

ESSAYS IN CULTURE AND INSTITUTIONS OF DEVELOPING COUNTRIES

by

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Dedication

This dissertation is dedicated to my parents, Mr. I.R. Yusuf and Mrs. Binta Yusuf, who have been a constant source of support in my life. To my siblings, Hadiza, Fatima, Maryam, and Ibrahim, who have kept me motivated and made my Ph.D. journey a lot easier.

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Abstract

ESSAYS IN CULTURE AND INSTITUTIONS OF DEVELOPING COUNTRIES

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Gender inequality remains a global issue in developing countries. In 2015, the United Nations included gender equality among its Sustainable Development Goals (SDGs) to be achieved by 2030. Recognizing why gender-biased norms emerge and persist across generations is crucial for closing gender gaps. This dissertation focuses on the practice of Female Genital Mutilation (FGM) in Africa.

Chapter 1 reviews the literature on Female Genital Mutilation to understand why it exists in some societies. I assess the concept of paternity uncertainty, pastoralism, polygyny and slave trade and how it relates to FGM. In addition, I discuss several cultural beliefs held across different ethnic groups to explain why they practice FGM. Finally, I explore how the persistence of FGM can be examined from a cultural evolution perspective by focusing on the role of environmental conditions and kinship structures in sustaining social norms over time.

In Chapter 2, I examine how deeply-entrenched ethnic norms determine FGM today. Using both ethnographic and contemporary survey data for over 130,000 women across nine African countries, I find evidence that (i) ethnic identity is associated with FGM; (ii) FGM prevalence in societies that traditionally practiced pastoralism (36-45% dependence level), plow agriculture and kinship tightness (score: 0.25) has declined across birth cohorts;

(iii) FGM rates are rising among women from ethnic groups that historically had norms regarding premarital sexual behavior.

Chapter 3 explores how laws affect attitudes. Specifically, I examine the short-term effects of the FGM ban on attitudes towards ending the practice. I use IPUMS-DHS data for women belonging to the Malinke and Peulh ethnic groups in both Guinea and Mali, pre and post-intervention, to examine the impact of the FGM law ban. I employ a difference-in-difference approach that is made possible because of the artificial drawing of the African borders, which partitioned ethnic groups with identical beliefs and customs across countries. My result shows that the FGM law was associated with a 5.4 percentage point increase in attitudes that favored ending FGM. This negative attitude towards FGM was present regardless of the woman's ethnic group.

Chapter 1: Review of Female Genital Mutilation

1.1 Introduction

A common idea in the social sciences field is that norms are essential for understanding human behavior. They guide and set limitations for what is deemed acceptable and deviant in society. Female Genital Mutilation¹ (FGM) is an example of a gender-based social norm that increases gender inequality. It is a deeply-entrenched tradition that involves the modification of women's bodies and can influence marriage market outcomes (Fan et al., 2016; Mackie, 1996). In 2015, the United Nations included the target of eliminating FGM among its aim for achieving gender equality (target 5.3) by 2030. Today, the practice remains an underlying factor that signifies women's status and prestige in many cultures.

According to health reports, over 200 million women have undergone female genital mutilation worldwide (World Health Organization, 2020). This statistic is alarming because FGM is a global concern with adverse health effects ranging from physical illnesses to mental and emotional disorders among circumcised women (Dorkenoo, 1996; Eldin, 2009; Shell-Duncan, 2000). To adequately address the issue of female circumcision, a careful examination of its history and the conditions that promote its practice should be analyzed. This chapter reviews the literature on the emergence of FGM and how theories from cultural evolution can be used to understand why it persists in some societies and not others.

In recent years, a rising body of literature has adopted an evolutionary perspective to explain the persistence of norms and development outcomes.² For instance, researchers have studied the strength of family ties (Ang & Fredriksson, 2017; Schulz et al., 2019), patience

¹I use the terms Female Genital Mutilation (FGM) and female circumcision interchangeably for ease of understanding.

²A summary of the research on short-term, long-term, and effects of cultural traits can be found in Nunn (2021) study on cultural evolution.

(Galor & Özak, 2016), social cohesion (Olken, 2009), trust (Okoye, 2021), gender roles (Xue, 2016) and the culture of honor (Grosjean, 2014) from an evolutionary approach. Several studies have been published on the benefits of evolutionary theory. In a detailed review, (Nunn, 2021) emphasizes the benefits of applying a cultural evolution lens to economic history and long-run growth research studies. In this study, I discuss how the persistence of FGM can be examined from a cultural evolution lens by focusing on environmental conditions and kinship systems.

The remainder of the chapter is organized as follows. Section 2 provides background information on female genital mutilation and why it is an important issue. Section 3 reviews how female circumcision norms emerge in societies from the notion of paternity uncertainty and other cultural beliefs. Section 4 discusses the persistence of social norms and how future research can examine FGM persistence from a cultural evolution perspective. Section 5 concludes the chapter.

1.2 Background

1.2.1 Definition of Female Genital Mutilation

According to World Health Organization (2020), female genital mutilation refers to “the partial or total removal of external genitalia or other injury to female genital organs for non-medical reasons.” The WHO ranks FGM into four distinct types depending on the severity of the damaged tissue.³ Type I, also known as clitoridectomy, is the partial or complete removal of clitoral glands. Type II, also known as excision, is the partial or total removal of the clitoral glans and labia minora. Type III, commonly called infibulation, is the narrowing of the vaginal opening by sealing or stitching. Type IV involves all other dangerous procedures for female genitalia for non-medical reasons (World Health Organization, 2020).

³In addition to the WHO ranking of FGM, other researchers have provided their variations of FGM. Kouba & Muasher (1985) classification of FGM is popular and includes i)mild sunna, ii)modified sunna, iii) clitoridectomy/excision, iv) infibulation/pharaonic circumcision, and v) introcision. There are also other refinements of the types of FGM into a threefold scheme (Johnson & Rodgers, 1994; Kopelman, 1994; Mohamud, 1991), fourfold scheme (Dorkenoo & Elworthy, 1992; Hicks, 1996; Rushwan, 1995) and fivefold scheme (Hosken, 1982; Kouba & Muasher, 1985; Verzin, 1975).

Figure 1 shows the map of Africa with the corresponding percentage of FGM cases in each country. The map reveals that female circumcision is rare in the Northwestern and Southern regions of Africa. The type of FGM practiced in Africa varies across countries and cultures. For instance, infibulation is popular in the eastern part of Africa, such as Sudan, Somalia, Djibouti, and Ethiopia (Hosken, 1982). This is in contrast to western Africa, where the less severe types of FGM (clitoridectomy and excision) are prevalent⁴. In a country such as Sudan, where infibulation is practiced, this type of FGM is common among the Muslim population but rare among non-Muslims (Hosken, 1982). There are also within-country variations in the type of FGM practiced. For example, in highland Ethiopia, residents perform excision while individuals living in the lowland areas practice infibulation (Hosken, 1982). The type of FGM performed can also vary based on where the ethnic group resides. The Somali population residing in Kenya practices clitoridectomy, while in Somalia, infibulation is the norm (UNFPA, 2019). These studies confirm that there are differences in the type of FGM practiced within and across countries.

⁴Note that infibulation is practiced in Mali

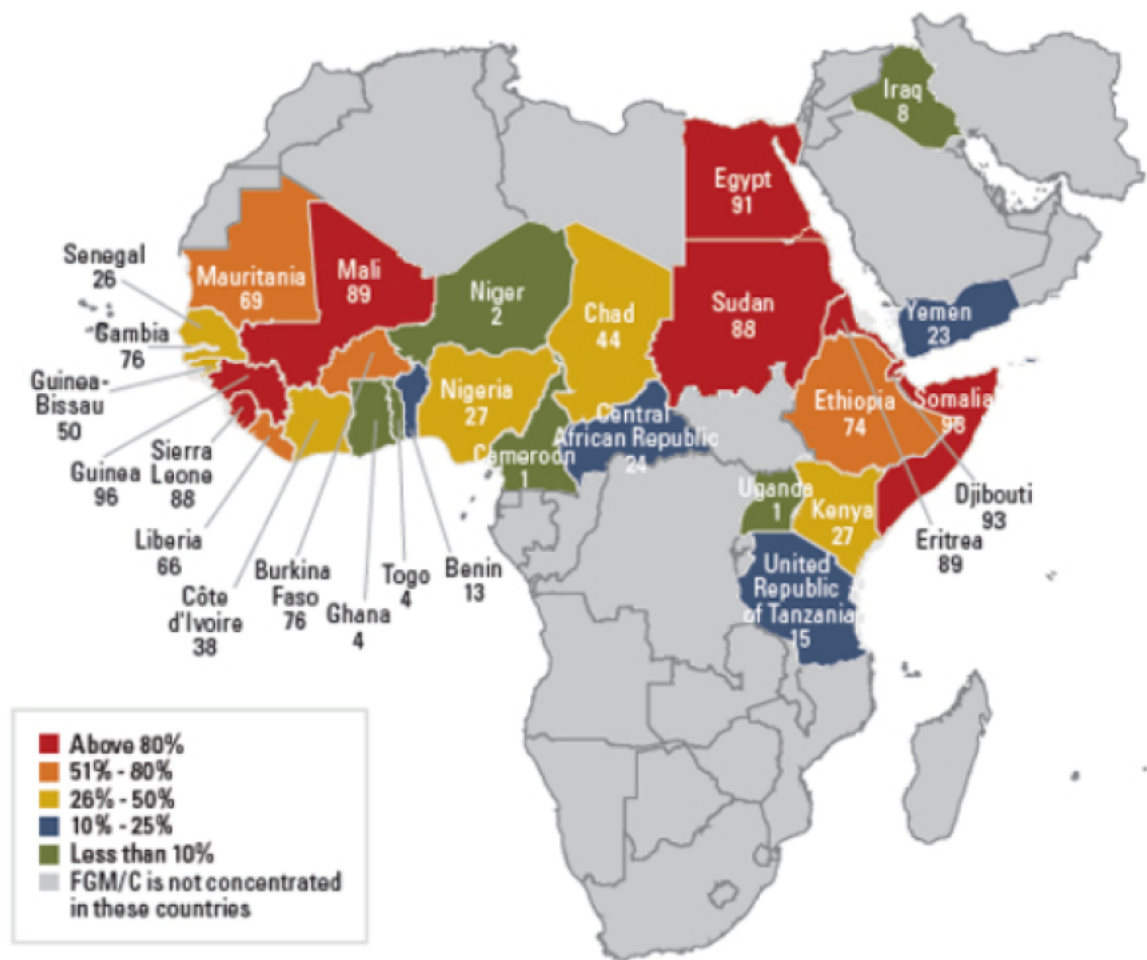


Figure 1.1: Percentage of girls and women aged 15 to 49 years who have undergone FGM, by country

Source: UNICEF (2013)

1.2.2 Historical Evidence of Female Genital Mutilation

Despite decades of research by anthropologists and historians, the exact source of female genital mutilation remains unknown and subject to debate. Historians, geographers, and world travelers have documented their observations on the custom of female circumcision during their expeditions around the world (Kenyon & Bell, 1898; Lightfoot-Klein, 1989; Taba, 1980). One of the earliest references to circumcision is by the 2nd-century Greek geographer and historian, Agatharchides of Cnidus. He stated that the Troglodytes, who are cave dwellers, performed circumcision (Johnsdotter & Essén, 2010). However, his statement was vague because he did not identify whether the circumcision in question is related to males or females. Later in the 5th century, a Greek historian called Herodotus traveled to Egypt, where he observed that both boys and girls were circumcised (Kouba & Muasher, 1985).

Another Greek geographer and historian called Strabo collected several pieces of evidence and notes about different people and countries. In his collection, he stated that:

One of the customs most zealously observed among the Aegyptians is this, that they rear every child that is born, and circumcise the males, and excise the females, as is also customary among the Jews, who are also Aegyptians in origin (Strabo, 1917).

Strabo was the first person to explicitly make a distinction between male and female circumcision while attributing the practice to Ancient Egypt. There is a Greek papyrus from 163 B.C., currently kept in a British museum that records details of female circumcision being practiced in Egypt. The papyrus recounts a petition addressed to Dionysius of Memphis and references the female circumcision ceremony in the story (Kenyon & Bell, 1898).

The notion of Egypt as the birthplace of FGM is backed by the evidence that shows the female mummies in the 5th century B.C were circumcised (Little, 2003). There is no concrete evidence that infibulation, the extreme case of FGM, originated from Egypt.

This is despite the fact that infibulation is often called Pharaonic circumcision. Instead, it is clitoral excision, a less severe type of FGM that was practiced in Egypt (Ghalioungui, 1963).

Some reports indicate that infibulation started 2,200 years in Ancient Sudan, which included the cities of Nubia, Kush, and Meroe (Agatharchides & Burstein, 1989). More accounts of infibulation in the Nile region occurred in the 16th and 17th centuries when travelers related their discoveries during the voyages. The first detailed description of infibulation was given by Pietro Bembo in the 16th century during sail along the red sea route. He states that:

They now left the other countries, sailed into the Red Sea, and visited several other countries, inhabited by blacks, excellent men, brave in war. Among these people the private parts of the girls are sewn together immediately after birth, but in a way not to hinder the urinary ways. When the girls have become adult, they are given away in marriage in this condition and the husbands' first measure is to cut open with a knife the solidly consolidated private parts of the virgin. Among the barbarous peoples an indubitable virginity at the marriage is held in such high esteem (Bembo, 2007).

In addition to infibulation being present in areas along the Red Sea route, there have been statements that suggest that infibulation was linked to slavery. Joao Dos Santos, a Portuguese Dominican missionary, reported in 1609 that in Mogadishu, Somalia, residents had the habit of infibulating their female slaves to prevent pregnancy while signaling chastity (Freeman-Grenville, 1962). He claimed that infibulation was commonly believed to make slave girls more attractive to buyers and allowed them bid high prices in the slave market. This view was corroborated by other travelers, such as Burckhardt in 1819, who established that infibulated girls offered higher prices in the slave trade market than non-infibulated girls because infibulation indicated loyalty to slave owners (Mackie, 1996).

1.2.3 Why is Female Genital Mutilation Important?

The high costs associated with FGM indicate the urgency of the issue. Female circumcision leads to health complications during childbirth, severe bleeding, infection, risk of diseases, and in some instances, death (World Health Organization, 2020). The unhygienic equipment used in the procedure puts girls at risk of numerous infections (Eldin, 2009).⁵ Short-term health complications commonly stem from Type I and Type II FGM, whereas the more severe procedure, Type III, has long-term health risks (Usman Mandara, 2000).

Studies have suggested a positive correlation between female circumcision and psychological problems. This relationship is confirmed by Eldin (2009), who affirms that some women undergoing FGM suffer from depression, nightmares, and shock. The author finds that circumcised girls experience traumatic stress and, in some cultures, cannot voice their concerns about their mental health. The psychological impacts of female circumcision commonly appear among migrant women in western countries (Eldin, 2009).

Activists and Non-Governmental Organizations (NGOs) campaigning against FGM often cite the related health risks, among other reasons to quit the practice. The health complications from FGM have been the subject of debate among proponents and opponents of FGM. On the one hand, those in favor of FGM support the “medicalization” of the practice, which allows medical practitioners to perform the procedure, thereby making it less risky. On the other hand, those against the practice contend that medicalization will institutionalize female circumcision in the medical field (Shell-Duncan, 2000; Usman Mandara, 2000). They claim that if FGM is widely accepted because it has become safer than before, it invalidates their aim to end the practice entirely.

In addition to health problems, FGM has global and monetary costs. Although the overall number of FGM cases has declined, not all countries have successfully constrained the practice. The decline in FGM is not uniform across countries, making it more prevalent and alarming in some regions (World Health Organization, 2020).

⁵These infections include tetanus, septicemia, bladder diseases, and other infections leading to infertility (Eldin, 2009)

With the increase in population growth rate, current efforts to tackle the problem are unsatisfactory. This argument is consistent with a 2020 report by WHO that forecasts the practice will increase among girls and women in the next 15 years, given the existing FGM trends (World Health Organization, 2020). The WHO report states that the annual cost of treating FGM-related health complications in high prevalent nations is \$1.4 billion. Furthermore, the report points out that the cost of FGM will rise to \$2.3 billion in the next 30 years if the current rate remains unchanged. This rise denotes a 68% increase in the costs of inaction. However, if countries decide to abandon the practice, costs will decline by 60% in the next three decades (World Health Organization, 2020). The actual health cost of FGM cannot be estimated as it is difficult to quantify how FGM negatively affects the well-being of women.

1.3 The Emergence of Female Genital Mutilation

1.3.1 Paternity Uncertainty

To understand how female genital mutilation emerged, evolutionary psychologists posit the theory of paternity uncertainty (Kanazawa & Still, 2001). According to this theory, men desire to have many biological children and will get jealous if their wives are unfaithful. Women, in contrast, are more concerned with the quality and welfare of their children. Their jealousy stems from their husbands being emotionally involved with other women. Such relationships will be detrimental to their children's well-being as their husbands' resources will be directed to the other woman (Buss et al., 1992; Mackie, 1996). Hence, male jealousy is driven by sexual infidelity from their wives, whereas female jealousy arises from emotional infidelity from their husbands.

Unlike the certainty associated with a child's mother, men cannot guarantee paternity (Mackie, 1996). Thus, they risk wasting resources on non-biological children if their wives have been unfaithful. Even though men value having many offspring, they resent the possibility of investing in children that are not theirs if there is infidelity in their marital union.

As a result, male sexual jealousy evolved to control infidelity among their wives and ensure paternity certainty in their children (Mackie, 1996). Evolutionary psychologists refer to male sexual jealousy as an evolved psychological mechanism developed in response to paternity uncertainty (Daly et al., 1982). This evolved psychological mechanism helped solve the adaptive problem of survival and reproduction over human history (Shackelford & Liddle, 2014).

Parental investment theory predicts two marriage outcomes based on the extent that males and females spend on their offspring. The sex that contributes more resources to their children’s welfare will be more discriminatory when choosing a spouse since the high cost of investing in children is associated with the high cost of choosing an inferior spouse (Shackelford & Liddle, 2014).⁶ In contrast, the sex that invests less in the children will face stiff competition in the marriage market and will, as a result, employ riskier tactics to attract marriage prospects (Shackelford & Liddle, 2014).

The paternity uncertainty explanation for FGM implies that it has a functional role. Thus, even if paternity uncertainty is not needed or functional in modern societies, social norms will make these practices endure long after the initial environment. Based on the theory of paternity uncertainty, we can derive several hypotheses on FGM related to pastoralism, extreme resource polygyny, and slave trade.

1.3.1.1 Pastoralism

Anthropologists have long suggested that the historical modes of subsistence influences gender roles and attitudes (Boserup, 1970). To test this theory, Becker (2019) investigates the origins of customs and norms such as infibulation, which restricts women’s sexuality. She tests the hypothesis that historical pastoral societies used infibulation as a tool to control infidelity among women. Because pastoral societies are characterized by men being away with their domesticated animals in search of pasture for a long time, their wives are left behind unobserved, which increases the likelihood of extramarital affairs. The mechanism

⁶This entails offspring with a lower chance of survival and reproductive success (Shackelford & Liddle, 2014)

that paved the way for infibulation in societies is the absence of men, which is heightened by paternity uncertainty. Hence, the inability of men to ascertain the paternity of their children in historically pastoral societies encouraged the severe form of FGM. In her study, Becker (2019) merged data from the Standard Demographic Health Survey (DHS) with Murdock Ethnographic Atlas (Murdock, 1967) based on the ethnicity of 500,000 women in 35 countries in Asia, Africa, Europe, and South America. To draw causal interpretation from her analysis, she employs an instrumental variable approach where she uses the land suitable for pastoralism as her instrument variable. Since pastoralism largely depends on the ecological environment that favors such livelihood, Becker (2019) is able to use the geographic condition as her instrumental variable (IV) to draw a causal inference and support her hypothesis.

1.3.1.2 Extreme Resource Polygyny

Another hypothesis derived from the paternity uncertainty theory is the notion of extreme resource polygyny. Polygyny is a form of marriage whereby a man marries more than one wife. Mackie (2000) claims that in societies where there is a highly uneven distribution of resources, polygyny leads to competition among women in the marriage market and the emergence of norms that regulate female sexuality. Wealthy men in society attract many consorts and concubines, making fidelity challenging to check. The paternity uncertainty arising from marrying and observing numerous wives allows for infibulation as a tool to ensure chastity among women (Mackie, 2000).

Extreme uneven distribution of power in societies affects marriage market norms in two ways. Firstly, it leads to hypergyny, where women marry up because they prefer to marry men of higher ranks than themselves (Mackie, 1996). Secondly, men with significant resources chose to marry multiple wives and concubines (Grossbard, 1980; Mackie, 1996). In the marriage market, women would prefer to be, for instance, the fifth wife of a wealthy man than to be the only wife of a poor man because they are more likely to raise their children successfully. High-income families will prefer to have male children over female

children. This is because, in polygynous societies, a man has more children than a woman and can generate even more offspring. High-ranked men with many wives would prefer to marry infibulated women to ensure paternity confidence in their children. As a result, there will be competition among women to undergo infibulation as a signal of modesty and chastity to get the best spouse in the marriage market.

Mackie (1996) suggests that extreme resource polygyny also played a role in the diffusion of infibulation in society. He explains that in a hierarchy that ranks men according to their wealth resources, the man at the apex will ensure that their numerous wives have undergone infibulation to regulate sexuality. The second-ranked man will imitate this action of fidelity control by the first-ranked man to get recognized socially and gain access to the elite group and palace. These men in the second rank compete with those at the top for concubines/consorts. The void left when women move from the second-ranked men to the apex is filled by women married to third-ranked men. This process continues until the adoption of strict fidelity norms diffuses in the society, and conventions of purity and modesty emerge (Mackie, 1996).

1.3.1.3 Slave Trade

The third hypothesis that can be derived from paternity uncertainty is the slave trade. According to this hypothesis, the Red Sea slave trade was instrumental in the diffusion of infibulation in Africa. Young girls that were infibulated were dearer to their slave owners because of their purity and chastity (Freeman-Grenville, 1962). They usually cost higher in the market for slaves than uninfibulated girls. This practice of infibulation spread to non-slave populations through the slave trade route as it became a tool to ensure virginity and modesty. Mackie (2000) calls this a technological diffusion whereby a population imitates and imports the behavior of another group, in this case, infibulation (of different intensity). Infibulation first spread to Somalia and Sudan (Van Der Kwaak, 1992) in Northeast Africa. Subsequently, enslaved Sudanese people traveled through trade routes which led to their diffusion into other regions in Africa (Beachey, 1976; Mackie, 1996). FGM diffusion towards

eastern Africa occurred in a more irregular pattern scattered through remote colonies or trade. A lesser variant of FGM in the form of clitoridectomy dispersed towards the West and South (Mackie, 1996).

The link between the Red Sea slave trade route and infibulation has been empirically tested. A study by Corno et al. (2020) empirically tests the hypothesis that infibulation was associated with the Red Sea Slave Trade route, where slave girls were sold as concubines. They compare FGM rates today to different historical slave trade routes. Their result shows that women whose ancestors were exposed to the Red Sea Slave trade route were 0.031 percentage point more likely to undergo infibulation than those whose ancestors were not. According to the authors, the type of FGM practiced varies according to the proximity of local populations to the red sea route. The further a group is located from the route, the lesser the intensity of FGM. The closer a group is to the Red Sea Route, the more severe the form of FGM (infibulation).

Comparing the three aforementioned hypotheses, the slave trade explanation is the weakest because it does not fully explain why elite groups along the slave trade routes practiced infibulation. If this was a practice peculiar to enslaved people, the assumption would be that the wealthy people in the society would want to distinguish themselves and their practices from the enslaved people or the low class in society. Moreover, the association between infibulation and the red sea slave trade route is not convincing as can be seen from the low coefficient (0.031) from the study by (Corno et al., 2020).

1.3.2 Alternate explanations for Female Genital Mutilation

There are other theories that have been proposed to explain the emergence of FGM primarily based on cultural belief systems. One of such is the belief that FGM was introduced to mirror male circumcision as its counterpart. Cohen (1997), a scholar of religion, claims that in some societies, female circumcision was introduced as a complementary practice to male circumcision. This idea of simultaneity is the rationale behind FGM among some communities in Somalia, Nigeria, and Sierra Leone (Caldwell et al., 1997; Talle, 2021; Usman Mandara,

2000). Comparing the prevalence of male circumcision to female circumcision, Hicks (2018) asserts that every single society that circumcises girls has a parallel practice where boys are circumcised.

An alternative hypothesis on the emergence of female circumcision centers upon the cosmological beliefs of people. Anthropologists have researched the philosophy and perspectives of ethnic groups that predominantly modify their bodies as part of their norms. A recurrent premise among these ethnic groups is that human beings are bisexual, and as a result, both males and females must be circumcised (Meinardus, 1967) to maintain balance. This notion is found among the Kono ethnic tribe, which historically migrated from Guinea or Mali to Sierra Leone. They hold the cosmological worldview that humans are hermaphrodites and must subsequently perform circumcision to be exclusively male or female (Usman Mandara, 2000). This cultural belief is also practiced among neighboring tribes of the Kono group that share the same history and geographical ties. For instance, the Dogon ethnic group in Mali, which is geographically linked to the Kono tribe, believes that the clitoris is a masculine organ that must be removed (Usman Mandara, 2000). Among the Hagen of Papua in New Guinea, Strathern (n.d.) finds that the ethnic group maintains the cosmos belief that humans are born as “complete” beings with both male and female organs, and as a result, each person must be circumcised. According to the author, they consider genital mutilation as a separation into “incomplete halves” of either male or female, which will make reproduction possible.

Unlike the paternity uncertainty theory which has been tested empirically, the alternative hypothesis focused on the belief systems of different ethnic groups is yet to be empirically tested.

1.4 Persistence of Female Genital Mutilation

In the previous section, we have seen explanations from the literature on how FGM emerged and the different hypotheses drawn from paternity uncertainty and cultural beliefs. In this section, I focus on the persistence of FGM. Social norms can sustain harmful behavior

and stabilize over time. In the last few decades, much research has sought to understand the origins of cultural traits and their persistence from the cultural evolution perspective. This section explores how environmental conditions and kinship systems can be used to understand the persistence of FGM norms.

1.4.1 Environmental conditions

In the study by Giuliano & Nunn (2021), they test the theory put forth in the evolutionary anthropology field that the difference in the environment across generations determines the persistence of culture (Richardson & Boyd, 1985; Rogers, 1988). According to this hypothesis, populations whose ancestors lived in highly unstable environments are less likely to continue the customs. This is because the information that evolved across generations up to the previous generations would not be efficient for the current population. To test this theory empirically, Giuliano & Nunn (2021) collect data on the paleoclimatic variation of the environment for 20 generations from 500ce-1900ce. They include multiple subsamples in their study, which include (i) self-reported views on the importance of traditions across countries, (ii) the persistence of gender norms and marriage customs across cultures over a long period, (iii) children of immigrants in the United States, (iv) native population in the United States and Canada, in their analysis to examine whether customs are less likely to persist if the environment varies across generation. Among all samples, they find evidence to support the hypothesis of environmental variability as a determinant of culture.

This study implies that changes to the environment from weather variability can explain why the practice of FGM is more prevalent in some cultures than others. An empirical study on this hypothesis can be tested in the future. Perhaps, one can further look into how the environment affects the persistence of more severe FGM than the less severe ones and whether a change in environment leads to women abandoning the severe type of FGM in favor of the less severe one or vice versa. The main challenge will be obtaining data on FGM from early generations⁷.

⁷Note that the DHS does not have FGM data from early generations. The Murdock atlas has information about male circumcision but does not record FGM

1.4.2 Kinship systems

The kinship systems have also been examined from a cultural evolution perspective to understand social norms and why it endures in some societies. A study by Schulz et al. (2019) examine the variation in psychological patterns across countries that we see today. They find evidence that contemporary differences in the psychological patterns of people are explained by the exposure of countries to the Western Church. This exposure to the church changed the kinship system in Europe to one characterized by individualism, small-sized family, and loosely knit groups. The ban on cousin marriages in Europe had weakened extended family networks. They test their model on several subsamples that include (i) countries across the globe, (ii) individuals in Europe, and (iii) children of immigrants with diverse backgrounds residing in Europe. Their study uses a rich set of data to understand the origin of the psychological variations. Firstly, through the spread of the Medieval churches, the authors compute the duration that each country in the world was exposed to the church. Secondly, they use anthropological data to create a variable that measures the kinship intensity and obtain data on cousin marriages worldwide. Lastly, they include several psychological outcomes, such as trust, conformity, risk aversion, etc., that were obtained by surveys and lab experiments.

Another study that examines kinship systems to understand behavior is Enke (2019). His research aims to understand how societies regulate behavior and enforce cooperation across different kinship systems. He finds that evidence that there are variations in the moral systems adopted in historically loose kinship societies and tight-knit ones. Whereas societies formed around loose kinship ties regulate behavior by adopting universal moral beliefs, altruistic punishment, and internal guilt, tight-knit societies enforce cooperation by revenge-seeking, shame, and a communal moral value (Enke, 2019). The form of punishment adopted among tight-knit groups is shared among communities that circumcise their women.

These two studies highlight the role of kinship systems in understanding the variation of social norms and how they are enforced across kin groups. There are accounts of kinship systems serving as a tool to perpetuate FGM. For instance, in an ethnography research

study of female circumcision among Kuria people in rural Kenya, Prazak (2016) narrates how societal pressure and punishments enforce cooperation. Relating the experience of a young girl, the author states:

Leah Mokami argued to her immediate family that she could become an adult without having her genitals cut. But when the initiation season was finally declared open . . . for girls, the pressure on her to conform to the traditional path intensified. Within the homestead her sisters and mother mounted pressure. If Leah Mokami was sitting outside when an initiation group passed the homestead, her sisters would tell her to run inside and hide, or she would get kidnapped and forcibly operated on. If a group of women stopped by, her sisters would tell her to go hide lest the women mock or tease her about being omosaagane.⁸ Her sisters always delivered these ostensibly thoughtful comments with great hilarity, signifying to me that they are mocking Leah Mokami. If their mother was home, she would join the sisters, making Leah Mokami feel her choice was the wrong one. When I asked the girls why they were tormenting Leah Mokami so, they replied that this was nothing compared to the lifetime of mockery she would receive as an uncircumcised female going into her late teens and beyond. (pp117-118)

The habit of tormenting girls that choose to abandon FGM is common. They are ostracized and, in some cases, subject to violence (Prazak, 2016)⁹. These forms of sanctioning are more prevalent among societies with strong and cohesive ties than among kinship groups with weak ties.

To explain the persistence of FGM, the modernization theory postulates that the rate of FGM will decline as societies grow and develop (Boyle et al., 2002; Easton et al., 2003). According to this view, a shift from agriculture to the industrial and service sector places a low value on land and family control, which were previously utilized to coerce people

⁸An uncircumcised girl before the initiation season

⁹In Uganda, some communities accuse uncircumcised daughters of witchcraft (Weber, 2012)

to undergo FGM (Hayford, 2005). In many patrilineal societies, women are allowed to obtain inheritance only after marriage. If FGM is a pre-requisite for marriage in such societies see Mackie (1996) for details of FGM as a tool for marriagiability, women will have to undergo the practice just to receive their inheritance. However, as societies become urbanized, the modernization theory claims that attitudes toward marriage change, and the strong positive stance on FGM declines (Hayes, 1975). This theory does not always hold, particularly among families with tight kinship networks. For instance, Hicks (1996) finds that FGM practices continue in urban areas because of the strong ties people have with their families in rural areas. In fact, modernization can encourage medicalization of the practice (Carr, 1997; Mackie, 1996) and even a shift from more severe types of FGM to the less severe ones (Yount, 2002). In these cases, FGM practices increase rather than decline, as predicted by the modernization theory. A better approach to examining the persistence of FGM as societies become modern is to explore the role of kinship systems in facilitating or limiting such practice.

1.5 Conclusion

This chapter surveys the literature on female genital mutilation to understand why it exists in some societies and not others. I review different hypotheses from the anthropology, economics, and sociology fields that explain the emergence and spread of FGM. I discuss different hypotheses that researchers assert as mechanisms for the emergence of the FGM. The pastoralism hypothesis focuses on the role of geography to explain FGM emergence. In contrast, the polygyny hypothesis provides a cultural explanation for practicing FGM. More so, I review several cultural beliefs held among ethnic groups to explain their practice of FGM. Lastly, the slave trade hypothesis emphasizes the economic incentives of FGM.

Next, I discuss how the persistence of FGM can be examined from a cultural evolution perspective by exploring the role of the environment and kinship systems in societies. Future research on FGM persistence should test the hypothesis that climatic variation affects the persistence of traditions across generations. Moreover, research in the future should examine

how FGM thrives in societies based on the punishment and reward systems used to regulate behavior.

Chapter 2: Ethnic Identity and the Prevalence of Female Genital Mutilation in Africa

2.1 Introduction

The World Health Organization reports that over 200 million girls worldwide have been circumcised and are at risk of adverse health effects such as bleeding, childbirth complications, post-traumatic stress disorder, and death (World Health Organization, 2020). Furthermore, the organization states that the financial cost of treating health problems related to Female Genital Mutilation (FGM) ¹ will rise to \$2.3 billion in the next three decades if the current prevalence rate stays the same (World Health Organization, 2020). Recognizing the dangers of the practice, in 2015, the United Nations included the eradication of FGM among the Sustainable Development Goals (target 5.3) to be achieved by 2030. It is pivotal to understand the determinants that influence FGM rates over time to attain the goal of eliminating FGM.

This paper examines the role of ethnic identity on the prevalence of FGM. I use IPUMS-DHS (Demographic Health Survey) compiled by Boyle et al. (2020b) to obtain data on FGM status and other individual and household characteristics for women in 9 African countries. I merge this data with the pre-industrial characteristics of ethnic societies from Murdock's Ethnographic Atlas. To measure ethnic identity, I use several pre-industrial characteristics, which include pastoralism, plow agriculture, kinship tightness, and premarital sexual behavior norms. Previous studies have linked these determinants to gender norms and female welfare (Alesina et al., 2013; Becker, 2019; Fenske, 2015; Lowes, 2017). I adopt a birth-cohort approach to trace the practice of FGM in the span of 40 years. This involves grouping the women in the data based on their birth year and then examining the evolution

¹Female genital mutilation (FGM) and female circumcision will be used interchangeably in the study

of the practice over time across cohorts. This approach allows for the careful analysis of the same cohort of women across different countries and periods.

The result indicates that ethnic identity is correlated with FGM. Women from ethnic societies that historically practiced pastoralism (26-35% dependence level) plow agriculture and premarital sexual behavior norms are more likely to undergo FGM. This finding supports the claim that gender attitudes and beliefs associated with modes of production and premarital sexual behavior norms affect current gender outcomes (Alesina et al., 2013; Boserup, 1970; Goethals, 1971). Comparing the FGM rates across birth cohorts, I find that the practice has declined among women whose ancestors practiced pastoralism and plow agriculture. However, for those whose ethnic groups had strict premarital sexual behavior norms, FGM rates have been increasing among the latest birth cohorts.

In addition, my result reveals that women from tight kinship groups are more likely to undergo FGM than those from loosely-knit groups. Focusing on those with a kinship tightness of 0.25, I find that the FGM rates have fallen over time.

These findings strengthen the idea that past phenomena have long-term effects on gender attitudes. I shed new light on how cultural variations among ethnic groups influence FGM rates. Prior to this study, the research examining the prevalence of FGM in Africa across birth cohorts focused on current micro, meso, and macro-level determinants with little consideration for the role of deeply-rooted norms from pre-colonial times.

This paper makes two contributions to the literature. Firstly, I contribute to the understanding of the prevalence of FGM by focusing on ethnic identity practiced among ethnic groups. Several studies have examined the prevalence of FGM in Africa (Ahinkorah et al., 2020; Batyra et al., 2020; Blaydes & Platas, 2020; Engelsma et al., 2020; Gbadebo et al., 2021; Grose et al., 2019; Koski & Heymann, 2017; Yount et al., 2020) and have identified individual², community³ and macro-level determinants⁴. However, there is little emphasis

²See Ahinkorah et al. (2020) for individual and household socioeconomic determinants of FGM

³Refer to Yount et al. (2020), Blaydes & Platas (2020) and Grose et al. (2019) for community-level determinants of FGM rates

⁴A study by Engelsma et al. (2020) find that macro-level determinants such as population density and anti-FGM laws are associated with the prevalence of FGM

on how historical correlates of FGM today. Grose et al. (2019) examine the role of ethnic diversity in FGM rates in Kenya. They measure ethnic fractionalization using the Herfindahl Hirschman Index (HHI) and find that girls residing in a more ethnically diverse community have lower probabilities of FGM. My research on ethnic identity is different from theirs because instead of concentrating on ethnic diversity, I focus on deeply-entrenched norms associated with ethnic groups.

Becker (2019) uses pre-industrial dependence of pastoralism among ethnic groups to investigate the origins of infibulation-an extreme form of FGM-in Africa. My research study differs from hers because I focus on the role of pre-industrial ethnic norms in influencing FGM rates and how this has affected the practice across different birth cohorts. Moreover, I study FGM by exploring several determinants of ethnic identity, which accounts for the mode of subsistence, kinship structure, and norm on premarital modesty. My work is similar to Alesina et al. (2021), which examines pre-industrial characteristics but in the context of violence against women.

Secondly, I use all available surveys from the IPUMS-DHS (Demographic Health Survey), where respondents answered questions about their FGM status and ethnicity. Combining data on current individual characteristics over a long period of time with historical data based on the ethnicity of respondents allows me to fully understand the role of ethnic identity on the rise and decline of FGM across the birth cohorts.

This study adds to the literature that examines how historical settings and practices affect current cultural traits. A number of studies have linked gender attitudes (Alesina et al., 2013; Becker, 2019; Evans, 2015; Lowes, 2017; Teso, 2019), family systems and ties (Ang & Fredriksson, 2017; Fenske, 2015; Schulz et al., 2019), ethnic identity (Cervellati et al., 2019; Michalopoulos, 2012) and trust (Lowes & Montero, 2017; Moscona et al., 2017; Nunn & Wantchekon, 2011) to past environments.

To verify the results in the study are robust, I include individual, country, and ethnicity controls in the baseline specification. Furthermore, I construct a 3-year birth cohort grouping to illustrate that the initial temporal trends in FGM are robust to alternative

birth-cohort groups.

The remainder of the chapter is organized as follows: Section 2.2 provides a background of ethnic identity and its determinants. In Section 2.3, I discuss the contemporary and historical data used in the study. Section 2.4 presents the empirical strategy for the analysis. Section 2.5 discusses the results of the correlates of FGM and the temporal changes across the birth cohorts. Section 2.6 includes the robustness checks and additional analyses based on colonial legacies and FGM law prohibition. Section 2.7 concludes the paper.

2.2 Ethnic Identity and Determinants

Ethnic identity refers to traditional beliefs, norms, and practices associated with ethnic groups. These values and traditions shared within ethnic groups are crucial for gender attitudes because deeply rooted practices persist and dictate roles and expectations towards women. To measure ethnic identity, I use four determinants: pastoralism, plow agriculture, kinship tightness, and premarital sexual behavior norms. Instead of using a single ethnic characteristic as a proxy for ethnic identity, I use multiple variables to measure ethnic identity to get more accurate results of how the mode of subsistence, family structure, and beliefs about marriage contribute to the practice of FGM today.

2.2.1 Pastoralism

Pastoralism is a system of livelihood that involves the rearing, care, and use of herd animals such as cattle, camels, and goats. Men in pastoral societies take their domesticated animals to natural pasture for grazing. Notable examples of the earliest pastoralists in Africa are the Somali and Afar group located in the Horn of Africa, the Galla people in Eastern Africa, and the Beja group in Northeast Africa (Murdock, 1959). In his study Hicks (2018) concludes that what all ethnic groups that infibulate have in common is their tie to pastoralism either through an ancestor, marriage, or trade. This claim suggests pastoralism as a common denominator for the custom of infibulation regardless of the characteristics of the ethnic groups.

A common feature of pastoral societies is the increasing absence of men as they leave their houses to tend to their animals. In a study by Becker (2019), she finds evidence that women from historically pastoral groups are more likely to be infibulated today. Her study shows that these restrictive norms are possible in pastoral societies due to paternity uncertainty arising from long periods of male absence. The notion of paternity uncertainty was also examined by Mackie (1996). He suggests that lack of paternity confidence among menfolk encourages norms such as FGM to emerge as a signal of loyalty among women.

In addition to infibulation, the historical reliance on pastoralism has been associated with an honor culture. Using historical folklore data, Cao et al. (2021), find that societies that depended on animal herding in pre-industrial times focus on punishment, violence, and revenge-seeking. Their result also confirms that societies that historically practiced herding are more likely to have conflicts today. Since previous studies have found higher cases of infibulation, violence, conflict, and honor culture in historically pastoral societies, I test the hypothesis that:

Hypothesis 1: FGM is more likely in societies that historically practice pastoralism.

2.2.2 Plow Agriculture

A large body of literature maintains that gaps in gender equality and attitudes towards the proper role of women in society stem from historical economic practices (Alesina et al., 2013; Fernandez, 2007; Hansen et al., 2015; Iversen & Rosenbluth, 2010). In addition to agriculture, present-day gender norms can be linked to the historical farming equipment used for cultivation. In her research work, Boserup (1970) claims that plow agriculture affects present-day gender norms and stances towards women. She states that in societies that depended on plow agriculture, men were more active in the fields because it was capital intensive and needed upper-body strength. However, women took a less active role in these societies, concentrating on their home duties and childrearing. This finding contrasts with shifting agriculture which involved both men and women because it was labor-intensive but did not require intensive body power and strength as the plow. The author claims that

women were active on the farm and did not need to focus only on home activities in these societies.

Alesina et al. (2013) empirically test Boserup’s hypothesis, and their result confirms the notion that patterns of gender roles today can be linked to the differences in the historic adoption of the plow and shifting agriculture. They find that women from societies that historically practiced plow agriculture are less likely to engage in politics, office employment, and business ventures. In a subsequent study, the authors associate plow use with high male-to-female sex ratios and preference for boys (Alesina et al., 2018).

The practice of plow agriculture has also been linked to violence. For instance, Alesina et al. (2021) examine how pre-colonial customs determine current violence against women in Africa. Using data from the Demographic and Health Surveys (DHS) and Murdock Ethnographic Atlas, the authors find a positive correlation between historical plow agriculture and current spousal violence. Their result shows that women from societies that historically adopted plow agriculture are 13.2 percentage points more likely to be victims of domestic violence.

The studies discussed in this section suggest that ethnic groups that historically practiced plow agriculture have more unequal gender norms today. Reliance on plows for farming is associated with the lesser economic role of women in the labor market and an increase in son preference and gender-based violence. This conclusion implies that plow agriculture increases patriarchal beliefs. The gap in women’s employment and bias against women reduce household bargaining power, further leading to unequal status between men and women. I, therefore, test the hypothesis that:

Hypothesis 2: FGM is more likely in societies that historically practiced plow agriculture.

2.2.3 Kinship Ties

Kinship ties are significant in societies and dictate roles in the family. Tight kinship structures emphasize close relations by blood or marriage. These kinship structures have marriage practices such as cousin marriage and polygyny. Walker & Bailey (2014) claim that tight kinship systems emphasize norms that intensify the relatedness and convergence of kin groups. There is allegiance to the close kin group and lower trust for outsiders. This form of kinship system contrasts with loosely-knit kinship groups where the relationship is formed around loose or distant ties. In loose kinship groups, norms that intensify relatedness are minimal, and people marry from outside their kin groups and across geographical areas, expanding their kinship ties (Walker & Bailey, 2014).

Several studies have been conducted on the cohesiveness of kinship groups. Strong family ties have been linked to distrust for outside groups, spousal violence towards women, low female education and employment, and more traditional roles for women at home (Alesina et al., 2021; Alesina & Giuliano, 2010; Moscona et al., 2017). In contrast, Schulz (2020) finds that weak kinship networks are positively correlated with participatory institutions and democracy both in the past and present.

Kinship ties have also been examined from the aspect of how behavior is regulated. In a study by Enke (2019), he examines the relationship between kinship ties and moral enforcement mechanisms. To measure kinship ties, he uses four variables to capture the intensity of kinship relations in ethnic societies. These variables include a measurement for (i) bilateral descent of ethnic groups, (ii) the presence of a community marriage organization that was segmented and has localized clans, (iii) a domestic organization formed around an independent nuclear family, and (iv) post-wedding residence of the couple living with their parents (either wife or husband). He finds that societies historically formed around tight kinship structures have strict regulatory sanctions based on communal beliefs, shame, and vengeance. This moral system contrasts with loosely-knit kinship groups that regulate behavior through universal moral beliefs, guilt, and altruistic penalties. I test the hypothesis that:

Hypothesis 3: FGM is more likely in tightly-knit kinship groups than in those that have loose kinship systems.

2.2.4 Premarital Sexual Behavior Norms

The reasoning behind norms on premarital sexual behavior varies according to ethnic societies. In his study, Murdock (1964) explores the evolutionary hypothesis that restrictive premarital sexual norms vary with the complexity of culture. He finds evidence that culture correlates with varying complexities such as political organization, mode of subsistence, and belief in a higher god, which predict premarital sexual norms.

The kinship system and marriage pattern prevalent in a society determine premarital sexual behavior norms. For instance, Goethals (1971) studies how descent rules and post-wedding residence affect premarital sexual behavior norms. He finds that in patrilineal societies which trace descent from the father's side, the status of children born out of wedlock is vague. Paternity uncertainty among men in these societies contributes to norms restricting premarital sexual behaviors. In contrast, the author asserts that matrilineal societies that trace descents from the woman's side are less likely to have such stringent norms since the child's mother is certain. For matrilocal societies where the couple resides with the bride's family, Goethals (1971) claims that premarital sexual norms are less common because a woman has backing from her family in the event of premarital pregnancy. There is less stigma towards children born outside marriage in matrilocal societies and the need to have restrictive premarital norms. However, in patrilocal societies, the author suggests that there are stricter rules regarding premarital sexual behavior, and women lack support from their husbands' families.

Premarital sexual norms are more likely to exist in societies with high resource inequality. According to (Mackie, 1996), societies such as Ancient Sudan and Egypt that had extreme wealth disparities among men led to the practice of polygyny (men having multiple wives) and hypergamy (women marrying up). In these highly stratified societies, women competed with each other to marry wealthy men in the polygynous union. For men, there was an

issue of ensuring fidelity among their numerous wives. As a result, parents would signal the chastity and modesty of their daughters and the honor of their family in the marriage market. Thus, FGM was a tool used to signal purity and a form of premarital sexual behavior norms in such societies. Another study by Goethals (1971) also links premarital sexual norms to the preservation of purity and virginity. The author finds that in societies where women are deemed as properties of their husband and when bride price is practiced, restrictive premarital sexual norms are more likely to be present. The amount paid as bride price will be contingent on whether women remain virgins before marriage. Hence in such societies, parents will adopt restrictive norms to increase their daughter's brideprice (Goethals, 1971). In my study, I test the hypothesis that:

Hypothesis 4: Societies that historically had norms about premarital sexual behavior are more likely to undergo FGM today.

2.3 Data

2.3.1 Contemporary Data

The Standard Demographic and Health Surveys (DHS) are nationwide surveys covering a large sample of 5000-30,000 households in over 90 countries. The survey is conducted periodically to allow the comparison of trends over time. I accessed the DHS data through IPUMS-DHS⁵, a web-based tool that consistently harmonizes and codes the DHS variables, making it easy for comparative analysis across time and countries (Boyle et al., 2020b). A caveat about the IPUMS-DHS is that not all countries in the DHS are integrated into the database. However, it currently has more than 5000 variables from 23 African countries and is regularly updated with new datasets.

From the IPUMS-DHS, I obtained data for all African countries with a survey that asked women if they had been circumcised before (based on variable G102). I code the variable for female circumcision 1 if a woman has been circumcised and 0 otherwise. From

⁵The IPUMS-DHS data can be accessed at <https://www.idhsdata.org/idhs/index.shtml>

this sample, I further restricted my data to women who had indicated their ethnicity in the survey and were aged 15-49. Women aged outside this range were eliminated because, according to the United Nations Children’s Fund (UNICEF), girls under the age of 15 are at risk of circumcision (UNICEF, 2021). I dropped Cameroon, Chad, Cote d’Ivoire, Ghana, and Uganda from the data due to the substantially low sample size. The countries included in the final sample include Benin, Burkina Faso, Ethiopia, Guinea, Kenya, Liberia, Mali, Nigeria, and Senegal. Individual-level covariates obtained from IPUMS-DHS include years of schooling, household wealth index, ethnicity, residence status, religion, marital status, work status, extramarital affair, and year of birth of the respondents.

A number of recent studies have used birth-cohort analysis to observe the trend in FGM over time⁶. Koski & Heymann (2017) claims that the benefit of the birth-cohort approach allows researchers to examine the rate of FGM for the same birth cohort across different countries and time periods, allowing for consistent and reliable estimates. I created a variable called *birth cohort*, which classifies women based on their birth year. For those women who had not indicated their birth year in the survey, I used the difference between their current age and the survey year to calculate it. The birth cohort variable is constructed based on 5-year intervals, ranging from 1955 to 1999, across nine groups. Due to many missing observations in the sample, I exclude the birth cohorts from 1945-1949, 1950-1954, and 2000-2004.

For country-level characteristics, the GDP measure was obtained from the World Bank Database. In all my analyses, I transformed the GDP variable into natural logarithms. Furthermore, I included a variable that indicates whether a country has anti-FGM laws. This variable is coded 1 if the country has a law prohibition on FGM and 0 otherwise. Similarly, I denote former french colonies in my sample by including a variable that takes the value of 1 if the country was a former French colony and 0 otherwise. A full description of the countries, including the survey years, anti-FGM laws, colonial rule, and ethnicities, are presented in Appendix section A.0.1.

⁶See Koski & Heymann (2017), Gbadebo et al. (2021) and Batyra et al. (2020)

Figure 2.1 shows the probability of FGM across the birth cohorts in the sample countries. The countries can be divided into three groups based on FGM trends. The first group, which includes Benin, Nigeria, and Senegal, recorded low FGM rates across the birth cohorts. In contrast, the second group consisting of Burkina Faso, Guinea, and Mali, has a higher than 50% probability of FGM. These countries show little to no decline in FGM over time. A possible reason for the high FGM rates in Mali is the absence of anti-FGM laws in the country. For Burkina Faso, the government in 2018 introduced a stricter penalty for FGM to reduce the high rates of the custom. Even though Guinea has an anti-FGM law in place, the FGM rates are still high. The high prevalence might be due to cross-border FGM among Guineans who travel to neighboring countries without FGM laws to perform the custom. The third group, which includes Ethiopia, Kenya, and Liberia, depicts that the probability of FGM has decreased in four decades. Overall, Figure 2.1 suggests varying trends for FGM across the sample countries.

2.3.2 Historical Data

Data on historical characteristics of ethnic groups is obtained from the Ethnographic Atlas [EA]⁷ recorded by George Peter Murdock (1967). The database contains information about 1,265 ethnic groups before industrialization and colonial contact. Some of the ethnic features in the EA include the economic mode of subsistence, cultural norms related to marriage and kinship, and political structures present in the society. In my analysis, I obtained the variables; pastoralism, plow agriculture, kinship tightness, and premarital sexual behavior norms as proxies for ethnic identity. For ethnicity-level covariates, I include the traditional practice of male circumcision and the custom of bride price among ethnic groups.

To match present-day data to historical data, I use the method adopted by Alesina et al. (2013) and Becker (2019). I combine contemporary individual characteristics from IPUMS-DHS to pre-industrial data from the EA by merging using the ethnicity of the respondents.

⁷Ethnographic Atlas data was accessed from D-place website at <https://d-place.org/>

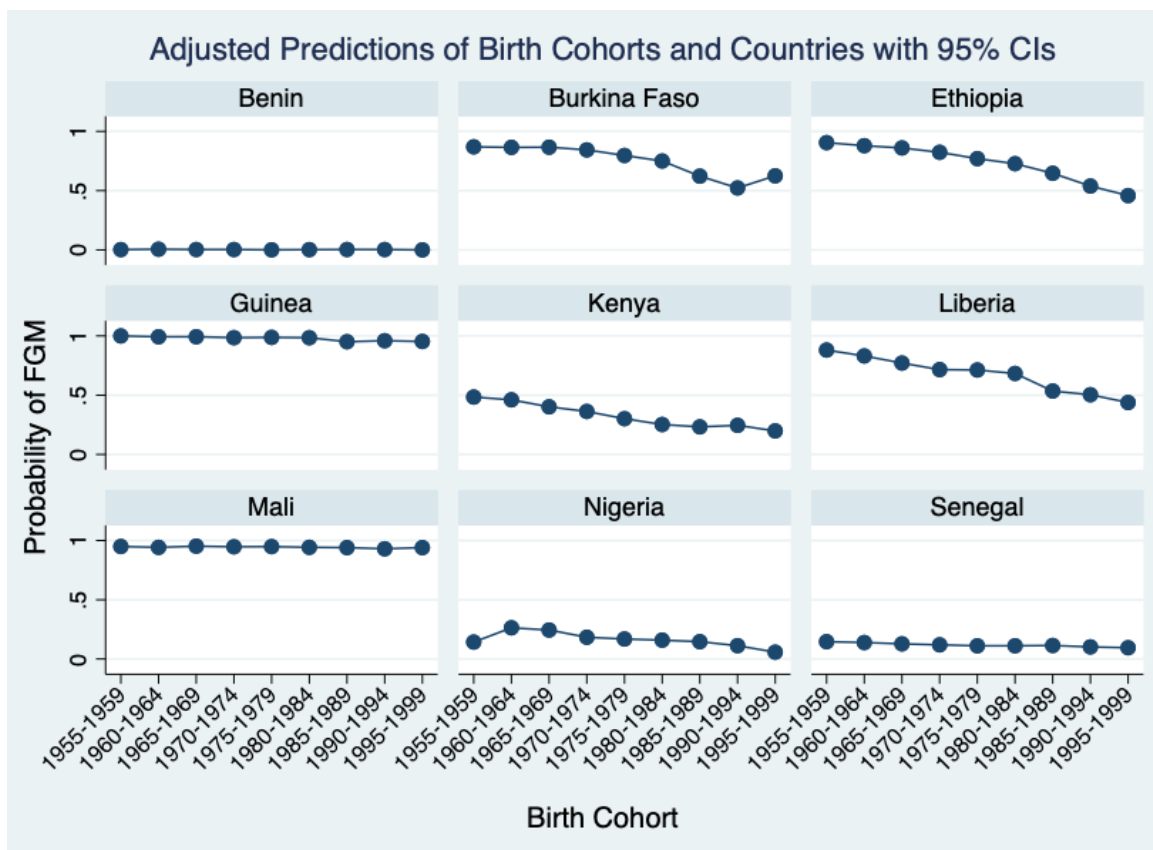


Figure 2.1: Adjusted Probabilities of FGM across Birth Cohorts in Sample Countries. 95% confidence intervals are depicted by the bars around the plot lines.

My final sample for the study has 130,229 observations. Table A.3 in the Appendix A.0.2 depicts the summary statistics for all the variables in the sample. A full description of the data sources and computations is available in Appendix E.

2.4 Empirical Strategy

2.4.1 Baseline Specification

To examine the association between the determinants of ethnic identity and FGM, I estimate the OLS regression equation:

$$FGM_{iect} = \alpha + \beta Ethnic_identity_e + \mu_c + \pi_t + \epsilon_{iect} \quad (2.1)$$

where FGM_{iect} is an indicator variable for whether a woman i belonging to ethnic group e in country c at year t has undergone FGM. $Ethnic_identity_e$ represents a specific ethnic characteristic (pastoralism, plow agriculture, kinship tightness and premarital sexual behavior norms). The terms μ_c and π_t are dummy variables that control for country and year fixed effects, respectively.

2.4.2 Covariates

In addition to the baseline specification, I include individual, country, and ethnicity control variables in further regressions. The individual-level controls in the analysis include years of schooling, residence status, religion, marital status, work status, extramarital affair, and wealth index. For the country-level covariate, I add the natural logs of GDP. While the country-fixed effects in the baseline specification already take care of time-invariant differences in countries, the natural log of GDP accounts for changes in income as a country booms. Ethnicity control variables include bride price and male circumcision.

2.5 Results and Discussion

2.5.1 Economic Features of Ethnic Identity

Table C.1 explores the association between FGM and the historical modes of subsistence (pastoralism and plow agriculture) practiced among ethnic groups. I include individual, country, and ethnicity controls to the baseline specification in Columns 2-4, respectively.

The relationship between the traditional reliance on pastoralism and FGM is presented in Panel A. I compare the pastoralism levels at 26-35% and 36-45% to the baseline (0-25%). The results on pastoralism are mixed. Firstly, I find that a woman from an ethnic group that historically practiced pastoralism at the 26-35% dependence level is 1.5 percentage points

more likely to undergo FGM than those at the 0-25% pastoralism level. This is robust when I add the individual and country controls in columns 2-3. However, when I include ethnicity controls, the relationship becomes negative. For those women whose ethnic groups had a pastoralism level of 36-45%, they were 28.4 percentage points less likely to undergo FGM than those with a pastoralism level of 0-25%, and this is statistically significant at the 1% level.

The positive coefficient for pastoralism at the 26-35% dependence level aligns with my hypothesis of a direct correlation between FGM and pastoralism. This supports studies that link FGM to historical pastoral societies (Becker, 2019; Hicks, 2018). However, the negative coefficients of the result as the pastoralism level increases suggest that FGM might not always increase as societies become more pastoral. Due to very few ethnic groups recorded for the pastoralism level over 45%, I am unable to confirm if women from highly pastoral societies were more likely to undergo FGM.

Panel B reports that the historical practice of plow agriculture is positively correlated with FGM. This result supports my premise that FGM should be higher among populations whose ancestors relied on plows for farming. The coefficient in Column 1 indicates an increase of 75.2 percentage points for women descending from ethnic societies that used plows in pre-industrial times. The estimate is statistically significant and robust when individual, and country controls are included in the specification (Columns 2-3). However, the estimate becomes more sensitive when I add ethnicity controls to the specification (Column 4). In my data, ethnic societies that historically practiced plow agriculture account for less than 10%, with a vast majority from the Amhara group in Ethiopia. With such a small sample size, caution should be exercised when reading the result. Nevertheless, the finding is consistent with previous studies that suggest that historical reliance on plow agriculture shaped current gender norms and is biased towards women (Alesina et al., 2021, 2013, 2018).

What emerges from the results reported in this section is the importance of how beliefs and values formed around a particular mode of subsistence can persist across generations.

The notion of paternity uncertainty in pastoral societies and gender roles and expectations in plow agricultural communities can be sticky and endure long after the initial environment has passed.

2.5.2 Cultural Features of Ethnic Identity

Table C.2 depicts the correlation between the ethnic-specific cultural norms (kinship tightness and norms regarding premarital sexual behavior) and FGM. Panel A classifies kinship tightness into three groups based on the intensity of the kinship tie, with a score of 0 signifying no kinship tightness (baseline kinship score). The result shows that the likelihood of FGM is higher in groups that have some level of kinship cohesiveness than in loose kinship groups. Column 1 indicates that a woman from an ethnic society that traditionally had a kinship tightness (score of 0.25) is 23.1 percentage points more likely to undergo FGM than a woman from a loose kinship group. This result is highly statistically significant and robust when additional controls are included in the specification (columns 2-4). I also find a positive correlation for women whose ethnic group historically has a kinship tightness score of 0.5. However, the estimates are not statistically significant. The positive correlation supports previous studies that claim that norms are more likely to emerge among cohesive groups than loose kinship groups (Hechter & Opp, 2001). In his study, Enke (2019) finds evidence that tightly-knit kinship groups adopt stricter enforcement mechanisms to regulate behavior than loose kinship groups. This could be a possible explanation for the positive results for kinship tightness on FGM.

Panel B in Table C.2 reveals a positive relationship between premarital sexual behavior norms and FGM status. The coefficient in Column 1 indicates that women descending from ethnic societies with strict sexual norms before marriage are 37.1 percentage points more likely to undergo FGM. The estimate is statistically significant and robust when additional controls are included in the subsequent columns. This finding supports my hypothesis that the presence of stringent norms regulating sexual behavior before marriage should be positively correlated with FGM. According to Mackie (2000), marriageability is

Table 2.1: FGM and Economic Determinants

	Dependent Variable: FGM Status			
	(1)	(2)	(3)	(4)
Panel A				
Pastoralism (omitted 0-25% dependence)				
26-35% dependence	0.015** (0.005)	0.011* (0.005)	0.011* (0.005)	-0.020*** (0.005)
36-45% dependence	-0.284*** (0.007)	-0.300*** (0.007)	-0.300*** (0.007)	-0.566*** (0.009)
Observations	90,609	90,609	90,609	90,609
R-squared	0.601	0.607	0.608	0.647
Panel B				
Plow agriculture	0.752*** (0.026)	0.728*** (0.034)	0.752*** (0.074)	0.755*** (0.073)
Observations	93,700	93,700	93,700	93,700
R-squared	0.519	0.544	0.544	0.558
# of clusters	38	38	38	38
Year and country FE	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes
Country controls	No	No	Yes	Yes
Ethnicity controls	No	No	No	Yes

Notes: OLS estimates are reported with the standard errors in parenthesis. For the pastoralism specifications in Panel A, the robust standard errors are reported. For the plow agriculture specifications in Panel B, the standard errors are clustered at the ethnicity level. Individual controls are years of schooling, wealth index, residence status, religion, work status, marital status and extra marital affair. Country level includes the natural log of GDP. Ethnicity controls include male circumcision and bride price. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.2: FGM and Cultural Determinants

	Dependent Variable: FGM Status			
	(1)	(2)	(3)	(4)
Panel A				
Kinship tightness (omitted score:0)				
score: 0.25	0.231*** (0.054)	0.237*** (0.058)	0.238*** (0.058)	0.240*** (0.058)
score: 0.5	0.082 (0.099)	0.099 (0.104)	0.010 (0.105)	0.113 (0.108)
Observations	89,350	89,350	89,350	89,350
R-squared	0.586	0.616	0.616	0.630
# of clusters	34	34	34	34
Panel B				
Premarital sexual behavior norms	0.371*** (0.010)	0.312*** (0.011)	0.312*** (0.011)	0.345*** (0.010)
Observations	55,687	55,687	55,687	55,687
R-squared	0.363	0.400	0.400	0.441
Year and country FE	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes
Country controls	No	No	Yes	Yes
Ethnicity controls	No	No	No	Yes

Notes: OLS estimates are reported with the standard errors in parenthesis. For the kinship tightness specifications in Panel A, the standard errors are clustered at the ethnicity level. For the premarital sexual behavior norms specifications in Panel B, the robust standard errors are reported. Individual controls are years of schooling, wealth index, residence status, religion, work status, marital status and extra marital affair. Country level includes the natural log of GDP. Ethnicity controls include male circumcision and bride price. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

the driving force behind FGM. Therefore, societies with strict norms restricting premarital sexual behavior should be more likely to practice FGM if it improves a woman's prospects in the marriage market.

2.5.3 Temporal Changes in FGM

In this section, I discuss the effect of the explanatory variables on the prevalence of FGM across the birth cohorts. In addition, I investigate whether the trend in FGM varies across backgrounds based on residence status, religion, and work status. To do this, I interact the ethnic determinants with birth cohort dummies and background. Then I regress FGM on the interaction.

2.5.3.1 Pastoralism

Figure 2.2 depicts the temporal change in FGM across birth cohorts by historical pastoralism (36- 45% dependence level). I focus on pastoralism at the 36-45% dependence level because from the regression result in Table C.1, the estimates were statistically significant and robust compared to the 26-35% dependence level. The figure also documents how this FGM trend varies across socioeconomic indicators (Graphs B-D). Graph A shows that the probability of FGM was higher among women from the older generations than those belonging to the younger generation. It shows a downward trend in FGM across the birth cohorts. For women born from 1955-1959, the probability of FGM was around 60%. However, this rate has fallen gradually over the next four decades to a probability of less than 20%.

Graphs B and D depicts that FGM rates have been falling over time regardless of the woman's place of residence or work status. This means that those living in urban areas or are employed are not any better regarding FGM rates. However, this is not the case for religion. Graph C shows that FGM rates among Christians are higher than for Muslims. The high FGM rates among Christians are attributed to the Amhara group in Ethiopia and the Kikuyu tribe in Kenya.

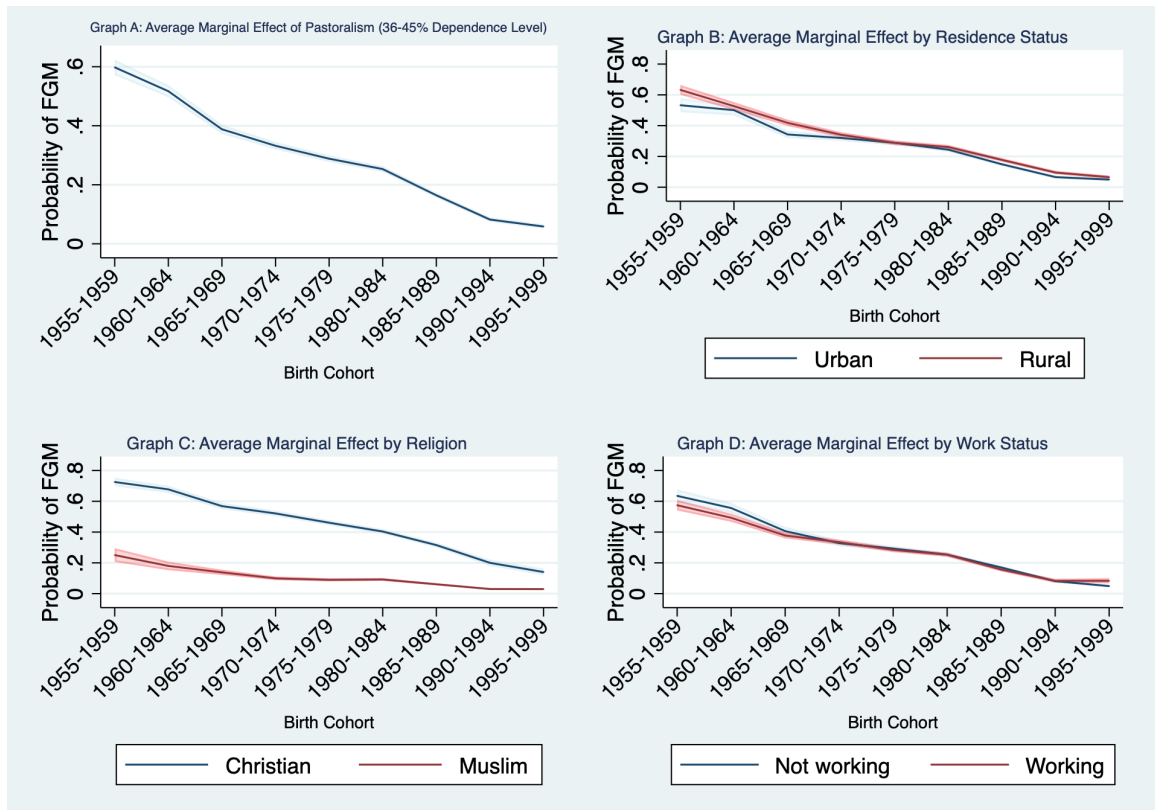


Figure 2.2: Predicted probabilities of FGM by pastoralism across birth cohorts. The association between pastoralism and FGM based on residence status, religion and work status of the respondent is included in graphs B-D. The pastoralism level used in all graphs is 36%-45% dependence. 95% confidence intervals are depicted by the shaded area around the plotline.

2.5.3.2 Plow Agriculture

The trend in FGM among women whose ancestors practiced plow agriculture is depicted in Figure 2.3. From my sample data, plow agriculture is only practiced among the women from the Amhara and Konso ethnic tribes in Ethiopia and Cham tribe in Nigeria.

In graph A, the trend in the FGM rate among women whose ancestors practiced plow agriculture has been volatile, particularly for those born from 1960 to 1990. The probability of FGM peaked at roughly 35% for the birth cohort group, 1965-1969. The beginning of the 1990s marked a steep fall in the FGM rates. The decline has continued at a slower pace in the last cohort. Graph B reveals that for women born before 1985, FGM rates have

been higher in urban regions than rural regions. The probability of FGM peaked at almost 50% among the 1965-1969 birth cohort living in urban areas before falling to less than 10% for the latest cohort. While the rates of FGM among Muslims and Christians born in the 1990s have been declining and very similar, there was a huge gap among the earlier birth cohort groups. For Muslims born in the 1950s, the probability of FGM was 22%, while Christians had a probability of 58%. In Graph D, female-headed households have a higher rate of FGM than male-headed households. In fact, for women born from 1995-1999, the probability of FGM was a little above 40% for a female-headed household. In contrast, the probability falls to almost 10% in male-headed households for the same birth cohort.

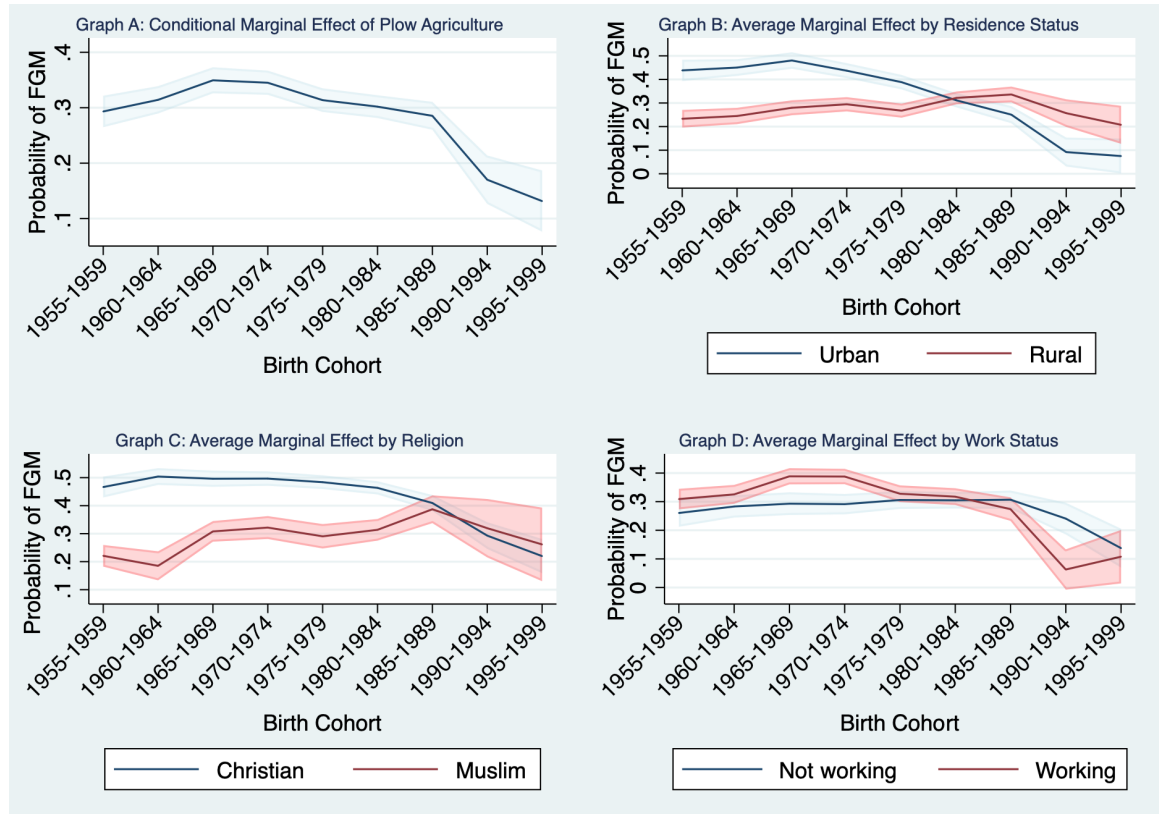


Figure 2.3: Predicted probabilities of FGM by plow agriculture across birth cohorts. The association between plow agriculture and FGM based on residence status, religion, and work status of the respondent is included in graphs B-D. 95% confidence intervals are depicted by the shaded area around the plotline.

2.5.3.3 Tight Kinship Ties

Figure 2.4 depicts the effect of historical kinship tightness on FGM across the birth cohort. I focus on the kinship tightness score of 0.25, which had statistically significant and robust estimates in Table C.2. Graph A shows the probability of FGM for women belonging to ethnic groups with a tight kinship score of 0.25 has been declining across birth cohorts. The lowest FGM rate was for women born from 1985-1989.

In Graphs B-D, I examine whether the decline in FGM among those from a historically tight kinship group (score = 0.25) depends on the woman's residence status, religion, and employment status. Graph B shows that the probability of FGM is higher among women residing in rural areas than in urban. However, the gap in FGM rates between the two groups has been closing over the years. With regards to religious affiliations, the rate of cutting is higher for Muslims than Christians, and this is true across all birth cohorts (Graph C). This is true for women from the Bambara tribe in Mali and Malinke tribe in Guinea and Mali. Graph D shows that FGM rates for unemployed women have fallen from 75% to almost 40%. For employed women, FGM rates have been rising among those born in the 1990s.

Employed and unemployed women across the birth cohort are very similar. Both groups of women have experienced a fall in FGM rates over time.

2.5.3.4 Premarital Sexual Behavior Norms

Figure 2.5 depicts the role of premarital sexual behavior norms on FGM rates across birth cohorts. While norms regarding premarital sexual behavior were not common in Kenya and Liberia, It is popular among the Fon tribe in Benin and Amhara in Ethiopia.

Graph A shows that among women from ethnic groups that traditionally had premarital sexual behavior norms, FGM rates have declined for those born from the 1950s to the mid-1960s. The FGM rate was lowest for those born in the early 1990s at 12%. After this period, FGM rates have shown an upward trend among the youngest birth cohort. In graph B,

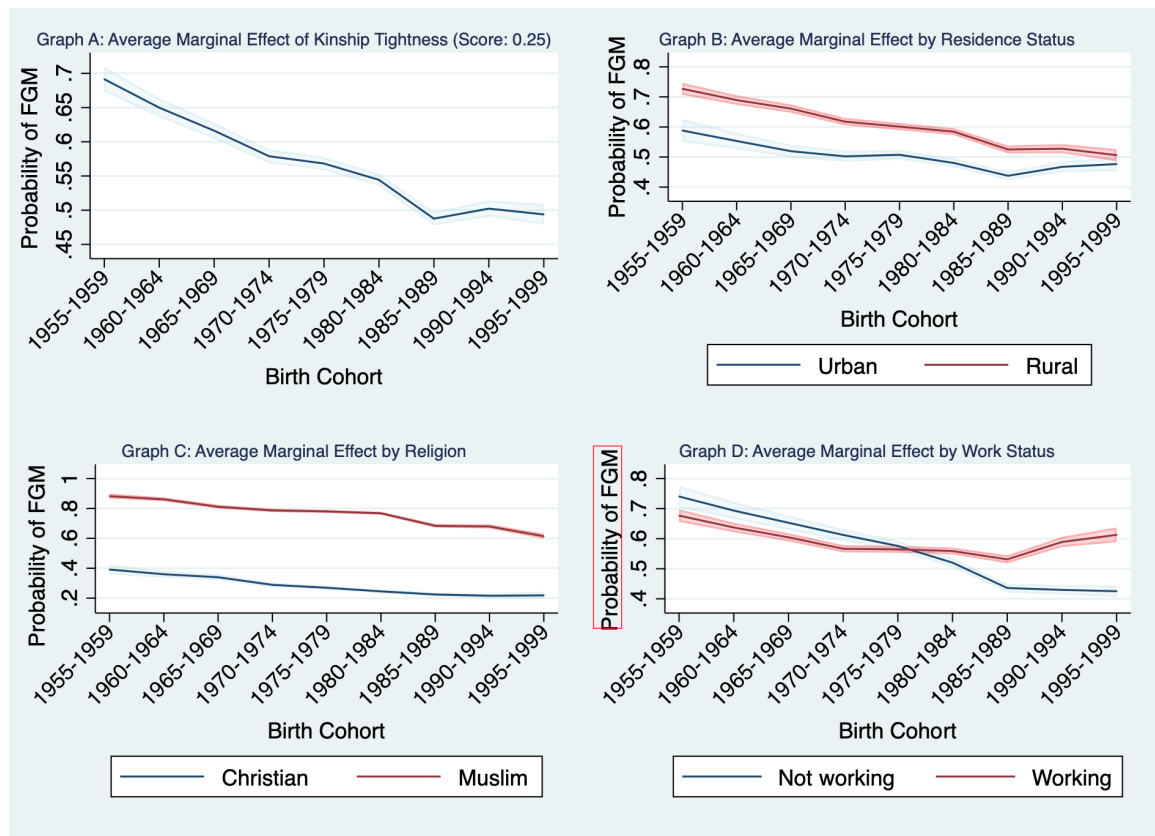


Figure 2.4: Predicted probabilities of FGM by the level of kinship tightness across birth cohorts. The association between kinship tightness and FGM based on residence status, religion, and work status of the respondent is included in graphs B-D. 95% confidence intervals are depicted by the shaded area around the plotline.

the effect of historical premarital sexual behavior norms is explored by residence status. It shows that rates are higher for those born in rural areas. However, the start of the 1990s has been associated with increased rates of FGM regardless of the place of residence.

The FGM rates are higher across all birth cohorts for Muslim women than for Christians (Graph C). High rates of FGM among Muslims were common among the Soninke group in Senegal. Among Muslims, the rates have fallen steadily from around 60% in the 1950s to 40% for the last birth cohort. Although for Christians, FGM rates have been low (less than 20%), it has been increasing among women in the last birth cohort. Graph D shows that FGM rates have been higher among unemployed women born before the 1990s than those employed. The FGM trend has been declining for unemployed women, rating at 20% for

the youngest birth cohort. This trend contrasts with FGM rates among working women, which have surged among women born in the 1990s.

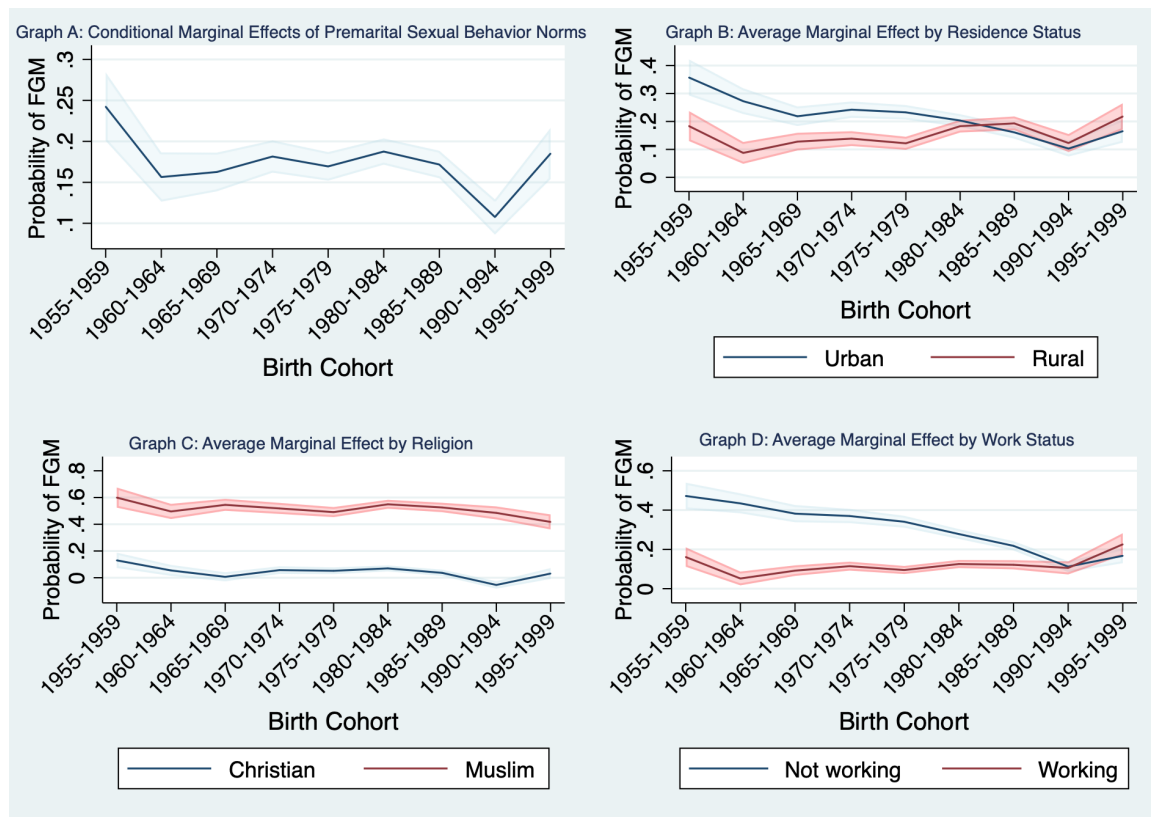


Figure 2.5: Predicted probabilities of FGM by premarital sexual behavior norms across birth cohorts. The association between premarital sexual behavior norms and FGM by residence status, religion, and work status of the respondent is included in graphs B-D. 95% confidence intervals are depicted by the shaded area around the plotline.

2.6 Additional Analyses

This paper so far has demonstrated that ethnic identity is positively correlated with FGM and has illustrated FGM trends across birth cohorts. In this section, I discuss the robustness checks and also extend my analysis of FGM by investigating FGM attitudes, law prohibitions, and colonial legacies in my sample countries.

2.6.1 Robustness Checks

To check whether the results in the previous sections are robust, I regroup the women in the sample into 3-year birth cohorts to check whether the temporal trends in Section 2.5.3 are robust to changes in the birth cohort grouping. The results reported in the Appendix B confirm that the initial temporal trends in FGM are similar when using an alternate birth cohort grouping.

2.6.2 FGM Attitudes

Several beliefs exist across ethnic groups that influence FGM support and facilitate the maintenance of the norm. Some widely known factors that perpetuate the practice of FGM include cultural ideals of modesty, traditions (such as rites of passage), myths, and financial motives (Billet, 2007). In many communities, FGM is deemed as an ethnic marker that represents their distinctiveness, hence, prompting female circumcision within days or weeks of childbirth (Whitehorn et al., 2002). Whatever the reasons for FGM may be, positive attitudes toward the practice allows it to persist.

To gain a deeper understanding of how ancestral ethnic characteristics are correlated with FGM, I analyze women's attitudes towards the continuation of the practice. The results in Appendix C reveal a significant and positive correlation between the ancestral ethnic characteristics and the belief among women that FGM should continue. These conclusions provide more robust support for the association between ancestral ethnic characteristics and FGM.

2.6.3 FGM Law Prohibitions

The goal of eliminating FGM has led to the introduction of laws prohibiting FGM in several African countries. In my sample countries, FGM law bans are present in Benin, Burkina Faso, Ethiopia, Guinea, Kenya, Nigeria, and Senegal. However, the effectiveness of these laws in ending FGM is highly questionable due to weak government enforcement. For instance, the law prohibition has no clear-cut definition of what FGM entails in Ethiopia

and Nigeria ⁸. For countries that criminalize the practice, cross-border FGM is widespread among families to avoid legal penalty (UNFPA, 2019). According to Boyle & Corl (2010), Anti-FGM laws have increased the concealment of FGM practices among households.

I study the correlation between ethnic identity determinants and FGM trends based on countries with FGM law prohibitions (see Appendix D.0.1). The result indicates that countries with no FGM law prohibition have higher rates of FGM across all birth cohorts than those with anti-FGM laws. I find that women from societies that had traditional beliefs on premarital sexual behavior are more likely to undergo FGM in countries that have anti-FGM laws than when there is no law.⁹

2.6.4 Colonial Legacy

Colonial institutions influence long-run growth because they persist even after countries have gained independence. A considerable amount of literature have published on the impact of colonial rule on economic development (Acemoglu et al., 2001, 2002; La Porta et al., 2008, 1999, 1998). These studies have established that former British colonies fare better than other colonial rules. For instance, in their investigation of legal institutions, La Porta et al. (1999, 1998) discover that British common law is superior to French civil law. They find this advantage most notable in the provision of higher security for investors and a better quality of government.

I explore how the ethnic identity determinants correlate with FGM prevalence in former French colonies (see Appendix D.0.2). The results show that the probability of FGM is higher in former French colonies if societies had a kinship tightness score of 0.25. However, for the other ethnic identity determinants, FGM is higher in non-french colonies¹⁰.

⁸See <https://copfgm.org/2021/07/national-laws-on-fgm>

⁹Note that there is no variation among societies that practiced plow agriculture and countries with anti-FGM laws. This is due to the small sample size for plow agriculture

¹⁰Note that there is no variation between traditional plow agriculture and former French colonies due to the small sample size for plow agriculture

2.7 Conclusion

This study explores the association between ethnic identity and Female Genital Mutilation. I combine historical and contemporary data to examine the role of traditional ethnic identity in shaping current trends in FGM. To measure ethnic identity, I use pre-industrial characteristics of ethnic societies, which include pastoralism, plow agriculture, kinship tightness, and norms about premarital sexual behavior. My result shows that (i) ethnic identity is correlated with FGM; (ii) FGM prevalence in societies that traditionally practiced pastoralism (36-45% dependence level), plow agriculture, and kinship tightness (score 0.25) have declined across birth cohorts; (iii) FGM rates are rising among women from ethnic groups that historically had norms regarding premarital sexual behavior.

Although this study has demonstrated several factors correlated with FGM prevalence, it is essential to note that it does not imply causality. Despite this limitation, this research adds to our understanding of what drives the practice of FGM. The findings are relevant for policy-making because it highlights the role of the past on current rates of FGM. This knowledge allows activists, NGOs, and anti-FGM organizations to adopt more effective strategies in their campaigns and dialogues when engaging with ethnic communities. Hence, an awareness of the role of history in shaping the behavior and norms of different ethnic groups is important for ending FGM.

Chapter 3: Female Genital Mutilation: Laws and Attitudes

3.1 Introduction

Do laws affect attitudes towards norms? Studies have examined the interaction between legislation and culture and how this influences behavior and attitudes. The social control theory postulates that the effect of law as a catalyst for change falls into two categories: Law and economics and law and society (Shell-Duncan et al., 2013). According to the law and economics perspective, individuals are influenced by incentives, and their decision to commit a crime will depend on the cost and benefit of the crime and the probability of punishment (Posner, 2009). Hence, laws will change the behavior of individuals if the costs exceed the benefits. In contrast, the law and society perspective hold that legislation is only effective to the extent that it is parallel to informal institutions and norms. Ellickson (1991) concludes that the use of legislation as a means of deterrence is limited to the degree that it aligns with the customs and beliefs of people, particularly at the local level. The author finds that individuals seek status and prestige by upholding traditional norms. Thus, choosing to abide by the law at the expense of local norms if they are contradictory will lead to individuals being punished or ostracised in the local community.

In this chapter, I examine the short-term effects of the 2016 Female Genital Mutilation (FGM)¹ law introduced in Guinea to understand how it influenced attitudes towards the eradication of the practice. I obtained data on women's socioeconomic characteristics and their attitudes towards the discontinuation of FGM for the years 2012 (pre-treatment) and 2018 (post-treatment) from the IPUMS-DHS compiled by Boyle et al. (2020a). The primary source of the IPUMS-DHS is the Standard Demographic Health Survey (DHS) which is

¹Note that I use female genital mutilation, female genital cutting, and female circumcision interchangeably in the study

a nationwide household survey conducted in low-and middle-income countries. Boyle et al. (2020a) harmonized the surveys in the DHS, coding the variables consistently across countries and time.

I employed a difference-in-difference (DID) approach to analyze the effect of the law in Guinea while using Mali as the control group. For the DID design, I took advantage of the random drawing of the African borders, which divided some ethnic groups across country borders. In this study, I concentrate on women aged 15-49 from the Malinke and Peulh ethnic groups found in both Guinea and Mali.

My results show that the FGM law ban in Guinea led to a short-term increase in attitudes that disapproved of the practice. Specifically, there was a 5.4 percentage point increase in attitudes that favored the discontinuation of the practice. This disapproval of FGM was higher among women from the Malinke ethnic group than those belonging to the Peulh tribe in Guinea. In addition, I find that in the entire sample, younger women are more likely to disapprove of FGM than older women after the prohibition. I run further analysis of the impact of the law on different sub-samples. I find evidence that women who had undergone Type 1 or 2 FGM² or were circumcised by traditional practitioners had negative attitudes towards FGM after the law ban.

The scramble for Africa that took place in the 19th and 20th centuries led to the partitioning of the African border without prior knowledge and understanding of the local communities and ethnic groups (Michalopoulos & Papaioannou, 2016). This partitioning which assigned a single ethnic group to multiple countries, endured after colonialism. Researchers have widely used the artificial African borders as an experiment to examine development outcomes. For instance, past studies have used the artificial African borders to examine interpersonal trust (Robinson, 2013), colonial rule (Lee & Schultz, 2011), socioeconomic outcomes (Coast, 2002; Cogneau & Moradi, 2014), public goods (Miguel, 2004), violence (Michalopoulos & Papaioannou, 2016), identity (McCauley & Posner, 2019), and regime durability (Poyker, 2016). I contribute to this literature by examining the population of

²The Type 1 or Type 2 FGM in the IPUMS-DHS refers to circumcision that involves removal of the flesh

women from the partitioned ethnic groups, Malinke and Peulh, who did not self-select into countries but were randomly assigned across borders. Although my DID approach addresses the deeply entrenched historical norms and beliefs in both countries, it is unable to account for the divergent attitudes in both countries, which can overestimate the coefficients.

Few studies employ a DID approach in examining FGM. For example, Poyker (2016) examines the role of regime durability in the persistence of FGM. The author uses a DID method and the artificial border of Africa as an experiment to analyze FGM outcomes among different ethnic groups. He finds evidence that regime stability leads to a decrease in FGM conditioned on the presence of FGM legislation. Another study that uses a DID approach to examine FGM is Cetorelli et al. (2020). They examine whether the FGM law in Mauritania led to a decrease in FGM prevalence over time. The authors used Mali, a nation with no FGM law, as a control group. My study is similar in approach to this study, but I focus on short-term FGM attitudes in Guinea.

This research also contributes to the literature that studies attitudinal change (Amirapu et al., 2020; Berg & Denison, 2013; Diabate & Mesplé-Somps, 2017; Jahangiry et al., 2021; Jakobsson & Kotsadam, 2011; Kotsadam & Jakobsson, 2011; Reig Alcaraz et al., 2014). In their research study, Diabate & Mesplé-Somps (2017) investigates the impact of return migrants on FGM practices in Mali. Using an instrumental variable approach, they find that return migrants from Cote d'Ivoire influence Malians residing in village communities to favor legislation banning FGM. In another study by Kotsadam & Jakobsson (2011), the authors examine the short-term impact of the Norwegian prostitution legislation on attitudes towards the practice. Using a DID approach and Sweden as the control group, the authors find that the legislation did not affect attitudes towards moral behavior. I use a similar approach and research design to Kotsadam & Jakobsson (2011) but focus on FGM attitudes in Guinea³.

This study has a few limitations due to data availability. Firstly, I am unable to include the confounding variable that measures the activities of anti-FGM media campaigns. While

³For a systemic review of the literature on FGM attitudes, see Jahangiry et al. (2021)

the IPUMS-DHS contains data on anti-FGM media campaigns, this is not available for Guinea and Mali. Activities of anti-FGM organizations to eliminate FGM could have paved the way for the law ban in Guinea and also led to negative attitudes towards FGM, which would overestimate the coefficients. I control for the educational level and radio usage of the respondents as a proxy for anti-FGM media campaigns, which slightly addresses the problem. Reports have shown that radio, among other media outlets, is used for educating communities about the ills of FGM⁴. Secondly, this study focuses on the immediate change in FGM attitudes from the law ban. It is possible that the change in attitude towards FGM evolved, and the short-term effect could differ from the long-term.

The remainder of the chapter is as follows. Section 3.2 gives a background of FGM laws in Guinea and Mali. Section 3.3 describes the data used in the study, while Section 3.4 introduces the empirical strategy for the analysis. Section 3.5 discusses the result of the study. Section 3.6 concludes the chapter.

3.2 Female Genital Mutilation Law in Guinea in Mali

Guinea and Mali have among the highest FGM rates worldwide. According to the Demographic Health Survey (DHS), the FGM rate in Guinea among all women aged 15-49 years was approximately 97% in 2012. For Mali, the DHS reports a prevalence rate of around 91% in the 2012-2013 survey wave. The maps in sections F.0.1 and F.0.2 of the Appendix show the FGM rates across different regions in Guinea and Mali. In Guinea, the map shows that FGM rates are over 95% in all administrative regions except for N'Zerekore, which has a rate of 87.1%. In Mali, FGM rates are low in the regions of Gao and Kidal, which share a border with Niger.

In 1965, Guinea became the first country to have national legislation banning FGM. This was followed by the ratification of multiple international and regional treaties within the next four decades. In October 2016, the Guinean government introduced Law N°2016/059/AN (Criminal code), which provided a clear definition of FGM, explicitly banned all forms of

⁴see <https://www.refworld.org/docid/46d5787832.html>

FGM, and set sanctions against circumcisers and parents of girls who promoted female circumcision. Although provision had strict penalties for performing FGM in Guinea, the law has been weakly enforced, with very few prosecution proceedings recorded.⁵

Alternatively, Mali is one of six African countries that does not have national legislation against FGM. All efforts to introduce an FGM law have proved futile, with top religious leaders in the country objecting to the implementation.⁶ Over the years, Mali has signed several treaties similar to Guinea that favors the elimination of FGM. Appendix F.0.3 shows a timeline of the different international and regional treaties that Guinea and Mali have signed and ratified in over four decades. These treaties aim to end discrimination against women, empower children, and uphold human rights. Harmful practices such as FGM that affect the well-being of women and girls violate the treaties. Despite the international and regional treaties signed and national legislation on FGM (in the case of Guinea), FGM rates in both countries have remained high.

3.3 Data

The Standard Demographic Health Surveys (DHS) are nationally representative micro-level surveys conducted in over 90 countries. These surveys record household health, education, and population outcomes. I access the DHS data through the IPUMS-DHS site developed by Boyle et al. (2020b) which compiles the surveys in a consistent manner across countries and periods. I focus on surveys conducted in Guinea and Mali where the female respondents were asked, “Do you think that female circumcision should be continued, or should it be stopped?” Women could respond with whether they believed female circumcision should “continue”, “stop”, “don’t know”, or “depends”. For the dependent variable (the attitude that FGM should stop), I assign a value of 1 if respondents believed FGM should stop and 0 if they favored the continuation of the practice.

My sample data comprises women aged 15-49 from Guinea and Mali in the years 2012

⁵see 28 Too Many (2018b) for more information.

⁶see 28 Too Many (2018a) for more details.

and 2018 ⁷. I further limit the sample to include only women from Malinke and Peulh ethnic groups whose homelands are in both Guinea and Mali. My final data has 7,655 women from the Malinke group and 10,713 from the Peulh group. A description of all the variables in the study is listed in Appendix H.

The Guinean government implemented the FGM law in 2016 to eradicate the practice. To construct the explanatory variable, FGM law, I assign a code of 1 if Guinea had adopted the law (in 2018) and 0 otherwise. I also assign a code of 0 to Mali, which is the control group and does not have legislation against FGM. The descriptive statistics of my data are depicted in Table 3.1. The data shows that the percentage of women that wanted FGM to stop in 2012 was 21% in Guinea and 18% in Mali. After the FGM law was introduced, there was a four percentage point increase among women that disapproved of FGM in Guinea (21% to 25%). However, in Mali, there was a decrease in the number of women that believed FGM should stop by one percentage point (18% to 17%) post-intervention. The average age of women in the sample was 28 years. The characteristics such as the number of children, marital status, young population, educational level, and religion were similar in Guinea and Mali before the intervention.

3.4 Empirical Strategy

To examine the effect of the FGM law on women's attitudes towards stopping the practice, I estimate the difference-in-difference equation:

$$FGMAttitude_{ict} = \beta_0 + \beta_1 2018_t + \beta_2 Guinea_c + \beta_3 Law_{ict} + \beta_4 \mathbf{X}_{ict} + \epsilon_{ict} \quad (3.1)$$

Where i , c and t are subscripts that denote individuals, country, and time. The dependent variable $FGMAttitude_{ict}$ is a dummy variable which equals 1 if a woman i from

⁷Note that IPUMS-DHS surveys that included a question about the attitude towards FGM are available for Mali (2001, 2006, 2012, 2018) and Guinea (1999, 2005, 2012, 2018). I restrict my sample to the periods 2012 and 2018 because these are the only surveys carried out in the same year in both countries.

Table 3.1: Descriptive Statistics

Variable	Guinea						Mali					
	2012			2018			2012			2018		
	Mean	Std. Dev.		Mean	Std. Dev.		Mean	Std. Dev.		Mean	Std. Dev.	
Age	28.85	9.65		28.81	9.82		28.59	8.82		28.32	9.04	
Number of children	3.17	2.80		2.78	2.58		3.24	2.67		3.34	2.88	
Marital status	0.76	0.43		0.74	0.44		0.83	0.38		0.84	0.37	
Young population	0.68	0.47		0.67	0.47		0.72	0.45		0.73	0.44	
Type 1 and 2 FGM	0.94	0.25		0.70	0.46		0.58	0.49		0.22	0.41	
Wealth quintile	2.96	1.42		2.98	1.43		3.36	1.47		3.20	1.42	
Educational level	0.48	0.84		0.45	0.83		0.47	0.83		0.60	0.88	
Muslim	1.00	0.07		1.00	0.07		0.98	0.15		0.98	0.15	
Work status	0.72	0.45		0.62	0.49		0.42	0.49		0.52	0.50	
Radio	0.66	0.47		0.55	0.50		0.76	0.43		0.68	0.47	
FGM status	0.99	0.08		0.98	0.14		0.95	0.22		0.94	0.23	
Polygyny	0.52	0.50		0.47	0.50		0.30	0.46		0.33	0.47	
Justifies wife beating	0.78	0.41		0.53	0.50		0.58	0.49		0.66	0.47	
Traditional practitioner	0.80	0.40		0.69	0.46		0.88	0.33		0.88	0.32	
Religious beliefs on FGM	0.75	0.43		0.70	0.46		0.81	0.40		0.77	0.42	
Daughter is circumcised	0.37	0.48		0.30	0.46		0.49	0.50		0.49	0.50	
FGM should stop	0.21	0.40		0.25	0.43		0.18	0.39		0.17	0.38	

country c in year t believes that FGM should stop and 0, otherwise. The post-treatment and treated groups are denoted as β_1 and β_2 respectively. The parameter of interest is Law_{ict} , which is the difference-in-difference estimate. It is the interaction between the treated group and post-treatment period $(Guinea \times 2018)_{ict}$ indicating a woman living in Guinea in 2018. The vector $\mathbf{X}_{ict}$ contains individual covariates, which include age, marital status, number of children, wealth quintiles, educational level, religion-Muslim, work status, radio, FGM status, ethnic group dummy, and polygyny. β_0 denotes the intercept, which is also the control group, Mali, before the intervention. Lastly, the error term is e_{ict} .

3.5 Results and Discussion

In this section, I present the main result of the short-term impact of the 2016 FGM law ban in Guinea on attitudes. Furthermore, I report the difference in FGM attitudes between younger and older women. Finally, I examine different sub-samples of women to understand the impact of the law based on their characteristics: FGM background, domestic violence, religion, and tradition.

Note that I report all the results of the study in OLS for ease of interpretation. I include the logistic regression for the main results in the Appendix G, which is similar to the OLS estimates and does not change the results.

3.5.1 Main Results: Disapproval of Female Genital Mutilation

Table 3.2 depicts the result of the impact of FGM law on attitudes towards ending the practice. Individual covariates are included in the specifications reported in the even-numbered columns. The estimate in column 1 indicates that the FGM law ban in Guinea increased the disapproval of FGM by 5.4 percentage points, and this is statistically significant. Next, I divide the sample into the Malinke and Peulh ethnic groups and report the results of the FGM ban in columns 3 - 6. Similar to the full sample, I find that the FGM law increased negative attitudes towards FGM among women from both ethnic tribes.

Although having a negative attitude towards FGM does not imply a change in behavior, such disapproval among women indicates their readiness to change (RTC). The concept of RTC, which refers to the extent to which individuals are willing to abandon unethical behavior, has been applied to the practice of FGM. For instance, Shell-Duncan & Herniund (2006) suggest that behavioral change towards abandoning FGM occurs in stages. Part of the stages to change include (i) individuals who oppose FGM but circumcise their children (reluctant practitioners) and (ii) those who oppose FGM and do not circumcise their girls (willing abandoners). Since FGM rates in Guinea were as high as 96.8% in 2016⁸, our research suggests that women in our sample are reluctant practitioners of FGM who continue the practice even though they have negative attitudes towards its continuation. Several studies point to factors such as tradition, marriageability, peer pressure, and informal sanctions as reasons why families continue female circumcision (Billet, 2007; Mackie, 2000).

Table 3.2: Effect of FGM Law on Attitudes Towards Ending the Practice

Dependent variable: Respondents attitude that FGM should stop						
	Full sample		Ethnic groups			
			Malinke		Peulh	
	(1)	(2)	(3)	(4)	(5)	(6)
Law	0.054** (0.016)	0.065*** (0.017)	0.117*** (0.000)	0.095** (0.030)	0.015 (0.020)	0.046* (0.019)
Individual controls	No	Yes	No	Yes	No	Yes
Observations	15920	12356	6718	5090	9202	7266
R-squared	0.005	0.091	0.015	0.088	0.001	0.086

Notes: OLS estimates are reported with the robust standard errors in parenthesis. Individual controls include age, marital status, number of children, wealth quintiles, educational level, religion-muslim, work status, radio, FGM status, ethnic group dummy and polygyny. Data for the study is obtained from IPUMS-DHS. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

⁸refer to world bank indicator <https://data.worldbank.org/indicator/SH.STA.FGMS.ZS?locations=GN>

3.5.2 Young Population

Among the main reasons why FGM persists across cultures is the belief that it is an ethnic marker (Billet, 2007). With the custom being passed down across generations, it is expected that older people are more likely to place a high value on the continuation of the norm than the younger population. This view that older persons have stricter views regarding law change is supported by (Kotsadam & Jakobsson, 2011; Svallfors, 2010). In his study on state intervention in Eastern and Western Germany, Svallfors (2010) finds that the older generation is less likely to change their attitudes in response to an institutional change because their views have already been fully developed, after which they become rigid. This contrasts with younger generations who learn to form their beliefs and attitudes towards policy issues and are more likely to alter their perspectives as the laws are introduced or reformed. A similar result by Kotsadam & Jakobsson (2011) finds that younger people are more likely to change their views following legislation criminalizing than older people.

I examine the impact of the FGM law on attitudes based on age groups. I create a variable called young population and assign a code 1 if a woman is less than 25 years old and 0 if she is at least 40 years old. Then, I interact the young population and the law and run the following regression:

$$\begin{aligned} FGMAttitude_{ict} = & \beta_0 + \beta_1 2018_t + \beta_2 Guinea_c + \beta_3 YoungPopulation_{ict} \\ & + \beta_4 (2018 \times YoungPopulation)_t + \beta_5 (Guinea \times YoungPopulation)_t \\ & + \beta_6 Law_{ict} + \beta_7 (Law \times YoungPopulation)_{ict} + \beta_8 \mathbf{X}_{ict} + \epsilon_{ict} \quad (3.2) \end{aligned}$$

Columns 1-2 in Table 3.3 show that the younger population in Guinea changed their attitudes in favor of ending FGM when the law was introduced. This is especially true for those women belonging to the Peulh tribe (columns 5-6). However, for those in the Malinke

tribe, the younger generation supported the continuation of FGM. Although the coefficients are not statistically significant, the result for the full sample is consistent with studies that have found that younger people are more likely to alter their attitudes when institutions change. (Kotsadam & Jakobsson, 2011; Svallfors, 2010).

Table 3.3: Effect of FGM Law on Attitudes: Young Population

	Dependent variable: Respondents attitude that FGM should stop					
	Full sample		Ethnic groups			
			Malinke		Peulh	
	(1)	(2)	(3)	(4)	(5)	(6)
Law x young population	0.055 (0.052)	0.059 (0.050)	-0.047 (0.084)	-0.008 (0.090)	0.100 (0.066)	0.090 (0.058)
Individual controls	No	Yes	No	Yes	No	Yes
R-squared	0.017	0.094	0.027	0.094	0.011	0.090
Observations	8,785	5,798	3756	2368	5,029	3,430

Notes: OLS estimates are reported with the robust standard errors in parenthesis. Individual controls include marital status, number of children, wealth quintiles, educational level, religion-muslim, work status, radio, FGM status, ethnic group dummy and polygyny. Data for the study is obtained from IPUMS-DHS. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

3.5.3 FGM Background

Studies have attributed the persistence in norms to the cultural inhibition syndrome, which occurs when people ignore positive attitudes for change because their cultural beliefs are at stake (Billet, 2007; Magied & Makki, 2004). The fear of losing their ethnic identity, in addition to peer pressure from family, provides a reason why circumcised mothers are more likely to circumcise their daughters (Morris, 1996). I investigate whether women who have circumcised daughters are less likely to favor the eradication of FGM. Columns 1-2 in Table 3.4 reports the findings for the subsamples of women with circumcised daughters. I do not find any evidence that the FGM law altered attitudes towards ending the practice among women with circumcised daughters.

In my sample, 86% of the women have undergone either type 1 or type 2 FGM. Columns 3-4 report the results for the subsample of women that have undergone either Type 1 or Type 2 FGM. I find that Guinean women who had undergone Type 1 or 2 FGM had more negative attitudes after the FGM law ban.

Table 3.4: Effect of FGM Law Based on FGM Background

Dependent variable: Respondents attitude that FGM should stop				
	Respondent's daughter has been circumcised		Respondent's has undergone Type 1 or 2 FGM	
	(1)	(2)	(3)	(4)
Law	-0.002 (0.020)	0.014 (0.020)	0.058** (0.022)	0.070** (0.023)
Individual controls	No	Yes	No	Yes
Observations	5836	5588	12270	9643
R-squared	0.001	0.029	0.006	0.048

Notes: OLS estimates are reported with the robust standard errors in parenthesis. Individual controls include age, marital status, number of children, wealth quintiles, educational level, religion-muslim, work status, radio, FGM status, ethnic group dummy and polygyny. Data for the study is obtained from IPUMS-DHS. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

3.5.4 Domestic Violence

Next, I examine how women who justify domestic violence responded to the FGM law. In the DHS questionnaire, women were asked if they believed a husband was justified in beating his wife if she argued with him. For the domestic violence variable, women who answered in the affirmative were coded as 1 and 0 if they disagreed. The FGM attitudes of these women after the law ban are reported in Table 3.5. I find no evidence that women who support domestic violence were more likely to favor the continuation of FGM.

Table 3.5: FGM Law and Domestic Violence

Dependent variable: Respondents attitude that FGM should stop		
	Respondent justifies domestic violence	
	(1)	(2)
Law	0.024 (0.020)	0.032 (0.020)
Individual controls	No	Yes
Observations	10221	8332
R-squared	0.003	0.061

Notes: OLS estimates are reported with the robust standard errors in parenthesis. Individual controls include age, marital status, number of children, wealth quintiles, educational level, religion-muslim, work status, radio, FGM status, ethnic group dummy and polygyny. Data for the study is obtained from IPUMS-DHS. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

3.5.5 Religion and Traditional Circumcisers

In some cultures, religion plays an essential role in perpetuating female circumcision. I examine the effect of the law among women who believed that FGM was a significant aspect of their religion. The result Table 3.6 shows close to no change in attitudes among women who believed FGM was important for their religion.

Next, I study the attitudes of women based on whether they were circumcised by traditional circumcisers. Traditional practitioners differ according to ethnic groups, but most are midwives who gain respect and influence in their villages due to their occupation (Kouba & Muasher, 1985). Columns 4 and 5 Table 3.6 show that among women who were circumcised by traditional practitioners, the FGM ban led to an increase in negative attitudes towards FGM practices.

Table 3.6: FGM attitudes: Religion and Tradition

	Dependent variable: Respondents attitude that FGM should stop			
	Respondent believes that FGM is important for religion		Circumcised by traditional practitioner	
	(1)	(2)	(1)	(2)
Law	-0.003 (0.014)	0.008 (0.015)	0.084*** (0.016)	0.094*** (0.018)
Individual controls	No	Yes	No	Yes
Observations	11231	8937	11952	9892
R-squared	0.002	0.037	0.007	0.047

Notes: OLS estimates are reported with the robust standard errors in parenthesis. Individual controls include age, marital status, number of children, wealth quintiles, educational level, religion-Muslim, work status, radio, FGM status, ethnic group dummy and polygyny. Data for the study is obtained from IPUMS-DHS. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

3.6 Conclusion

This chapter examines the interplay between law and cultural attitudes. I investigate the 2016 Female Genital Mutilation law ban in Guinea to understand how attitudes towards the discontinuation of the practice changed in the short term. Using IPUMS-DHS data for Guinea and the control group, Mali, I examine FGM attitudes of women aged 15-49 using a difference-in-difference approach. I exploit the artificial boundaries in the African continent, which arbitrarily partitioned ethnic groups across countries as an experiment.

Focusing on the Malinke and Peulh tribes in Guinea and Mali, my result shows that the FGM law was associated with a 5.4 percentage point increase in attitudes favoring the ending of the practice. In addition, my results show an increase in negative attitudes towards FGM among women that had undergone Type 1 or 2 FGM and also those that were circumcised by a traditional practitioner.

This study provides insights into how attitudes regarding deeply entrenched norms change when laws prohibit such practices. To generalize the results of the study, the readers must be aware of some limitations. Firstly, the direct effect of the FGM law ban cannot

be separated from the effect of anti-FGM media campaigns. This gap provides room for future research to distinguish both effects on attitudes towards FGM. Secondly, the research focuses on changes in attitude towards FGM in the short term. More research is needed to understand better how FGM laws affect attitudes in the long run. In addition, future studies on FGM attitudes can explore differences in characteristics among women who disapprove of FGM but still practice it and those who abandon it altogether.

Appendix A: Tables

A.0.1 Sample Countries

Table A.1: Description of Sample Countries

Country	IPUMS-DHS Survey	Sample Size	Former French Colony	Anti-FGM Law
Benin	2001, 2006, 2011	9,885	Yes	Yes
Burkina Faso	1998, 2003, 2010	1,984	Yes	Yes
Ethiopia	2000, 2005, 2016	10,437	No	Yes
Guinea	1999, 2005, 2012, 2018	12,319	Yes	Yes
Kenya	1998, 2003, 2008, 2014	19,921	No	Yes
Liberia	2007, 2013	5,974	No	No
Mali	1995, 2001, 2006, 2012, 2018	23,615	Yes	No
Nigeria	1999, 2003, 2008, 2013, 2018	6,889	No	Yes
Senegal	2005, 2010, 2014, 2015, 2016, 2017	34,917	Yes	Yes

Table A.2: Ethnicities in Sample Countries

Country	Ethnicity
Benin	Fon
Burkina Faso	Bobo, Lobi, Samo
Ethiopia	Amhara, Basketo, Bena, Bodi, Burji, Konso, Mao
Guinea	Kissi, Malinke, Toma
Kenya	Kamba, Kikuyu, Luo, Masai, Meru, Pokomo, Samburu, Somali Turkana
Liberia	Gola, Kissi, Kpelle, Kru, Mende, Vai
Mali	Bambara, Bobo, Dogon, Malinke
Nigeria	Afo, Anaguta, Aulliminden, Bachama, Basa, Buduma, Cham Chamba, Efik, Egba, Ekoi, Ibibio, Idoma, Igala, Isoko, itsekiri Jukun, Kadara, Kagoro, Kamuku, Karekare, Koro, Kurama Maguzawa, Mambila, Mumuye, Nupe, Sanga, Shuwa, Tera, Tiv Uru, Yungur
Senegal	Diola, Serer, Soninke, Wolof

A.0.2 Summary Statistics

Table A.3: Summary Statistics of Data

Variable	Observations	Mean	Std. Dev.	Min	Max
Individual Level Characteristics					
Female Genital Mutilation	129,688	0.47	0.50	0	1
Attitude: FGM should continue	104,188	0.35	0.48	0	1
Urban residence	130,229	0.39	0.49	0	1
Islamic religion	125,941	0.42	0.49	0	1
Years of schooling	125,312	3.81	4.63	0	26
Married	130,229	0.65	0.48	0	1
Wealth index	117,579	0.57	4.50	-17	1000
Work status	130,033	0.57	0.50	0	1
Extramartial affair	114,176	0.09	0.29	0	1
Country Level Characteristics					
Natural log of GDP	130,229	23.46	1.02	21.24	26.87
Former french colonies	125,383	0.66	0.47	0	1
FGM law ban	125,383	0.76	0.42	0	1
Ethnic Level Characteristics					
Pastoralism					
0-25% dependence level	126,860	0.23	0.42	0	1
26-35% dependence level	126,860	0.41	0.49	0	1
36-45% dependence level	126,860	0.35	0.48	0	1
Plow agriculture	130,074	0.08	0.27	0	1
Kinship tightness	124,746	0.36	0.12	0	0.5
score 0	124,746	0.001	0.04	0	1
score 0.25	124,746	0.55	0.50	0	1
score 0.5	124,746	0.45	0.50	0	1
Bride price	130,229	0.92	0.27	0	1
Male circumcision	120,181	0.95	0.23	0	1
Premarital sexual behavior norm	75,168	0.33	0.47	0	1

Appendix B: Results of Robustness Checks

B.0.1 3-year Birth Cohort Analysis

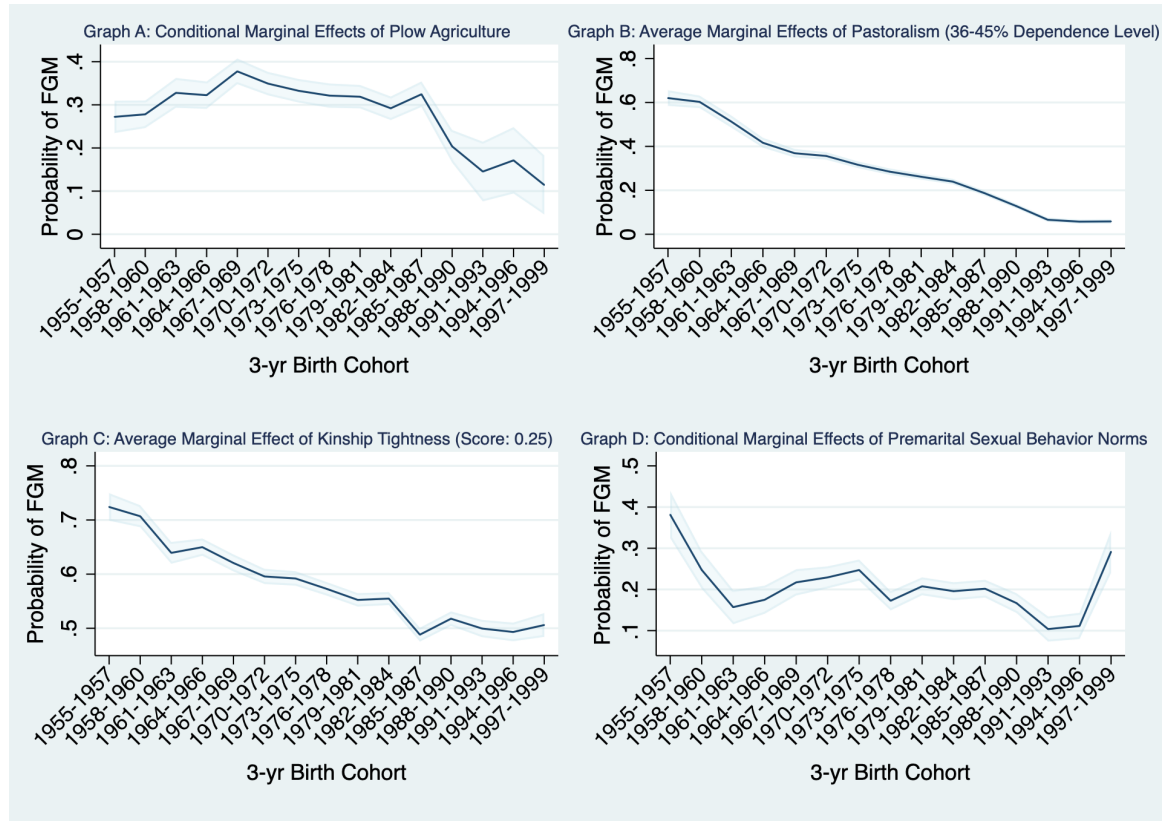


Figure B.1: Predicted probabilities of FGM by plow agriculture, pastoralism (36-45% dependence level), kinship tightness (score: 0.25) and premarital sexual behavior norms based on 3-year birth cohorts. 95% confidence intervals are depicted by the shaded area around the plot line.

Appendix C: Additional Tables

Table C.1: FGM Attitudes and Economic Determinants

	Dependent Variable: FGM Should Continue			
	(1)	(2)	(3)	(4)
Panel A				
Pastoralism (omitted 0-25% dependence)				
26-35% dependence	-0.003 (0.006)	-0.009 (0.006)	-0.009 (0.006)	-0.022*** (0.006)
36-45% dependence	-0.228*** (0.008)	-0.258*** (0.008)	-0.259*** (0.008)	-0.353*** (0.100)
Observations	75,183	75,183	75,183	75,183
R-squared	0.521	0.541	0.541	0.548
Panel B				
Plow agriculture	0.273*** (0.028)	0.264*** (0.044)	0.341*** (0.042)	0.340*** (0.043)
Observations	77,429	77,429	77,429	77,429
R-squared	0.453	0.497	0.497	0.498
# of clusters	38	38	38	38
Year and country FE	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes
Country controls	No	No	Yes	Yes
Ethnicity controls	No	No	No	Yes

Notes: OLS estimates are reported with the standard errors in parenthesis. For the pastoralism specifications in Panel A, the robust standard errors are reported. For the plow agriculture specifications in Panel B, the standard errors are clustered at the ethnicity level. Individual controls are years of schooling, wealth index, residence status, religion, work status, marital status and extra marital affair. Country level includes the natural log of GDP. Ethnicity controls include male circumcision and bride price. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C.2: FGM Attitudes and Cultural Determinants

	Dependent Variable: FGM Should Continue			
	(1)	(2)	(3)	(4)
Panel A				
Kinship tightness (omitted score:0)				
score: 0.25	0.078* (0.004)	0.096*** (0.003)	0.097** (0.003)	0.100** (0.003)
score: 0.5	0.015 (0.066)	0.047 (0.069)	0.048 (0.070)	0.053 (0.072)
Observations	74,174	74,174	74,174	74,174
R-squared	0.484	0.534	0.534	0.535
# of clusters	34	34	34	34
Panel B				
Premarital sexual behavior norms	0.221*** (0.011)	0.179*** (0.012)	0.180*** (0.012)	0.193*** (0.012)
Observations	44,510	44,510	44,510	44,510
R-squared	0.187	0.262	0.262	0.274
Year and country FE	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes
Country controls	No	No	Yes	Yes
Ethnicity controls	No	No	No	Yes

Notes: OLS estimates are reported with the standard errors in parenthesis. For the kinship tightness specifications in Panel A, the standard errors are clustered at the ethnicity level. For the premarital sexual behavior norms specifications in Panel B, the robust standard errors are reported. Individual controls are years of schooling, wealth index, residence status, religion, work status, marital status and extra marital affair. Country level includes the natural log of GDP. Ethnicity controls include male circumcision and bride price. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix D: Additional Figures

D.0.1 FGM Status and FGM Law Prohibitions

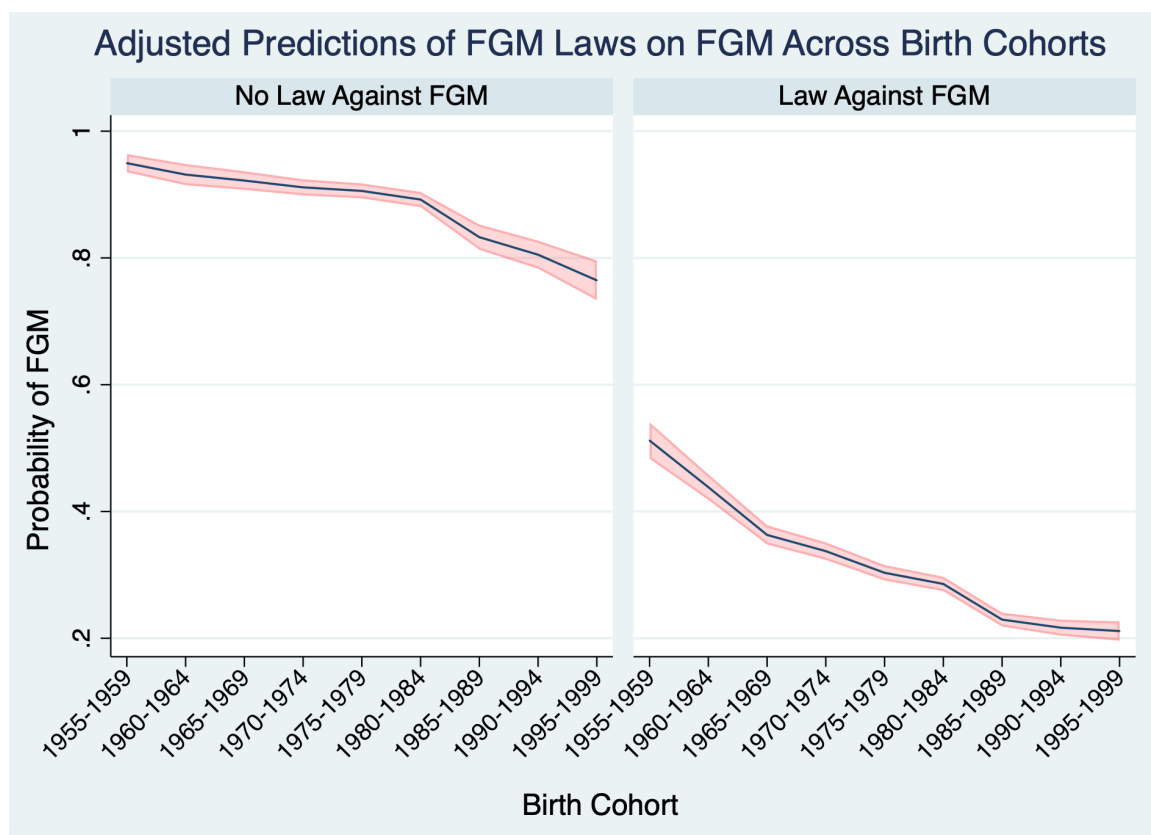


Figure D.1: Predicted probabilities of FGM by the presence of FGM laws across birth cohorts. Countries in the sample with Anti-FGM laws include Benin, Burkina Faso, Ethiopia, Guinea, Kenya, Nigeria, and Senegal. 95% confidence intervals are depicted by the shaded area around the plot line.

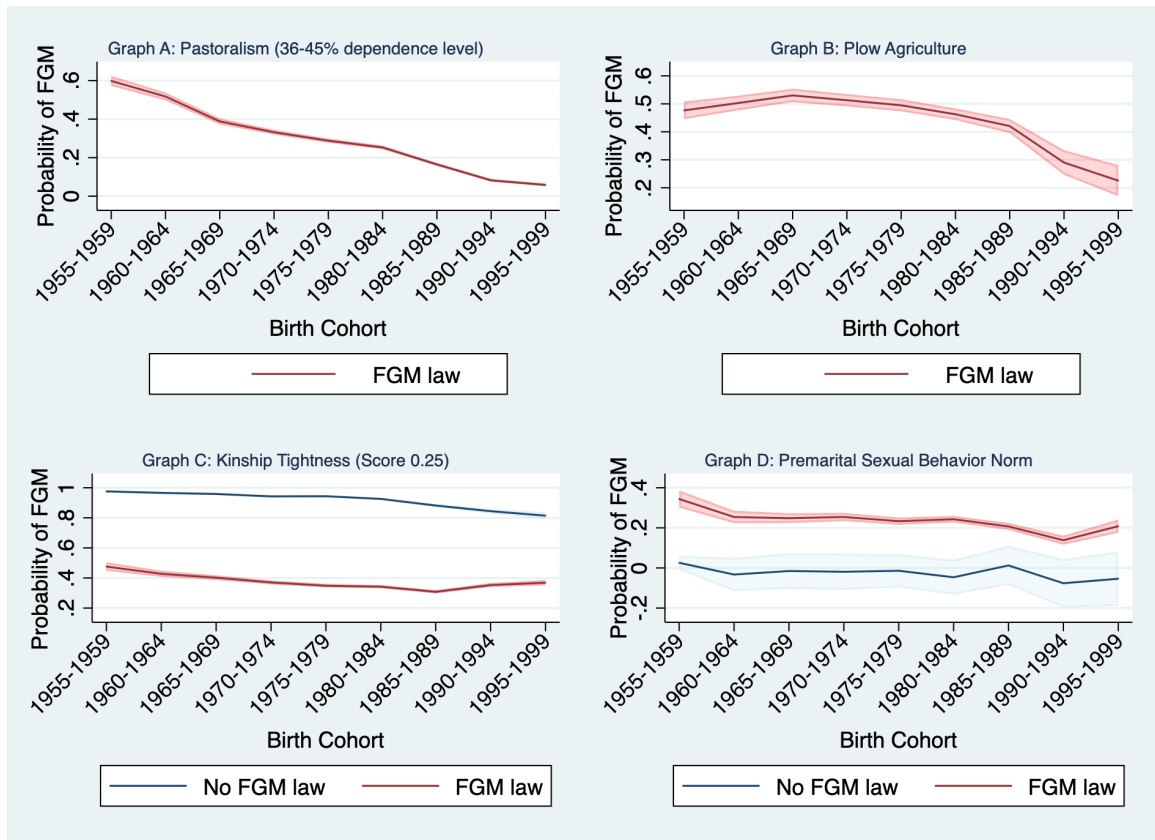


Figure D.2: Predicted probabilities of FGM by pastoralism (36-45% dependence level), plow agriculture, kinship tightness (score: 0.25) and premarital sexual behavior norms according to FGM laws in the country. Countries in the sample with Anti-FGM laws include Benin, Burkina Faso, Ethiopia, Guinea, Kenya, Nigeria, and Senegal. 95% confidence intervals are depicted by the shaded area around the plot line.

D.0.2 FGM Status and Former French Colonies

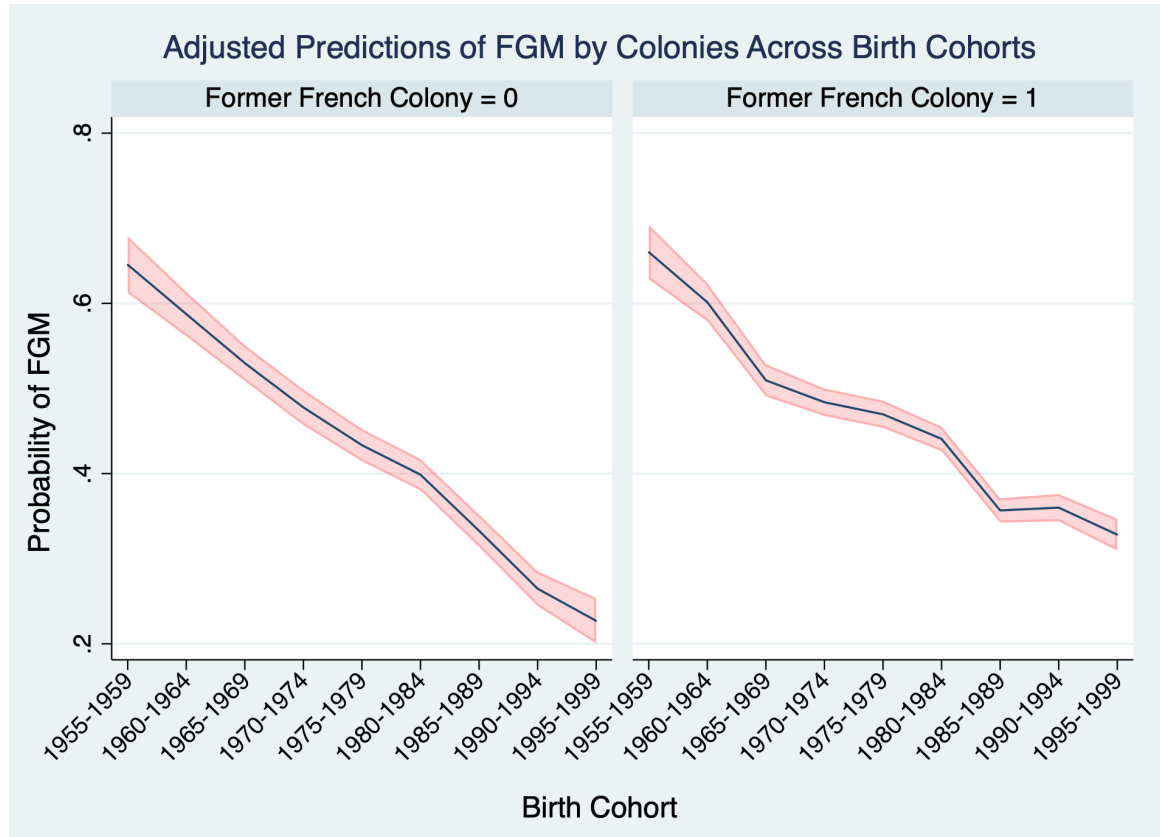


Figure D.3: Predicted probabilities of FGM by former french colonies across birth cohorts. Countries in the sample that were former french colonies include include Benin, Burkina Faso, Mali and Senegal. 95% confidence intervals are depicted by the shaded area around the plot line.

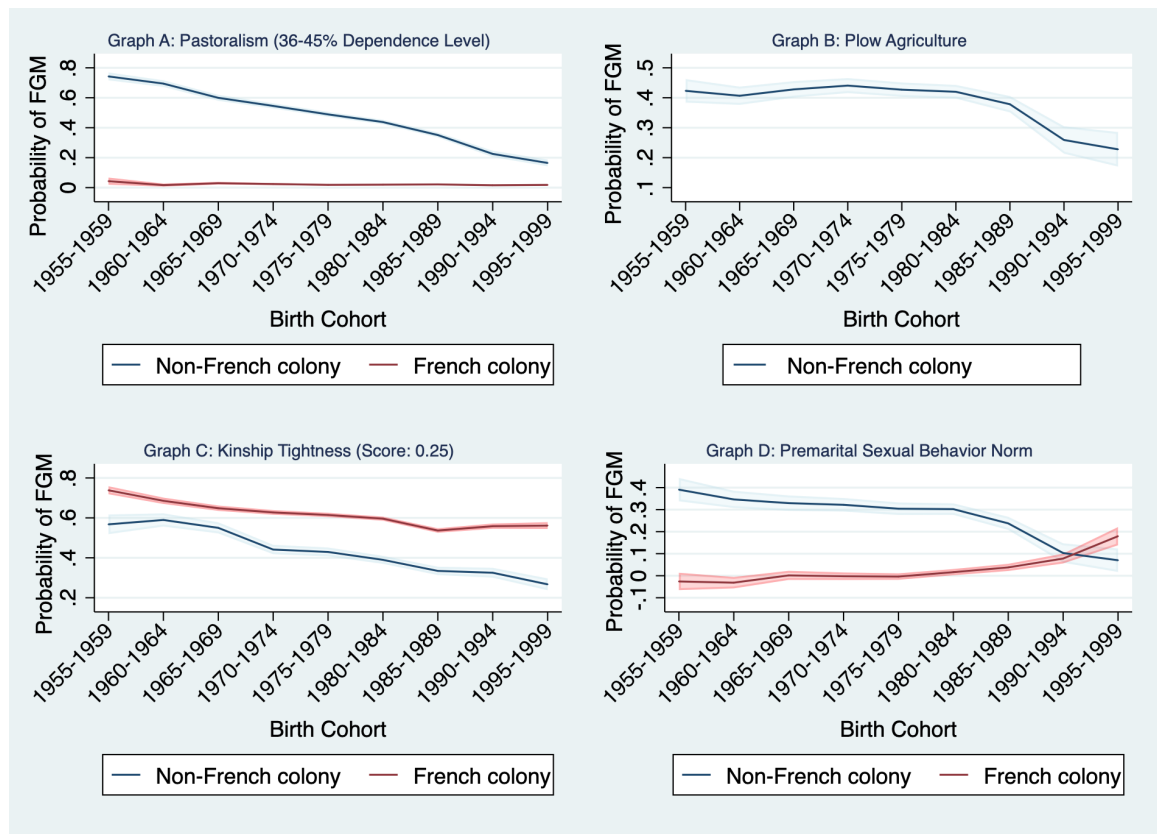


Figure D.4: Predicted probabilities of FGM by pastoralism (36-45% dependence level), plow agriculture, kinship tightness (score: 0.25) and premarital sexual behavior norms according to former French colonies. Countries in the sample are former French colonies include Benin, Burkina Faso, Mali, and Senegal. 95% confidence intervals are depicted by the shaded area around the plot line.

Appendix E: List of Variables

E.0.1 Ethnographic Atlas (EA) variables

1. Pastoralism: I use the same variables that Becker (2019) used to construct historical pastoralism which involves taking the product of 2 variables to compute pastoralism. Then I drop the pastoral dependence level from 46-100% because it has less than 3% of the observations. I assign a code 0, 1 and 2 if the pastoralism dependence level is 0-25%, 26-35% and 36-45% respectively. The variables I use to construct pastoralism from the EA include:
 - (a) Animal husbandry: This records the extent to which an ethnic group depends on animal husbandry relative to other subsistence activities (v4).
 - (b) Herd animals: This is a dummy variable that takes the value of 1 if the predominant type of animal kept is a herd animal such as sheep, goats, horses, camels, and bovine animals and 0 otherwise. The variable is constructed from v40.
2. Plow agriculture: This indicator variable is coded 1 if the plow is used among the ethnic group and 0 otherwise (variable v39).
3. Kinship tightness: I use the variables that Enke (2019) used to compute the kinship intensity index. However, instead of using the Principal Component Analysis (PCA), I take the weighted average of 4 the variables from the EA and end up with scores of 0, 0.25 and 0.5. The variables used to compute kinship tightness from the EA include:
 - (a) Bilateral descent: this is a dummy variable that equals 1 if there is a bilateral descent and 0 otherwise (variable v43).
 - (b) Segmented communities and localized clans: this is a dummy variable that equals 1 if the ethnic group had a community marriage organization that was segmented and had localized clans (variable v15).

- (c) Domestic organization: This dummy variable is coded 1 if an ethnic group has a domestic organization formed around an independent nuclear family and 0 otherwise (variable v8).
 - (d) Post wedding residence: this is a dummy variable that equals 1 if the husband lives with the wife's family after the wedding or vice versa and 0 otherwise (variable v11).
4. Premarital sexual behavior norms: This dummy variable takes on a value of 1 if the early marriage of female or insistence on virginity is expected and 0 otherwise (variable v78).
 5. Bride price: This dummy variable takes on the value of 1 if the ethnic group practiced bride price as a marriage custom and 0 otherwise (variable v6).
 6. Male genital mutilation: This dummy variable that equals 1 if male circumcision was practiced among the ethnic group and 0 otherwise (variable v37).

E.0.2 World Bank Data: World Development Indicators

1. GDP: It measures GDP (constant 2010 US\$). It was transformed to natural logs for analysis.

E.0.3 IPUMS-DHS

1. FGM status (G102): This is a dummy variable which equals 1 if a woman has been circumcised and 0 otherwise.
2. FGM attitude (G119): This is a dummy variable equal to 1 if the woman believes FGM should continue and 0 otherwise.
3. Years of schooling (V133): This variables measures the respondent's total years of education.
4. Ethnicity(V131):This variable records the respondent's ethnic group.

5. Residence Status (V024): This is a dummy variable which is equal to 1 if a woman lives in a urban area and 0 otherwise.
6. Age (V012): Age of female respondent.
7. Birth year (V010): Female's year of birth.
8. Birth cohort: This variable groups women by birth year within a 5-year interval. It is computed from the variables age and birth year. The youngest birth cohort is 1995-1999, while the oldest birth cohort is 1955-1959.
9. 3-year birth cohort: This variable groups women into 3-year intervals based on their birth year. The youngest birth cohort is 1997-1999, and the oldest birth cohort is 1955-1957
10. Religion (V130): Indicator variable which takes the value 0 (Christian), 1(Muslim), and 2(other). In the study, I use the values for Muslims and Christians only.
11. Marital status (V501): This is an indicator variable that takes the value 1 if a woman is married and 0 otherwise
12. Extramarital affair (v766a): This is an indicator variable that equals 1 if the respondent has had an extramarital affair and 0 otherwise.
13. Work status (V714): This is a dummy variable which equals 1 if a woman is currently working and 0 if otherwise.
14. Wealth index (V191): This measures the household wealth index.

Appendix F: List of Figures

F.0.1 FGM Prevalence Rates Across Regions in Guinea

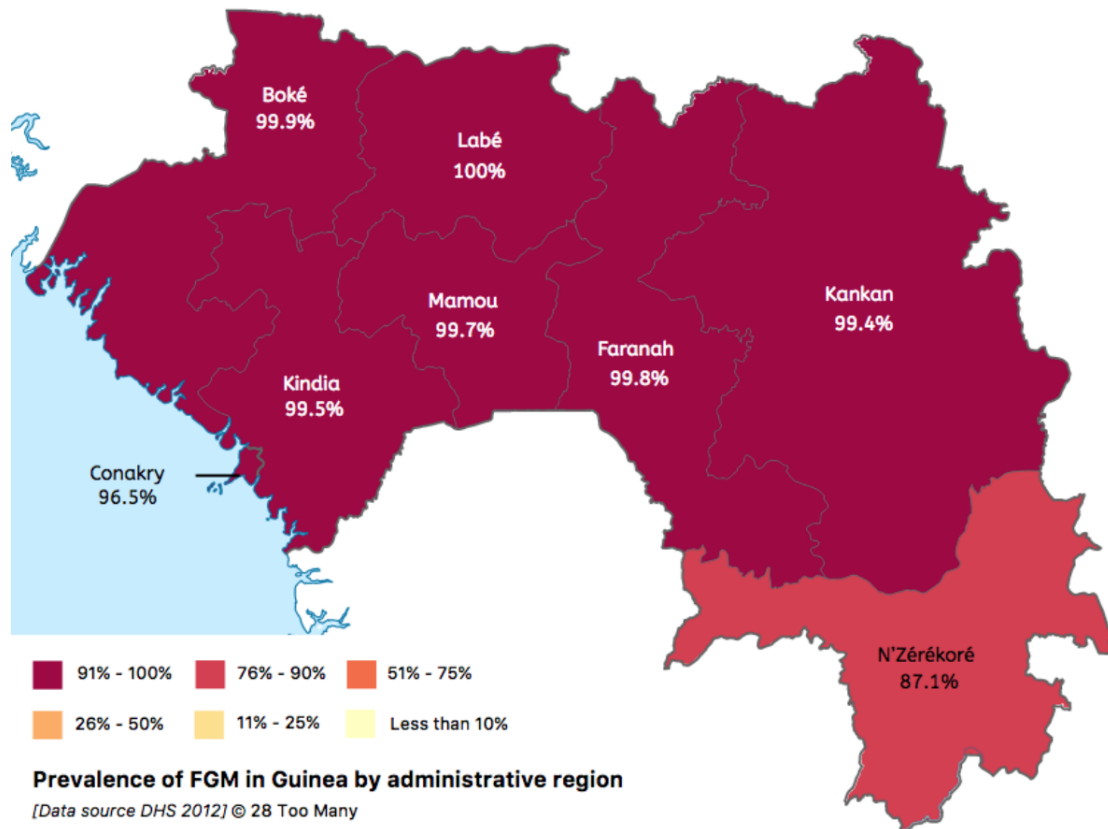


Figure F.1: FGM prevalence rates across regions in Guinea in 2012

Source: Image obtained from 28 Too Many (2018a) website with data from DHS

F.0.2 FGM Prevalence Rates Across Regions in Mali

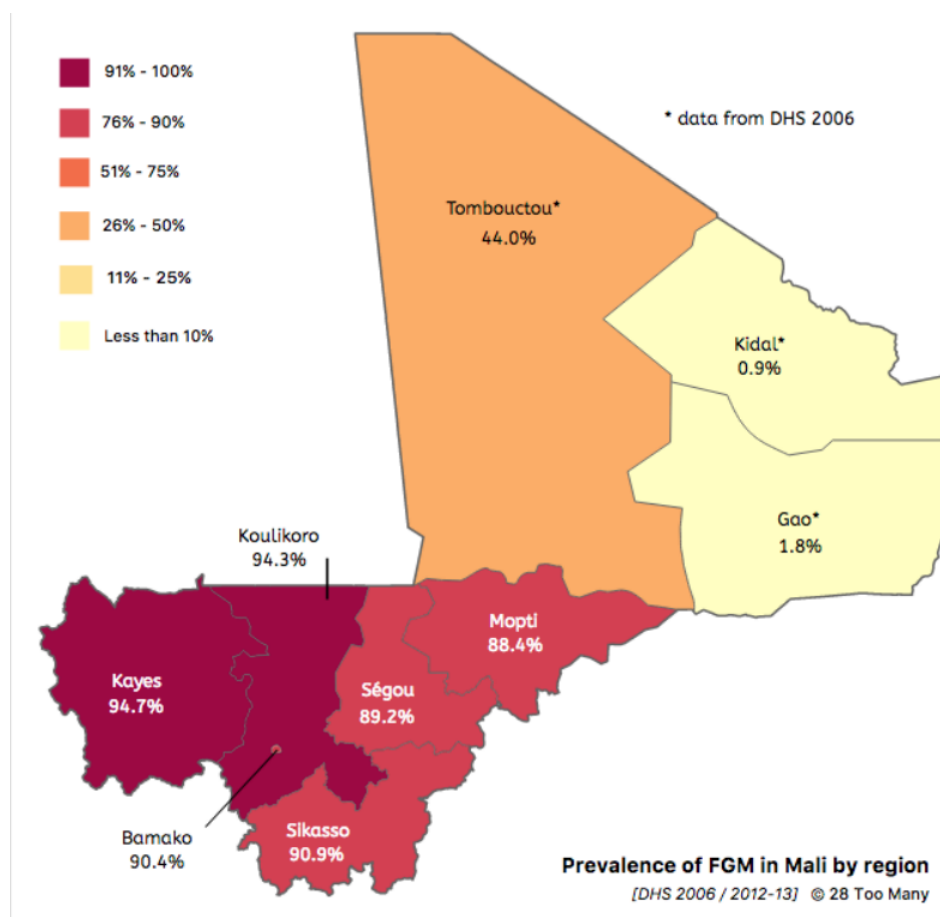


Figure F.2: FGM prevalence rates across regions in Mali in 2006, 2012-2013

Source: Image obtained from 28 Too Many (2018b) website with data from DHS

F.0.3 International and Regional FGM Treaties

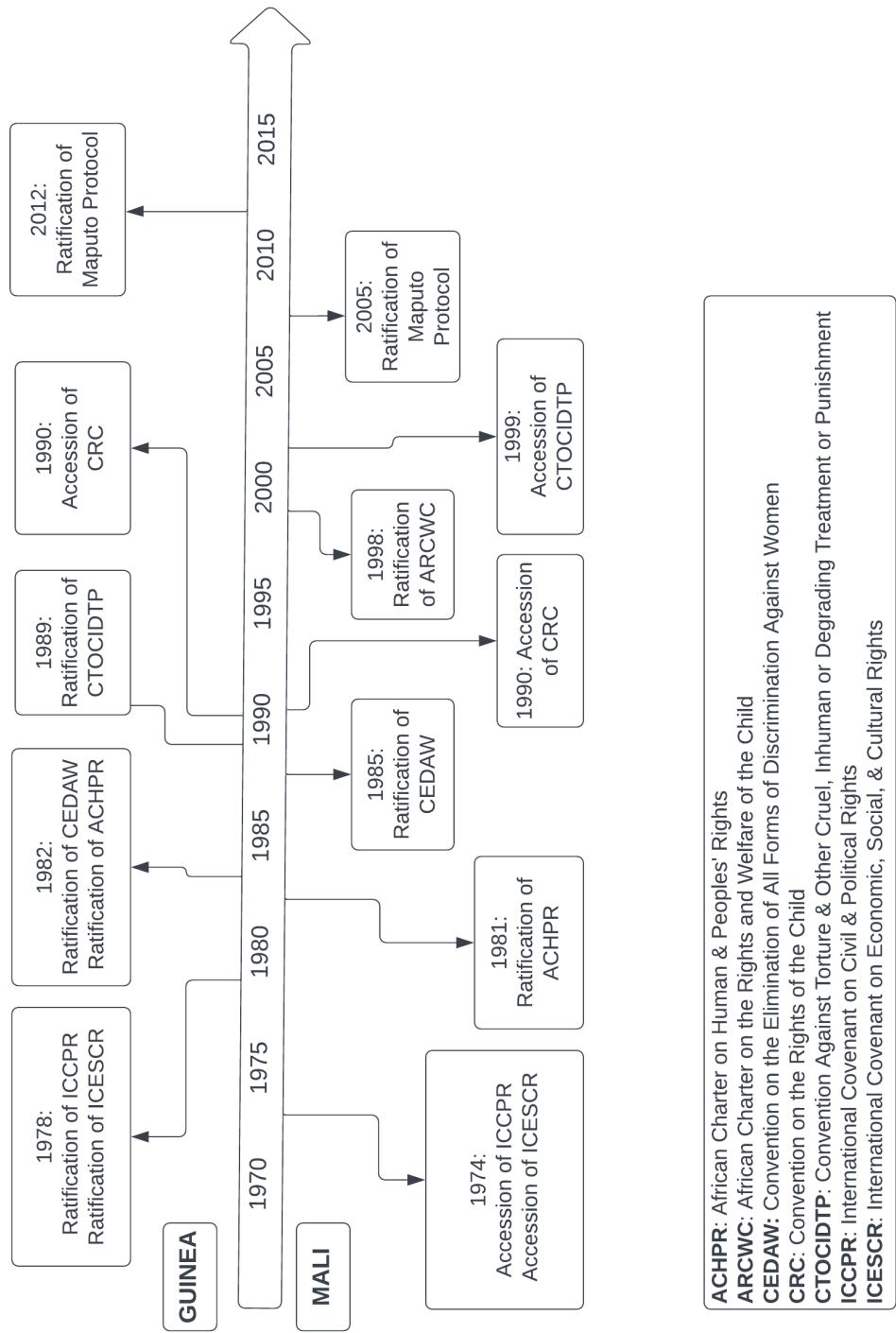


Figure F.3: International and regional FGM treaties in Guinea and Mali

Source: Information about the FGM treaties was obtained from (28 Too Many, 2018a,b)

Appendix G: List of Tables

G.1 Effect of FGM Law on Attitudes Towards Ending FGM

Table G.1: Effect of FGM Law on Attitudes Towards Ending the Practice (Logistic Regression)

Dependent variable: Respondents attitude that FGM should stop						
	Full sample		Ethnic groups			
			Malinke		Peulh	
	(1)	(2)	(3)	(4)	(5)	(6)
Law	0.055** (0.019)	0.063*** (0.020)	0.120*** (0.034)	0.093* (0.037)	0.016 (0.022)	0.046* (0.023)
Individual controls	No	Yes	No	Yes	No	Yes
Observations	15920	12356	6718	5090	9202	7266

Notes: The margins estimates from the logistic regression are reported with the robust standard errors in parenthesis. Individual controls include age, marital status, number of children, wealth quintiles, educational level, religion-muslim, work status, radio, FGM status, ethnic group dummy and polygyny. Data for the study is obtained from IPUMS-DHS. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix H: List of Variables

H.1 Description of Data

1. FGM should stop (FCCONTINU): This is a dummy variable equals to 1 if the respondents believes FGM should stop and 0 otherwise.
2. Age (AGE): Age of female respondent ranging from 15 to 49 years.
3. Young population: This is a dummy variable that equals 1 if a woman is under 25 years and 0 if she is at least 40 years old.
4. FGM status (FCCIRC): This dummy variable equals 1 if a woman has been circumcised and 0 otherwise.
5. Educational level (EDUCLVL): This categorical variable indicates the highest level of education for the woman. It takes the values: 0(no education), 1(primary), 2(secondary), 3(higher)
6. Ethnic group: This is a dummy variable that includes the woman's ethnic group, Malinke or Peulh. The variable combines ethnicity from Guinea (ETHNICITYGN) and Mali (ETHNICITYML).
7. Islamic religion (RELIGION): This dummy variable equals 1 if the respondent is a Muslim and 0 otherwise.
8. Marital status (MARSTAT): This is a dummy variable that takes the value of 1 if a woman is married and 0 if she is not.
9. Work status(CURRWORK): This dummy variable equals 1 if a woman is currently working and 0 if otherwise.
10. Wealth index(WEALTHQ): This is an indicator variable for relative household wealth divided into quintiles with the values; 1(poorest), 2(poorer), 3(middle), 4(richer), and 5(richest).
11. Polygyny (WIFENUM): This is a dummy variable that equals 1 if the respondent has co-wives and 0 otherwise.
12. Number of children (CHEB): This variable records the number of children that the respondent has.
13. Radio (RADIOBRIG): This is a dummy variable which equals 1 if the respondent listens to the radio and 0 otherwise

14. Type 1 or 2 FGM: This variable combines three IPUMS-DHS variables which are FCFLESH (a woman's flesh was removed during FGM), FCNICK(a woman was nicked without the flesh being removed during circumcision) and FCINFIB(a woman was sewn for circumcision). The variable for type 1 or type 2 FGM is 1 if a woman's flesh was removed during circumcision and 0 if she was nicked or infibulated.
15. Has daughter that is circumcised (FCCIRDAU): This is a dummy variable which equals 1 if respondent's daughter has been circumcised and 0 otherwise.
16. FGM Law: This is a variable which equals 1 if a respondent is from Guinea and the time period is 2018.
17. Traditional Practitioner(FCPERF): This is a variable that equals 1 if a woman was circumcised by a traditional practitioner and 0 otherwise.
18. Religious beliefs on FGM (FCYNRELIG): This is a dummy variable that equals 1 if the respondent believes that FGM is an essential aspect of religion.
19. Beliefs on domestic violence(DVAARGUE): This dummy variable equals 1 if a woman believes that a man is justified for hitting or beating his wife if she argues with him and 0 otherwise.

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Curriculum Vitae

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