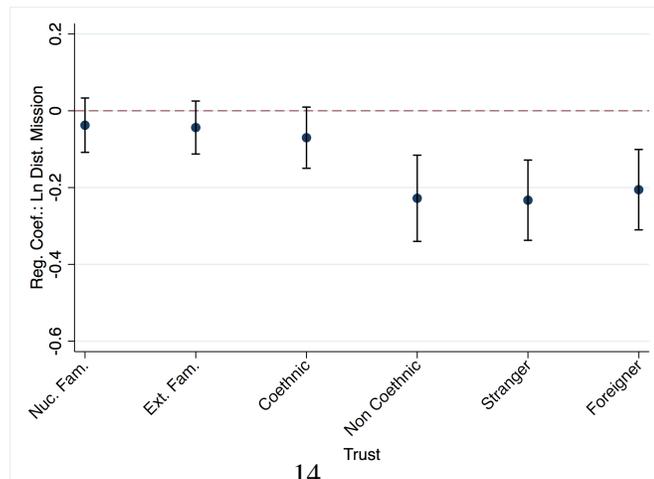
(a) Self-Reported Closeness



(b) Self-Reported View



(c) Self-Reported Trust



4.2.2 Referral Experiment and Referrer In-Group Bias

The survey questions used in the previous section might suffer from experimenter demand effects. In this section, I rely on a referral experiment to minimize demand effects when measuring in-group bias. I then use this measure to confirm that exposure of respondent's village of origin to Christian missions resulted in less in-group bias.

Experimenter Demand Effect - Survey questions such as the ones asked above about closeness, views or trust towards different groups might suffer from experimenter demand effects if participants try to infer the experimenter's objective from the question and act accordingly (Orne, 1962; Rosenthal, 1966; Zizzo, 2010). Demand effects are indeed especially concerning when using survey questions (Clark and Schober, 1992; Bertrand and Mullainathan, 2001). Behavioral games (e.g. dictator game or trust game) played in anonymity have been argued to reduce these demand effects. However, a recent literature has shown that they can also suffer from such effects (List et al., 2004; List, 2006; Levitt and List, 2007), including in the context of measuring in-group preferences (Blum et al., 2018)¹². In this paper, I therefore attempt to further reduce demand effects by implementing a referral experiment.

Referral Experiment - At the end of the survey, respondents are asked to recommend up to three adults (referrals). All participants are specifically asked to name referrals "who would be good at answering the survey you just completed" for a payment of CF 2,500 (slightly more than the average daily income in Kananga which is equal to CF 2,000)¹³. The goal of this referral experiment is to have the respondent play a dictator game - the respondent can choose to whom they would like to give an opportunity to earn CF 2,500 - while concealing this to the respondent in order to minimize demand effects. Similar referral experiments have been implemented in other contexts by Beaman and Magruder (2012) and Beaman et al. (2018)¹⁴. After the respondent listed the names of their referrals, the enumerator then asked a follow-up mini survey about each referral. This brief survey included information on demographics and crucially whether the respondent is in the same nuclear family, the same extended family or of the same tribe as the individual. As announced by the research team, ten percent of the referrals were randomly selected and received a visit during which they answered the same survey as the referee and received the announced payment of CF 2,500. These visits also allow to check the accuracy of the information given by the referrer about their referrals as discussed in the online Appendix.

¹²Another disadvantage of behavioral games in our context is that they are ill-suited to measure bias towards groups of individuals who by definition are not anonymous such as family members.

¹³The referral experiment was introduced by the enumerators who read the following text to the respondents: "Now, I would like to ask you if you could recommend up to 3 adult persons (18 years and older) that you know and who according to you would be good at answering questions from the survey you completed today. We will randomly select 10% of these individuals to do a survey with us in the next few weeks. Like you, these individuals will receive money (CF 2,500) for participating in the survey."

¹⁴Beaman and Magruder (2012) use a job referral experiment to study job networks inefficiencies and Beaman et al. (2018) use a different job referral experiment to study whether job networks disadvantage women

Referrer In-group Bias - I use this referral experiment to measure referrer bias towards in-group members. I proxy referrer’s in-group bias by the percentage of referrals in the nuclear or extended family of the referrer as well as the percentage of referrals who are coethnics of the referrer. A higher (resp. lower) percentage of referrals who are family members or coethnics of the referrer means a higher level of in-group bias (resp. a lower level of in-group bias).

Results - In Table 1, I analyze whether exposure to Christian missions results in less referrer bias towards in-group members. I find that respondents whose village of origin is further away from mission stations do not recommend more people (Table 1, column 1) but do have stronger in-group bias when proxied by the percentage of referrals who are in the nuclear or extended family of the referrer (Table 1, column 2 and 3) or coethnics of the referrer (Table 1, column 4). Stated differently, these results confirm the findings in the section above: exposure to Christian missions results in respondents expressing less in-group bias in the referral experiment.

Table 1: Effect of Exposure to Missions on Referrer In-group Bias

	Number of referral (1)	% of referral in nuc. fam. (2)	% of referral in ext. fam. (3)	% of referral coethnics (4)
Ln Dist. Mission	0.046 (0.044)	0.034* (0.019)	0.056** (0.019)	0.065** (0.022)
Observations	1019	891	891	891
Mean	2.05	.44	.43	.75
Indiv Controls	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes

4.2.3 Social Networks Tightness / Broadness

I next turn to investigating if exposure to Christian missions affected respondents’ social network tightness / broadness. In particular, in this section, I rely on the percentage of in-group members (nuclear and extended family members as well as coethnics) in the respondents’ social network to analyze whether exposure of respondent’s village of origin to Christian missions resulted in broader (i.e. less tight) social networks.

Measuring Social Networks - Due to the size of Kananga and the high likelihood that household connections cross neighborhood boundaries, a complete network elicitation in the style of [Banerjee et al. \(2013\)](#) was not feasible. Instead, I follow [Banerjee et al. \(2015\)](#) and asked each respondent to list the individuals with whom they engaged in 9 different activities: (1) borrowing or lending cooking fuel (coal), (2) borrowing or lending coffee, milk and / or sugar, (3) borrowing or lending CF 3,000

- CF 5,000¹⁵, (4) borrowing or lending \$50 to start a business¹⁶, (5) giving or receiving advice about financial matters, (6) giving or receiving advice about a child’s schooling, (7) giving or receiving advice about finding housing, (8) giving or receiving advice about health concerns, (9) listening to the radio or watching television together. I classify the first five activities as financial and the last four activities as non-financial. After the respondents listed all of the names of the individuals relevant for these nine types of activities, the enumerator then asked a follow-up mini survey about each individual. This brief survey included information on demographics and crucially whether the respondent is in the same nuclear family, the same extended family or of the same tribe as the individual.

Social Networks Tightness / Broadness - I use this data to measure the tightness of the respondents’ social network. I proxy social network tightness by the percentage of nuclear family members, the percentage of extended family members and the percentage of coethnics in the respondent social network. A higher (resp. lower) percentage of family members or coethnics in the respondent’s social network means a tighter (resp. broader) social network.

Results - In Table 2, I analyze whether exposure to Christian missions results in broader (i.e. less tight) social networks. I find that respondents whose village of origin is further away from mission stations do not have bigger social networks (Table 2, column 1) but do have tighter social networks when tightness is proxied by the percentage of coethnics and extended family members in the respondent’s social network (Table 2, column 3 and 4) but not when tightness is proxied by the percentage of nuclear family members in the respondent’s social network (Table 2, column 2). In other words, exposure to Christian missions resulted in broader social networks (i.e. social network with a lower percentage of extended family members and coethnics). The same results hold when looking at financial activities and non-financial activities separately and the results are reported in the online Appendix.

Table 2: Effect of Exposure to Missions on Social Network Broadness

	Number of ties (1)	% of ties in nuc.fam. (2)	% of ties in ext. fam. (3)	% of ties coethnics (4)
Ln Dist. Mission	-0.281 (0.220)	-0.017 (0.012)	0.037** (0.013)	0.058*** (0.016)
Observations	1019	941	940	939
Mean	8.04	.19	.27	.73
Indiv Controls	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes

¹⁵The average daily income in Kananga is about CF 2,000 in our sample. Therefore, CF 3,000 - CF 5,000 represents about 1.5 - 2.5 times the average daily income in Kananga

¹⁶Based on focus group discussions conducted in October 2018 with small business owners in Kananga, \$50 is the necessary capital to start a small business in Kananga.

Overall, these results indicate that exposure to Christian missions not only reduced in-group bias measured using survey questions in section 4.2.1 and the referral experiment in section 4.2.2, but also affected the composition of respondents' social network. In particular, exposure to Christian mission resulted in broader social networks.

4.2.4 Communal vs Universal Moral Values

I continue by investigating the relationship between exposure to Christianity and contemporary moral values. More specifically, in this section I rely on the Moral Foundations Theory (MFT) and its analytical tool: the Moral Foundations Questionnaire (MFQ) to analyze whether respondents' village of origin's exposure to Christian missions resulted in the adoption of more universal (as opposed to communal) moral values.

The Moral Foundation Theory (MFT) - To measure the importance of a broad spectrum of values, [Haidt and Craig \(2004\)](#) and [Graham et al. \(2013\)](#) developed a new positive framework of morality: the Moral Foundation Theory (MFT) that rests on the idea that people's moral concerns can be partitioned into five "foundations":

1. Care / harm: Measures the extent to which people care for the weak and attempt to keep others from harm.
2. Fairness / reciprocity: Measures the importance of ideas relating to equality, justice, rights and autonomy.
3. In-group / loyalty: Measures people's emphasis on being loyal to the in-group (family, ethnicity, country) and the moral relevance of betrayal.
4. Authority / respect: Measures the importance of respect for authority, tradition, and societal order.
5. Purity / sanctity: Measures the importance of ideas related to purity, disgust, and traditional religious attitudes.

The Moral Foundation Questionnaire (MFQ) - The MFT lends itself to quantitative analysis through its analytical tools: the Moral Foundations Questionnaire (MFQ) developed by [Haidt \(2012\)](#) and [Graham et al. \(2013, 2016\)](#). The MFQ measures to what extent individuals endorse each of the foundations using six survey items per moral foundation: (i) three questions about moral relevance of certain behaviors, (ii) three questions about agreement with moral value statements. All questions are to be answered on a Likert scale ranging from 0 to 5. See the online Appendix for the entire questionnaire. Part of the novelty of this paper consists in implementing the MFQ in the field when the literature has only analyzed responses to the MFQ by "Western, Educated, Industrialized, Rich, and Democratic" (WEIRD) populations ([Henrich et al., 2010](#); [Kundt et al., 2017](#)).

Communal Versus Universal Moral Values - Crucially, the care / harm and fairness / reciprocity foundations correspond to universal moral values while the in-group / loyalty and the authority / respect foundations are communal in the sense that they are tied to certain groups or relationships. This is an important feature of the MFT because while there are active debates in the psychological literature about whether morality can be partitioned into exactly five foundations, the broad distinction between communal and universal values is widely accepted (Napier and Luguri, 2013; Hoffmann et al., 2014; Smith et al., 2014). I can therefore use the same approach as Enke (2019a,b) and construct a summary statistic of the relative importance of communal moral values as the simple difference between universal and communal values:

$$Rel. \text{ imp. communal values} = In - group + Authority - Care - Fairness \quad (2)$$

By construction of the MFQ foundations, this summary statistic amounts to summing responses to all communal questions and then subtracting responses to all universal questions. This index purely measures heterogeneity in the structure of morality, not in its level.

Results - I study the effect of exposure to Christian missions on individual's moral value in Table 3. In column (1)-(5), I show that exposure to Christian mission stations lead to respondents valuing each moral values more. While interesting, this level effect does not directly tell us whether exposure to Christian missions changed individuals' structure of morality. To study this question, we turn to column (6) which uses the summary statistic of the relative importance of communal moral values from equation 2 as the outcome. Column (6) shows that respondents whose village of origin is further away from Christian mission stations have more communal moral values relative to universal moral values. In other words, exposure to Christian missions resulted in more universal moral values, relative to communal moral values today.

Table 3: Effect of Exposure to Missions on Moral Values

	Care / Harm (1)	Fairness / Reciprocity (2)	Ingroup / Loyalty (3)	Authority / Respect (4)	Purity / Sanctity (5)	Communal vs Universal (6)
Ln Dist. Mission	-0.425*** (0.054)	-0.116*** (0.023)	-0.133*** (0.033)	-0.176*** (0.022)	-0.247*** (0.038)	0.232*** (0.061)
Observations	1019	1019	1019	1019	1019	1019
Mean	3.88	4.5	4.39	4.38	4.3	.4
Indiv Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes	Yes	Yes

5 Identification Threats and Solutions

Although regression (1) includes an extensive set of geographical and historical covariates, there is still the issue of endogenous selection of mission locations (Johnson, 1967; Jedwab et al., 2019). To tackle this issue, I first use a placebo-type test that looks at missions that were abandoned early on, building on the methodology introduced by Valencia Caicedo (2019). I then assess the potential bias from unobservables using the selection on observables methodology of Altonji et al. (2005).

5.1 Placebo Test

In this section, I conduct a placebo-type test that looks at the missions originally settled by Catholic and Protestant missionaries but abandoned early on.

Why were Missions Abandoned? Because abandoning these places may itself have been endogenous, Table 4 compares the geographical and historical characteristics of permanent missions locations (columns 1-2) and abandoned missions (column 3-4). Column 5, reports the difference in the means between permanent and abandoned mission locations while column 6 gives the t-statistic of a two sided t-test of this difference. While the difference in means reported in column 5 tends to indicate that missions that were subsequently abandoned were settled in slightly worst locations, column 6 shows that none of the differences in geographical and historical characteristics between permanent and abandoned missions are statistically significant. I interpret the absence of significant differences in geographical and historical characteristics between permanent and abandoned missions as evidence that missions were abandoned for idiosyncratic reasons, which suggests that abandoned missions constitute a valid placebo group.

To provide further evidence that missions were abandoned for idiosyncratic reasons, I used a diversity of historical sources detailed in section 3.1.2 and documented the reason why each mission station was abandoned. In the geographic area covered in this paper, five out of the fifteen abandoned missions were abandoned due to a lack of funding from the Congregation of the Immaculate Heart of Mary for the Catholics or from the American Presbyterian Congo Mission for the Protestants. Three missions were abandoned because the priest died of malaria or “blackwater fever” during the first few months of the mission being settled. Another two missions were abandoned due to slave raiding by Zanzibari Arab slave traders in the east of the Kasai region. One mission was abandoned due to an exceptional episode of Kasai river flooding. Finally, for the four remaining abandoned missions, I was unfortunately unable to document the reasons why they were abandoned. Overall, I interpret these historical evidence as confirming that missions were abandoned for idiosyncratic reasons and that the abandoned missions constitute a valid placebo group. In particular, I do not find any evidence that missions were abandoned due to difficulties in converting the populations, which could be correlated with populations’ in-group preferences or moral values and would bias the estimated effects of exposure to Christian missions on

individuals' scope of morality.

Table 4: Comparison of Permanent Missions Versus Abandoned Missions

	Missions (Mantnieks,1951)		Abandoned Missions		Difference of means	
	mean (1)	sd (2)	mean (3)	sd (4)	coef (5)	t (6)
Temperature	24.49	0.73	24.57	0.57	-0.08	(-0.49)
Precipitation	4.13	0.22	4.07	0.34	0.06	(0.69)
Elevation (mean)	189.58	18.27	191.87	19.06	-2.29	(-0.42)
Ruggedness	311.64	164.37	318.04	174.67	-6.40	(-0.13)
Length of Growing Period	0.83	0.08	0.82	0.09	0.01	(0.27)
Malaria Ecology Index	15.36	2.99	16.15	3.01	-0.79	(-0.92)
Distance to the Closest City in 1400 (in km)	1867.33	138.37	1875.51	142.50	-8.18	(-0.20)
Contact with Explorer	0.11	0.32	0.13	0.35	-0.02	(-0.21)
Pop. density in 1700	5.51	2.24	5.80	2.29	-0.29	(-0.45)
Pop. density in 1800	7.03	3.17	6.78	2.82	0.25	(0.31)
Contact with Colonial Railroad	0.16	0.37	0.07	0.26	0.09	(1.16)
Contact with Colonial Mines	0.00	0.00	0.07	0.26	-0.07	(-1.00)
Contact with Colonial Power Plant	0.00	0.00	0.07	0.26	-0.07	(-1.00)
Observations	62	62	15	15	77	77

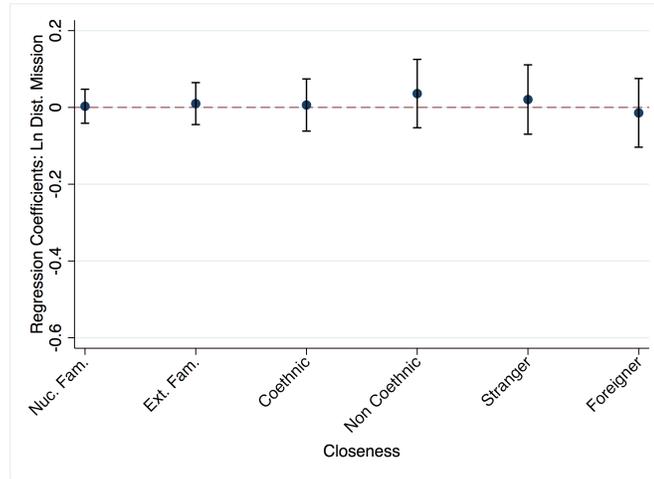
Placebo Test - To investigate the effect of Christian missions that were abandoned early on, I use the following econometric specification

$$y_{iv} = \alpha + \beta \ln(\text{Dist Abandoned Mission})_v + X_i' \gamma + Y_v' \delta + \epsilon_{iv} \quad (3)$$

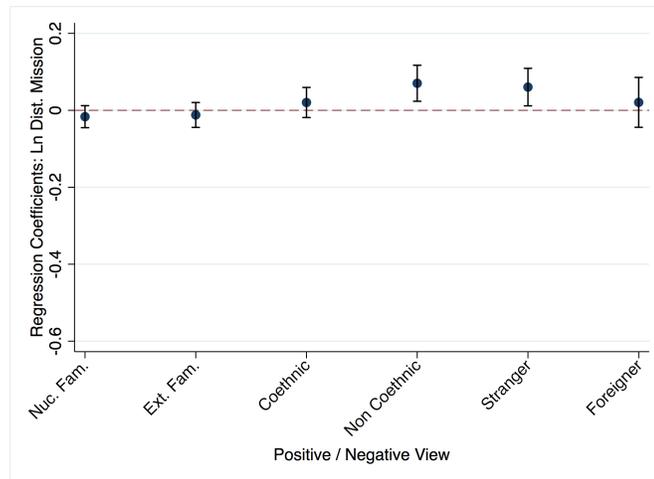
where y_{iv} , X_i , Y_v are the same as in section 4 and $\ln(\text{Dist Abandoned Mission})_v$ is the logarithm of the distance between the respondent's village of origin v and the closest abandoned mission. I find no significant or consistent effects of Christian missions that were abandoned early on using equation (3). Figure 5 shows that exposure to abandoned Christian missions had no effect on in-group bias measured using self-reported measures of closeness, views and trust. Similarly, according to Table 11 there is no effect of exposure to abandoned mission on referrer in-group bias in the referral experiment. In Table 12, I show that exposure to abandoned Christian missions did not affect respondents' social network tightness or broadness. Finally, in Table 7 I find that exposure to abandoned Christian missions had no effect on the importance of each moral values (columns 1-5) or on individual's structure of morality (column 6). Overall, these results suggest that what mattered in the long run for individual's "scope of morality" were the activities carried out by the missions and not where they first settled.

Figure 5: Placebo Effect of Exposure to Abandoned Missions on Closeness, Positive View and Trust

(a) Self-Reported Closeness



(b) Self-Reported View



(c) Self-Reported Trust

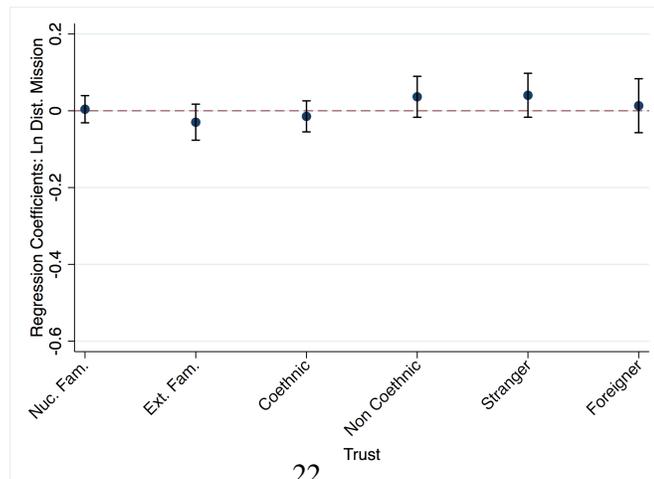


Table 5: Placebo Effect of Exposure to Abandoned Missions on Referrer In-group Bias

	Number of referral (1)	% of referral in nuc. fam. (2)	% of referral in ext. fam. (3)	% of referral coethnics (4)
Ln Dist. Abandoned Mission	0.020 (0.026)	0.020 (0.015)	0.018 (0.017)	-0.045*** (0.013)
Observations	1019	891	891	891
Mean	2.05	.44	.43	.75
Indiv Controls	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes

Table 6: Placebo Effect of Exposure to Abandoned Missions on Social Network Breadth

	Number of ties (1)	% of ties in nuc.fam. (2)	% of ties in ext. fam. (3)	% of ties coethnics (4)
Ln Dist. Abandoned Mission	-0.192 (0.183)	0.014 (0.009)	0.013 (0.010)	-0.050** (0.016)
Observations	1019	941	940	939
Mean	8.04	.19	.27	.73
Indiv Controls	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes

Table 7: Placebo Effect of Exposure to Abandoned Missions on Moral Values

	Care / Harm (1)	Fairness / Reciprocity (2)	Ingroup / Loyalty (3)	Authority / Respect (4)	Purity / Sanctity (5)	Communal vs Universal (6)
Ln Dist. Abandoned Mission	0.012 (0.035)	-0.011 (0.015)	0.017 (0.018)	-0.019 (0.017)	-0.000 (0.027)	-0.003 (0.033)
Observations	1019	1019	1019	1019	1019	1019
Mean	3.88	4.5	4.39	4.38	4.3	.4
Indiv Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes	Yes	Yes

5.2 Selection on Unobservables Compared to Selection on Observables

Despite my attempts to control for geographical and historical covariates, the effects of exposure to Christian missions on individual's scope of morality might still be biased by unobservable factors correlated with the selection of mission location. In this section, I assess the likelihood that the estimates

are biased by unobservables. The strategy that I use exploits the insight from [Altonji et al. \(2005\)](#) that selection on observables can be used to assess the potential bias from unobservables. To implement this idea, consider estimating equation (1) twice, with two sets of covariates. In the first regression I control for individuals' characteristics X_i and in the second I control for individual's characteristics X_i and for their village of origin geographical and historical characteristics Y_v . Denote the estimated coefficient for the first regression $\hat{\beta}^{Restricted}$ and the estimated coefficient from the second regression $\hat{\beta}^{Full}$. Then one can compute the ratio $\frac{\hat{\beta}^{Full}}{\hat{\beta}^{Restricted} - \hat{\beta}^{Full}}$ which indicates how much stronger selection on unobservables must be, relative to selection on observables, to explain away the full estimated effect. If this ratio is strictly larger than one, selection on unobservables would have to be stronger than selection on observables, measured by the difference in estimated coefficients between the restricted and the extended regressions, in order to explain away the results. I report this ratio for all the outcomes used in Figure 4, Table 1, Table 2 and Table 3 in the Online appendix. I find that the ratio is always contained between 5 and 15. Therefore, to attribute the entire OLS estimate to selection effects, selection on unobservables would have to be at least 5 times greater than selection on observables. These results show that it's unlikely that the estimated effect of exposure to missions on individuals' scope of morality are fully driven by unobservables.

6 Mechanisms

In this section, I examine specific channels through which missionary presence may have affected individual's "scope of morality" today. In particular, I examine the effect of Christian missions on religiosity, on beliefs in a moralizing god, on the adoption of Christian moral value, and on the development of a Christian in-group identity. Because missionaries I also explore the role potentially played by education and income in explaining the results.

6.1 Change in Religiosity

I first investigate whether exposure to Christian missions changed respondent's faith in the Christian god as well as in traditional gods.

Survey Questions - In Table 8, I estimate equation (1) using survey questions from [Xygalatas et al. \(2018\)](#). These survey questions aim at measuring how strongly respondents believe in the Christian god (questions 1-2) as well as how moralizing and punishing they considered the Christian god to be (questions 3-6). The same questions were also asked about the gods and ancestral spirits from the traditional religion.

1. "How Strongly do you believe in the existence of [the Christian god / traditional gods]?"
2. "How often do you go to church to pray for [the Christian god / traditional gods]?"

3. “How often do you worry about what [the Christian god / traditional gods] think about you?”
4. “Does / do [the Christian god / traditional gods] ever punish people for their behavior?”
5. “Does / do [the Christian god / traditional gods] ever reward people for their behavior?”
6. “Can [the Christian god / traditional gods] see into people’s hearts or know their thoughts?”

Results - Panel A of Table 8, shows that respondents whose village of origin is further away from Christian mission stations have weaker belief in the Christian god and consider him to be less moralizing and punishing. Panel B of Table 8, shows that the opposite is true regarding traditional gods. In other words, exposure to Christian mission increased individual’s faith in the Christian god as well as how moralizing they consider him to be. At the same time, exposure to Christian missions decreased individual’s faith in traditional gods and how moralizing they are considered to be.

Table 8: Effect of Exposure to Missions on Belief in Christian God and Traditional Gods

(a) Panel A: Belief in Christian God						
	Believe in Christian Good (1)	Church Freq. (2)	Worry about Christian Good (3)	Christian Good Punishes (4)	Christian Good Rewards (5)	Christian Good Sees (6)
	-0.164** (0.070)	-0.336*** (0.069)	-0.250*** (0.056)	-0.054** (0.018)	-0.011 (0.010)	-0.005 (0.005)
Observations	1019	1019	1019	1009	1016	1016
Mean	3.76	3.82	2.05	.92	.98	.99
Indiv Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes	Yes	Yes

(b) Panel B: Belief in Traditional Gods						
	Believe in traditional gods (1)	Church Freq. (2)	Worry about traditional gods (3)	traditional Good Punishes (4)	traditional gods Rewards (5)	traditional gods Sees (6)
Ln Dist. Mission	0.095* (0.057)	0.092* (0.050)	-0.017 (0.053)	0.054* (0.028)	0.045* (0.024)	0.059** (0.025)
Observations	1019	1019	1019	849	875	919
Mean	.1	.07	.35	.26	.11	.12
Indiv Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes	Yes	Yes

6.2 Adoption of Christian Moral Values

Having shown that exposure to Christian missions increased individual’s faith in the Christian god as well as how moralizing individuals consider the Christian god to be, I then turn to investigating whether exposure to Christian missions resulted in the adoption of Christian moral values and I examine if these Christian moral values tend to be universal rather than communal.

Survey Questions - I use a free-list approach to quantify how Christian the respondent's moral values are. More specifically, I use the survey questions from [Purzycki et al. \(2018\)](#) that consists in asking respondents to list “up to five behaviors that make someone a moral person” as well as “up to five behaviors that make someone an immoral person”. Similarly, I use the survey questions from [Xygalatas et al. \(2018\)](#) that ask respondents to list “up to five behaviors that the Christian god likes” and “up to five behaviors that the Christian god dislikes”. I can then proxy for the adoption of Christian moral values using the number or the percentage of behaviors that according to the respondent make someone a moral (resp. immoral) person and are in the top 10 behaviors liked (resp. disliked) by the Christian god in the entire sample.

Results - Table 9 shows that respondents whose village of origin is further away from Christian missions mention less of the top 10 behaviors liked by the Christian god when they list behaviors that make someone a moral person (column 1 and 2). Columns 3 and 4 show similar but weaker effects for the number and percentage of behaviors that make someone an immoral person according to the respondents and are in the top 10 behaviors disliked by the Christian god. Stated differently, these results show that exposure to Christian missions resulted in the adoption of more Christian moral values.

Table 9: Effect of Exposure to Missions on the Adoption of Christian Moral Values

	Nb moral behaviors in top 10 behavior Christian god likes (1)	% of moral behavior in top 10 behavior Christian god likes (2)	Nb immoral behavior in top 10 behavior Christian god dislikes (3)	% of moral behavior in top 10 behavior Christian god dislikes (4)
Ln Dist. Mission	-0.281*** (0.081)	-0.056*** (0.016)	-0.096* (0.050)	-0.019* (0.010)
Observations	1019	1019	1019	1019
Mean	2.05	.41	.81	.16
Indiv Controls	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes	Yes

Universalism of Christian Moral Values - How universal are these Christian moral values? In Table 10, I report the top 10 behaviors liked by the Christian god and the top 10 behaviors disliked by the Christian god according to the respondents in my sample. A preliminary text analysis using the Moral Foundations Dictionary (MFD), which was created by Graham and Haidt in 2009¹⁷, shows that these top 10 behaviors liked by the Christian god predominantly belong to the harm / care moral foundation (love, forgiveness, kindness, peace, joy) and to a lesser extent to the authority / respect moral foundation (respect, loyalty)¹⁸. This provides preliminary evidence that the Christian moral values that were

¹⁷See <http://www.moralfoundations.org>

¹⁸The Moral Foundations Questionnaire (MFQ) includes words that the psychologists intuited would belong to a particular moral category. For each of the four dimensions harm / care, fairness / reciprocity, in-group / loyalty, and authority / respect, the MFD contains a list of words or word stems for a total of 215 words.

propagated by exposure to Christian missions tend to be universal moral values rather than communal moral values.

Table 10: Top 10 Behaviors Liked and Disliked by the Christian God

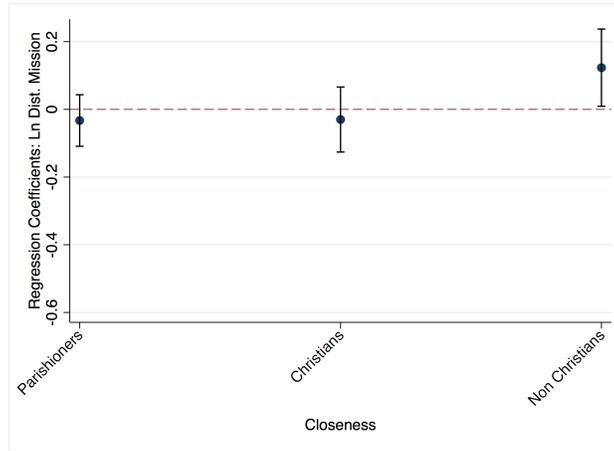
Rank	Behaviors liked by Christian God	Behaviors disliked by Christian God
1	Love	Adultery
2	Forgiveness	Hatred
3	Kindness	Theft
4	Peace	Envy
5	Humility	Lies
6	Community	Criticisms
7	Joy	Murder
8	Abstinence	Tribalism
9	Respect	Witchcraft
10	Loyalty	Insults

6.3 The Development of a Christian In-group Identity

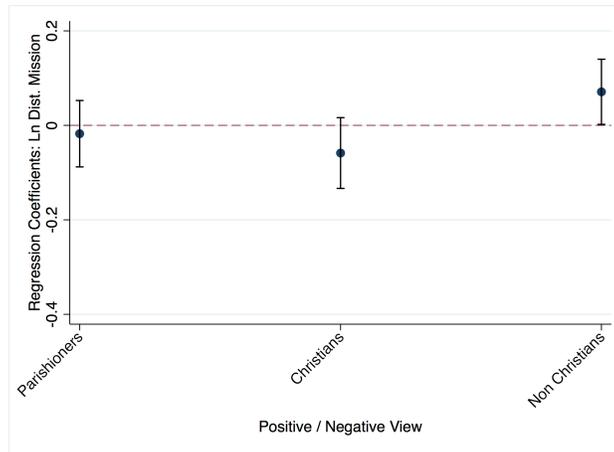
Increase in religion and religiosity might have also affected individual's scope of morality by altering who they consider as their in-group. For example, Christian missions might have resulted in people developing a bias towards Christians and fellow parishioners relative to non-Christians and non-parishioners, irrespective of whether they are family members, coethnics or none of these. To investigate if this is the case, I first use the same self-reported measures of closeness, positive or negative view and trust as described in section 4.2.1 but I ask these questions for a different set of groups: parishioners, Christians and non-Christians. In Figure 6, I find that exposure to missions did not affect individual's attitudes towards fellow parishioners and Christian but had a negative effect on attitudes towards non-Christians. I then use the lab-in-the-field referral experiment described in section 4.2.2 to investigate if this result persists once accounting for potential experimenter demand effects. Table 11 confirms the results from Figure 6. The Table shows evidence that exposure to missions results in bias towards Christians but not towards fellow parishioners, where bias is measured as the percentage of Christians and the percentage of fellow parishioners among the referrals. However, in Table 12 I do not find evidence that Christian missions change the percentage of respondents' social ties who are Christians or pray in the same church as the respondent. Overall there seem to be some evidence that our findings might be partly explained by respondents having developed a Christian in-group identity.

Figure 6: Effect of Exposure to Missions on Closeness, View and Trust by Religion and Religiosity

(a) Self-Reported Closeness



(b) Self-Reported View



(c) Self-Reported Trust

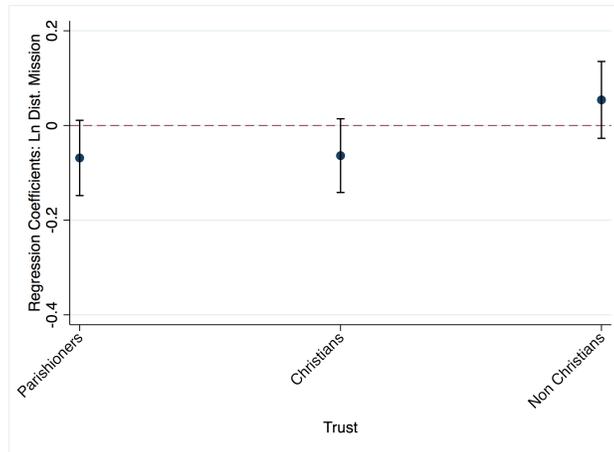


Table 11: Effect of Exposure to Missions on Referrer Christian Bias

	% of referral parishioner (1)	% of referral Christian (2)
Ln Dist. Mission	-0.027 (0.018)	-0.034* (0.020)
Observations	891	648
Mean	.46	.97
Indiv Controls	Yes	Yes
Geo Controls	Yes	Yes
Hist Controls	Yes	Yes

Table 12: Effect of Exposure to Missions on Social Network

	% of parishioners ties (1)	% of parishioners econ. ties (2)	% of parishioners non-econ. ties (3)
Ln Dist. Mission	-0.010 (0.017)	-0.017 (0.018)	-0.013 (0.020)
Observations	937	900	854
Mean	.4	.37	.44
Indiv Controls	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes
Hist Controls	Yes	Yes	Yes

6.4 Education and Income

Exposure to Christian missions in the DRC might have resulted in higher education levels, which in turn might have resulted in higher income levels today. In the online Appendix I show that the results presented above are robust to controlling for the respondent's highest level of education and monthly income. I also control for the respondent village of origin's level of development such as an indicator for the presence of a primary or a secondary school, a health dispensary or a hospital¹⁹. I interpret the fact that controlling for education and income does not affect the previous results as preliminary evidence that differences in education and income are unlikely to explain away the entire effects of exposure to Christian missions on individual's scope of morality today. However, because education and income are potentially "bad controls" (Angrist and Pischke, 2009), in subsequent work, I intend to controls for the distance to the nearest mission with a school, a health center, or an hospital instead of directly controlling for education and income. While I don't have the necessary information for

¹⁹We only ask these questions who have ever visited their village of origin, which results in a smaller sample size: $N = 524$

protestant missions, I can restrict the analysis to Catholic missions since the presence of a school, a health center or an hospital has been systematically documented for Catholic missions up to 1935 by Corman in his two editions of the *Annuaire des Missions Catholiques au Congo Belge* (Corman, 1924, 1935).

7 Conclusion

In this paper, I document significant long-lasting effects of exposure to Christian missions on individuals' "scope of morality" today. I show that exposure to Christian missions resulted in less bias towards in-group members (family and coethnics) relative to out-group members (non-coethnics, strangers, foreigners) using self-reported survey questions as well as a lab-in-the-field referral experiment. Similarly, I find that exposure to Christian missions led to broader social networks - defined by a lower percentage of family members and coethnics in the respondent's social network. Finally, I show that Christian missions are associated with the adoption of more universal and less communal moral values. Given the large literature documenting that strong family and coethnic ties and communal moral values are associated with lower levels of economic development, this broadening in individual's scope of morality introduced by Christian missions might have contributed to the positive effect of missions on economic development. I also show that the effect of proximity to Christian missions does not extend to abandoned mission stations, which suggest that what mattered in the long run for individual's scope of morality were the activities carried out by the missions and not where they were first settled. In terms of mechanisms, the enduring effects of Christian missions on individuals' scope of morality seem to be better explained by an increase in religiosity and how moralizing the Christian god is considered to be, the adoption of universal Christian moral values and the development of a Christian in-group identity than by changes in respondent's education or income.

The case of Christian missions in the Democratic Republic of the Congo serves as a microcosm in which to study important economic questions. The findings presented in this article underscore the importance of particular historical institutions and interventions for driving economic growth in the long run (Nunn, 2009, 2013). In particular, it suggests that historical experiments can have effects on individual's cultural traits - in our context the strength of their family and ethnic ties as well as their moral values - and contributes to a recent literature studying the importance of historical events and interventions on culture (Lowe et al., 2017; Lowe and Montero, 2018a,b). Studying the effect of such historical experiments can be instrumental in answering policy relevant questions about the effects of interventions on economic outcomes and culture, especially in cases where limited counterfactuals exist today.

References

- Aker, Jenny, Micheal W Klein, Stephen A. O’Connell, and Muzhe Yang**, “Border, Ethnicity and Trade,” *Journal of Development Economics*, 2014, 107 (4), 1–16.
- Alesina, Alberto and Paola Giuliano**, “Family Ties and Political Participation,” *Journal of the European Economic Association*, 2011, 9 (5), 817–839.
- and —, “Family Ties,” *Handbook of Economic Growth*, 2013, 2 (177).
- , **Nathan Nunn, and Paola Giuliano**, “On the Origins of Gender Roles: Women and the Plough,” *Quarterly Journal of Economics*, 2013, 128 (2), 469–530.
- , **Reza Baqir, and William Easterly**, “Public Goods and Ethnic Divisions,” *The Quarterly Journal of Economics*, 1999, 114 (4), 1243–1284.
- , **Sebastian Hohmann, Stelios Michalopoulos, and Elias Papaioannou**, “Intergenerational Mobility in Africa,” *CEPR Discussion Paper*, 2019, 13497.
- , **Yann Algan, and Paola Giuliano**, “Family Values and the Regulation of Labor,” *Journal of the European Economic Association*, 2015, 13 (4), 599–630.
- Alsan, Marcella**, “The Effect of the TseTse Fly on African Development,” *American Economic Review*, 2015, 105 (1), 382–410.
- Altonji, Joseph G., Todd E. Elder, and Christopher R. Taber**, “Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools,” *Journal of Political Economy*, 2005, 113 (1), 151–184.
- Anderson, Siwan**, “Caste as an Impediment to Trade,” *American Economic Journal: Applied Economics*, 2011, 3 (1), 239–263.
- Angrist, Joshua D. and Jorn-Steffen Pischke**, *Mostly Harmless Econometrics: An Empiricist’s Companion*, Princeton University Press, 2009.
- Atran, Scott and Joseph Henrich**, “The Evolution of Religion: How Cognitive By-Products, Adaptive Learning Heuristics, Ritual Displays, and Group Competition Generate Deep Commitments to Prosocial Religions,” *Biological Theory*, 2010, 5 (1), 18–30.
- Bai, Ying and James Kai sing Kung**, “Diffusing Knowledge while Spreading God’s Message: Protestantism and Economic Prosperity in China, 1840-1920,” *Journal of the European Economic Association*, 2014, 13 (4), 669–698.
- Banerjee, Abhijit, Emily Breza, Esther Duflo, and Kinnan Cynthia**, “Do Credit Constraints Limit Entrepreneurship? Heterogeneity in the Returns to Microfinance,” *Working Paper*, 2015.

- , **Esther Duflo, Arun Chandrasekhar, and Matthew O. Jackson**, “The Diffusion of Microfinance,” *Science*, 2013, 341 (6144).
- Banfield, Edward C.**, *The Moral Basis of a Backward Society*, Free Press, 1958.
- Barr, Abigail and Abena Oduro**, “Ethnic Fractionalization in an African Labour Market,” *Journal of Development Economics*, 2002, 68 (4), 355–379.
- Barro, Robert J. and Rachel M. McCleary**, “Religion and Economic Growth Across Countries,” *American Sociological Review*, 2003, 68 (5), 760–781.
- and — , “Religion and Economy,” *Journal of Economic Perspectives*, 2006, 20 (2), 49–72.
- Beaman, Lori and Jeremy Magruder**, “Who Gets the Job Referral? Evidence from a Social Networks Experiment,” *American Economic Review*, 2012, 102 (7), 3574–3593.
- , **Niall Keleher, and Jeremy Magruder**, “Do Job Networks Disadvantage Women? Evidence from a Recruitment Experiment in Malawi,” *American Economic Review*, 2018, 102 (7), 3574–3593.
- Benjamin, Daniel J., James J. Choi, and Geoffrey Fisher**, “Religious Identity and Economic Behavior,” *The Review of Economics and Statistics*, 2016, 98 (4), 617–637.
- Bertrand, Marianne and Sendhil Mullainathan**, “Do People Mean what they Say? Implications for Subjective Survey Data,” *American Economic Review*, 2001, 91 (2), 67–72.
- Blouin, Arthur and Sharun W. Mukand**, “Erasing Ethnicity? Propaganda, Nation Building, and Identity in Rwanda,” *Journal of Political Economy*, 2011, 127 (3), 1008–1062.
- Blum, Ashley, Chad Hazlett, and Daniel Posner**, “Measuring Ethnic Biases: Comparing Tools from Behavioral Economics and Social Psychology,” *Working Paper*, 2018.
- Boltz, Marie, Karine Marazyan, and Paola Villar**, “Income Hiding and Informal Redistribution: A Lab-in-the-field Experiment in Senegal,” *Journal of Development Economics*, 2019, 137, 78–92.
- Bryan, Gharad T., James J. Choi, and Dean Karlan**, “Randomizing Religion: The Impact of Protestant Evangelism on Economic Outcomes,” *NBER Working Paper*, 2018, 24278.
- Cage, Julia and Valeria Rueda**, “The Long-Term Effects of the Printing Press in Sub-Saharan Africa,” *American Economic Journal: Applied Economics*, 2016, 8 (3), 69–99.
- and — , “Sex and the Mission: The Conflicting Effects of Early Christian Missions on HIV in sub-Saharan African,” *Working Paper*, 2019.
- Caicedo, Felipe Valencia**, “The Mission: Economic Persistence, Human Capital Transmission and Culture in South America,” *The Quarterly Journal of Economics*, 2019, 134 (1), 507–556.

- **and Hans-Joachim Voth**, “Christ’s Shadow: Non cognitive Skills and Prosocial Behavior Amongst the Guarani,” *Bonn University, Manuscript*, 2019.
- Calvi, Rossella and Federico G. Mantovanelli**, “Long-term Effects of Access to Health Care: Medical Missions in Colonial India,” *Journal of Development Economics*, 2018, *135*, 285–303.
- Castello-Climent, Amparo, Latika Chaudhary, and Abhiroop Mukhopadhyay**, “Higher Education and Prosperity: from Catholic Missionaries to Luminosity in India,” *Economic Journal*, 2018, *128* (616), 3039–3075.
- Chandler, Tertius**, *Four Thousand Years of Urban Growth: An Historical Census*, Endwin Mellen Pr, 1987.
- Clark, Herbert H. and Michael F. Schober**, “Asking Questions and Influencing Answers,” *Questions about Questions: Inquiries into the Cognitive Bases of Surveys*, edited by Judith M. Tanur, 15?28. New York: Russell Sage Foundation., 1992, pp. 15–28.
- Clingingsmith, David, Asim Ijaz Khwaja, and Michael Kremer**, “Estimating the Impact of the Hajj: Religion and Tolerance in Islam’s Global Gathering,” *The Quarterly Journal of Economics*, 2018, *124* (3), 1133–1170.
- Depetris-Chauvin, Emilio, Ruben Durante, and Filipe R. Campante**, “Building Nations Through Shared Experiences: Evidence from African Football,” *NBER Working Paper*, 2018, 24666.
- Enke, Benjamin**, “Kinship, Cooperation, and the Evolution of Moral Systems,” *The Quarterly Journal of Economics*, 2019, *134* (2), 953–1019.
- , “Moral Values and Voting,” *Working Paper*, 2019.
- Frankema, Ewout and Frans Buelens**, *Colonial Exploitation and Economic Development: The Belgian Congo and the Netherlands Indies Compared*, Routledge Explorations in Economic History, 2013.
- Gallego, Francisco A. and Robert Woodberry**, “Christian Missionaries and Education in Former African Colonies: How Competition Mattered,” *Journal of African Economics*, 2010, *19* (3), 294–329.
- Glaeser, Edward L. and Bruce I. Sacerdote**, “Education and Religion,” *Journal of Human Capital*, 2008, *2* (2), 188–215.
- Goldewijk, Klein, A. Beusen, de Vos M., and G. van Drecht**, “The HYDE 3.1 spatially explicit database of human induced land use change over the past 12,000 years,” *American Journal of Tropical Medicine and Hygiene*, 2011, *20* (1), 73–86.

- Graham, Jesse, Peter Meindl, Erica Beall, Kate M. Johnson, and Li Zhang**, “Cultural Differences in Moral Judgement and Behavior, Across and Within Societies,” *Current Opinion in Psychology*, 2016, 8, 125–130.
- , **Sena Koleva, Matt Motyl, Ravi Iyer, Sean P. Wojcik, and Peter H. Ditto**, “Moral Foundations Theory: The Pragmatic Validity of Moral Pluralism,” *Advances in Experimental Social Psychology*, 2013, 47, 55–130.
- Habyarimana, James, Macartan Humphreys, Posner Daniel, and Jeremy Weinstein**, “Why Does Ethnic Diversity Undermine Public Goods Provision?,” *American Political Science Review*, 2007, 101 (4), 709–725.
- , —, —, —, and —, *Coethnicity*, Russel Sage Foundation, 2009.
- Haidt, Jonathan**, *The Righteous Mind: Why Good People are Divided by Politics and Religion*, Vintage, 2012.
- and **Joseph Craig**, “Intuitive Ethics: How Innately Prepared Intuitions Generate Culturally Variable Virtues,” *Daedalus*, 2004, 133 (4), 55–66.
- Henrich, Joseph, Jean Ensminger, Richard McElreath, Abigail Barr, Clark Barrett, Alexander Bolyanatz, Juan Camillo Cardenas, Michael Gurven, Edwins Gwako, Natalie Henrich, Carolyn Lesorogol, Frank Marlowe, David Tracer, and John Ziker**, “Markets, Religion, Community Size, and the Evolution of Fairness and Punishment,” *Science*, 2010, 327 (5972), 1480–1484.
- Hjort, Jonas**, “Ethnic Divisions and Production in Firms,” *The Quarterly Journal of Economics*, 2014, 129 (4), 1899–1946.
- Hruschka, Daniel J. and Joseph Henrich**, “Institutions, Parasites and the Persistence of In-group Preferences,” *PLoS ONE*, 2013, 8 (5), 1–9.
- Jakiela, Pamela and Owen Ozier**, “Does Africa Need a Rotten Kin Theorem? Experimental Evidence from Village Economies,” *Review of Economic Studies*, 2016, 83 (1), 599–630.
- Jedwab, Remi, Felix Meier zu Selhausen, and Alexander Moradi**, “The Economics of Missionary Expansion: Evidence from Africa and Implications for Development,” *African Economic History Working Paper*, 2019, 49.
- Johnson, Hildegard Binder**, “The Location of Christian Missions in Africa,” *Geographical Review*, 1967, 57 (2), 168–202.
- Kiszewski, A., A. Mellinger, A. Spielman, S E Sachs, and J. Sachs**, “A Global Index Representing the Stability of Malaria Transmission,” *American Journal of Tropical Medicine and Hygiene*, 2004, 70 (5), 486–498.

- Kundt, Radek, Eva Kundtova Klocova, Peter Mano, Dimitris Xygalatas, Jan Horsky, Martin Lang, Jakub Cigan, Monika Bystronova, Jan Kratky, and Benjamin G. Purzycki**, “Prosociality in Mauritius,” *Working Paper*, 2017.
- Lang, Martin, Benjamin G. Purzycki, Coren L. Apicella, Quentin D. Atkinson, Alexander Bolyanatz, Emma Cohen, Carla Handley, Eva Kundtova Klocova, Carolyn Lesorogol, Sarah Mathew, Rita A. McNamara, Cristina Moya, Caitlyn D. Placek, Montserrat Soler, Thomas Vardy, Jonathan L. Weigel, Aiyana K. Willard, Dimitris Xygalatas, Ara Norenzayan, and Joseph Henrich**, “Moralizing Gods, Impartiality and Religious Parochialism Across 15 Societies,” *Proceedings of the Royal Academy*, 2019, 286 (1898), 1–10.
- Lankina, Tomila and Lullit Getachew**, “Mission or Empire, Word or Sword? The Human Capital Legacy in Postcolonial Democratic Development,” *American Journal of Political Science*, 2012, 56 (2), 465–483.
- Levitt, Steven D. and John A. List**, “What Do Laboratory Experiments Measuring Social Preferences Reveal about the Real World?,” *Journal of Economic Perspectives*, 2007, 21 (2), 153–74.
- List, John A.**, “The Behavioralist Meets the Market: Measuring Social Preferences and Reputation Effects in Actual Transactions,” *Journal of Political Economy*, 2006, 114 (1), 1–37.
- , **Robert P. Berrens, Alok K. Bohara, and Joe Kerkvliet**, “Examining the Role of Social Isolation on Stated Preferences,” *American Economic Review*, 2004, 94 (3), 741–52.
- Lowes, Sara**, “Matrilineal Kinship and Spousal Cooperation: Evidence from the Matrilineal Belt,” *Working Paper*, 2018.
- **and Eduardo Montero**, “Concessions, Violence, and Indirect Rule: Evidence from the Congo Free State,” *Working Paper*, 2018.
- **and —**, “The Legacy of Colonial Medicine in Central Africa,” *Working Paper*, 2018.
- Lowes, Sara, Nathan Nunn, James A. Robinson, and Jonathan L. Weigel**, “The Evolution of Culture and Institutions: Evidence from the Kuba Kingdom,” *Econometrica*, 2017, 85 (4), 1065–1091.
- Miguel, Edward and Mary Kay Gugerty**, “Ethnic Diversity, Social Sanctions, and Public Goods in Kenya,” *Journal of Public Economics*, 2005, 89 (11), 2325–2368.
- Napier, Jaime L. and Jamie B. Luguri**, “Moral mind-sets: Abstract Thinking Increases a Preference for Individualizing over Binding Moral Foundations,” *Social Psychology and Personality Science*, 2013, 4 (6), 754–759.
- Norenzayan, Ara and Azim F. Shariff**, “The Origin and Evolution of Religious Prosociality,” *Science*, 2008, 322 (5898), 58–62.

- , —, **Will M. Gervais, Aiyana K. Willard, Rita A. McNamara, Edward Slingerland, and Joseph Henrich**, “The Cultural Evolution of Prosocial Religions,” *Behavioral and Brain Sciences*, 2010, 39 (1), 1–65.
- Nunn, Nathan**, “The Importance of History for Economic Development,” *Annual Review of Economics*, 2009, 1, 65–92.
- , “Historical Development,” *Handbook of Economic Growth*, P. Aghion and S. Durlaud, eds. (North-Holland), 2013, 2.
- , “Gender and Missionary Influence in Colonial Africa,” *Africa’s Development in Historical Perspective*, edited by Emmanuel Akyeampong, Robert H. Bates, Nathan Nunn and James A. Robinson, 489-512. New York: Cambridge, University Press, 2014, 2014.
- **and Leonard Wantchekon**, “The Slave Trade and the Origins of Mistrust in Africa,” *American Economic Review*, 2011, 101 (7), 3221–3252.
- Orne, Martin T.**, “On the Social Psychology of the Psychological Experiment: With Particular Reference to Demand Characteristics and Their Implications,” *American Psychologist*, 1962, 17 (11), 776–83.
- Purzycki, Benjamin G., Anne C. Pisor, Coren Apicella, Quentin D. Atkinson, Emma Cohen, Joseph Henrich, Richard McElreath, Rita A. McNamara, Ara Norenzayan, Aiyana K. Willard, and Dimitris Xygalatas**, “The Cognitive and Cultural Foundations of Moral Behaviors,” *Evolution and Human Behavior*, 2018, 39, 490–501.
- , **Coren Apicella, Quentin D. Atkinson, Emma Cohen, Rita A. McNamara, Aiyana K. Willard, Dimitris Xygalatas, Ara Norenzayan, and Joseph Henrich**, “Moralistic Gods, Supernatural Punishment and the Expansion of Human Sociality,” *Nature*, 2016, 530, 327–330.
- Rosenthal, Robert**, *Experimenter Effects in Behavioral Research*, New York: Appleton-Century-Crofts, 1966.
- Schulz, Jonathan F., Duman Bahrami-Rad, Jonathan P. Beauchamp, and Joseph Henrich**, “The Church, Intensive Kinship, and Global Psychological Variation,” *Science*, 2019, 366 (6466), 1–12.
- Smith, Isaac H., Karl Aquino, Spassena Koleva, and Jesse Graham**, “The Moral Ties that Bind... Even Out-Groups: The Interactive Effect of Moral Identity and the Binding Moral Foundations,” *Psychological Science*, 2014, 25 (8), 1554–1562.
- Squires, Munir**, “Kinship Taxation as a Constraint to Microentrepreneur Growth: Experimental Evidence from Kenya,” *Working Paper*, 2019.

Waldinger, Maria, “The Long-run Effects of Missionary Orders in Mexico,” *Journal of Development Economics*, 2017, 127, 355–378.

Wantchekon, Leonard, Marko Klasnja, and Natalija Novta, “Education and Human Capital Externalities: Evidence from Colonial Benin,” *The Quarterly Journal of Economics*, 2010, 130 (2), 703–757.

Whilhelm, Wisneski Daniel C. Hoffmann, Mark J. Brandt, and Linda J. Skitka, “Morality in Everyday Life,” *Science*, 2014, 345 (6202), 1340–1343.

Woodberry, Robert D., “The Shadow of Empire: Christian Missions, Colonial Policy, and Democracy in Postcolonial Societies,” *Manuscript, University of North Carolina at Chapel Hill*, 2004.

—, “The Missionary Roots of Liberal Democracy,” *American Political Science Review*, 2012, 106 (2), 244–274.

Xygalatas, Dimitris, Silvie Kotherova, Peter Mano, Radek Kundt, Jakub Cigan, Eva Kundtova, and Martin Lang, “Big Gods in Small Places: The Random Allocation Game in Mauritius,” *Religion, Brain and Behavior*, 2018, 8 (2), 243–261.

Zizzo, Daniel John, “Experimenter Demand Effects in Economic Experiments,” *Experimental Economics*, 2010, 13 (1), 75–98.