



## Regular Article

# Changing local customs: The long run impacts of Christian missions on female genital cutting in Africa

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## ABSTRACT

We investigate the long-run impacts of Christian missions on female genital cutting (FGC) in Africa. Our empirical analysis draws on historical data on the locations of early European missions geographically matched with Demographic and Health Survey data on FGC practices of around 410,000 respondents from 42 surveys performed over a 30-year period in 14 African countries. We use ethnographic data on pre-colonial FGC to show that the location of missions was not correlated with the practice of FGC in the local population. Our benchmark estimates imply that a person living 10 km from a historical mission is 4–6 percentage points less likely to have undergone FGC than someone living 100 km from a mission site. Similarly, an additional mission per 1000 km<sup>2</sup> in one's ancestral ethnic homeland decreases the probability of having undergone FGC by around 8 percentage points. The effect is robust to numerous specifications and control variables.

## 1. Introduction

Female genital cutting (FGC)<sup>1</sup> refers to procedures involving partial or total removal of the external female genitalia or other injury to the female genital organs for non-medical reasons (WHO, 2008). Despite its harmful consequences, it affects an estimated 200 million now living girls and women, primarily in Africa (UN, 2022). Today, most countries where FGC is prevalent have some form of legal prohibitions against the practice,<sup>2</sup> and international and local organizations advocate for its abandonment. Modern opposition to FGC dates back to the missionary campaigns against the custom in the early 20th century (Hayford and Trinitapoli, 2011). While these campaigns faced substantial resistance (Masterson and Swanson, 2000; Schafroth, 2009), there is growing evidence that missionary expansion did have an impact on other social norms, such as attitudes towards homosexuals (Ananyev and Poyker, 2021), sexual beliefs and behaviours (Cagé and Rueda, 2020), and the practice of polygamy (Fenske, 2015; Kudo, 2017; Becker, 2022).

This paper investigates the long-run impacts of Christian missionary expansion on FGC in Africa. We ask whether people living in areas close to historical Christian missions are less likely to undergo FGC. We also

explore potential underlying mechanisms. If there is a relationship between historical missions and current FGC, is this an indirect effect of impacts on education and economic development, or can it be a direct effect of mission activities on norms?

We geographically match historical data on the locations of early European Christian missions from the map by Roome (1924) with Demographic and Health Survey (DHS) data on FGC practices of almost 410,000 respondents from 42 surveys performed 1990–2020 in 14 African countries. To investigate and control for potential selection in the location of missions, we use ethnographic data on FGC in pre-colonial times from Ericksen (1989) - which we link to respondents by their ethnicity or by matching geographically to traditional regions of residence of ethnic groups (ethnic homelands) - and a large set of geographic and ethnic homeland control variables.

The empirical results indicate that historical Christian missions did indeed have a long-run impact on FGC practices that persists to this day. The benchmark estimates suggest that a person living 10 km from a historical mission is approximately 4 percentage points less likely to have undergone FGC than someone living 100 km from a mission site. For respondents living in areas where FGC was practiced in pre-colonial

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<sup>1</sup> Also known as female genital mutilation (FGM) and female circumcision (see discussion in e.g. Yoder et al., 2013).

<sup>2</sup> For an overview of country specific legislation on FGC, see Shell-Duncan et al. (2013).

times, the equivalent difference is 6 percentage points. The estimated effects are robust to a number of specifications and control variables.

To investigate potential mechanisms, we match our data on FGC and missions with granular geo-spatial data on night lights and on the size of urban agglomerations and use within-survey data on education, religious affiliation and urban residence. Controlling for these possible mechanisms has little impact on estimates. While we cannot provide direct evidence, this is consistent with an impact of missions on norms, which has then persisted. We also investigate the impact of number of missions in respondents' ancestral ethnic homelands. One more historical mission per 1000 km<sup>2</sup> in the respondents' ethnic homeland decreases the likelihood of FGC by on average 8 percentage points. The impact of missions in the ancestral ethnic homeland remains significant when we include missions in the geographic ethnic homeland where they currently live, arguably highlighting the role of intergenerational norm transmission within ethnic groups.

Our paper relates to the literature on the historical role of Christian missions on development in Africa, emanating from the broader literature on deep historical determinants of economic development (e.g. Nunn, 2009; Spolaore and Wacziarg, 2013). Several studies investigate the impact of Christian missions on education (Gallego and Woodberry, 2010; Nunn, 2014; Okoye and Pongou, 2014; Wantchekon et al., 2015; Meier zu Selhausen, 2019), and on economic development more broadly (Bengtsson, 2013; Boateng et al., 2020; Alpino and Moe Hammersmark, 2021; Jedwab et al., 2021, 2022), generally finding positive effects.<sup>3</sup>

Results concerning the effects of missions on attitudes and norms are more mixed. Okoye (2021) finds negative effects of missions on trust in Nigeria and identifies the weakening of traditional institutions as a possible mechanism. In contrast, Woodberry (2012) finds that Protestant missionaries contributed to establishing conditions favourable to liberal democracy in a broader African sample, via channels such as education, newspapers, and voluntary organizations. Similarly, Cagé and Rueda (2016) find a positive effect of Protestant missions with a printing press on trust, newspaper readership, political participation, and education. Nunn (2010) finds that Christian missions had persistent effects on conversion to Christianity, while Ananyev and Poyker (2021) find that missions contribute to anti-gay attitudes among Christians.

Several studies highlight a gender aspect of the role of missions. Missions have been found to contribute to gender inequality, primarily by restricting education along gender lines (Nunn, 2014; Montgomery, 2017; De Haas and Frankema, 2018). There is also evidence of a relationship between missions and sexual/marriage practices. Cagé and Rueda (2020) find that the prevalence of HIV is higher in areas closer to historical missions. Kudo (2017) finds that women living closer to the location of the Livingstonia Mission in Malawi exhibit a lower rate of polygamy, a higher age at first marriage and greater educational investment. Guirking and Villar (2022) investigate the impact of pro-birth policies implemented by Catholic nuns in the Congo in the early 1900s, and find that women exposed to nuns increased their fertility. Fenske (2015) finds that missionary education led to lower rates of polygamy. Becker (2022) also finds a negative relationship between Christian missions and polygamy, but argues that rather than missions affecting marriage practices, groups that practiced polygamy were less likely to demand missionary education.

Despite historical accounts of missionaries campaigning against FGC in Africa, this is, to the best of our knowledge, the first study investigating the long-run impacts of Christian missionary expansion on the practice of FGC on the continent. As such, it contributes to the literature on the historical role of Christian missions on development in Africa (Gallego and Woodberry, 2010; Bengtsson, 2013; Nunn, 2014; Okoye

<sup>3</sup> There are also studies on the effect of Christian missions on education and economic development in China (Bai and Kung, 2015; Chen et al., 2022), India (Calvi et al., 2020), Mexico (Waldinger, 2017) and South America (Valencia Cacedo, 2018).

and Pongou, 2014; Wantchekon et al., 2015; Meier zu Selhausen, 2019; Boateng et al., 2020; Alpino and Moe Hammersmark, 2021; Jedwab et al., 2021, 2022), and in particular the strand of this literature focusing on the impact on culture, attitudes and norms (Nunn, 2010; Woodberry, 2012; Cagé and Rueda, 2016; Ananyev and Poyker, 2021; Okoye, 2021), and on gender inequality (Fenske, 2015; Kudo, 2017; Montgomery, 2017; De Haas and Frankema, 2018; Cagé and Rueda, 2020; Becker, 2022). Furthermore, the paper contributes to the literature on the historical origins and persistence of FGC practices (see e.g. Mackie, 1996; Becker, 2019; Corno et al., 2020) and to the literature on the persistence and transmission of norms more generally (e.g. Bénabou and Tirole, 2006; Tabellini, 2008; Fernández, 2013; Acemoglu and Jackson, 2015, 2017; Becker, 2019; Bursztyn et al., 2020; Alesina et al., 2021).

## 2. Background

### 2.1. FGC practices

FGC encompasses a wide scope of procedures, classified into four types by the World Health Organization (WHO 2022). Type I is clitoridectomy, which is the partial or total removal of the clitoris. Type II is excision, where both the clitoris and the labia minora are partially or totally removed. Type III is infibulation, where the vaginal opening is narrowed. This is the most extreme form of FGC and may involve stitching together the labia. Finally, Type IV includes all other harmful, non-medical procedures to the female genitalia. FGC is most commonly performed before the age of 15, often in infancy or early childhood (UNICEF, 2013), and entails a number of long-term health risks such as chronic pain, infections, urinary and menstrual problems, birth complications and dangers to the newborn, anxiety and post-traumatic stress disorder (WHO, 2008).

Exactly when and where FGC originated is unknown, but historical evidence suggests that it predates Christianity and Islam. The practice is thought to have originated on the western coast of the Red Sea and then spread with Arab traders in a westward and southward direction (Mackie, 1996). Around 500 BCE, Herodotus makes reference to FGC among Phoenicians, Hittites, Ethiopians and Egyptians, and artifacts from around 160 BCE mention the practice (Schafroth, 2009). The original purpose of FGC is similarly uncertain, but there is some indication that it was implemented during Byzantine times to prevent female slaves from becoming pregnant. In 1609 the Portuguese Catholic missionary Joao dos Santos observed a group in Somalia that had a custom to 'sew up' their female slaves to prevent pregnancy (Mackie, 1996, p. 1003). More recent theories suggest that FGC has been adopted in settings where mate guarding is challenging and thus the risk for paternity uncertainty is higher, for example in polygamous unions and among pastoralists (Mackie, 1996; Becker, 2019; Corno et al., 2020).

While motives vary across groups, the most common explanation to why FGC persists despite its negative health consequences is linked to marriage markets. In some settings, undergoing FGC is essentially seen as a prerequisite for marriageability (Mackie and LeJeune, 2009; Chesnokova and Vaithianathan, 2010; Wagner, 2015; García-Hombrados and Salgado, 2019). In some cases, FGC is part of important initiation rites or similar ceremonies (Mackie and LeJeune, 2009). FGC is sometimes viewed as a primarily religious, and specifically Muslim, practice. As mentioned above, though, FGC predates Islam and thus did not originate with the religion.<sup>4</sup> Indeed, FGC practices often vary greatly within ethnic and/or religious groups (Mackie and LeJeune, 2009).

Within Africa, there is substantial geographical variation in prevalence and type of FGC practiced. Countries in northern East Africa -

<sup>4</sup> Some authors argue however that the relatively high share of Muslims among those practicing FGC is due to the fact that FGC was more often incorporated into the Muslim faith than was the case with other religions (Carr, 1997; Gordon, 1991).

Somalia, Egypt and Sudan – have estimated prevalence rates ranging between 87 and 98 percent, with much higher rates of infibulation than in other regions (Orchid Project, 2022). Some West African countries – Burkina Faso, the Gambia, Guinea, Liberia, Mali and Sierra Leone – also exhibit high levels of FGC, with estimated prevalence rates ranging from 50 to 97 percent.

## 2.2. Missions in Africa

While the Bible provides neither prohibitions against nor support for FGC, institutionally, Christian missionaries in Africa have been campaigning against female circumcision for more than a century (Hayford and Trinitapoli, 2011).

The Christian church has a long history in parts of northern Africa and Ethiopia, and European missionaries attempted to establish a presence in Africa from the mid-15th century (Sundkler and Steed, 2000). Initial efforts to extend beyond limited geographic areas of the West-African coast were impeded by the disease environment (Johnson, 1967). The advent of anti-malarial medication in the mid-19th century, which increased survival rates among Europeans in Africa, facilitated the spread of Christian missionary activity to a greater geographical area (Meier zu Selhausen, 2019). Missions often established along the coast and then moved inland along pre-colonial trade routes, avoiding areas with populations that were particularly hostile (Meier zu Selhausen, 2019). The establishment of colonial rule intensified the rate of missionary expansion, as missionaries were increasingly able to access transportation infrastructure built by colonial powers and to take advantage of the protection provided by colonial rule.

The focus of missionaries was to convert as many of the local inhabitants to Christianity as possible (Johnson, 1967; Fields, 1982; White, 1996). Often, conversion to Christianity was considered to entail a cultural conversion as well as a religious one, and missionaries' actions were sometimes framed as a war on heathenism. Taken to the extreme, potential converts were removed from their home villages and relocated to the mission to distance them as much as possible from traditional culture and influences (Fields, 1982). Mission schools, which provided attractive education opportunities to potential converts, were also often viewed as a means of spreading Christian and/or Western culture to the native population (Johnson, 1967; Strayer, 1976; White, 1996; Fourier et al., 2014; Meier zu Selhausen, 2019).

The desire to impose Christian culture led missionaries on a collision course with any aspect of traditional African culture that was deemed to be in conflict with Christian values (Strayer, 1976; Fields, 1982). Certain traditions, among them FGC, were considered more problematic than others, and thus faced great opposition from missionaries (Turner, 1966; Strayer, 1976; Becker, 2022). Campaigns against FGC ranged from moral teachings to bans conditioning church membership or baptism on not circumcising their daughters (Murray, 1976; Ndung'u, 2000).

The Kenyan case provides an illustrative example. Here, FGC and the rites surrounding it became the focal point of missionaries' broader opposition to perceived 'unchristian' traditional practices in the country (Ndung'u, 2000). In the late 1920s, Protestant missionaries mounted an intensive campaign to prohibit 'female circumcision' among their congregations. The British missionaries engaged London-based parliamentarians and women's rights organizations to argue in front of the House of Commons that the tradition should be banned (UK Parliament, 1929). The results were not as hoped. Requirements to denunciate the practice led to large numbers of Kikuyu leaving the mission churches to establish their own independent churches and schools, and ignited the movement for independence from British rule (Caldwell et al., 2000; Thomas, 2000; Joshua, 2009). In Facing Mount Kenya (1938), Jomo Kenyatta's famous anthropological study of the Kikuyu ethnic group, the future first president of Kenya describes female circumcision as a centuries-old custom perpetuating a spirit of collectivism and national solidarity, and argues that the Kikuyu people viewed the missionaries as 'religious fanatics' who attack the custom to disintegrate their social order and

hasten Europeanisation (p. 135). The backlash, culminating in the murder of a missionary, is commonly referred to as the 'female circumcision controversy' in Kenyan history.

While some colonists supported the general goal of converting Africans to Christianity, arguing in favor of "spiritual colonization" in parallel with political colonization, there was concern that the attack by missionaries on traditional African practices could threaten law and order in the colonies (Fields, 1982). As such, many European missionaries felt compelled to make a choice: remain steadfast in an insistence on full cultural conversion, or adopt a more flexible attitude. In the end, most missionaries chose some degree of adaptation, allowing at least some forms of traditional practices to be maintained within a Christian framework. However, the extent to which missionaries were willing to accommodate a so-called "Africanization" of Christianity varied considerably (Strayer, 1976; Kaplan, 1986; Caldwell et al., 2000). There is evidence that Protestant missionaries (like those active in Kenya) were more likely than Catholic missionaries to take an absolutist position against FGC (Caldwell et al., 2000; Ndung'u, 2000). Studying FGC in Chad, for example, Leonard (1996, p. 261) finds most opposition against the practice among Protestants and notes that: "Catholic clergy have been more tolerant of local practices, preferring to integrate them, where possible, into the life of the church, and generally taking a less combative stance". Furthermore, since European missionaries were in short supply, societies relied on African clergy to run smaller missions and churches. These clergy members seem to have been more sympathetic to adapting their teachings to accommodate existing customs and practices (Strayer, 1976). Therefore, the strongest opposition to traditional practices were expected to be found in the main missionary stations where the number of European missionaries was greatest.

## 3. Data and empirical strategy

To measure the influence of Christian missions on FGC, we use information in the atlas by Roome (1924) on the location of principal missions at the time, with geo-codes obtained from Nunn (2010). The data is restricted to foreign missions that targeted the indigenous population (Nunn, 2014). In total, it includes information on 1222 Christian missions: 327 Catholic, 871 Protestant, and 24 British and Foreign Bible Society (BFBS) missions/depots across the African continent (see Fig. 1).

Studies on mission activities in specific countries can typically locate many more missions than those in the Roome atlas (Okoye, 2021; Jedwab et al., 2021, 2022; Guirking and Villar, 2022). However, the principal missions covered in the atlas is where foreign missionaries, who were the main advocates against FGC, were placed, and therefore precisely the missions we are interested in. Moreover, these principal missions are more stable over time than smaller hinterland missions (Okoye, 2021). Importantly, the Roome (1924) Atlas covers all of Africa<sup>5</sup> and includes both Catholic and Protestant missions.

We estimate the influence of Christian missions of any denomination on FGC. However, since it has been argued that Protestant churches were more likely to take an absolutist position against FGC, while Catholic churches were more likely to make exemptions and allow modified variants of the practice (Caldwell et al., 2000), and since earlier literature often finds heterogeneous effects between Catholic and Protestant missions on other outcomes (see e.g. Gallego and Woodberry, 2010; Bengtsson, 2013; Nunn, 2014), we present results of estimations allowing for heterogeneous impacts by denomination in the Online Appendix.

To measure our outcome of interest, we use the Demographic and Health Surveys (DHS, 2021), with data on, among other things, the FGC status of respondents, along with GPS-data and covariates. We compile

<sup>5</sup> Which is why even authors who criticise Atlases such as the one by Roome (1924) for their limited coverage of all mission stations, use them in their Africa-wide analysis (Jedwab et al., 2022).

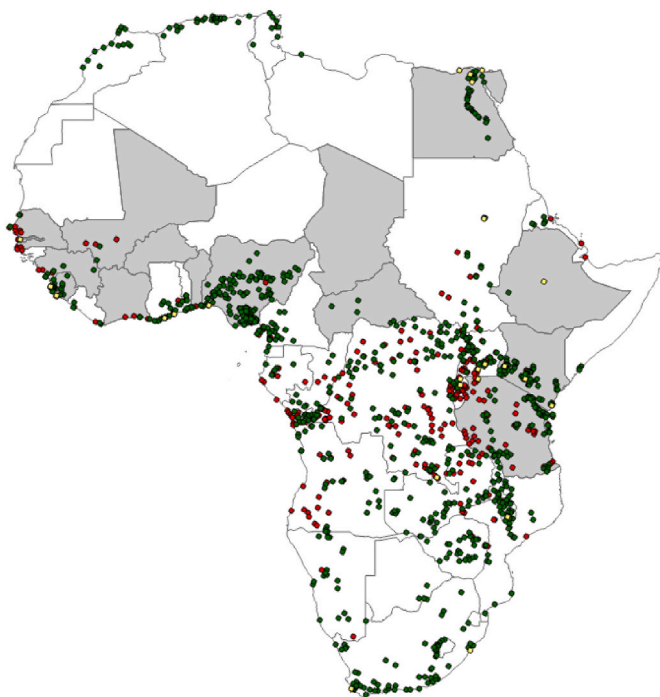


Fig. 1. Location of missions, by denomination.

Source: [Roome \(1924\)](#). Protestant missions in green, Catholic missions in red, BFBS missions in yellow. Countries in our sample, i.e. those where FGC is practiced and where there is data on FGC practices, in grey. Notably, though, respondents' nearest mission may be on the other side of a country border, implying that we draw on mission data from neighbouring countries as well.

42 cross-sectional datasets collected in 14 African countries between 1990 and 2020: Benin, Burkina Faso, the Central African Republic, Chad, Cote d'Ivoire, Egypt, Ethiopia, Guinea, Kenya, Mali, Nigeria, Senegal, Sierra Leone, and Tanzania.

Since the FGC data is based on self-reporting, we cannot rule out reporting bias due to social desirability considerations or to the fact that FGC is illegal in most countries. Importantly, however, the DHS enumerators are instructed to use the local term for female circumcision to avoid potentially negative connotations ([DHS, 2013](#)). Furthermore, the potential risk of reporting bias is likely somewhat reduced by the fact that FGC is common in many of the countries included in the data, and by the fact that the respondent herself generally was not the one responsible for making the decision to undergo FGC as a child. There are some studies that measure reporting bias by comparing prevalence in self-reported data with prevalence from clinical data. [Novak \(2020\)](#) finds very little underreporting in Burkina Faso (93 percent vs 89 percent). Similarly, [Elmusharaf et al. \(2006\)](#) did not find evidence of significant underreporting in Sudan.

To compute the distance to early Christian missions, we use the GPS coordinates to link the DHS data and the [Roome \(1924\)](#) atlas data. In our main estimations, we use the log distance to the nearest mission, which is the most commonly used measure in the literature.<sup>6</sup> By taking the log of the distance, long distances are discounted, i.e. it matters much more if you live 10 or 20 km from a historical mission than if you live 110 or 120 km away. [Figures A1 and A2](#) in the appendix show the distribution of distance to nearest mission in kilometers and in logged kilometers, with logged kilometers exhibiting a much less skewed distribution,

<sup>6</sup> GPS coordinates in DHS surveys include a random error of up to 1 km in urban areas and up to 5 km in rural areas to prevent the possibility to identify individuals. This introduces measurement error, which will bias our estimates downwards.

supporting our choice to log the distance. To get a picture of how the estimated effect varies with distance from mission sites, we also present results where we instead use dummy variables capturing living within different 10-km intervals of a mission.

Moreover, to shed some light on the possible importance of norm transmission across generations, we investigate the relationship between the number of missions per 1000 square kilometers in the ancestral ethnic homeland of the respondent and FGC ([Table 3](#)). We link the ethnicity of DHS respondents to pre-colonial ethnic groups described in [Murdock \(1967\)](#) using the LEDA R package ([Müller-Crepon et al., 2021](#)).<sup>7</sup> 44 percent of respondents do not live in their ancestral ethnic homeland and may thus reside in an area with differential exposure to missions. To explore the relative importance of persistent FGC norms in the region of residence as compared to in the family or ethnic group, we also run regressions where we include both missions per 1000 km<sup>2</sup> in the respondent's ancestral ethnic homeland and missions per 1000 km<sup>2</sup> in the geographic ethnic homeland in which she currently lives.

Missions were not distributed at random across Africa. Historical accounts suggest that accessibility, safety and disease environment mattered for missionary expansion. This is confirmed in a quantitative analysis by [Jedwab et al. \(2022\)](#), who also show that economic potential mattered. Hence, even if FGC per se is not likely to have mattered for location of missions, the practice may be correlated with other factors that did. Following standard procedures in the missions-literature, we account for various geographic factors that may have influenced where missionaries settled. We control for a number of characteristics related to accessibility, economic development and disease environment; historical controls measured at the level of the ethnic homeland for slave exports, cultivation of roots and tubers, existence of an empire, mean elevation, mean suitability for agriculture, a dummy for a lake, a dummy for a river, and presence of a city in 1400 ([Michalopoulos and Papaioannou, 2016](#)) and control variables for minimum distance to colonial railways, explorer routes, and coastline. Finally, we include (sub-national) region fixed effects.

Our identification rests on the assumption that the location of Christian missions was not influenced by existing pre-colonial FGC practices of the native population. To explore the validity of this assumption we use data from a comprehensive ethnographic effort to map the traditional, pre-colonial, use of FGC in ethnic groups ([Ericksen, 1989](#)). This is in the spirit of [Ananyev and Poyker \(2021\)](#) and [Fenske \(2015\)](#), who also control for pre-colonial patterns in their respective outcome variables. [Ericksen \(1989\)](#) provides data on 115 ethnic groups and is based on all available ethnographic sources, including in local languages, for the set of 'well-described' ethnic groups in [Murdock \(1967\)](#). Of these groups, 98 have sufficient information to be classified either as practising or not practising FGC. Each of the included ethnic groups belong to a broader cultural cluster of ethnic groups and are meant to be representative of their cultural cluster. To increase sample size, we extrapolate a given group's pre-colonial FGC classification to other ethnic groups in the same cultural cluster.<sup>8</sup>

In [Table 1](#), we test if there is a significant relationship between pre-colonial FGC practices in an ethnic homeland and the number of missions per 1000 km<sup>2</sup> that were subsequently established there.<sup>9</sup> Reassuringly, neither the unconditional associations (column 1), nor the estimations controlling for country fixed effects (column 2) or region fixed effects (column 3) suggest any statistically significant correlation. However, since estimates are quite imprecise, we run all estimations both for the full sample and for a restricted sample consisting only of

<sup>7</sup> More details on how we linked ethnicities using the LEDA R-package are provided in [Appendix II](#).

<sup>8</sup> More details on how we coded pre-colonial FGC are provided in [Appendix II](#).

<sup>9</sup> In [Table A1](#) in [Appendix I](#), we instead use the total number of missions in the ethnic homeland.

**Table 1**  
Pre-colonial FGC and the location of historical Christian missions, per 1000 km<sup>2</sup>

	(1)	(2)	(3)
	Missions per 1000 km <sup>2</sup>	Missions per 1000 km <sup>2</sup>	Missions per 1000 km <sup>2</sup>
Pre-colonial FGC	-0.015 (0.056)	0.011 (0.062)	0.058 (0.106)
Mean missions/1000 km <sup>2</sup>	0.152	0.152	0.152
Country Fes	No	Yes	No
Region Fes	No	No	Yes
R-squared	0.000	0.124	0.510
Observations	181	181	181

Standard errors in parenthesis.

respondents living in homelands where FGC was practiced in pre-colonial times.

To investigate whether subsequent urbanization and economic development are relevant mechanisms underlying the relationship between missions and FGC, we use GPS coordinates to match our data on missions and FGC with data from the Africapolis database (OECD/SWAC, 2020), which has information about the size of all urban areas in Africa, and with satellite data on night lights from 2013 (Tollefsen et al., 2012, 2015).

Our benchmark specification takes the form:

$$FGC\_status_i = \beta_0 + \beta_1 \log\_dist\_mission_{ic} + \theta_i + \gamma_{ij} + \delta X_{ih} + \varphi Z_{ic} + \varepsilon_{ichj} \quad (1)$$

where *FGC\_status<sub>i</sub>* is a dummy variable equal to one if the respondent has undergone FGC and *log\_dist\_mission* is the log distance in km to the nearest mission.  $\theta_i$  are age fixed effects,  $\gamma_{ij}$  are birth year-country fixed effects,  $X_{ih}$  are homeland controls,  $Z_{ic}$  are geographic controls, including sub-national region fixed effects. Since the location of the respondent is defined at the cluster level, we cluster the standard errors at the cluster level. The number of observations vary by country (as seen in Table A2 in Appendix I). We use survey weights which we have adjusted to make the sample representative for the population in the countries studied.<sup>10</sup>

When exploring the impact of missions in respondents' ancestral and geographic ethnic homelands, we replace *log\_dist\_mission<sub>ic</sub>* with *Missions\_ancest\_homeland<sub>ic</sub>* and *Missions\_geo\_homeland<sub>ic</sub>*. In these regressions we cluster the standard errors at the ethnicity level.

For more information on how we define key variables, see Appendix II. Furthermore, Table A3 in Appendix I shows descriptive statistics of all variables used in the main or robustness analysis. 63.4% of women in the sample are cut.

## 4. Results

### 4.1. Main results

The empirical results consistently suggest that respondents living closer to historical missions are less likely to have undergone FGC. Table 2 presents the results, for the full sample (Panel A) and for the sample restricted to areas where FGC was practiced in pre-colonial times (Panel B). Our main specification, presented in Column 2, includes the full set of individual and geographic controls in Equation (1) (for comparison, Column 1 presents regressions estimated on the same sample but without any control variables).<sup>11</sup> The parameter in the full sample suggests that a person living 10 km from a historical mission is approximately 4.1 percentage points less likely to have undergone FGC

<sup>10</sup> DHS survey weight are adjusted with  $\left(\frac{\text{Country estimation sample}}{\text{Total estimation sample}}\right) * 10000$

<sup>11</sup> In Table A4 in Appendix I we include groups of control variables from the main specification step-wise in separate regressions.

than someone living 100 km from a mission site. Restricting the sample to respondents living in homelands where FGC was practiced in pre-colonial times, the equivalent difference is 6 percentage points.

To get a sense of how the estimated effect varies with distance from mission sites, Fig. 2 presents the coefficients of the main specification (Equation (1)) using distance to the nearest mission measured in intervals of 10 km. The parameter estimates follow the expected pattern; the further the respondent lives from a historical mission site, the more likely she is to have undergone FGC.

### 4.2. Mechanisms

To get a picture of the mechanisms underlying the observed results, we next include explanatory factors that have previously been suggested to be affected by historical missions, and that could in turn exert an influence on FGC practices. To ensure comparability, the regressions in Column 3 re-estimate our main specification on the smaller sample where data on possible mechanism candidates is available.

In Column 4, we add dummy variables for whether the respondent is Christian or Muslim. Christian missions have been linked to increased conversions to Christianity (Nunn, 2010). Given the evidence of a positive effect of historical Christian missions on schooling, we add the respondent's level of education in Column 5. Next, since Christian missions have been linked to urbanization and economic growth, we add variables measuring, first, in Column 6 urbanity using the urban dummy provided in the survey and data on the population size of cities (measured in 100,000 inhabitants) and, second, in Column 7, satellite night light data. In Column 8 we add all potential mediators simultaneously.

The coefficients of the potential mediators are in line with expectations: Christians are less likely and Muslims more likely to practice FGC, respondents with higher levels of education are less likely to practice FGC, as are respondent in urban and wealthier areas, as measured by night light data.<sup>12</sup> The parameter on distance to any mission shrinks when we control for the respondents' level of education or night light intensity, but is not affected by the inclusion of the respondent's religious affiliation or urbanization. When all potential mediators are entered simultaneously the coefficient is reduced by about 20 percent, but remains statistically significant at the one percent level.

If historical missions affect current FGC via an impact on norms in the local areas, a further question is what explains the persistence of these norms? To shed some light on the possible role of norm transmission in ethnic groups across generations, we next investigate the relationship between the number of missions per 1000 km<sup>2</sup> in the ancestral ethnic homeland of the respondent and FGC (Table 3). Again, we run the estimation on the full sample as well as on a restricted sub-sample, in this setup focusing on respondents whose ancestors practiced FGC in pre-colonial times (rather than on respondents living in areas where FGC was practised). As we can only include respondents with a known ethnicity that could be matched to ethnic homelands the sample size is reduced by almost half.<sup>13</sup> We therefore also re-estimate our main specification in this restricted sample of respondents. The estimated coefficient is smaller than in the main sample (0.024 compared to 0.041), but still highly significant. One more mission per 1000 km<sup>2</sup> in the respondent's ancestral ethnic homeland reduces the probability that respondents have undergone FGC by around 8 percentage points in the full sample. In the sample of respondents whose ancestors' practised FGC the corresponding effect size is larger,

<sup>12</sup> Accounting for urban residency, however, those living in larger cities are not less likely to be cut.

<sup>13</sup> We lose all observations from Egypt, the Central African Republic and Tanzania since ethnicity was not collected in surveys from these countries. We also lose all observations of women from smaller ethnic groups having been grouped into "other" during data collection.

**Table 2**  
The effect of historical Christian missions on FGC, main effects and potential pathways.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: Full sample</b>								
Log distance to mission	0.078*** (0.005)	0.041*** (0.008)	0.040*** (0.008)	0.041*** (0.008)	0.029*** (0.008)	0.040*** (0.009)	0.034*** (0.009)	0.032*** (0.009)
Christian				-0.119*** (0.038)			-0.077** (0.031)	-0.077** (0.031)
Muslim				0.115*** (0.044)			0.136*** (0.038)	0.136*** (0.038)
Some or completed primary					-0.123*** (0.020)			-0.091*** (0.019)
Some or completed secondary school					-0.211*** (0.021)			-0.169*** (0.020)
More than secondary school					-0.299*** (0.023)			-0.249*** (0.021)
Urban residence						-0.094*** (0.014)		-0.043*** (0.014)
City population						0.001*** (0.000)		0.002*** (0.000)
Night light							-0.333*** (0.043)	-0.310*** (0.045)
R-squared	0.044	0.294	0.297	0.289	0.309	0.295	0.298	0.327
Observations	409,383	409,383	380,965	380,965	380,965	380,965	380,965	380,965
<b>Panel B: In areas where FGC was practised in pre-colonial times</b>								
Log distance mission	0.072*** (0.007)	0.060*** (0.011)	0.061*** (0.011)	0.061*** (0.011)	0.047*** (0.010)	0.052*** (0.012)	0.056*** (0.011)	0.045*** (0.011)
Christian				-0.172*** (0.046)			-0.117*** (0.036)	-0.117*** (0.036)
Muslim				0.093* (0.055)			0.114** (0.046)	0.114** (0.046)
Some or completed primary					-0.165*** (0.025)			-0.126*** (0.022)
Some or completed secondary school					-0.275*** (0.026)			-0.225*** (0.023)
More than secondary school					-0.357*** (0.027)			-0.298*** (0.024)
Urban residence						-0.102*** (0.017)		-0.055*** (0.016)
City population						0.000 (0.000)		0.001** (0.000)
Night light							-0.323*** (0.049)	-0.235*** (0.052)
Age FEs	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth year-country FEs	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subnational region FEs	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls <sup>a</sup>	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.035	0.289	0.293	0.284	0.313	0.290	0.293	0.326
Observations	289,606	289,606	271,080	271,080	271,080	271,080	271,080	271,080

Clustered standard errors in parentheses. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

<sup>a</sup> Historical homeland slave exports, roots and tubers, empire, mean elevation, mean suitability for agriculture, city in 1400, a dummy for a lake, a dummy for a river, and control variables for minimum distance to colonial railways, explorer routes, and coastline.

suggesting that one more mission gives a 12 percentage point lower probability of having undergone FGC.

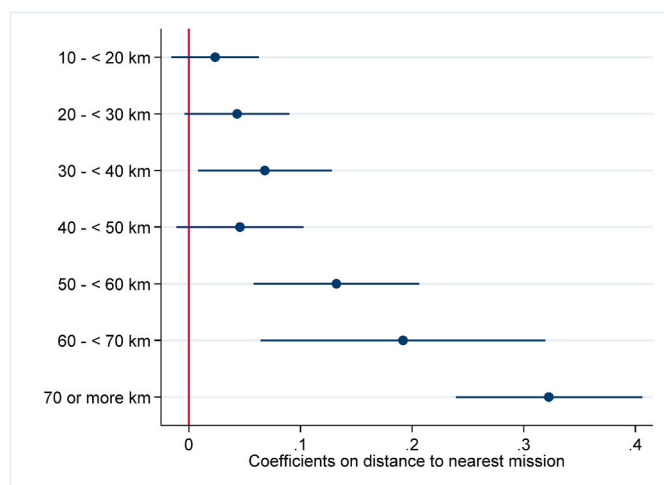
In columns 3 and 5 we include both missions per km2 in the respondent's ancestral ethnic homeland and in the geographic ethnic homeland in which she currently lives. The estimated parameters suggest that missions in the ancestral ethnic homeland are more important than missions in the geographic homeland, thus providing suggestive evidence of intergenerational norm transmission in the family or ethnic group. While not statistically different from one another, the ancestral homeland coefficients are larger than the geographic homeland coefficients, and unlike the latter, statistically different from zero.

### 4.3. Robustness

The main results (Column 2, Table 2) are robust to using alternative measures of exposure to historical missions. Our benchmark indicator – log distance – has the advantage that it does not rely on a specific (and inevitably somewhat arbitrary) cut-off distance to define treatment. That said, one could argue that what should primarily matter for norm

formation and behaviour is having missions in the immediate vicinity. Hence, in line with Nunn (2010, 2014), we also run estimations where we measure exposure to historical missions using the number of missions within a 25 km radius around the respondent sample cluster (Table A5). Furthermore, since most of the variation in number of missions within 25 km is driven by the extensive margin, we run estimations using a binary indicator of having any historical mission within a 25 km radius (Table A6). Finally, we use an alternative source of missions data (Table A7). In this case our independent variable is log distance to the nearest Protestant mission, as catalogued in Beach (1903) (geocoded by Cagé and Rueda, 2016). The main results remain unchanged.

Since previous studies have shown that the practice of FGC is by no means perfectly related to attitudes towards the same (Congdon Fors et al., 2022), we also run estimations on respondents' attitudes towards FGC (Table A8). More specifically, we use a dummy indicating if the respondent reports support for the continuation of the practice of FGC as dependent variable. Closeness to historical missions is indeed associated with less favourable attitudes towards FGC.



**Fig. 2.** Coefficients on distance to nearest mission  
Living within 10 km of a mission site is the reference category.

**Table 3**  
The effect of the number of missions in the respondent’s ethnic homeland (per 1000 km<sup>2</sup>).

	Full sample			Pre-FGC = 1	
	(1)	(2)	(3)	(4)	(5)
Log distance to mission	0.024*** (0.006)				
Missions in ancestral homeland		-0.077** (0.034)	-0.063** (0.028)	-0.120*** (0.025)	-0.104*** (0.027)
Missions in geographic homeland			-0.034 (0.045)		-0.047* (0.028)
R-squared	0.353	0.353	0.353	0.298	0.298
Observations	230,913	230,913	230,913	145,500	145,500
Missions in ancestral homeland minus missions in geographic homeland			-0.029 (0.048)		-0.056 (0.044)

Clustered standard errors in parentheses. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1. All regressions include age fixed effects, birth year-country fixed effects, sub-national region fixed effects, historical homeland controls for slave exports, roots and tubers, empire, mean elevation, mean suitability for agriculture, city in 1400, a dummy for a lake, a dummy for a river, and control variables for minimum distance to colonial railways, explorer routes, and coastline.

The term FGC includes a wide range of procedures that differ in how invasive they are. The most severe form is infibulation where, as mentioned, the vaginal opening is narrowed, often by stitching together the labia. Many DHS surveys include questions on the type of FGC procedure which the respondent has undergone. Though there is much missing data, and we cannot divide procedures into the WHO categories, we approximate infibulation with respondents reporting to have been sewn (about eight percent of the sample who have undergone any FGC procedure) and estimate the relationship between historic Christian missions and infibulation in Table A9. Historic Christian missions have seemingly mostly affected the other – less extreme and more common – forms of FGC than infibulation.

Since historical accounts suggest that Catholic and Protestant missions differed in their approach towards the abolition of FGC, with Catholic missions often being less steadfast and sometimes allowing modifications rather than total abolition of the practice (Caldwell et al., 2000), it is interesting to explore heterogeneity by denomination of the

mission. We do this in Appendix III. In summary, the results are inconclusive, and we can therefore not draw any conclusions with regard to differences in effects between missions of the two denominations.

### 5. Conclusions

Historical accounts suggest that Christian missionaries from Europe campaigned against FGC, a tradition they perceived to be in conflict with Christian values, and that these campaigns faced considerable resistance among the people practicing FGC. Despite reports of limited short-run success of these campaigns, we find statistically significant long-run impacts of early Christian missions on the probability that women in Africa have undergone the procedure today.

Results from empirical estimations drawing on historical data on the locations of early European missions geographically matched with DHS data on FGC practices of around 410,000 respondents from 42 surveys performed 1990–2020 in 14 African countries, consistently suggest that respondents who live closer to a historical mission are less likely to have undergone FGC. The effect is robust to the inclusion of a broad range of geographic controls (including sub-national region fixed effects) and ethnic homeland characteristics, as well as to alternative measures of exposure to missions and FGC practices. We use ethnographic data on pre-colonial FGC in ethnic homelands and show that mission location was not correlated with the pre-colonial practice of FGC. Nonetheless, we demonstrate that the effect remains if we restrict the sample to respondents living in areas where FGC was practiced in pre-colonial times. Indeed, the effect in this sample is larger, which is what we would expect without any selection bias, since there is presumably greater scope for reduction in this sub-population.

With respect to potential mechanisms, the results suggest that the effect of historical missions on current FGC practices may to some extent work via education and economic development. This in line with earlier literature emphasizing the role of missions for women’s education. Notably, however, even when including all potential mediators jointly (religious affiliation in addition to measures of education and economic development), most of the estimated relationship between missions and FGC remains. While we cannot directly test how missions affected norms in the local area, this is consistent with a persistent effect of missionary campaigning against FGC on norms towards the practice.

To further investigate the possible role of intergenerational transmission of norms on FGC practices, we estimate the effect of missions in respondents’ ancestral ethnic homelands. The results suggest lower probabilities of FGC among respondents if there were more missions in their ancestral ethnic homelands. Indeed, the impact of mission in the respondents’ ethnic homeland remains significant when including missions in the current region of residence, arguably providing suggestive evidence of intergenerational norm transmission within ethnic groups.

In sum, we find that respondents who live closer to a historical mission are less likely to have undergone FGC. The relationship is particularly strong among respondents living in areas where FGC was practiced in pre-colonial times or whose own ethnic ancestors practiced FGC.

### CRedit authorship contribution statement

**Heather Congdon Fors:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Formal analysis, Data curation, Visualization, Funding acquisition. **Ann-Sofie Isaksson:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Funding acquisition. **Annika Lindskog:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Formal analysis, Data curation, Funding acquisition.

### Data availability

I have shared replication data/code at the attach files step.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jdeveco.2023.103180>.

## References

- Acemoglu, D., Jackson, M.O., 2015. History, expectations, and leadership in the evolution of social norms. *Rev. Econ. Stud.* 82, 423–456.
- Acemoglu, D., Jackson, M.O., 2017. Social norms and the enforcement of laws. *J. Eur. Econ. Assoc.* 15 (2), 245–295.
- Alesina, A., Brioschi, B., La Ferrara, E., 2021. Violence against women: a cross-cultural analysis for Africa. *Economica* 88, 70–104.
- Alpino, Matteo, Moe Hammersmark, Eivind, 2021. The role of historical christian missions in the location of World bank aid in Africa. *World Bank Econ. Rev.* 35 (1), 207–233.
- Ananyev, M., Poyker, M., 2021. Christian missions and anti-gay attitudes in Africa. *J. Econ. Behav. Organ.* 184, 359–374.
- Bai, Y., Kung, J.K.-s., 2015. Diffusing knowledge while spreading god's message: protestantism and economic prosperity in China:18401920. *J. Eur. Econ. Assoc.* 13 (4), 669–698.
- Beach, H., 1903. A Geography and Atlas of Protestant missions: Their Environment, Forces, distribution, methods, Problems, results and Prospects at the opening of the Twentieth century. Student Volunteer movement for foreign missions, New York.
- Becker, A., 2019. On the economic origins of restrictions on women's sexuality. CESifo Working Papers 7770. July 2019.
- Becker, B., 2022. The colonial struggle over polygamy: consequences for educational expansion in sub-Saharan Africa. *Econ. Hist. Develop. Reg.* 37 (1), 27–49.
- Bénabou, R., Tirole, J., 2006. Incentives and prosocial behavior. *Am. Econ. Rev.* 96 (5), 1652–1678.
- Bengtsson, Niklas, 2013. Catholics versus Protestants: on the benefit incidence of faith-based foreign aid. *Econ. Dev. Cult. Change* 61 (3), 479–502.
- Boateng, Godfred O., et al., 2020. Six decades after independence: the enduring influence of missionary activities on regional wealth inequalities in Ghana. *J. Econ. Geogr.* 20 (1), 93–122.
- Bursztyn, L., González, A.L., Yanagizawa-Drott, D., 2020. Misperceived social norms: women working outside the home in Saudi Arabia. *Am. Econ. Rev.* 110 (10), 2997–3029.
- Cagé, J., Rueda, V., 2016. The long-term effects of the printing press in sub-Saharan Africa. *Am. Econ. J. Appl. Econ.* 8 (3), 69–99.
- Cagé, J., Rueda, V., 2020. Sex and the mission: the conflicting effects of early Christian missions on HIV in sub-Saharan Africa. *Journal of Demographic Economics* 86 (3), 213–257.
- Caldwell, J.C., Orubuloye, I.O., Caldwell, P., 2000. Female genital mutilation: conditions of decline. *Popul. Res. Pol. Rev.* 19 (3), 233–254.
- Calvi, R., Hoehn-Velasco, L., Mantovanelli, F.G., 2020. The Protestant legacy: missions, gender, and human capital in India. *J. Hum. Resour.* 57 (6), 1946–1980.
- Carr, D., 1997. Female Genital Cutting: Findings from the Demographic and Health Surveys Program. Macro International Inc, Calverton, Maryland.
- Chen, Yuyu, Wang, Hui, Yan, Se, 2022. The long-term effects of Protestant activities in China. *J. Comp. Econ.* 50 (2), 394–414.
- Chesnokova, T., Vaithianathan, R., 2010. "The economics of female genital cutting," the B.E. Journal of Economic Analysis & Policy 10 (1), 1–26. Article 64.
- Congdon Fors, H., Isaksson, A.S., Lindskog, A., 2022. Harmful Norms Can Social Convention Theory Explain the Persistence of Female Genital Cutting in Africa? Available at SSRN 4035208.
- Corno, L., La Ferrara, E., Voena, A., 2020. "Female Genital Cutting and the Slave Trade", CEPR Working Paper DP15577. Centre for Economic Policy Research.
- De Haas, Michiel, Frankema, Ewout, 2018. Gender, ethnicity, and unequal opportunity in colonial Uganda: European influences, African realities, and the pitfalls of parish register data. *Econ. Hist. Rev.* 71 (3), 965–994.
- Demographic and Health Survey, 2021. Data. <https://dhsprogram.com/data/>.
- DHS, 2013. Female Genital Cutting Module: Questionnaire and Interviewer's Manual", Demographic and Health Survey's Methodology available at: [https://dhsprogram.com/pubs/pdf/DHSQMP/DHS6\\_Module\\_Female\\_Genital\\_Cutting\\_19Aug2013\\_DHS\\_QMP.pdf](https://dhsprogram.com/pubs/pdf/DHSQMP/DHS6_Module_Female_Genital_Cutting_19Aug2013_DHS_QMP.pdf).
- Elmusharaf, S., Elhadi, N., Almrath, L., 2006. Reliability of self-reported form of female genital mutilation and WHO classification: cross-sectional study. *Br. Med. J.* 333 (7559), 124–127.
- Ericksen, K.P., 1989. Female genital mutilations in Africa. *Behav. Sci. Res.* 23 (1–4), 182–204.
- Fenske, J., 2015. African polygamy: past and present. *J. Dev. Econ.* 117, 58–73.
- Fernández, R., 2013. Cultural change as learning: the evolution of female labor force participation over a century. *Am. Econ. Rev.* 103 (1), 472–500.
- Fields, K.E., 1982. Christian missionaries as anticolonial militants. *Theor. Soc.* 11 (1), 95–108.
- Fourie, J., Ross, R., Viljoen, R., 2014. Literacy at South African mission stations. *J. South Afr. Stud.* 40 (4), 781–800.
- Gallego, F.A., Woodberry, R., 2010. Christian missionaries and education in former African colonies: how competition mattered. *J. Afr. Econ.* 19 (3), 294–329.
- García-Hombrados, J., Salgado, E., 2019. Female genital cutting and education: theory and causal evidence from Senegal. In: Social Policy Working Paper 10–19. LSE Department of Social Policy, London.
- Gordon, D., 1991. Female circumcision and genital operations in Egypt and the Sudan: a dilemma for medical anthropology. *Med. Anthropol. Q.* 5 (1), 3–14.
- Guirkinger, C., Villar, P., 2022. "Pro-birth Policies, Missions and Fertility: Historical Evidence from Congo", DeFiPP Working Paper 2022-04. University of Namur.
- Jedwab, R., Meier zu Selhausen, F.M., Moradi, A., 2021. Christianization without economic development: evidence from missions in Ghana. *J. Econ. Behav. Organ.* 190, 573–596.
- Jedwab, R., Meier zu Selhausen, F., Moradi, A., 2022. The economics of missionary expansion: evidence from Africa and implications for development. *J. Econ. Growth* 27 (2), 149–192.
- Johnson, H.B., 1967. The location of Christian missions in Africa. *Geogr. Rev.* 168–202.
- Joshua, S., 2009. The Church and the 1929 Female Genital Mutilation (FGM) Contestation in Kenya, with Special Reference to the Scottish Presbyterian Church and the Kikuyu Community.
- Kaplan, S., 1986. The africanization of missionary christianity: history and typology. *J. Relig. Afr.* 16 (3), 166–186.
- Kenyatta, J., 1938. Facing Mount Kenya: the Tribal Life of the Gikuyu. Secker and Warburg, London.
- Kudo, Yuya, 2017. Missionary influence on marriage practices: evidence from the Livingstonia mission in Malawi. *J. Afr. Econ.* 26 (3), 372–431.
- Leonard, L., 1996. Female circumcision in southern Chad: origins, meaning, and current practice. *Soc. Sci. Med.* 43, 255–263.
- Mackie, G., 1996. "Ending footbinding and infibulation: a convention account". *Am. Socio. Rev.* 61 (6), 999–1017.
- Mackie, G., LeJeune, J., 2009. "Social Dynamics of Abandonment of Harmful Practices: A New Look at the Theory", Innocenti Working Paper 2009-06. UNICEF Innocenti Research Centre, Florence, Italy, 2009.
- Masteron, J., Swanson, J., 2000. Female Genital Cutting: Breaking the Silence, Enabling Change". International Center for Research on Women, Washington.
- Meier zu Selhausen, F., 2019. Missions, Education and Conversion in Colonial Africa. Globalization and the Rise of Mass Education. Palgrave Macmillan, Cham, pp. 25–59.
- Michalopoulos, S., Papaioannou, E., 2016. The long-run effects of the scramble for Africa. *Am. Econ. Rev.* 106 (7), 1802–1848.
- Montgomery, M., 2017. Colonial legacy of gender inequality: Christian missionaries in German East Africa. *Polit. Soc.* 45 (2), 225–268.
- Müller-Crepon, C., Pengl, Y., Bormann, N.C., 2021. Linking ethnic data from Africa (LEDA). *J. Peace Res.*, 00223433211016528
- Murdock, G.P., 1967. Ethnographic atlas: a summary. *Ethnology* 6 (2), 109–236.
- Murray, J., 1976. The Church Missionary Society and the 'female circumcision' issue in Kenya 1929–1932. *J. Relig. Afr.* 8 (2), 92–104.
- Ndung'u, N.W., 2000. The role of the Bible in the rise of african instituted churches: the case of the akurinu churches in Kenya. In: West, G.O., Dube, M.W. (Eds.), *The Bible in Africa: Transactions, Trajectories, and Trends*. Brill, Leiden, Netherlands, 2000.
- Novak, L., 2020. Persistent norms and tipping points: the case of female genital cutting. *J. Econ. Behav. Organ.* 177, 433–474.
- Nunn, N., 2009. The importance of history for economic development. *Annual Review of Economics* 1 (1), 65–92.
- Nunn, N., 2010. Religious conversion in colonial Africa. *Am. Econ. Rev.* 100 (2), 147–152.
- Nunn, N., 2014. Gender and missionary influence in colonial Africa. In: Akyeampong, E., Bates, R.H., Nunn, N., Robinson, J. (Eds.), *African Development in Historical Perspective*. Cambridge University Press, Cambridge.
- OECD/SWAC, 2020. *Africapolis (Database)*. [www.africapolis.org](http://www.africapolis.org). accessed 2022-12-01.
- Okoye, Dozie, 2021. Things fall apart? Missions, institutions, and interpersonal trust. *J. Dev. Econ.* 148, 102568.
- Okoye, D., Pongou, R., 2014. Historical Missionary Activity, Schooling, and the Reversal of Fortunes: Evidence from Nigeria. MPRA Paper 58052, University Library of Munich, Germany. Aug.
- Orchid Project, 2022. Where does FGC happen. <https://www.orchidproject.org/about-fgc/where-does-fgc-happen/>.
- Roome, 1924. Ethnographic Survey of Africa: Showing the Tribes and Languages; Also the Stations of Missionary Societies".
- Schafroth, V., 2009. Female genital mutilation in Africa: an analysis of the church's response and proposals for change. *Missiology* 37 (4), 527–542.
- Shell-Duncan, B., Hernlund, Y., Wander, K., Moreau, A., 2013. Legislating change? Responses to criminalizing female genital cutting in Senegal. *Law Soc. Rev.* 47 (4), 803–834.
- Spolaore, E., Wacziarg, R., 2013. How deep are the roots of economic development? *J. Econ. Lit.* 51 (2), 325–369.
- Strayer, R., 1976. Mission history in Africa: new perspectives on an encounter. *Afr. Stud. Rev.* 19 (1), 1–16.
- Sundkler, Bengt, Steed, Christopher, 2000. *A History of the Church in Africa*, vol. 74. Cambridge University Press.
- Tabellini, G., 2008. The scope of cooperation: values and incentives. *Q. J. Econ.* 123, 905–950.
- Thomas, L.M., 2000. Ngaitana (I will circumcise myself): lessons from colonial campaigns to ban excision in meru, Kenya. In: Shell-Duncan, B., Hernlund, Y. (Eds.), *Female "Circumcision" in Africa*. Lynne Rienner Publishers Inc, Boulder, Colorado.
- Tollefsen, A.F., Strand, H., Buhaug, H., 2012. PRIO-GRID: a unified spatial data structure. *J. Peace Res.* 49 (2), 363–374.
- Tollefsen, A.F., Bahgat, K., Nordkvelle, J., Buhaug, H., 2015. PRIO-GRID v.2.0 Codebook". Peace Research Institute Oslo.
- Turner, H.W., 1966. Monogamy: a mark of the church? *Int. Rev. Mission* 55 (219), 313–321.



- UK Parliament, 1929. "Colonial policy in relation to coloured races". Parliamentary debates (hansard). Commons, volume 233. In: Debated on Wednesday 11 December 1929, Statement by Stewart-Murray, Katherine, Duchess of Atholl, pp. 600–603.
- UN, 2022. "The Sustainable Development Goals Report 2022" available at: <https://unstats.un.org/sdgs/report/2022/The-Sustainable-Development-Goals-Report-2022.pdf>.
- UNICEF, 2013. Female Genital Mutilation/cutting: A Statistical Overview and Exploration of the Dynamics of Change. United Nations Children's Fund, New York.
- Valencia Caicedo, F., 2018. The mission: human capital transmission, economic persistence, and culture in South America. *Q. J. Econ.* 134 (1), 507–556.
- Wagner, N., 2015. Female genital cutting and long-term health consequences-nationally representative estimates across 13 countries. *J. Dev. Stud.* 51 (3), 226–246.
- Waldinger, M., 2017. The long-run effects of missionary orders in Mexico. *J. Dev. Econ.* 127 (C), 355–378.
- Wantchekon, L., Klasnja, M., Novta, N., 2015. Education and human capital externalities: evidence from colonial Benin. *Q. J. Econ.* 130 (2), 703–757.
- White, B.W., 1996. Talk about school: education and the colonial project in French and British Africa (1860-1960). *Comp. Educ.* 32 (1), 9–26.
- Woodberry, R.D., 2012. The missionary roots of liberal democracy. *Am. Polit. Sci. Rev.* 106, 244–274, 5.
- World Health Organization, 2008. Eliminating Female Genital Mutilation: an Interagency Statement UNAIDS, UNDP, UNECA, UNESCO, UNFPA, UNHCHR, UNHCR, UNICEF, UNIFEM, WHO". WHO Press, Geneva.
- World Health Organization, 2022. Female Genital Mutilation". <https://www.who.int/news-room/fact-sheets/detail/female-genital-mutilation>. accessed 2022-05-06).
- Yoder, P.S., Wang, S., Johansen, E., 2013. Estimates of Female Genital Mutilation/Cutting in 27 African Countries and Yemen. *Studies in Family Planning* 44 (2), 189–204.