

The Impact of Laws Against Female Genital Mutilation in Africa

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Abstract

Though the practice of female genital mutilation (FGM) is an ingrained cultural practice in many countries, it violates the basic human rights of girls and women, in particular, their right to physical integrity and health. Governments in many countries, including those of Burkina Faso and Kenya, have enacted laws designed to eradicate the practice. In this paper, we seek to assess the impact these laws have had on the attitudes towards FGM of potentially affected women in Burkina Faso and Kenya. We use a difference-in-difference estimation strategy in which the interaction between the year the law was passed and the degree of exposure to the media provide quasi-exogenous variation in the degree of exposure to the law. Our results show a negative correlation between the introduction of the law and the probability of being opposed to FGM among women having been exposed to the media in Burkina Faso. Conversely, this correlation is positive in Kenya. These results are robust to a variety of specifications. This difference between the results for the two countries may be attributable to the prevalence of FGM in each country, their institutions, and the specifics of the laws against FGM and their implementation.

Keywords: Female genital mutilation, FGM, health, institutions, Africa, gender

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1. Introduction

Globally, between 100 and 140 million women have been subjected to FGM, while a further 3 million young girls are circumcised every year (Center for Reproductive Rights, 2009). This ancient practice violates the physical integrity and health of young girls and women (Mseddi *et al.*, 2006). In fact, since the removal of part of the genitalia is often performed on children and infants, they are not in a position to give consent (Rahman and Toubia, 2000). Furthermore, because of short- and long-term health impacts FGM is a public health issue, imposing a significant economic burden on healthcare systems (Adam *et al.*, 2010; WHO, 2012).

A number of steps have therefore been taken to protect the rights of these girls and women. Internationally, a legal framework to combat FGM was established by the signing of the Maputo Protocol in 2003. Article 5 of this Protocol stipulates that all practices violating human rights are to be eradicated. In 2012, the General Assembly of the United Nations adopted a series of resolutions calling on all governments to enact measures to protect the rights of children and women. Furthermore, a number of countries (24 in Africa) have passed laws against FGM. In light of these legislative efforts, which are central to this battle, we will examine the effect that passing these anti-FGM laws had on women's attitudes in Burkina Faso and Kenya. The choice of these two countries allows the impact of the laws to be compared across jurisdictions with varying rates of prevalence of FGM: high in Burkina Faso (76%), and medium in Kenya (32%), according to the WHO.

Our data is from Demographic and Health Surveys (DHS) conducted in Burkina Faso (1998, 2003, and 2010) and Kenya (1998 and 2008). We use information on women's attitudes toward FGM and respondents' exposure to various types of media in order to perform a difference-in-difference analysis. The year in which the anti-FGM law became effective provides our first difference in time. For the second difference we use the variation in the level of media exposure of the individuals in our sample. More specifically, our identification strategy assumes that individuals with access to media are more likely to know about the anti-FGM law. Thus, we are interested in the coefficient of the interaction variable for the anti-FGM law and media exposure.

Our estimates indicate that there is a negative relationship between the law / media interaction variable and the probability of opposing this practice in Burkina Faso. For individuals with access to media, introducing the law appears to have had the opposite effect of that hoped for

by the government, in that it encouraged women to support continuation of the practice rather than its elimination. In Kenya, however, the coefficient has a positive sign.

These estimates are robust to different estimation techniques (OLS, logit, probit), alternate specifications, and the introduction of various controls: cohorts ranging from 15 to 49 years, the zone of residence (urban or rural), the level of education of the women and their husbands, the sex of the head of household, religion, and ethnicity. However, a possible limitation to our identification strategy is that variation in the law / exposure-to-media interaction variable is not entirely exogenous. Other factors may affect the dependent variable while also being correlated with our variables of interest—this is particularly true of the income level, for which we have no data. Thus, we conduct sensitivity analysis of the type proposed by Altonji *et al.* (2005) and Nunn and Wantchekon (2011), in which we measure the ratio of selection on unobservables to selection on observables that would be required to attribute the entire effect of our (possibly endogenous) variable to selection bias. The results of our analysis indicate that a ratio of approximately three (3) would be required for selection bias to fully account for the impact of interaction between the law and media on attitudes toward FGM.

Our results ultimately reflect the incidence of the effective enforcement of the laws and how deeply FGM is anchored in the national culture. Specifically, we demonstrate the importance of considering the nature of the prevailing institutions when designing and enacting a law. In the case of Burkina Faso, the prevalence of informal and identity-based rules of conduct governing FGM could provoke a negative reaction among the population to any law imposed by the government. Conversely, since the practice of FGM is less entrenched in Kenya, the law appears to have had the intended impact on public opinion.

The remainder of this paper is organized as follows. In the second section we present a review of the literature on the origins and consequences of FGM, as well as the various steps having been taken to eradicate the practice. In Section 3 we present the study data and a descriptive analysis. In Section 4 we review the difference-in-difference model and our strategy for the impact analysis. Section 5 presents the results of the difference-in-difference analysis and a sensitivity analysis of the results. The final section concludes.

2. Review of the literature

2.1 The definition of female genital mutilation

The World Health Organization (WHO) defines female genital mutilation (FGM) as any procedure involving partial or total removal of the external female genitalia for cultural reasons or for any other non-medical reasons. These mutilations are primarily performed in Africa, some countries of the Middle-East and Asia (Malasia, Indonesia) and, finally, among immigrant communities in the West. In 1995, the WHO recognized four types of FGM:

- Type 1: Clitoridectomy describes the partial or total removal of the clitoris and/or the prepuce;
- Type 2: Excision refers to the partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora;
- Type 3: Infibulation is the most severe form of FGM where the vaginal opening is narrowed through the creation of a covering seal. This is the most severe form, and it is practised in Somalia, Sudan, and Eritrea;
- Type 4: all other harmful procedures to the female genitalia for non-medical purposes, (e.g. piercing and cauterizing the genital area).

2.2 Origins of the practice

Anthropology and ethnology have proposed some plausible explanations for the origins and persistence of this practice. According to Reyners (2004) and Silverman (2004), FGM can be considered a fertility rite, as clitoral incision and the emergence of blood symbolize fertility. This practice can also be approached as a correction to a shortcoming of nature, a means for protecting virginity while shielding young women against future aggression. In some cases it is treated as an improvement to the hygiene and aesthetics of women's external genitalia. Thus, these authors report that the primary justification for this practice is custom. These are traditions with strong religious and social overtones that have been transmitted orally from generation to generation. In particular, these authors maintain that the weight of social and tribal convention largely contributes to the perpetuation of these practices by means of a traditional education passed from mother to daughter. Female circumcision thus appears as a guarantee of chastity, integration, and ultimately submission.

To our knowledge, there are very few articles on FGM in the economics literature. Existing papers tend to focus on theoretical aspects (in particular social convention theory) and empirical aspects to explain the persistence of this age-old practice. Using a game-theoretic model based on the work by Akerlof (1980), some authors have shown that “cultural identity” and marriage

are important contributors to the persistence of FGM. Wagner (2011) uses a household utility function to demonstrate that satisfying social expectations yields reputational gains that foster the persistence of a tradition even when it is injurious to the individual. Empirically, the author emphasizes the importance of ethnic identity—in the case of Burkina Faso her analysis reveals that ethnic Bissa women are 202% more likely to be circumcised than those of other ethnicities. In the same vein, Chesnokova and Vaithianathan (2010) underscore that the practice is more prevalent among the Senoufo peoples of Burkina Faso than among other groups. In terms of regions, this practice is most widespread in the Boucle du Mouhoun, Centre-Est, Centre-Nord, Hauts-Bassins, and Sahel regions.

Coyne and Mathers (2010, 2009) propose two principal mechanisms by which identity encourages the perpetuation of these rituals (foot binding in Asia, female genital cutting). First, they represent a key element of the identity of both the individuals and the communities. People who opt to participate in a ritual do so in consideration not only of their own preferences, but also of those of others (in general, members of their family). Second, notwithstanding this association between rituals and identity, studies by Coyne and Mathers (2010; 2009) demonstrate how these rituals can appear irrational to outsiders.

Mackie (1996) suggests that, according to social convention theory, FGM is a strong guarantor of marriageability in a context of extreme inequality in access to economic resources. Circumcised women, in fact, send a signal of chastity, which is an essential prerequisite for marriage. Similarly, Chesnokova, and Vaithianathan (2010) state that circumcision is treated as a premarital investment by families. Indeed, using a market model for marriage similar to that of Fernandez *et al.* (2005), these authors demonstrate that equilibrium in their model is a function of the cost of FGM, the benefits of marrying a rich man, and the scarcity of these latter on the market. Moreover, their empirical analysis reveals that circumcised women are 14% more likely to marry a rich man and have more children (18%) than other women. Wagner (2011) corroborates these results and reveals that being circumcised improves marriage prospects by 50%.

Hayford and Trinitapoli (2011) maintain that intergenerational transmission is largely attributable to specific religious beliefs and the characteristics of the social milieu, rather than to individual characteristics. In the case of Islam, for example, there are some passages in the Quran that lead some believers to think that FGM is required by the religion. On the other hand, this interpretation of the Holy Book has been challenged by religious leaders who dispute that

Islam requires, encourages, or even discourages FGM (Gruenbaum, 2001; Yout, 2004). Thus, while this practice is often associated with Muslim countries, it should be treated as anchored in tradition rather than religion (Gruenbaum, 2005; Olenick, 1998) and designed to control female sexuality (Cook *et al.*, 2002). In a study of Burkina Faso, Inungu and Tou (2013) show that there is no significant difference in the circumcision rate between the various religions.

Chesnokova and Vaithianathan (2010) demonstrate that another factor contributing to this persistence is the intergenerational transmission of values and customs. According to their results, the girls of circumcised women are 45% more likely to be circumcised themselves.

2.3 Health Consequences

FGM has an impact on women's health, especially their reproductive and psycho-sexual health. As to gynaecological effects, Kaplan *et al.* (2011) present a preliminary evaluation of the health consequences of FGM in Gambia. Their results reveal that both immediate and delayed consequences are more common among patients having undergone FGM of types 2 and 3. The most frequent immediate complications, all types of FGM considered, are infections that are sometimes attributable to haemorrhaging and anaemia. These observations are also reflected in work by Jones *et al.* (1999), who examine the negative health consequences caused by FGM in rural clinics in Burkina Faso and Mali. They find a preponderance of type 1 in Burkina Faso and type 2 in Mali and a positive and significant relationship between FGM and the probability of having medical complications of the genitals (keloidal scars, cysts, haemorrhaging) and obstetrics (caesarean birth, post-partum haemorrhaging).

Further consequences arise during pregnancy and during and after childbirth. According to Rushwan (2000), FGM causes dermoid cysts and keloidal scars that are untreatable during pregnancy, resulting in complications during childbirth, especially among women who have been infibulated (type 3). In a 2006 study, the WHS finds that resuscitation rates among newborns, and their perinatal death rate, is 66% higher among children of circumcised women. In addition, deaths of newborns during or immediately after birth are 15% higher among women with type 1 FGM, 32% higher among those with type 2, and 55% higher among those with type 3 than among women who have not been circumcised. In a different study, the WTO (2010) examined the effects of this practice on the obstetric health of women in six African countries (Burkina Faso, Ghana, Kenya, Nigeria, Senegal, Sudan). Circumcised women are at a

significantly higher risk of giving birth by caesarian, suffering from postpartum haemorrhaging, having an episiotomy, and requiring longer hospital stays than uncircumcised women. Resuscitation and perinatal death rates among newborns is higher for circumcised women.

Nonetheless, none of these studies establish definitive links between FGM and impacts on reproductive health. Indeed, Klouman *et al.* (2005) find no significant connection between being circumcised and the risk of contracting syphilis, pelvic inflammatory disease, candidoses, chlamydia, or HIV/AIDS. Similarly, Morison *et al.* (2001) show that, in Gambia, type 2 is not associated with an increase in the prevalence of damage to the perineum or the anus and does not cause discomfort during sexual relations or tumours of the vulva. The results in the WTO study (2006) do not show a significant link between FGM and the risk of bearing a baby with low birth-weight. These findings are corroborated by Essen *et al.* (2002), Hakim (2001), and Slinger (2002), according to whom there is no significant difference between circumcised and uncircumcised women in the rate of stillbirths and perinatal mortality, obstructed labour, and haemorrhaging during childbirth.

With regard to psycho-sexual consequences, El-Defrawi *et al.* (2001) indicate that 49% of circumcised women report vaginal dryness during intercourse, 45% a lack of sexual desire, 28% less frequency of sexual desire per week, 11% less initiative during sex, and 39% declare themselves less orgasmic. Conversely, these authors find no significant difference between circumcised and uncircumcised Egyptian women in their interest in foreplay. However, McCaffrey (1995) notes that certain issues arise before infibulated girls become sexually active. They may worry about their ability to enjoy sexual intercourse and even express fears regarding a loss of femininity. Behrendt and Moritz (2005) demonstrate that circumcised women are vulnerable to post-traumatic stress disorder (PTSD) and other psychological disorders to a significantly higher degree than those who are not. These authors underscore that PTSD is accompanied by memory lapses. Nonetheless, Okonofua *et al.* (2002) find no significant difference between circumcised and uncircumcised women in Nigeria in terms of the reported frequency of intercourse and orgasms. In an Israeli study, Applebaum *et al.* (2008) find no significant difference in the prevalence of PTSD between circumcised and uncircumcised women.

2.4 Steps taken to curb FGM

The steps having been taken to curb FGM can be divided into three categories: social policy, legislation, and regulation. With regard to social policy, there have been several studies on the effectiveness of these interventions for reducing the prevalence of FGM. Chege *et al.* (2004), for example, evaluate the anti-FGM campaign conducted by the NGO CARE in Kenya and Ethiopia. Their results indicate an increased awareness of the negative consequences of FGM. Ouaba *et al.* (2004) assess the impact of the program developed by the NGO Tostan to empower villagers in Burkina Faso. This program has contributed to greater understanding of the issues of human rights, family planning, FGM, and HIV/AIDS. Diop *et al.* (2004) and Diop and Askew (2009) find that a FGM-training programme for healthcare workers yielded similar results in Mali and in the context of a community education program in Senegal.

According to a report from the United Nations Population Fund (2014) there are two opposing points of view regarding anti-FGM legislation. Some analysts believe that these laws will accelerate the elimination of this practice while others maintain that this type of heavy-handed, coercive approach only undermines community-based efforts. In this regard, Shell-Duncan *et al.* (2013) identify two schools of thought about social regulation that are found in legal theory and might explain our results. The “law and economics” school is based on the premise that governments maintain control over society through the legal system, which shores up rules and mechanisms such as laws (Posner, 2003). In fact, the positive and significant relationship found in Kenya could reflect the fact that the government, through its legal system, is having an impact on women’s attitudes. Furthermore, according to supporters of the legal approach to FGM (UNFPA, 2014), these laws, and the associated threat of prosecution, provide invaluable support to local initiatives by deterring both the circumcisers and the families of the victims, thus protecting the security of women and young girls. Moreover, these laws discourage medicalisation of the practice and facilitate the work of healthcare providers engaged in combating it, especially in refusing post-partum reinfibulation requests.

Conversely, according to the “law and society” school, imposing legal penalties may have a limited, or even counter-productive, impact. Posner (2000) emphasizes that social groups have more influence than lawmakers when failure to follow their dictates results in strong sanctions. Mackie and Lejeune (2009) demonstrate that there may be an aversion to obeying the law when social, religious, or moral conventions are deeply rooted in the culture, even when these conventions are illegal. In a study of the effectiveness of anti-FGM legislation in Ghana, Ako

et al. (2009) find that the law had a limited impact, owing in part to the fact that it was not properly understood by the population.

Thus, opponents of laws against FGM (UNFPA, 2014) fear that they will simply push the practice underground, making it even more difficult to contain. They also emphasize that criminalizing FGM may result in it being under-reported in surveys and studies. Finally, these laws may hamper the treatment of victims, especially in the case of complications, for fear of denunciation.

3. Data

3.1 Presentation of the sample

The study draws on data from demographic and health surveys (DHS) collected by Macro International Inc. In most countries these surveys are conducted every five years. The countries in our sample are Burkina Faso and Kenya. This choice is partly motivated by the availability of data. In fact, very few countries have data on FGM prior to the adoption of these laws: Usually, it is only covered by questionnaires after it has been banned. The choice of these two countries is also motivated by the prevalence of FGM in each. Burkina Faso is classified as a high-prevalence country, with approximately 76% of women having been circumcised in 2010 (DHS-BF, 2010). Kenya, in turn, is considered medium-prevalence, with approximately 31% of women circumcised in 2008 (DHS-K, 2008). Data for Burkina Faso are from the 1998–99 (6445 respondents), 2003 (12 477 respondents), and 2010 (17 087 respondents) surveys. Data for Kenya are from the 1998–99 (7881 respondents) and 2008 (8444 respondents) surveys.

DHS surveys collect a great deal of data on FGM. However, some questions were not asked during all rounds of the survey, making it difficult to identify trends in how the practice responded to the introduction of anti-FGM legislation. Each round does contain information on women's attitudes toward FGM, to wit, whether the respondents approve of continuing the practice or believe it should be terminated. We focus our analysis on this variable.

We next draw on publicly available information on the *de jure* and *de facto* implementation of anti-FGM legislation in the countries of our study, as well as information on access to media (newspapers, radio, and television) from the DHS studies in order to develop our identification strategy (more details below).

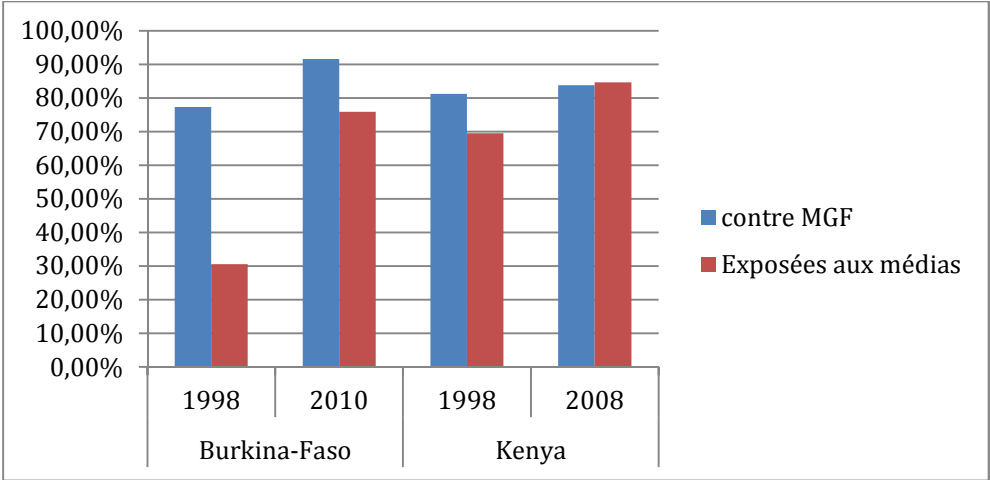
DHS surveys also provide us with a variety of socio-demographic data on the individuals in the sample, notably their age, education level, ethnicity, religion, employment status, zone of residence, etc.

3.2 Descriptive analysis

In this section we examine the characteristics of our sample. In both of the countries in the sample we observe an increase in the proportion of women who declare themselves opposed to FGM from one set of observations to the next (Figure 1). This increase, from 76% in 1998 to 91% in 2010, amounts to approximately 14% in Burkina Faso, while the corresponding change, from 81% in 1998 to 84% in 2008, is smaller in Kenya.

Regarding media exposure, in 1998 the proportion was much higher in Kenya (70%) than in Burkina Faso (30%). We do, however, observe an increase in the proportion of women exposed to media in both countries: 50% in Burkina Faso and 19% in Kenya. Overall, relative media exposure was greater in Kenya, especially in 1998.

Figure 1 Proportion of women opposed to FGM and exposed to media in Burkina Faso and Kenya.



Variables of equal importance to the study include age, education level, zone of residence, ethnic group, religion, marital status, and FGM status and type. Table 1 presents a summary of these variables.

The results of the descriptive analysis (Tables 1 and 2) indicate that most of the women interviewed in both countries were young. For example, in the case of Burkina Faso, the proportion of women aged between 15 and 19 fluctuated around 22% in each of the three years

in the study, while that of women aged 45 to 49 was much lower during those years, ranging from 7% to 9%. The same trend is observed in Kenya. As to zone of residence, in both countries the population is more rural than urban. Thus, in all three surveys, between 74% and 69% of the interviewed women lived in the rural zone in Burkina Faso. In Kenya, the proportion of women living in the rural zone was 81% in 1998 and 69% in 2008. In Burkina Faso the Mossi ethnicity dominates among the women interviewed, at 60% in 1998, 53% in 2003, and 52% in 2010. In Kenya there is no majority ethnic group, but several with relatively strong representation: The Kikuyu accounted for approximately 17% of the sample in 2008, and the Luhya 15% in 2008.

The proportion of educated women (all levels considered) is greater in Kenya (i.e. 87% in 1998 and 85% in 2008) than in Burkina Faso, where this value fluctuates between 19% and 27%. In terms of religion, Muslims represent the dominant religious group in Burkina Faso, at between 56% and 60% over the three surveys. In Kenya, conversely, Christians (more specifically Protestants) are the majority, at 64% in 1998 and 61% in 2008. With regard to employment, in Burkina Faso the proportion of working women exceeds that of the unemployed at the time of the surveys; 66% in 1998, 87% in 2003, and 77% in 2010. In Kenya, on the other hand, the proportions of employed and unemployed women are very similar. For example, in 2010, 53% of women worked while 47% did not.

Table 1: Socio-demographic Characteristics, Burkina Faso

Characteristic	Modality	1998	2003	2010
		%	%	%
Age	15–19	22.87	22.26	19.6
	20–24	18.36	17.98	18.98
	25–29	16.21	15.93	17.22
	30–34	13.17	12.82	15.11
	35–39	12.66	12.3	11.61
	40–44	9.31	10.07	9.71
	45–49	7.42	8.63	7.76
Zone of residence	Rural	74.38	75.84	68.58
	Urban	25.62	24.16	31.42
Education	Educated	18.7	20.62	26.99
	Uneducated	81.3	79.38	73.01
Marital status	Married	72.83	67.62	74.83
	Not married	27.17	32.38	25.17
Religion	Catholic	22.88	24.41	24.45
	Muslim	55.91	55.96	59.92
	Animist	11.49	12.15	8.32
	Other	0.05	7.47	7.05
	No religion	3.51	2.04	0.75
	Protestant	6.16	5.43	6.29
Ethnicity	Mossi	59.7	52.61	52.37
	Fula	6.08	5.72	7.91
	Gurma	7.14	5.60	6.13
	Senufo	2.27	5.56	5.3
	Other	24.81	30.51	28.29
Employed	Employed	65.69	86.46	76.73
	Unemployed	34.31	13.54	23.27
Knowledge of FGM	Yes	87.63	96.58	99.46
	No	12.37	3.42	0.54
FGM status	Yes	83.27	76.91	75.72
	No	16.73	23.09	24.28
FGM type				
Types 1 and 2	Yes	83.27	98.67	82.89
	No	16.73	1.33	17.11
Type 3	Yes	0.05	2.06	1.08
	No	99.55	97.94	98.92

Source: DHS-Burkina Faso (1998, 2003, and 2010)

Table 2: Socio-demographic Characteristics, Kenya

		1998	2008
Characteristic	Modality	%	%
Age	15–19	23.5	20.93
	20–24	19.57	20.65
	25–29	17.05	16.85
	30–34	12.4	13.97
	35–39	12.68	11.01
	40–44	8.16	8.65
	45–49	6.65	7.93
Zone of residence	Rural	81.4	69.03
	Urban	18.6	30.97
Education	Educated	87.18	85.29
	Uneducated	12.82	14.71
Marital status	Married	58.77	55.45
	Not married	41.23	45.55
Religion	Catholic	27.04	19.94
	Protestant	63.86	61.01
	Muslim	5.64	16.08
	No religion	2.72	2.18
	Other	0.73	0.79
Ethnicity	Luhya	14.19	14.99
	Kikuyu	15.93	17.81
	Masai	0.89	1.47
	Kisii	8.19	5.29
	Other	76.73	78.25
Employed	Yes	49.32	53.21
	No	50.68	46.79
Knowledge of FGM	Yes		93.44
	No		6.56
FGM status	Yes	34.9	31.6
	No	65.09	68.4
FGM type	Type 1	95.34	94.33
	Type 2	4.41	–
	Type 3	0.25	28.26

Sources: DHS-Kenya (1998 and 2008)

Nearly all women in both countries are aware of FGM: 99.5% in 2010 in Burkina Faso and 93% in 2008 in Kenya. However, the prevalence of FGM (FGM status) is greater in Burkina Faso (76% in 2010) than in Kenya (32% in 2008). In terms of FGM type, there is a preponderance of types 1 and 2 in Burkina Faso (83% in 1998, 99% in 2003, and 83% in 2010) and type 1 only in Kenya (95% in 1998 and 94% in 2008).

4. Methodology

In order to evaluate the relationship between anti-FGM legislation and the probability of being opposed to FGM we use a difference-in-difference approach. Unlike other quasi-experimental methods, difference-in-difference estimation accommodates unobservable characteristics that may affect the result.

4.1 The difference-in-difference method

The difference-in-difference method allows changes over time in a group having participated in an intervention to be compared with the results for a non-participant control group (Gertler *et al.*, 2011). According to Fougère (2010), the following assumptions underlie application of the difference-in-difference estimator: (1) temporal effects are assumed the same for both the treatment and the control groups before and after the programme; (2) there is no attrition nor is there self-selection before and after the programme; (3) the error terms and covariates are not serially correlated. This latter is also called the *parallel paths assumption*, because it means that unobservable characteristics determining programme participation vary uniformly over time in both groups (Gertler *et al.*, 2011; Khandker *et al.*, 2010).

Unlike the matching method, the difference-in-difference method requires data from before and after programme launch for both the treatment and the control group. The main benefit of this approach is that it accommodates selection on both time invariant unobservable characteristics as well as on observables. Consequently, this evaluation method is particularly suited for the current study. Indeed, several factors may shape the attitudes of women with regard to FGM and the nature of our study is not conducive to a randomized assessment. However, the underlying assumption of the difference-in-difference approach, to wit that inter-group differences are invariant over time, is frequently implausible in the context of a developing country (Khandker *et al.*, 2010). In fact, if the evolution of differences between the two groups is affected by other factors, the estimated impact may be biased. A further potential source of bias in the impact estimated by this method may arise from the fact that the treatment

and control groups did not have the same initial characteristics by virtue of the features of the programme. It is, thus, worthwhile to adopt a strategy that accommodates capturing the impact of anti-FGM laws, sensitivity analysis, and identification of the model equation and the estimation method.

4.2 Strategy and method for identifying the treatment effect

In light of the fact that a variety of factors are liable to shape women's attitudes toward FGM, the strategy we selected for identifying the impact of the treatment is the interaction between the dummy variable for the year anti-FGM legislation was passed and exposure to media (newspapers, radio, television). We assume media exposure increases the probability of being aware of the existence of the anti-FGM law. On various occasions media campaigns have, in fact, been used to change behaviour in the area of public health (Wakefield *et al.*, 2010). Media allows a message to reach a large proportion of the population at recurring intervals at a low cost per individual. According to a report by the Center for Reproductive Rights (2006), media that are either owned or strongly influenced by the government tend to foster the dialogue about FGM and women's freedom.

However, use of the variable "exposure to media" entails several limitations. First, this variable does not necessarily reflect exposure to an anti-FGM media campaign. It is possible that individuals who are exposed to media do not necessarily receive anti-FGM campaigns in the newspaper, by radio, or on TV. Second, we observe little exposure to media in Burkina Faso in 1998. In Africa there are other information-transmission channels accessible to populations: oral tradition, religious leaders, community awareness campaigns, signs and billboards. However, DHS data for the countries in our study do not include variables for these other channels. Third, it is conceivable that this identification strategy could yield treatment and control groups that differ in more aspects (e.g. income) than merely the treatment. Below we present a sensitivity analysis in order to determine whether our results are affected by trends in some of the sample's unobservable characteristics.

4.3 Model specification

The model equation is:

$$y_{it} = \beta_0 + \beta_1 t + \beta_2 M_i + \delta(t * M_i) + \gamma X_{it} + \varepsilon_{it},$$

where y_{it} represents the indicator of the result for individual i in period t —i.e., the attitudes of women with regard to FGM. The question was: “Do you think that FGM is a practice that should persist or be terminated?” This variable assumes the value of one (1) for women who object to the practice and zero (0) for women who are in favour of it. The variable t represents the year in which the country adopted anti-FGM legislation. It equals zero (0) prior to the law and one (1) afterwards. In Kenya the law was passed in 2001. In Burkina Faso, in 1996. However, Diop et al. (2006) indicate that effective enforcement of the law only began in 2000, because that is when we observe the first prosecutions under it. Thus, we opted to use 2000 as the year in which the law was adopted in Burkina Faso. In keeping with the difference-in-difference principle, our estimates are for 1998/2003 and 1998/2010. M_i is the variable for exposure to media; it assumes the value of zero (0) for individuals who are not exposed to media, and one (1) for those exposed to at least one medium, be it radio, television, or the printed press. The vector X_{it} contains control variables such as age, zone of residence, the mother’s level of education, the woman’s FGM status, and marital status. We have also included a dummy variable to capture regions with a high intensity of FGM. This variable is called “FGM pocket.” It equals zero (0) for regions in which the prevalence of FGM is below the national mean and one (1) where it is higher.

The impact of the programme is captured by δ , the coefficient of the difference-in-difference estimator. This estimator translates the mean difference in the results for the treatment group before and after the programme, and the mean difference in the results for the control group before and after the programme.

The difference-in-difference estimator is, in fact, better able to capture the impact of an intervention than simple difference estimators, which include some biases. According to Khandker *et al.* (2010), if the impact of the intervention is measured by comparing the mean before and after results (simple before-after difference) for the treatment group, this impact will be captured by $\delta + \beta_1$, and the corresponding bias is β_1 . This implies that any time trend will be included in the measured effect. Similarly, these authors underline that if the effect is translated by a comparison of the result mean between the treatment and control groups after the intervention (simple treatment-control difference), then the impact is $\delta + \beta_2$ and the bias is β_2 . Consequently, the impact of the intervention is biased by pre-existing differences between the treatment and control groups. Thus, the difference-in-difference method accounts for both “before/after” and “with/without” treatment differences.

5. Results

We conducted both a mean analysis and a heterogeneous analysis. The heterogeneous analysis also reveals which sample category explains the results we obtain in the mean analysis.

5.1 Impact of the law

In the case of Burkina Faso, the results presented in Table 3 reveal that there is a negative and significant correlation (at the one percent level) between the passing of laws against FGM and the attitudes of women exposed to media in contrast to those that were not exposed to media. We shall examine this counter-intuitive result in greater detail in the Section “Discussion.” We see in column 1 of (Table 3) that having passed a law against mutilations reduces the probability of being opposed to them by 9%. In column 2 the corresponding reduction is 8%.

Among the control variables, there is a positive and significant correlation (at the 1% and 5% level) between a woman being educated and being opposed to FGM. The same type of positive and significant relationship is obtained for women living in the urban zone or having a job. We note that our results reveal that circumcised women are nearly 9% less likely than those who are not to object to FGM. There appears to be a negative and significant correlation between ethnicity and the probability of opposing genital mutilation. In fact, being a Fula woman reduces the probability of opposition by approximately 6% relative to a Gurma woman. Observe that the prevalence of FGM among the Gurma is approximately 60%, according to the 2010 DHS—this is below the national average of 75% in 2010. There also appears to be a negative and significant correlation between religion and the probability of opposing FGM. Muslim women are 3.8% less likely to object than Catholic women. Women who follow traditional religions are 4% less likely to be opposed to FGM than Catholic women. However, protestant women are 1.7% more likely to be opposed to FGM than Catholic women. Marital status (1 = married), on the other hand, as well as being from a region with a high prevalence of FGM (FGM pocket), are not significantly correlated with opposing FGM.

Table 3 Results of OLS regressions on attitudes toward FGM in Burkina Faso (98/2010)

	(1)	(2)	(3)	(4)
t	0.167*** (0.018)	0.164*** (0.019)	0.164*** (0.018)	0.160*** (0.019)
Media	0.116*** (0.017)	0.101*** (0.017)	0.0914*** (0.017)	0.0859*** (0.017)

	(1)	(2)	(3)	(4)
treat = t*Media	-0.091*** (0.019)	-0.083*** (0.019)	-0.078*** (0.019)	-0.076*** (0.02)
Age (ref: 15–24) years				
25–39 years		0.021*** (0.007)	0.020*** (0.006)	0.025*** (0.007)
40–49 years		0.017** (0.008)	0.015* (0.008)	0.025*** (0.008)
Education		0.047*** (0.006)	0.035*** (0.006)	0.017*** (0.006)
Marital status (married)		-0.006 (0.009)	-0.0007 (0.009)	0.017* (0.009)
Employed		0.020** (0.01)	0.022** (0.01)	0.016* (0.009)
Residence (urban)			0.029*** (0.01)	0.029*** (0.008)
Ethnicity (ref: Gurma)				
Mossi				-0.012 (0.015)
Fula				-0.087*** (0.023)
Senufo				-0.080** (0.035)
Other				-0.028* (0.015)
Religion (ref: Catholic)				
Muslim				-0.038*** (0.007)
Traditional				-0.04*** (0.012)
Protestant				0.017** (0.008)
Other				-0.080** (0.032)
FGM status (circumcised)				-0.094*** (0.007)
FGM pocket (region with high FGM intensity)				-0.01 (0.01)
_cons	0.728*** (0.016)	0.702*** (0.020)	0.695*** (0.021)	0.817*** (0.024)
N	17479	17479	17479	17479
R²	0.044	0.048	0.050	0.076

Standard errors between parentheses

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

In the case of Kenya, the results presented in Table 4 reveal that there is a positive and significant correlation between having enacted anti-FGM laws and the probability that women who have been exposed to media will be more opposed to these practices than those who haven't. This effect is 27.6% in column 1 of (Table 4), and is significant at the 1% level. When

we control for socio-demographic and economic characteristics, and for FGM status, the difference shrinks but remains positive and significant (columns 2, 3, and 4). The decline is greatest when variables on ethnicity, religion, FGM status, and FGM pocket are incorporated. As to the other variables, the results show a positive and significant correlation between being an educated woman and opposing FGM relative to being less educated—this positive relationship is quite stable in the other specifications. Women who are employed are significantly more likely (2.4% in Specification 2) to be against FGM than those who are not. Women living in an urban zone are significantly more likely (3.5%) to be against FGM than those living in a rural zone (Specification 3).

However, there is a significant negative correlation between belonging to the Masai or Kisii ethnic groups and opposition to FGM. In fact, among these groups the prevalence of FGM is high: For example, 90% of Masai women had been circumcised in 2008. Masai women are 11.3% less likely, and Kisii women 19.9% less likely, to object to FGM than Luhya women. We also observe that circumcised women are 30% less likely to oppose the practice, which is a significant effect. Moreover, there is a negative and significant correlation between living in FGM high-intensity regions (FGM pockets) and public opinion on the matter.

Table 4 Regression results for the OLS model on women in Kenya

	(1)	(2)	(3)	(4)
t	-0.234*** (0.044)	-0.139*** (0.034)	-0.141*** (0.034)	- 0.0499** (0.023)
Media	0.134*** (0.016)	0.0956*** (0.017)	0.0908*** (0.017)	0.0740*** (0.014)
treat=t*media	0.276*** (0.040)	0.172*** (0.0311)	0.170*** (0.0308)	0.0739*** (0.0219)
Age (ref: 15–24) years				
25–39 years		0.032*** (0.009)	0.033*** (0.009)	0.051*** (0.008)
40–49 years		0.07*** (0.011)	0.073*** (0.011)	0.097*** (0.010)
Education		0.252*** (0.023)	0.250*** (0.023)	0.144*** (0.016)
Marital status (married)		0.002 (0.011)	0.004 (0.010)	-0.001 (0.001)
Employed		0.024** (0.010)	0.026** (0.010)	0.012 (0.008)
Residence (urban)			0.035** (0.014)	0.011 (0.011)
Ethnicity (ref: Luhya)				

	(1)	(2)	(3)	(4)
Masai				-0.113*** (0.014)
Kisii				-0.199*** (0.017)
Other				-0.190*** (0.016)
Religion (ref: Catholic)				
Protestant				0.0340*** (0.010)
Muslim				-0.122*** (0.025)
Other				0.0200 (0.027)
FGM status (circumcised)				-0.304*** (0.014)
FGM pocket (region with high FGM intensity)				-0.020* (0.011)
_cons	0.714*** (0.018)	0.479*** (0.029)	0.474*** (0.029)	0.853*** (0.030)
N	10262	10262	10262	10262
R²	0.093	0.143	0.144	0.302

Standard errors between parentheses

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

5.2 Robustness

This section presents various tests for robustness. We begin by focussing on several subsamples and then conduct sensitivity analysis to find out whether our results may be skewed by selection bias. Finally, we sketch an overview of the other tests conducted.

5.2.1 Subsamples

We will examine various subsamples to compare how the variable of interest behaves relative to results generated by the mean analysis.

In Burkina Faso, the negative relationship between anti-FGM laws and the probability of opposing genital cutting persists across analyses by category of individual. The results are presented in **Erreur ! Source du renvoi introuvable.** Analysis by cohort finds a negative and significant relationship between the laws and the probability of opposing FGM among women exposed to media in comparison to those who are not. Among the youngest women, those exposed to media are 7% less likely to reject FGM than those who are not, while this

difference is 10% among older women. Moreover, anti-FGM laws also have a negative and significant impact on the probability of opposing FGM among women exposed to media regardless of their level of education. Similar subgroup-level results are obtained for women living in urban zones (8%), are married (9%), are circumcised (10%), and live in FGM pockets (11%). In the case of married women, this result is probably attributable to the fact that marriage is one of the contributors to the persistence of FGM.

Table 5 Results of OLS regressions for attitudes toward FGM in Burkina Faso (98/2010) on subgroups

Variables	t	Media	treat=t*media	N
Age				
15–24 years	0.17*** (0.02)	0.09*** (0.03)	-0.07*** (0.03)	4635
25–39 years	0.15*** (0.01)	0.12*** (0.02)	-0.09*** (0.02)	9151
40–49 years	0.17*** (0.02)	0.11*** (0.03)	-0.10*** (0.03)	3693
Education				
Uneducated	0.16*** (0.01)	0.081*** (0.01)	-0.06*** (0.02)	14318
Educated	0.14*** (0.04)	0.12*** (0.03)	-0.09*** (0.04)	3161
Residence				
Rural	0.17*** (0.02)	0.03 (0.02)	-0.02 (0.02)	12977
Urban	0.10*** (0.02)	0.11*** (0.02)	-0.08*** (0.03)	4502
Marital status				
Not married	0.23*** (0.04)	0.11*** (0.04)	-0.10*** (0.04)	1524
Married	0.16*** (0.02)	0.12*** (0.02)	-0.09*** (0.02)	15955
Ethnicity				
Gurma	0.19*** (0.05)	0.15** (0.08)	-0.12 (0.09)	1161
Mossi	0.20*** (0.02)	0.09*** (0.02)	-0.11*** (0.02)	9356
Fula	0.09 (0.06)	0.09 (0.07)	-0.02 (0.08)	1439
Senufo	0.1 (0.07)	0.07 (0.11)	0.0005 (0.10)	813
Other	0.16*** (0.04)	0.16*** (0.03)	-0.11*** (0.03)	4710
Religion				
Catholic	0.14*** (0.02)	0.07*** (0.02)	-0.07*** (0.02)	3898
Muslim	0.17*** (0.02)	0.12*** (0.02)	-0.10*** (0.02)	10700
Traditional	0.15*** (0.04)	-0.04 (0.09)	0.14 (0.09)	1665
Protestant	0.13***	0.14***	-0.12***	1000

Variables	t	Media	treat=t*media	N
	(0.03)	(0.03)	(0.03)	
Other	0.06 (0.09)	-0.005 (0.21)	0.10 (0.22)	216
FGM pocket				
Low-FGM regions	0.12*** (0.01)	0.09*** (0.01)	-0.05*** (0.02)	7933
High-FGM regions	0.23*** (0.03)	0.13*** (0.03)	-0.11*** (0.03)	9546
FGM status				
Uncircumcised	0.06*** (0.01)	0.01 (0.03)	-0.009 (0.03)	3151
Circumcised	0.17*** (0.02)	0.13*** (0.01)	-0.10*** (0.02)	14328

Standard errors between parentheses

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

An analysis by ethnicity does not reveal any significant relationship between the laws in effect and the probability of opposing FGM among women who are exposed to media, except among women of the Mossi tribe, who account for nearly 50% of the sample. In fact, according to the 2010 survey, 84% of women in this group are circumcised, indicating that this practice is deeply rooted in the culture.

In Kenya, the positive relationship obtained in the mean analysis appears to persist in the subgroup analysis. These results are presented in

Table 6. In the analysis by cohort, the relationship between the laws and the probability of opposing FGM is positive and generally significant among women exposed to media relative to those who are not. Thus, young women are 36% more likely to oppose FGM— while the corresponding value for older women is 17%. Similar results are found in the analyses by zone of residence, marital status, and circumcision status. In the analysis by FGM pockets, the relationship between the laws and the probability of opposing FGM is positive and significant among women who are exposed to media, whether they live in regions with high intensity (11% according to OLS) or low intensity (45% according to OLS) relative to the national average. The relationship is positive and significantly stronger among women exposed to media in regions in which the prevalence of excision is below the national average.

Table 6 Results of heterogeneous OLS regressions of attitudes toward FGM in Kenya (98/2008)

Variables	t	Media	treat=t*media	N
Age				
15–24 years	-0.34***	0.107***	0.36***	2410

Variables	t	Media	treat=t*media	N
	(0.05)	(0.029)	(0.052)	
25–39 years	–0.24*** (0.051)	0.14*** (.020)	0.28*** (0.049)	5633
40–49 years	–0.107** (0.05)	0.131*** (0.02)	0.17*** (0.05)	2219
Education				
Uneducated	–0.40*** (0.05)	0.12*** (0.03)	0.21*** (0.05)	1699
Educated	0.11*** (0.02)	0.12*** (0.01)	–0.05** (0.02)	8563
Residence				
Rural	–0.24*** (0.04)	0.13*** (0.01)	0.29*** (0.04)	7832
Urban	–0.15 (0.11)	0.07 (0.05)	0.17* (0.10)	2430
Marital status				
Not married	–0.05 (0.05)	0.11*** (0.03)	0.14*** (0.05)	1819
Married	–0.27*** (0.04)	0.13*** (0.01)	0.31*** (0.04)	8443
Ethnicity				
Luhya	–0.001 (0.06)	0.12*** (0.04)	0.05 (0.06)	1309
Masai	0.08 (0.05)	0.09*** (0.02)	–0.04 (0.05)	1793
Kisii	0.19*** (0.02)	0.08*** (0.03)	–0.09*** (0.03)	1527
Other	–0.28*** (0.04)	0.14*** (0.02)	0.31*** (0.04)	5633
Religion				
Catholic	0.11 (0.07)	0.20*** (0.03)	–0.01 (0.06)	2356
Protestant	0.10*** (0.03)	0.12*** (0.01)	–0.04* (0.03)	6381
Muslim	–0.74*** (0.06)	–0.04 (0.05)	0.55*** (0.07)	1216
Other	–0.14 (0.09)	0.03 (0.07)	0.12 (0.10)	309
FGM pocket				
Low–FGM regions	–0.43*** (0.06)	0.05*** (0.02)	0.45*** (0.05)	4520
High–FGM regions	–0.06*** (0.05)	0.15*** (0.01)	0.11*** (0.05)	5742
FGM status				
Uncircumcised	0.07*** (0.01)	0.05*** (0.01)	–0.03** (0.01)	6172
Circumcised	–0.30*** (0.04)	0.16*** (0.02)	0.29*** (0.04)	4090

Standard errors between parentheses

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

However, in the case of some categories the correlation is negative, while in others it is not significant. In fact, according to the OLS model, the association between adopting the laws and opposing FGM is negative and significant among educated women exposed to media. In

addition, analyses by ethnicity does not find a significant relationship between these laws and women's attitudes. Similar results obtain for analyses by religion, except in the case of Muslim women. In fact, among these latter the relationship is positive and significant for women exposed to media, relative to those who are not. Thus, these results of non-significance obtained in the context of estimation by religious affiliation coincide with findings in some of the literature, according to which FGM is not a religious practice (Inungu and Tou, 2011; Gruenbaum, 2005; Olenick, 1998).

5.2.2 Sensitivity Analysis

Our identification strategy is vulnerable to the possibility that some unobservable characteristics simultaneously affect both the endogenous and the exogenous variable. Moreover, at 30%, exposure to media was very low in Burkina Faso in 1998 compared to approximately 75% in the other years (2003 and 2010). Digging a little deeper into the 1988 data reveals that exposure to all media was weak, i.e. 5% of women read newspapers, 18% watched television, and 20% listened to the radio. Thus, there may exist a correlation between the variable *media* (and, by extension, the interaction variable) and the unobservables that influence the opinions of women. In fact, the surge in exposure to media between 1998 and the two subsequent periods (2003 and 2010) may, for example, be attributable to higher personal incomes, having no connection to attitudes toward FGM. In light of this limitation, and with no strong instrument for correcting this potential bias, we perform a sensitivity analysis like the one proposed by Altonji *et al.* (2005) and reused by Nunn and Wantchekon (2011).

The results of the sensitivity analysis are reported in Table 7. Observe that all the control variables are used in these regressions, but that their coefficients are absent.

Table 7 Sensitivity analysis of the assumptions on correlation among the errors in a bivariate probit

Variables	Kenya (98/2008)			
	<i>Rho</i> =0	<i>Rho</i> =0.3	<i>Rho</i> =0.6	<i>Rho</i> =0.9
Treat=t*media	0.32*** (0.07)	0.32*** (0.07)	0.32*** (0.07)	0.32*** (0.07)
Media	0.27*** (0.05)	0.27*** (0.05)	0.27*** (0.05)	0.27*** (0.05)
	Burkina Faso (98/2003)			
Treat=t*media	-0.21*** (0.06)	-0.21*** (0.06)	-0.21*** (0.06)	-0.21*** (0.06)
Media	0.23*** (0.05)	0.23*** (0.05)	0.23*** (0.05)	0.23*** (0.05)

Variables	Kenya (98/2008)			
	<i>Rho=0</i>	<i>Rho=0.3</i>	<i>Rho=0.6</i>	<i>Rho=0.9</i>
	Burkina Faso (98/2010)			
Treat=t*media	-0.16*** (0.06)	-0.16*** (0.06)	-0.16*** (0.06)	-0.16*** (0.06)
Media	0.27*** (0.05)	0.27*** (0.05)	0.27*** (0.05)	0.27*** (0.05)

Standard errors between parentheses

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

The results in Table 7 corroborate the significant relationships we found in our difference-in-difference analysis, anti-FGM laws are negatively correlated with the probability of opposing FGM in Burkina Faso and positively in Kenya. Next, we observe that the affected variables are not sensitive to a variation in *rho*. According to Altonji *et al.* (2005), this implies that there is little bias introduced by selection on unobservables.

5.2.3 Other tests

Our results are robust to the use of a variety of methods: OLS, logit, probit.

We performed additional regressions using an alternate construction of the variable *media*. In all cases the tests for robustness corroborate our initial results. However, estimates derived using the second assumption on construction of the variable *media* are not significant.

5.3 Discussion

In addition to the factors enumerated in Section 2, the relative pervasiveness of this practice and the wording of the laws in the two countries of our study may also help explain our contrasting results. The prevalence of FGM aspect bolsters the arguments of both the schools of thought regarding the legal theory of social regulation we described in Section 2. Indeed, in contrast to Kenya, Burkina Faso is classified as a country with a high prevalence of FGM, indicating that the practice is deeply anchored in the culture and its norms. Against this backdrop, Burkinans may be reluctant to obey laws that conflict with their culture. In Kenya, FGM is less prevalent and the law seems less at odds with informal conventions.

In terms of the content of the laws, there are notable differences between the two countries, especially in terms of the severity of the penalties. In Kenya, the *Children's Act* of 2001 only

protects children, while the 1996 law in Burkina Faso affects both children and adult women. In terms of punishments, the Burkina Faso law is harsher. Sentences handed out in 2009 included five years in prison for a woman who performed excisions and a 36 month suspended sentence for the mother. In Kenya, on the other hand, prison sentences do not exceed 12 months. It is possible that the sheer severity of the Burkina Faso law has provoked a spirit of resistance, which could partially explain our results.

Another potential explanation might be that circumcised women expect those who are not to undergo the procedure in the interest of horizontal or intergenerational justice, leading women to favour FGM in Burkina Faso because most women in that country have been circumcised.

Also, if Burkinans who already had a strong position in favour of FGM are the ones who acquired access to media in 1998 and 2003, it is possible that the law had no impact on attitudes despite their increased access to media. In this case, the impact of the law/media interaction on opinions may appear to be negative while in fact the opinions of respondents have not changed, only their exposure to media.

Kenya's boarding schools appear to be a vehicle for inter-cultural exchanges in which girls are able to observe, as they rub shoulders with others of their own age from different ethnic and cultural backgrounds, that lifestyles differing from their own heritage are possible. We would like to thank Anke Hoeffler for this observation.

Finally, Platteau (201X) shows that ...

6. Conclusion

Female genital mutilation is considered injurious and a violation of human rights. To address this problem a legislative framework has been established at both the national and the international level. The purpose of this article has been to assess the impact of national anti-FGM legislation on the attitudes of women in Burkina Faso and Kenya. To do this, we estimated the probability of being opposed to FGM in both countries using the difference-in-difference model. The biggest challenge we faced was to create control groups in a context in which all individuals are affected by the law at the same time. Our strategy for identifying the impact of these laws was to use "exposure to media," assuming that any individual who is exposed to either television, radio, or the printed press is more likely to be aware of the law.

The first estimates yield a negative and significant relationship between the law and the probability of opposing FGM in Burkina Faso. In Kenya this relationship is positive and significant. Furthermore, the results are robust to various estimation techniques (OLS, logit, probit), a subgroup analysis, and a sensitivity analysis for selection bias on unobservables.

More specifically, our results for Burkina Faso show a negative and significant cohort effect with a pronounced trend among older women. The effect is also negative and significant among women who are uneducated, married, urban dwellers, Muslim, circumcised, and from high-intensity regions. In Kenya, our results indicate a positive and significant difference between age groups, with a stronger impact on young women. The impact is also positive and significant among both married and unmarried women, circumcised women, those living in urban and rural zones, and those from low-intensity regions.

In light of these contrasting results for the two countries, the literature has proposed several explanations. On one hand, some authors believe that the impact of laws is limited, or even counter-productive, in situations where the cultural conventions governing this practice are anchored deeply in society. This is probably the case in Burkina Faso, where the prevalence of FGM is high. On the other hand, there are some who believe that laws can make a positive contribution to the battle against this practice, notably by offering recourse to the justice system to the victims and discouraging medicalisation of the practice. This is probably the case in Kenya where the prevalence of FGM is lower.

An interesting avenue for future research would be possible with more precise quantitative indicators, e.g. trends in the number of girls affected. This would allow us to test whether these laws act as a deterrent over time.

Bibliography

- **Abdulcadir J., Margairaz C., Boulvain M., Irion O. (2011):** « Care of women with female genital mutilation/cutting », *Swiss Medical Weekly*, Vol.140, pp. 1-8
- **Allag F., Abboud P., Mansour G., Zanardi M., Quéreux C., (2001):** « Mutilation génitales rituelles féminines : la parole aux femmes », *Gynécologie Obstétrique & Fertilité* Vol. 29(11), pp. 824-828

- **Altonji J. G., Elder T. E., Taber C. R. (2005):** « Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools », *Chicago Journals Vol. 113(1)*, pp. 151-184
- **Akerlof G. A., Kranton R. E. (2000):** «Economics and identity». *Quarterly Journal of Economics*, Vol. 115(3), pp.715-753
- **Ako M. A., Akweongo P. (2009):** « The limited effectiveness of legislation against female genital mutilation and the role of community beliefs in Upper East region, Ghana », *Reproductive health matters Vol. 17(34)*, pp. 47-54
- **Applebaum J., Cohen H., Matar M., Rabia Y.A., Kaplan Z. (2008):** « Symptoms of posttraumatic stress disorder after ritual female genital surgery among bedouin in Israël: Myth or reality », *Journal of Clinical Psychiatry*, Vol. 20 (6), pp.453-456
- **Attanasio, O., Gomez, L. C., Heredia, P., Vera-Hernandez, M. (2005):** « The short-term impact of a conditional cash subsidy on child health and nutrition in Colombia » *Report summary: familias, 3*, pp.1-14.
- **Behrendt A., Moritz S. (2005):** « Posttraumatic stress disorder and memory problems after female genital mutilation », *American Journal of Psychiatry*, Vol. 162, pp.1000-1002
- **Card D., Krueger A. B. (1994):** « Minimum Wages and employment: a case study of the fast food industry in New Jersey and Pennsylvania», *American Economic Review*, Vol. 84(4), pp.772-793
- **Catania L., Abdulcadir O., Puppo V., Verde J.B., Abdulcadir J., Abdulcadir D. (2007):** «Pleasure and orgasm in women with female genital mutilation/cutting »*Journal of Sexual Medicine*, Vol.4, pp. 1666-1678
- **Chalmers, B., Omer-Hashi, K. (2000):** « Somali women's birth experiences in Canada after earlier female genital mutilation » *Birth*, Vol. 2(4), pp. 227–234
- **Chesnokova, T., Vaithianathan, R. (2010):** « The economics of female genital cutting », *Working paper, University of Auckland*
- **Cooks R.J., Dickens B.M., Fathalla M.F. (2001):** « Female genital cutting (mutilation/circumcision): ethical and legal dimensions», *International Journal of Gynecology and Obstetrics*, Vol. 79, pp.281-287
- **Coyne, C. J., Mathers, R. L. (2010):** « The identity economics of female genital mutilation », *Working paper, George Mason University*
- **DHS Program:** « Enquête démographique et de santé du Burkina Faso, 2010, 2003 et 1998-99 », site téléaccessible à l'adresse < <http://dhsprogram.com/data/available->

[datasets.cfm](http://dhsprogram.com/data/available-datasets.cfm)>, consulté le 01/09/2013

- **DHS Program:** « Enquête démographique et de santé du Kenya, 2008 et 1998 », site téléaccessible à l'adresse < <http://dhsprogram.com/data/available-datasets.cfm>>, consulté le 01/09/2013
- **Dufflo E. (2001):** « Schooling and labor market consequences of school construction in Indonesia: evidence from an unusual policy experiment », *American Economic Review*, Vol. 91(4), pp.785-813
- **Diop N., Congo Z., Ouédraogo A., Sawadogo A., Saloucou L., Tamini I., (2006):** « Analyse de l'évolution de la pratique de l'excision au Burkina Faso », *Rapport de USAID et Population Council*
- **Diop N., Faye M. M., Moreau A., Cabral J., Benga H., Cisse F., Mane B., Baumgarten I., Melching M. (2004):** « *The TOSTAN program evaluation of a community based education program in Senegal* », Dakar: Population Council
- **Diop N., Askew I. (2009):** « The effectiveness of a community-based education program on abandoning female genital mutilation/cutting in Senegal », *Studies in Family Planning*, Vol. 40(4), pp. 307-318
- **Elchalal U., Ben-Ami B., Gillis R., Brzezinski A. (1997):** « Ritualistic female genital mutilation: current status and future outlook », *Obstetrical and Gynaecological Survey*, Vol. 52, pp. 643-651
- **El-Defrawi M., Lofty G., Dandash K.F., Refaat A.H., Eyada M. (2001):** « Female genital mutilation and its psychosexual impact », *Journal of Sex and Marital Therapy*, Vol.27 (5), pp.465-473
- **El-Gibaly O., Ibrahim B., Mensch B.S., Clark W.H. (2002):** « The decline of female genital circumcision in Egypt: Evidence and interpretation, *Social Science and Medicine*, Vol. 54(2), pp.205-220
- **Essen B., Bodker B., Sjoberg N., Gudmundsson S., Ostergren P., Langhoff-Roos J. (2002):** « Is there an association between female circumcision and perinatal death? », *Bulletin of the World Health Organization*, Vol.80, pp.629-632
- **Fernandez R., Guner N., John K. (2005):** « Love and money: a theoretical and empirical of household sorting and inequality », *The Quarterly Journal of Economics*, Vol. 120(1), pp. 273-344
- **Gertler P. J., Martinez S., Premand P., Rawlings L. B., Vermeersch C. M. J. (2011):** « *Impact evaluation in practice* », The World Bank
- **Gruenbaum E. (2001):** « *The female circumcision controversy: an anthropological*

perspective», Philadelphia PA: University of Pennsylvania Press

- **Gruenbaum E. (2005):** « Socio-cultural dynamics of female genital cutting: research findings, gaps and directions », *Culture, Health and Sexuality*, Vol. 7(5), pp. 429-441
- **Hakim L. (2001):** « Impact of female genital mutilation of maternal and neonatal during parturition, *East African Medical Journal*, Vol. 78, pp.255-258
- **Jatteau A. (2013):** « *les expériences aléatoires en économie* », Collection Repère, Edition La Découverte
- **Jones, H., Diop, N., Askew, I., Kabore, I. (1999):** « Female genital cutting practices in Burkina Faso and Mali and their negative health outcomes », *Studies in Family Planning*, 30(3), 219–229
- **Jones S., Ehiri J., Anyanwu E. (2004):** « Female genital mutilation in developing countries: an agenda for public health response », *European Journal of Obstetrics, Gynecology and Reproductive Biology*, Vol. 116, pp.144-151
- **Kaplan A., Hechavarria S., Miguel M., Bonhoure I. (2011):** « Health consequences of female genital mutilation/cutting in the Gambia, evidence into action », *Reproductive Health*, Vol.8 (26), pp.1-6
- **Khandker S. R., Koolwal G. B., Samad H. A (2010):** « *Handbook on Impact Evaluation: Quantitatives methods and practices* », The World Bank
- **Klouman E., Manongi R., Klepp K. (2005):** « Self-reported and observed female genital cutting in rural Tanzania: associated demographic factors, HIV and sexual transmitted infections, *Tropical Medicine and International Health*, Vol. 10, pp. 105-115
- **Mackie G. (1996):** “Ending footbinding and infibulation: A convention account”. *American Sociological Review*, Vol.61, pp.999-1017
- **Mackie G. (2000):** “Female Genital Cutting: The Beginning of the End”. in *Female circumcision in Africa: culture, controversy, and change*, Edited by Shell-Duncan B. and Hernlund Y., *Lynne Rienner Publications Inc*, pp. 253-282
- **Mackie G., LeJeune J. (2009):** « Social Dynamics of abandonment of harmful practices: a new look at the theory », *Innocenti Working Paper n°06*
- **Mandera M. (2000):** « Female genital cutting in Nigeria: Views of Nigerian doctors on the medicalization debate » In Bettina Shell-Duncan and Ylva Hernlund (eds) *Female circumcision in Africa: Culture Controversy and Change*, Boulder, Colorado: Lynne Rienner Publishers, Inc

- **McCaffrey M. (1995):** « Female genital mutilation: consequences for reproductive and sexual health », *Sexual and Marital Therapy*, Vol. 10, pp.189-196
- **Mohanan K. (2007):** « Cultural beliefs, human rights violations and female genital cutting: complications at the crossroad of progress », *Journal of Immigrant and Refugees Studies*, Vol. 5(3), pp. 21-34.
- **Morison L., Scherf C., Ekpo G., Paine K., West B., Coleman R., Walraven G. (2001):** « The long-term reproductive health consequences of feale genital cutting in rural Gambia: a community-based survey, *Tropical Medicine and International Health*, Vol. 6, pp. 643-653
- **Msedu M., Bouassida S., Turki H., (2006):** « La mutilation génitale féminine : de la tradition aux complications », *Sexologies*, Vol. 15(4), pp. 262-265
- **Nunn N., Wantchekon L. (2011):** « The slave trade and the origins of mistrust in Africa », *American Economic review*, Vol. 101(7), pp. 3221-3252
- **Obermeyer C.M. (2005):** « The consequences of female circumcision for health and sexuality: An update on the evidence, Culture, Health & Sexuality », *An International Journal for Research, Intervention and Care*, Vol. 7(5), pp. 443-461
- **Okonofua F.E, Larsen U., Oronsaye F., Snow R.C., Slangier T.E. (2002):** « The association between female genital cutting and correlates of sexual and gynecological morbidity in Edo state, Nigeria, *International Journal of Obstetrics and Gynaecology*, Vol. 109, pp. 1089-1096
- **Olenick I. (1998):** « Female circumcision is nearly universal in Egypt, Mali and Sudan », *International Family Plannig Perspective*, Vol. 24(1), pp. 47-49
- **OMS (2006):** « Female genital mutilation and obstetric outcomes: WHO collaborative prospective study in six African countries », *The Lancet*, Vol. 367, pp. 1835-1841
- **OMS (2010):** « Estimating the obstetric cost of female genital mutilation in six African countries », *Bulletin of the World Health Organazation*, Vol.88, pp. 281-288
- **OMS (2010):** « *Global strategy to stp health care providers from performing female genital mutilation* », Department of Reproductive Health and Research
- **Ouoba D, Congo Z, Diop N, Melching M, Banza B. (2004):** « Experience from a community based education program in Burkina Faso, the Tostan Program. (Expérience d'un programme d'éducation à base communautaire au Burkina-Faso, le Programme de Tostan). *Washington D.C., Population Council. Frontiers in Reproductive Health.*
- **Osinowo H.O., Taiwo A.O. (2003):** « Impact of female genital mutilation on sexual functioning, self-esteem and marital instability of women in Ajengule », *IFE*

Psychologia, Vol.11, pp. 123-137

- **Pearse A., Bewley S. (2013):** « Medicalization of female genital mutilation: am reduction or unethical? », *Obstetricsn Gynaecology and Reproductive Medicine, Vol. 24 (1), pp. 29-30*
- **Posner E. A. (2000):** « *Law and Social norms* » Cambridge, MA: Havard University Press
- **Posner R. A (2003):** « *Economics analysis of law* », 6th Edition, New York: Aspen Publisher
- **Rahman A., Toubia N. (2000):** “*Female genital mutilation: a guide to laws and policies worldwide*”. London, UK and New York, USA: Zed.
- **Reyners M. (2004):** « Health consequences of female genital mutilation », *Review in Gynaecological Practice, Vol. 4, pp. 242-251*
- **Rushwan H. (2000):** « Female Genital mutilation management during pregnancy, childbirth ang postpartum period », *International Journal of Gynaecology and Obstetrics, Vol. 70, pp.99-104*
- **Shadish W.R., Cook T.D., Campbell D.T. (2001):** « *Experimental and quasi-experimental designs for generalized causal inference* », Boston, Houghton Mifflin
- **Shell-Ducan B. (2001):** « The medicalization of female genital circumcision: harm reduction or promotion of a dangerous practice», *Social Science and Medicine, Vol.52, pp. 1013-1028*
- **Shell-Ducan B., Hernlund Y., Wander K., Moreau A. (2013):** « Legislating change? Responses to criminalizing female genital Cutting in Senegal », *Law and Society Review, 47(4), 803-835*
- **Silverman E. K. (2004):** « Anthropology and circumcision», *Annual Review of Anthropology, Vol. 33, pp.419-445*
- **Slanger T.E., Snow R.C., Okonofua F.E. (2002):** « The impact of female genital cutting on first delivery in southwest Nigeria » *Studies in Family Planning, Vol. 33, pp.173–84.*
- **UNFPA (2014):** « Législation condamnant les mutilations génitales féminines/l’excision au Kenya, en Ouganda et en Guinée-Bissau»
- **Wagner N. (2011):** « Why female genital cutting persists? », *Working paper, 1-35*
- **Wakefield M.A., Loken B., Hornik R.C (2010):** « Use of mass media campaing to change health beahavior», *The Lancet, Vol. 376, pp. 1261-1271*
- **Yirga W.S., Kassa N.A., Gebremichael M.W., Aro A.R., (2012):** « Female genital

mutilation: prevalence, perception and effect on women's health in Kersa district of Ethiopia », *International Journal of Women's Health*, 4, 45-54

- **Yount K.M., Balk D.L. (2004):** « A demographic paradox: causes and consequences of female genital cutting in Northeastern Africa » *Gender Perspectives on Reproduction and Sexuality Advances in Gender Research, Volume 8*, 199–249