Social effect and female genital mutilation (FGM)

OUEDRAOGO, Salmata
Université de Sherbrooke, HEC Montréal

19. March 2008

Social effect and female genital mutilation (FGM)

Salmata Ouedraogo, Ph.D.

Université du Québec à Chicoutimi

555, boulevard de l'Université Chicoutimi (Québec) Canada G7H 2B1

Courriel: salmata.ouedraogo@uqac.ca

March 11, 2009

Abstract

In this article we attempt to identify the impact of social effects on the decision to practice excision on girls, based on the methodology used by Bertrand, Luttmer and Mallainathan (2000). We are particularly interested in social determinants, and make use of the heterogeneity of behaviors according to area of residence, ethnicity and religion. We focus on the interaction between the density and the quality of contacts to infer a social network. We use the percentage of individuals of the same ethnic group and religion, living in the same survey area, to measure the quantity of contacts, and the percentage of excised women of the same ethnic group and religion to measure the quality of contacts. To implement our trials, we use data from the Burkina Faso's Demographic and Health Surveys 2003, which supplies information on the prevalence of female genital mutilation (FGM) and on the characteristics of Burkina Fasan households. Our results show that social pressure is strongly correlated to the decision to practice excision in Burkina Faso households.

Classification JEL: I18; I19; I32; Z13

Key words: Burkina Faso, poverty, Female genital mutilation, social effects.

Introduction

Female genital mutilation (FGM)[1] is a significant public health issue. It affects an estimated 100 to 140 million girls and women around the world. FGM is practiced in approximately 28 African countries as well as among some immigrant populations in Europe and North America. It is practiced almost universally in some countries (Egypt and Guinea), while in others (Mali, Senegal, Burkina Faso), prevalence rates vary between 5% and 92%. In the countries that are considered to make up the FGM belt (Burkina Faso, Côte d'Ivoire, Djibouti, Egypt, Mali, Niger and Senegal), the practice is fairly widespread. Table (1) below gives the prevalence rates for different countries.

Country	FGM Prevalence Rate
Burkina Faso	72% in 1999 and 77% in 2003
Egypt	95% in 1999 and 97% in 2000
Eritrea	95% in 1995 and 89% in 2002
Ethiopia	80% in 2002
Mali	94% in 1996 and 92% in 2002
Yémen	97% in 1997

Source: Data from the "DHS"

Author's table

Construction de l'auteure

In general, FGM takes place very early in a woman's life: 8 is the average age for women who remember the age at which they were excised. These practices have significant consequences on the lives of women. However, despite their severe consequences (psychological, gynecological and obstetric), and the critical role played by women in development, FGM continues to be practiced extensively in Sub-Saharan Africa overall and, more particularly, in Burkina Faso.

[1] Although the term "excision" refers to a specific form of ablation, in this article, it will be used generally, to refer to any type of female genital mutilation.

The purpose of this article is to analyze the influence of social effects on the decision to practice excision in Burkina Faso households. We are particularly interested in social determinants, and make use of the heterogeneity of behaviors according to area of residence, ethnicity and religion. We believe that understanding the reasons that allow this plague to propagate may help identify means of combating it.

To implement our trials, we use data from the Burkina Faso Enquête Démographique et de Santé 2003 (EDS), which supplies information on the prevalence of FGM and on the characteristics of Burkina Faso households.

This paper's main contribution is that it takes into account the impact of social variables on the decision to practice excision on girls. In addition, the methodology used allows us to get around certain problems arising from the omission of variables during the estimate of network impacts. Our results show that social pressure is strongly correlated to the decision to practice excision in Burkina Faso households.

The essay is organized as follows: Section 2 provides information on FGM; Section 3 describes the conceptual framework, and Section 4, the methodology. Data are presented in Section 5, and the estimates are discussed in Section 6. Conclusions are presented in the final section.

1 Female genital mutilation: Definition and consequences

FGM is a very longstanding cultural practice. According to Séverine Auffret (1982), excision finds its roots in the Neolithic period, going back 6000 years BCE. It comprises a number of traditional procedures practiced for cultural or other non-medical reasons. Excision is practiced in 28 African countries, in a few countries of the Arabic Peninsula, and in some immigrant communities originating from practicing countries. Although the specific procedures vary according to ethnicity or geographic region, according to the World Health Organization (WHO), they can be grouped into four main types:

- Type I - excision of the prepuce, with or without excision of part or all of the clitoris; Type II - excision of the clitoris with partial or total excision of the labia minora;

- Type III - excision of part or all of the external genitalia and stitching/narrowing of the vaginal opening (infibulation);
- Type IV - pricking, piercing or incising of the clitoris and/or labia; stretching of the clitoris and/or labia; cauterization by burning of the clitoris and surrounding tissue;
- Types I and II are the most commonly practices forms of FGM.

The reasons given for the practice can be grouped into several categories: customs and traditions, control over women's sexuality, religion, social pressure, women's economic dependency, the importance of marriage in the cultures where FGM is practiced, the low levels of education in these countries, and finally, poverty. FGM supporters maintain that the procedure is a cultural tradition and that excised women are more feminine; consequently, the rite is seen as a passage into adulthood (Kissaakye, 2002). The practice is also used as a means to control women's sexuality (Gruenbaum, 1982 and 2002), to protect women's virginity in order to guarantee a successful marriage, and to contain women's sexual desire. In some communities where lineage is important, it is believed that FGM increases fertility. In cultures or areas where FGM predominates, social norms perpetuate the practice. In these societies, an unexcised woman is unclean and must be purified. In addition to being motivated by society's rejection of unexcised girls, parents also face the pressure of social norms, as choosing not to excise one's daughter leads to the family's isolation from the community (Rahman and Toubia, 2000). According to Sargent (1991), economic dependency and the importance given to the institution of marriage are also very influential in perpetuating the practice. In these societies, women have very low levels of education and limited opportunities outside of marriage. They also often do not have property rights. FGM is also often practiced for religious reasons (Williams and Sobieszcyk, 1987). Many of those who practice it believe that the procedure is required by Islam (Kouba and Muasher, 1985). However, while the Muslim community contests this assumption[2], many studies suggest that Islam is

[2]During the international conference on population and reproductive health in the Muslim world, it was maintained that the practice of excision is based on a faulty interpretation of Muslim education (Rahman and Toubia, 2000).

a significant factor in the perpetuation of the practice. Despite the fact that the practice is currently denounced, it is still being practiced in the name of respecting customs. All in all, the decision to mutilate requires the implicit agreement of the whole community, of the family group, and even of the individual. So long as society gives the practice its blessing, there will be social pressure to perform FGM.

In countries where FGM is strongly prevalent, it affects all socioeconomic groups. The resulting complications are considerable. Several studies in medicine, demography, and sociology have found that FGM can lead to adverse health consequences for girls and women. For example, according to Toubia (1995), the health implications vary from pain to death, depending on the amount of mutilation. In some cases, the women may die (tetanus, HIV/AIDS), while in others, they may suffer from pain, urinary retention, hemorrhaging, fever, shock, etc. Similarly, Rahman and Toubia (2000) describe the harmful psychological consequences of FGM:

"Girls have reported disturbances in eating, sleep, mood, and cognition shortly after experiencing the procedure. Many girls and women experience fear, submission or inhibition and suppressed feelings of anger, bitterness or betrayal."

The authors add that the psychological consequences of FGM are not well understood. According to a recent WHO (2006)[3] study carried out in six Saharan African countries (Burkina Faso, Ghana, Kenya, Nigeria, Senegal and Sudan), women who have undergone FGM have a strong likelihood of having a cesarean delivery (the risk of giving birth by cesarean is 30% higher for mutilated women). In addition, the mortality rate for their children, either before or after the birth, is 55% higher. Moreover, the report adds that these women have a 66% chance of giving birth to a baby who requires intensive care.

Despite the fact that FGM procedures are irreversible and have consequences that last a lifetime, and despite the fact that FGM is now being denounced, the practice continues[4].

[3]The report was the first of its kind to make such an in-depth examination of excision's long-term consequences.

[4]In Niger, in June 2006, deputies rejected the Maputo Protocol on the Rights of Women in Africa, because of the paragraph stating that FGM is considered a violation of women's rights. In 1998, 32% of Niger's population was of the opinion that FGM should not be eradicated.

While there have been studies looking at FGM, to date they have been descriptive in nature. The existing literature is made up, on the one hand, of biographies and personal accounts of tragic events, and on the other hand, of medical studies and demographic survey reports. This literature as a whole describes the characteristics of excised women in comparison with those of unexcised women, but they do not allow us to identify the relevant variables that contribute to a decision to practice excision on girls. Nowadays, it is clear that FGM is inscribed in a particularly deterministic social context. Figure (1) shows that a number of beliefs contribute to the practice of FGM. It describes the "mental map" into which is inscribed the decision to excise, and it shows how community enforcement mechanisms (songs, poems, divorces, etc.) ensure that most women and girls will conform to societal norms.

In our opinion, it is important to better understand the most significant social factors that allow the propagation of this practice, because it violates the fundamental human rights of women and girls by depriving them of their physical and mental integrity, of their right to a life free of violence and discrimination, and in the worst cases, of life itself.

In Burkina Faso, FGM is still widespread; it is entrenched in the culture, and affects all ethnic and religious groups. The prevalence rates are very high: according to the most recent surveys these rates were 79% in 2003, and 72% in 1998/1999. Almost all residents are aware of FGM (93% of men and 97% of women in 2003). All existing forms of FGM are practiced: ablation of the clitoris (clitorectomy), ablation of the clitoris and part of the labia minora (excision), and ablation of the clitoris, labia minora and labia majoria along with suture of the vaginal opening (infibulation). However, the first two types are most common. In general, FGM is performed early in childhood, at around the age of 7–8, and the procedure is most often done by traditional practitioners, under conditions that are less than adequately aseptic. The Burkina Faso sociocultural beliefs surrounding FGM are the same as those of other countries where it is practiced.

The fight against FGM in Burkina Faso began several years ago, and the country has committed itself to ending the practice. The government's political will to battle FGM is reflected in the fact that excision now figures among its public health priorities and among

the components of reproductive health, "Santé de la Reproduction" (SR). On May 18, 1990[5], a national committee for the battle against excision (the CNLPE) was created; in 1996, a law[6] was adopted to prohibit the practice of FGM; and, in 1997, a permanent secretariat, the Comité National de Lutte contre la Pratique de l'Excision (CNLPE), was established as a coordination body.

The CNLPE is made up of representatives from ministries, NGOs, women's associations, professional and human-rights associations, customary and religious authorities, and other people of goodwill. Civil society's commitment (through the involvement of opinion leaders such as customary, religious or traditional leaders, and of NGOs) and the recognition of FGM as a public health problem show how attitudes have changed. Henceforth, excision is no longer taboo, and the battle against excision has even been integrated into the teaching curriculum at the primary- and secondary-school levels. Through its permanent secretariat, the CNLPE has orchestrated national awareness-raising activities in all social strata, training programs for resource persons and advocacy activities with the political and administrative authorities and with development partners. Currently, arrangements are being made at the national level to address the aftermaths of excision, through reparative surgery and the implementation of consultation and support services. The objective is for Burkina Faso to have a zero prevalence rate for excision by 2010.

All of these actions have clearly contributed to the decreased incidence of FGM in certain areas; however, statistics show that prevalence rates remain high in Burkina Faso. Indeed, the phenomenon has persisted, taking on even more pernicious forms: the practice has become more clandestine; the age of excision has decreased; and, excision practitioners and populations have been migrating across national borders (to Mali) where there is no law against excision, or to other neighboring countries where laws are poorly enforced. For some people, the disappearance of FGM is unimaginable, as it constitutes an integral part of the social fabric.

[5] May 18 is now celebrated yearly as the "national day" of the battle against excision.

[6] Article 380 of the penal code prescribes a sentence of six months to three years, and/or a fine of 150,000 to 900,000 CFAF, for any person infringing upon the integrity of the female genital organ through total ablation, infibulation or any other means; and, in the event of death, a sentence of five to ten years' imprisonment.

2 Conceptual framework

A number of studies highlight the importance of social variables with regards to the adoption of new behaviors (Bongaarts and Watkins, 1996; Behrman, J., R. Hans-Peter Kohler, Susan C. Watkins, 2003; Bertrand et. al., 2000). For example, studies on the dissemination of information about family planning in Sub-Saharan Africa show that social variables are a significant determinant in the adoption of new demographic behaviors. The impact of social variables on human behavior has long been demonstrated by sociologists, demographers and anthropologists. Recently, economists are increasingly interested in the significance of social variables for individual behavior. These variables are recognized as having an influence on the adoption of new behaviors (education, job search, unemployment, buying, etc.) For example, Manski (1993, 2000) and Brock and Durlauf (2001) bring to light the correlations between the behavior of a socially outcast woman and that of other women in her social network. They emphasize the existence of an endogenous effect, an exogenous effect, and a correlated effect. Behrman and al. (2003) evaluate the impact of social interactions on individuals' perceptions of their risk of HIV infection. Alba (1990) shows that using one's mother tongue is a significant determinant of ethnic identity: individuals who are more connected to their community are much more likely to speak this language. With regards to FGM, the study by Mackie (1996) comparing the practice of infibulation in Africa to that of foot binding in China attempts to explain the social factors linked to excision. It concludes that excision is a badge of honor; it allows a family to anticipate a good bride-price, and consequently, fortune and security for itself. In addition, FGM gives the women who have undergone it social and community recognition, as an unexcised woman has no status. Bertrand and al. (2000) empirically examine the role of the social network for participation in US social-assistance programs. They show that Americans who have a mother tongue other than English interact mainly with others who speak the same language. Using an econometric model that includes fixed-effect estimates, they modelize variables that are representative of an individual's social network. Their specification makes it possible to take into account the quantity and quality of the social network. Informed by this model, we develop a specification that makes it

possible to take into account the impact of social pressure on the decision to excise girls, as we feel that analyzing the effect of social pressure is crucial to understanding a household's decision to excise.

3 Methodology

3.1 Measuring social pressure

We can identify the following findings in previous work done on FGM in Sub-Saharan Africa (by WHO, UNDP, UNICEF):

- Excision is rooted in social and economic values, as well as in cultural and religious traditions;
- Community life plays a very important role in one's decision to mutilate a daughter;
- Excision is more prevalent in rural environments and with women who have no education or are less educated[7];
- The practice is passed on from mother to daughter;
- Within the family or lineage, the authority to decide whether or not girls will be mutilated belongs to women, and especially, the eldest women. As pointed out by Gruenbaum (2001) and Melching (2003), it is the mothers who most often organize the excision of their daughters, because this is considered the way to properly raise a daughter and to be a responsible mother.

As pointed out earlier, FGM is inscribed into a particularly deterministic social framework. Consequently, the inclusion of a variable that takes social effects into account is an essential component of our model. In societies where excision is practiced, the decision to

[7] According to UNICEF, in 10 out of 15 countries, support for FMG is greater among women who have not received any formal education.

excise belongs to the family and social group, as children are considered collective property (in patrilineal societies). The community's tacit agreement is a necessary and sufficient condition for making the decision.

Sociological and demographic research conducted in Burkina Faso has shown that place of residence, religion and ethnic origin are important socialization variables that have a significant impact on relationships between individuals. The social network can affect individual behavior through two important channels: information and norms. The information channel emphasizes the ways in which an individual's knowledge depends on the behavior of others. As for social norms, they highlight how a person's preferences themselves depend on the behavior of others, either directly because other's behavior affects personal tastes, or indirectly through social pressure. The two mechanisms show how nonmarket interactions can influence behavior. They thereby generate feedback effects that can amplify shocks and lead to multiple equilibriums.

However, empirical studies have had some difficulty in measuring network effects. In this article, we use religion and ethnic origin as proxies for the social linkages between individuals in a given neighborhood. In Burkina Faso, national survey data (A. Beogo, 2005) demonstrate that individuals socialize very well according to ethnic and religious origins and area of residence.

To measure contact density (conformity), we use the proportion of individuals from the same ethnic group and religion, living in the same survey area. And we use the percentage of excised women within the same ethnic group and religion in order to measure contact quality, as these contacts can have a significant impact on other women's stance on excision and on that of the society as a whole (information transmission). The survey area is the smallest available social aggregate that is comparable to a village or small community. We focus on the interaction between the density and the quality of contacts, to infer a social network in a given environment.

We define the social effect as follows:

$$Netw_{jkl} = Netwjkl = (ContactDensity)jkl * (ExcisionPractice)kl$$

with

$$(ContactDensity)jkl = DCjkl = \%\ of\ individuals\ from\ ethnic\ group\ k\ in\ the\ survey\ area\ j\ and\ for\ religion\ l$$

and

$$(ExcisionPractice)kl = \overline{E}_{kl} = \%\ of\ excised\ women\ from\ ethnic\ group\ k\ and\ religion\ l$$

It is important to note that it is difficult to distinguish between norms and information. Culture can operate equally well through information or norms. Consequently, $Netw_{jkl}$ measures the social pressure and information that originate from the contacts.

This measurement can result in a number of problems:

1. Individuals choose their contacts, and therefore, considering only $Netw_{jkl}$ induces measurement and omitted-variable problems;

2. Using the average as a measure implies that contacts are randomly distributed, which can cause a "reflection problem," i.e., does individual behavior depend on group behavior or characteristics (social effect), or are individuals within the group similar because they are subject to the same shocks?

The "reflection problem" also creates a bias due to omitted variables (the omission of individual characteristics and neighborhood characteristics that can be correlated to $\overline{E}$).

To mitigate these problems, our approach also uses the geographic, religious and ethnic dimensions. One advantage of combining these three dimensions is that it allows us to address the omitted characteristics of the group, ethnicity and religion. We believe that ethnicity and religion give a more precise measurement of social linkages. We measure N etwjkl using the number of people with whom individuals act, in combination with the attitudes and knowledge about FGM. Consequently, our measure of the social network includes the

quantity of contacts as well as their quality. If interactions occur within ethnic and religious groups, we can write:

$$Netw_{jkl} = DC_{jkl} * \overline{E}_{kl} \tag{1}$$

The assumption behind this formula is that we approximate the knowledge and attitudes about FGM by using the proportion of excised women in the group.

3.2 Empirical specification

We estimate the following model:

$$GM_{ijkl} = \left(DC_{jkl} * \overline{E}_{kl}\right) \alpha + X_i\beta + \gamma_j + \delta_k + \theta_l + DC_{jkl}\phi + \epsilon_{ijkl} \tag{2}$$

where i represents the individual (woman); j, the area surveyed; k, the ethnic origin; and l, the religion.

GM_{ijkl} is a silent variable = 1 if the woman i, in survey area j, of ethnic origin k and religion l has at least one excised daughter; else, 0.

As mentioned earlier, DC measures the "quantity" of available contacts, and $\overline{E}$ is a proxy of individual knowledge of, and attitudes about, FGM in the country.

Xi is a vector of observable individual and family characteristics (e.g., age and education of the mother and father, marital situation, family welfare quintile, etc.)[8]

γ_j, δ_k and θ_l respectively represent the fixed effects for the area surveyed, the ethnic origin and religion.

ϵ_{ijkl} is an error term.

This methodology allows us to control for several problems arising from the omission of variables:

[8] We include this variable to see if the practice of excision is related to affluence. For example, in India, customs regarding the reclusion of women (purdah) are practiced by the most affluent. If the objective of excising one's daughter is to arrange a better marriage for her, then perhaps the custom is more prevalent among affluent families.

1. Consideration of regional fixed effects allows us to control for unobserved differences between areas;

2. The fixed effects for religion and ethnicity allow us to absorb any omitted characteristics of the group, ethnicity and religion;

3. Considering DC_{jkl} as an independent variable allows us to resolve the problem of omitting individual characteristics that could be correlated to DC_{jkl}.

It is important to note that an omitted-variable problem may still exist; for example, the omission of individual characteristics that could be correlated to $DC_{jkl} * \overline{E}_{kl}$.

4 Data

We use the data from the Enquête Démographique et de Santé (EDS) conducted among women. Analysis of the data shows that the practice of FGM is very widespread in Burkina Faso, with 79% of women surveyed reporting having undergone the procedure. In addition, 93% of men and 97% of women said they knew about FGM. Despite the high level of practice among women, we nevertheless notice some disparities related to sociodemographic characteristics. First, results by age show that the percentage of excised women in older generations is higher that in younger ones. In particular, the percentage of excised women in the 15–19 age group is much lower. As for the type of excision being practiced, in most cases the procedure consists of removing tissue (97.59% in mothers and 98.27% in daughters). Only 2% of women and 1% of girls have undergone the more severe infibulation. The majority of girls (23%) were excised in childhood, 92% of them before the age of 9, and most procedures (98%) were performed by traditional practitioners.

The rate of FGM for women living in rural environments is 77.67% and 75.51% for urban environments. Education level seems to have a slight influence on the prevalence of excision. Its incidence is lower in women with a secondary or higher education (65%) than it is for women with a primary education (77%) or for those without any education (78%). Finally,

32% of respondents with at least one daughter had already had her excised, and among excised mothers, only 44% of daughters were or would be excised[9] .

In general, the positive perception of excision remains high in Burkina Faso. For example, 17% of men and 20% of women think that the practice of excision should be continued. The consequences remain highly visible, with 32% of girls experiencing complications after excision; 23% having urinary problems; 17%, excessive bleeding; and, 8%, infections. Despite these complications, 27% of the population give social acceptance as a justification for the practice. Another 17% give religion as a justification, while a mere 3% give virginity and marriage, and another 4% give other benefits.

In the EDS, the section on female genital mutilation distinguishes between two types of mothers: those who have at least one living daughter, and those without any living daughters. The number of excised daughters among women who have at least one living daughter is then given. For this study, we are interested in the sub-sample of women who have at least one excised daughter among their living daughters. The following transformations were then carried out:

- We kept the largest ethnic groups, and grouped the others together in an Other category;
- The main religions were kept, namely, the Muslim religion (48.49%) and the traditional religion (31.78%). Catholic, Protestant and other religions were grouped together in the Other Religions category;
- In the definition of contacts, we considered all individuals having lived at least 10 years in the same survey area. The survey area actually represents the smallest social aggregate (community area) defined during in survey[10].

[9] This result is important. But does it reflect a downward trend or the fear of legal prosecution, given that FGM has been prohibited in Burkina Faso since 1996?

[10] On average, individuals lived 34 years in the same place.

5 Results

Table (2) presents our main findings and defines the variables used for the analysis. We estimate a probit model that brings into play demographic variables, a measure of contact density, and an interaction variable between the contact density and the percentage of excised women in the sample. The demographic variables include dummy variables for the mother's and the father's education levels, the mother's age, her approval and her preferences with regards to excision. The obtained results make it possible to underline the significant influence of the mother in the FGM decision. A mother's educational level has an effect on the dissemination of FGM to her daughters. In addition, her understanding of the stakes involved in excision, as well as her own experience have a direct bearing on her decision to mutilate her daughters. This result confirms those of past statistical studies. For example, UNICEF (2005) confirms, in a study carried out in 15 countries with high prevalence rates of FGM, that support for the practice is higher among women without any formal education. Moreover TOSTAN, the only non-governmental organization based in Senegal, concluded that basic education is a determinant in the process of eliminating FGM. It therefore implemented an educational program in affected communities to increase their educational level. One of the TOSTAN program's greatest achievements has been the voluntary and definitive discontinuance of excision by hundreds of village communities since 1998. In 2003, the WHO called for the expansion of the TOSTAN program model (Best Practice Model) in the 27 other African countries where excision is practiced.

The mother's age is a positively significant explanatory variable: the older the mother, the higher the rate of excision among her daughters. Additionally, the mother's preferences and her approval of FGM are significant and positive variables. The probability that a daughter will be excised is lower among richer families and higher among poor families. This confirms the results of previous studies (Lindy Williams and Teresa Sobieszczy, 1997). Her place of residence, ethnicity and religion also impact on the decision to excise.

The coefficients obtained for the area of residence reflect a very interesting impact. Relative to the reference area, in urban or rural areas, the probability of excision is decreased or

increased according to the area. This result may be explained by the fact that, in Burkina Faso, prevalence rates of excision in rural and urban environments are very close.

Despite popular belief, traditional religion is not shown to have a positive impact on the decision to excise. However, the Muslim religion does emerge as a positive explanatory variable, thereby confirming the popular belief. This result confirms those of past descriptive studies of Burkina Faso, which concludes that religion seems to play an important role because the vast majority of women and girls are excised, regardless of religion. They also conclude that the proportion of excised girls and women is highest among those of the Muslim faith.

Ethnicity also influences FGM probability. While the marginal effect is greater in the Mossi ethnic group, ethnicity generally influences FGM probability, that is, the probability of excision increases with membership in an ethnic group. This result is interesting. It shows that, whether the society is patriarchal (Mossi, Gurunsi and Gourma) or matriarchal (Lobi), the decision to excise always belongs to women.

Finally, the variable that takes the social network into consideration is also significant. This result confirms that the social network has a critical impact on a household's decision-making process about whether or not to excise its daughters. The social network acts as a social multiplier in the decision to excise a daughter. Contact density has a positive impact on the probability of excising a daughter, and the interaction with the quality of an individual's contacts amplifies that probability. This result is significant because it suggests the need for a diagnostic of each cultural group (ethnicity, religion, area of residence), in order to develop effective FGM eradication strategies. FGM is so profoundly entrenched in some societies that decree-laws and general declarations do not seem to be enough to abolish it. For example, resolutions against the practice have been passed in Senegal, Burkina Faso, Mali, Guinea and Egypt; however, the practice continues[11]. Therefore, if we want to achieve lasting results, it is necessary to modify social norms.

[11] In 2007, one young Burkina Faso woman died, and seven girls were hospitalized after being excised. They were among twenty girls aged 4–14, who were excised in three villages about 20 km from the capital, Ouagadougou (CNLPE, September 2007).

It is important to remember that our estimates could underevaluate the overall network effect. Given the omitted-variable problem, we have retained this specification because it makes it possible to mitigate some of the econometric problems. This decision reflects our objective, which is to look into the existence of network effects, not to quantify them.

6 Conclusion

In this article, we analyze the impact of the social network on the decision to excise made by Burkina Faso households. We focus on the interaction between the density and the quality of contacts, to infer a social network. To measure the quantity of contacts, we use the proportion of individuals from the same ethnic group and religion, living in the same survey area. And we use the percentage of excised women within the same ethnic group and religion in order to measure contact quality, as these contacts can have a significant impact on other women's stance on excision and on that of the society as a whole. Consequently, our measure of the social network includes the quantity of contacts as well as their quality. We find a positive coefficient for the interaction variable between contact density and quality. Intuitively, we can say that excision has an important social value in Burkina Faso and that, consequently, its eradication must take that fact into account. It is important to note here that, in Burkina Faso, the situation of women is between human rights and tradition. There continue to be stereotypes and cultural, traditional and religious practices that are harmful to women.

Taking social variables into account is of great importance for the theory as well as for the implementation of political-economic strategies. From a theoretical point of view, it is difficult to differentiate between the network effect and the bias of omitted variables. On the other hand, from a political-economy point of view, recognition of the network effect makes it possible to develop relevant strategies and recommendations.

Excision is a social phenomenon rooted in tradition and culture. Any strategy to combat the practice must therefore focus on all social strata, with the goal of fostering the participation of the whole community as one social group. To be effective, strategies must be adapted

to the local environment and must take into account the whole population's perceptions of FGM and its attitudes and beliefs about the practice. Strategies to combat FGM must be developed based on the population's perceptions, explanatory models, images and social codes. Raising awareness in the populations must be the priority. While social variables are an important avenue, it is important to note that, at the heart of FGM problematics, are the women themselves and their economic dependency in low-income countries. These women have a critical role to play within these economies. It is necessary to provide them with a basic education and economic independence, and to reduce their social barriers, because they are a linchpin in the eradication of poverty and the development of these countries.

In this work we are convinced that there are significant difficulties to measuring these effects. In future works, we would like to refine the quantification that would help develop more appropriate political measures for eradicating this problem.

On the other hand, we believe that these different innovations represent real progress that make it possible to deal with the distinction between network effects and unobserved differences between individuals, areas and groups.

References

[1] Auffret, Séverine (1982), Des couteaux contre les femmes. Paris: Grasset p.145

[2] Aizer, A., J. Currie (2004), "Networks or neighborhoods? Correlations in the use of publicly-funded maternity care in California" Journal of Public Economics, 88, pp. 2573-2585.

[3] Alean Al-Krenawi and Rachel Wiesel-Lev (1999), "Attitudes toward and Perceived Psychological Impact of Female Circumcision as Practiced among the Bedouin-Arabs of the Nigev" Family Process 38 (4), 431–443.

[4] Anika Rahman and Nahid Toubia (2000), Female Genital Mutilation: A Guide to Laws and Policies Worldwide, London and New York: Zed Books: 4.

[5] Asha Mohamud, Nancy Ali, Nancy Yinger, Program for Appropriate Technology in Health/World Health Organization (PATH/WHO) (1999), Female Genital Mutilation, Programs to Date: What Works and What Doesn't.

[6] Asha Mohamud (1997), "Strategies to Abandon FGM: The Role of Youth and Youth-Serving Organizations" talk presented at the African Adolescent Forum, Program for Appropriate Technology in Health (PATH), Addis Ababa, Ethiopia.

[7] Behrman, J. R. (1996), "Impact of Health and Nutrition on Education." World Bank Research Observer, 11:1, February: 23-37.

[8] Behrman, J., R.Hans-Peter Kohler, Susan C. Watkins (2003), "Social Networks, HIV/AIDS and Risk Perception" Penn Institute for Economic Research (PIER), Working Paper, 32p.

[9] Bettina Shell-Duncan et Ylva Hernlund (2000) Female "Circumcision" in Africa: Culture, Controversy, and Change, Boulder, CO: Lynne Rienner Publishers, Inc.

[10] Bhargava, A, D.T. Jamison, L.J. Lau, C.J.L. Murray (2001) "Modeling the effects of health on economic growth", Journal of Health Economics, 20, p. 423-440.

[11] Bisin, A., Horst, U. and Ozgür, O. (2006), "Rational Expectations Equilibria of Economies with Local Interactions" Journal of Economic Theory, 127, pp.74-116.

[12] Bloom, David E., David Canning and Dean T. Jamison (2004), "Health, Wealth and Welfare", Finance and Development, March, pp.10-15.

[13] Bloom, David E., David Canning and Jaypee Sevilla (2004), "The Effect of Health on Economic Growth: A Production Function Approach", World Development, 32 (1), pp.1-13.

[14] Bloom, David E. and David Canning (2005) "Health and Economic Growth: Reconciling the Micro and Macro Evidence," mimeo, Harvard School of Public Health.

[15] Bongaarts, John and Susan C. Watkins (1996) "Social interactions and contemporary fertility transitions," Population and Development Review, 22(4): 639 /682.

[16] Brock, W. and S. Durlauf (2001), "Discrete Choice with Social Interactions", The Review of Economic Studies, 68, pp. 235-260.

[17] Brock, W. and S. Durlauf (2001), "Interactions-Based Models," in J. Heckman and E. Leamer (Eds.), Handbook of Econometrics, Vol. V, North-Holland, Amsterdam.

[18] Carr, Dara (1997), "Finding from Demographic and Health Survey (DHS), Macro International.

[19] Frances Althus (1997). "Female Circumcision: Rite of Passage or Violation of Rights?" International Family Planning Perspectives, 23 (3) p.130.

[20] Gary Davis, Julius Ellis, Milo Hibbert, Romeo Perez and Erlene Zimbelman (1999), "Female Circumcision: The Prevalence and Nature of the Ritual in Eritrea" Military Medicine, 164(1), p.011.

[21] Gender Equality in Education: Major Challenge to Meet Dakar Goals (2002), Accra, Ghana.

[22] Gerry Mackie (1996), "Ending footbinding and infibulation: A convention account," American Sociological Review, 61 (6).

[23] Glaeser, E. and J. Scheinkman (2000), "Non-Market Interactions," mimeo, presented at the World Congress of The Econometric Society, Seattle.

[24] Glaeser, E. and J. Scheinkman (1999), "Measuring Social Interactions," in S. Durlauf and P. Young (Eds.), Social Dynamics, Brookings Institution Press and MIT Press, Cambridge, MA.

[25] Glaeser, E., B. Sacerdote, and J. Scheinkman (1996), "Crime and Social Interactions," Quarterly Journal of Economics, CXI, pp.507-548.

[26] Gosselin, C. (2000), "Handing over the knife: Numu women and the campaign against excision in Mali." In B. Shell-Duncan and Y. Hernlund (eds.), Female "Circumcision" in Africa. Boulder, Colorado: Lynne Reinner Publishers, Inc.

[27] Gruenbaum, Ellen (2001), The Female Circumcision Controversy: An Anthropological Perspective, Philadelphia, University of Pennsylvania Press, p. 242.

[28] Kouba, L. and Muasher, J. (1985), "Female circumcision in Africa: An overview." African Studies Review, 28, pp.95-110.

[29] Hernlund, Y.K. (2003), "Winnowing culture: negotiating female "circumcision" in The Gambia." Ph.D. dissertation, Department of Anthropology, University of Washington, Seattle, Washington.

[30] Institut National des Statistiques et de la Démographie (2004), "Enquête Démographique et de Santé, 2003", Rapport final, Ouagadougou, Burkina Faso.

[31] Jones, Heidi, Nafissatou Diop, Ian Askew and Inoussa Kaboré (1999). "Female Genital Cutting Pratices in Burkina Faso and Mali and Their Negative Health Outcomes," Studies in Family Planning , 30(3), pp. 219-230.

[32] Kissaakye, E. (2002), "Women, culture and human rights: female genital mutilation, polygamy and bride price." In W. Benedek, E. Kisaakye, & G. Oberleitner, (Eds.), Human Rights of Women, New York: Zed Books, pp.268-285.

[33] Laboratoire de Santé communautaire du Bazèga (1998). "Evaluation de la prévalence, de la typologie, et des complications liées a l'excision chez les patientes fréquentant les formations sanitaires du Bazèga," Ouagadougou, Burkina Faso : Population Council.

[34] Larsen, Ulla and Sharon Yan (2000). "Does female circumcision affect infertility and fertility? A study of Central African Republic, Côte d'Ivoire and Tanzania," Demography, 37(3), pp.313-321.

[35] Manski, C. (1993), "Identification of Endogenous Social Effects: The Reflection Problem," Review of Economic Studies, 60, pp.531-42.

[36] Marianne Bertrand, Erzo F. P. Luttmer and Sendhil Mullainathan (2000), "Network Effects and Welfare Cultures."Quarterly Journal of Economics, 115(3), pp. 1019-55.

[37] Margaret Brady (1999) "Female Genital Mutilation: Complications and Risk of HIV Transmission" AIDS Patient Care and STDs, 13(12), pp.709-716.

[38] Martorell, Reynaldo (1996), "The Role of Nutrition in Economic Development," Nutrition Reviews, Vol. 54 (4), p. S70.

[39] Morison, Linda, C. Sherf, G. Ekpo, K. Paine, B. West, R. Coleman and G. Walraven (2001) "The long-term reproductive health consequences of female genital cutting in rural Gambia: A community-based survey," Tropical Medicine and International Health, 6(8), pp. 643-653.

[40] Melching, M. (2003), Oral presentation to the Inter-Agency Working Group of USAID. Washington,

D.C.

References

[1] Nafissatou J. Diop et. al., (1998), "Etude de l'efficacité de la formation du personnel socio-sanitaire dans l'éducation des client(e)s sur l'excision au Mali," Bamako, Mali: Population Council.

[2] Nahid Toubia (1995), Female Genital Mutilation: A Call for Global Action,

New York: RAINBO: 9

References

[1] Olayinka Koso-Thomas (1987), The Circumcision of Women: A Strategy for Eradication, London and Atlantic Highlands, NJ : Zed Books Ltd.

[2] Organisation mondiale de la Santé,(1996) Mutilation génitale féminine : Rapport du groupe de travail technique, Genève: OMS: 9.

[3] Organisation Mondiale de la Santé, Female Genital Mutilation: Fact Sheets, www.who.int/health_topics/female genital mutilation/en/

[4] Population (1998), "Pratiques, opinions et attitudes en matière d'excision en Afrique", INED, pp. 1227-1240.

[5] Population Reports (1995), "Répondre aux besoins des jeunes adultes"Série J XXIII (41).

[6] Rahman A., Toubia N. (2000), Female Genital Mutilation. A Guide to Laws and Policies Worldwide, London, Zed Books.

[7] Sargent, C. (1991), "Confronting patriarchy: the potential for advocacy in medical anthropology," Medical Anthropology Quarterly, 5, pp. 24-25.

[8] Savedoff, William D. and T. Paul Schultz, in Savedoff and Schultz, eds., (2000) Wealth from Health: Linking Social Investments to Earnings in Latin America, Washington: Inter-American Development Bank.

[9] Schultz, Paul T. (1993), "Investments in the Schooling and Health ofWomen and Men: Quantities and Returns," The Journal of Human Resources, 28(4), pp. 694-734.

[10] Schultz, Paul T. (2002), "Why Governments Should Invest More to Educate Girls," World Development , 30(2), pp. 207-225.

[11] Shell-Duncan, Bettina and Ylva Herlund, (2000) Female Circumcision in Africa: Culture, Controversy and Change, Boulder, Lynne Reiner Publishers, p.348.

[12] Snow, R.C., T.E. Slanger, F.E. Okonofua, F. Oronsaye and J.Wacker (2002), "Female genital cutting in Southern urban and peri-urban Nigeria: Self-reported validity, social determinants and secular decline," Tropical Medicine and International Health, 7(1), pp. 91-100.

[13] The American College of Obstetricians and Gynecologists (ACOG), Health Care for Underserved Women: Female Circumcision/Female Genital Mutilation (FC/FGM) Fact Sheet, www.acog.org.

[14] Topa, G. (2001), "Social Interactions, Local Spillover and Unemployment," The Review of Economic Studies, 68, pp.261-95.

[15] Tostan, (1999), "Breakthrough in Senegal: The Process That Ended Female Genital Cutting in 31 Villages/" Nairobi, Kenya: Population Council.

[16] Williams, L., and Sobieszczyk, T. (1987), "Attitudes surrounding the continuation of female circumcision in the Sudan: Passing the tradition to the next generation." Journal of Marriage and the Family, 59, pp 966-981.

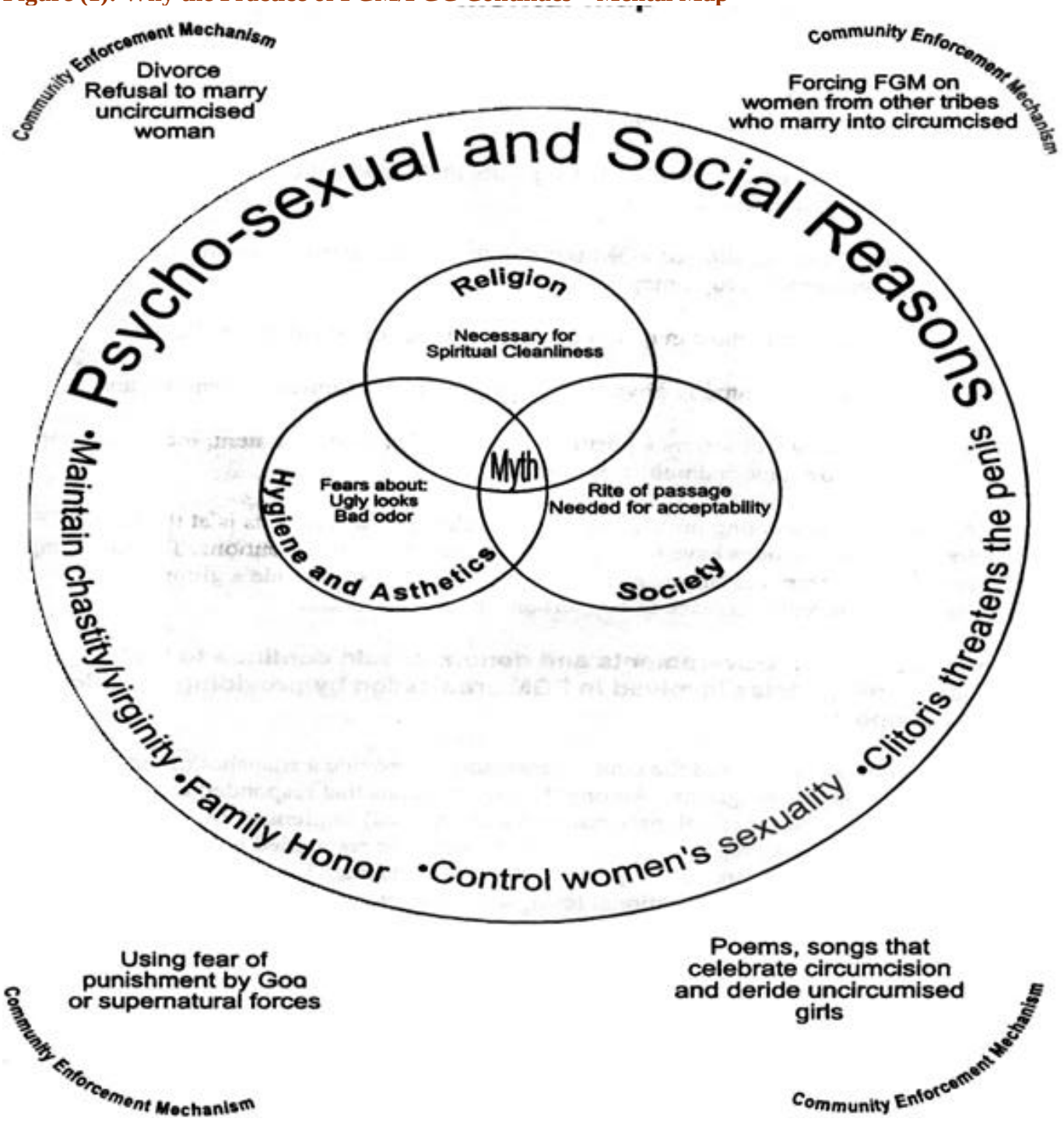
[17] World Health Organization (WHO) (1996), Female Genital Mutilation: Information Kit, Geneva, Department of Women's Health, Health Systems and Community Health, 50 p.

[18] World Health Organization (WHO) (2001), Macroeconomics and Health: Investing in Health for Economic Development, Geneva, Commission on Macroeconomics and Health, 210 p.

[19] Yoder, P. Stanley and Mary Mahy (2001), Female Genital Cutting in Guinea: Qualitative and Quantitative Research Strategies, Calverton, DHS Analytical Studies No. 5, ORC Macro, 45 p.

[20] Young, P. H. (2007), "Social Norms", mimeo Oxford University.

Figure (1): Why the Practice of FGM/FGC Continues – Mental Map[1]



[1] Diagram from "Female Genital Mutilation: Programs to Date: What Works and What Doesn't." Mohamud, Ali, and Yinger, 1999. Department of Women's Health, WHO.

Tableau (2): Déterminants de l'excision des filles au Burkina Faso, en 2003
Variable dépendante: GM_{ijkl}=1 si a au moins une fille excisée

Variables	Description	Effet marginal
FGM	1 si la mère a au moins une fille excisée, 0 sinon	
Âge	Âge de la mère en années	0.003 (11.71)**
Merex	1 si la mère est excisée, 0 sinon	0.032 (8.74)**
Merapp	1 si la mère approuve l'excision, 0 sinon	0.014 (4.08)**
Noeduc	1 si la mère n'a aucune éducation, 0 sinon	0.928 (7.04)**
Educp	1 si la mère a le niveau primaire, 0 sinon	0.032 (8.74)* *
Noeducpp	1 si la père n'a aucune éducation, 0 sinon	0.032 (9.59)**
Educpp	1 si la père a le niveau primaire, 0 sinon	-0.040 (11.53)**
Prop_ind (DC)	Densité des contacts % d'individus de l'ethnie k dans la zone d'enquête j et de religion l	0.182 (2.88)**
SocialEffect (DC*E)	Effet réseau : interaction DC et % des femmes excisées d'ethnie k et de religion l	0.346 (14.18)**
Pauvres[1]	1 si le ménage fait partie des plus pauvres, 0 sinon	0.035 (2.83)**
Riches	1 si le ménage fait partie des plus riches, 0 sinon	-0.014 (3.91)**
Effets fixes de résidence de religion[2] : 1. Musulman 2. Traditionnel	 1 si religion musulmane, 0 sinon 1 si religion traditionnelle, 0 sinon	 0.024 (2.13)* -0.032 (3.64)**
Effets fixes de d'ethnie[3]	1 si l'appartenance ethnique est k, 0 sinon 1. Mossis 2. Lobi 3. Gourmantché 4. Gourounsi	 0.130 (5.09)** 0.064 (7.39)** 0.003 (2.11)* 0.053 (2.76)**
Effets fixes de résidence[4]	1 si lieu de résidence est la zone d'enquête j, 0 sinon 1. zone 2. zone2 3. zone2	 0.011 (4.36)** -0.002 (8.65)** 0.049 (2.68)**

[1] Catégorie de référence : Intermédiaires
[2] Catégorie de référence : Autres
[3] Catégorie de référence : Autres
[4] Catégorie de référence : autres zones d'enquête.
Robust z-statistics in parentheses
* Significant at 5%; ** Significant at 1%

	4. zone2	0.019 (4.74)**
	5. zone2	0.016 (4.66)**
	6. zone2	0.009 (7.24)**
	7. zone10	0.057 (2.98)**
	8. zone11	0.005 (2.52)*
	9. zone12	0.017 (4.99)**
	10. zone14	0.013 (4.31)**