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Fighting against harmful customs
the case of female genital cutting

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Fighting against Harmful Customs: the Case of Female Genital Cutting

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Chapter 1

Introduction

The study of harmful customs and their interactions with economic factors has gained increasing attention in economics. To understand development and gender issues in particular we need to better grasp how social and cultural factors affect people's life. Differences in gender outcomes - both in developing and developed countries - are partially shaped and often justified on the grounds of cultural and social norms concerning women's role.

Customs, in particular the ones related to women, have been studied in economics mainly because of their effect on outcomes such as health, education, employment and income. For instance, norms which regulate fertility can lead to negative health outcomes for women and their children; they can constrain their educational outcomes and therefore negatively affect their income. However, understanding how customs evolve becomes important per se: customs can be seen as a determinant of individual well-being.

Female genital cutting (also called female genital mutilation or female circumcision) is an example of this twofold perspective on customs: it is at the same time considered as affecting some dimensions of women's well-being and as itself as being a component of this well-being.

Female genital cutting (FGC) is the practice of removing part of the external female genitalia for non medical reasons. This custom is present (at different degrees) in 29 African and Middle - Eastern countries. According to the latest available data, more than 125 million girls and women are cut and 30 million girls are at risk of being cut in the next decade (UNICEF, 2013a). The World Health Organization (WHO) classifies four types of FGC, depending on the severity of the mutilation, from clitoridectomy (total or partial removal of the clitoris) to infibulation (methods to narrow the vaginal opening).

Since the eighties, attempts to eradicate this practice have been justified on the grounds of its negative health effects. The medical literature suggests that FGC is associated with health problems, both at the moment of the cutting (excessive bleeding, poor sanitary conditions, etc.) and in the long term (fistula, hemorrhagic birth delivery, etc.). The severity of the health problems

depends on the type of FGC performed and on the sanitary conditions in which it is done. However, the available evidence on the health problems related to FGC are not very robust, mainly due to the poor quality of the existing data. Despite this limitation, the health effects of FGC remain an important element of justification of anti-FGC interventions. In this perspective, the relevance of fighting this custom is related to its effects on women's health.

However, in the last 20 years, discussions on FGC have been incorporated in a broader reflection about women's rights and empowerment. FGC is framed as a human rights' violation and its demise is regarded as part of a more general improvement of women's condition and status within a given society. The custom is therefore recognized as part of a more general system of values which regulates a society. In this sense, we can interpret FGC as a (negative) component of women's well-being and its study becomes relevant independently of its possible negative health consequences. Both views of FGC justify the growing interest for this custom in development economics.

There is still scant empirical evidence on the determinants of FGC and almost no quantitative evaluation of the effectiveness of interventions against it. Despite the lack of evidence, the debate on FGC among practitioners is dominated by its definition as a coordination problem. Interventions tend to be based on this interpretation.

In this thesis, I enter this debate by studying how FGC is shaped by interventions to eradicate it in the case of Senegal. After an introductory chapter where I present an overview of FGC (Chapter 2), I devote two chapters to this topic: Chapter 3, in which I analyze how a village-level programme affects FGC incidence; and Chapter 4 where I relate the observed decrease in age at cutting in Senegal to the growing (legal) pressure to stop the practice, which might lead individuals to adapt it to the changing environment. Finally, Chapter 5 frames the problem of FGC within the broader question of how customs can be changed, focusing on the theoretical underpinning of existing interventions against harmful traditions. The remaining part of this section provides a more detailed description of each chapter.

Chapter 2, titled "The Debate on Female Genital Cutting", presents an overview of the topic of this thesis. In particular, I describe the custom, its prevalence and origin and I present the current debate on the health and human rights approaches to FGC as justifications to fight the custom. I review the theoretical and empirical literature on FGC, focusing on the most recent works in economics. Special attention is devoted to the problem of under-reporting bias in FGC data and how this problem can be partially overcome. Finally, one of the best known anti-FGC intervention, proposed by the Senegalese NGO Tostan, is described in detail using the available scientific literature and reports on the topic. This program can be considered the dominant framework for anti-FGC interventions.

In Chapter 3, "Changing Female Genital Cutting: Evidence from Senegal", I analyze the effect of the Tostan's program in Senegal which aims, among other things, at convincing people to abandon FGC. To do so, I use a unique dataset

from the region of Kolda in Senegal that I collected in 2012. An interesting dimension of the program is that the NGO helps villagers organizing public meetings where village representatives declare the abandonment of FGC. These public pledges should then work as coordination devices, based on the idea that FGC is a coordination problem. I first attempt to quantify the short-term effect of the program using a difference in difference strategy. I find that girls at risk during the implementation of the project are 8 percentage points less likely to be cut, an effect that can reasonably be attributed to the program. The small but significant decrease is compatible with both intra-village heterogeneity and coordination within some sub-village networks.

The conditions for the Public Declaration to work as a coordination and commitment device do not seem to be met in the context analyzed here. It is therefore not possible to distinguish between a poor implementation of this part of the project and an improper conceptualization of the nature of FGC as an inter-village coordination game. With respect to other potential channels of inter-village coordination, I find some evidence that, when extending the analysis to girls born after the end of the program, a (female) family link to a PRCC village is negatively correlated with FGC rate in non PRCC villages, which is suggestive of a role of the extended family network (across villages) in the FGC decision-making process. I cannot however exclude that some unobservable characteristics of the extended family (such as lower preferences for FGC) explain the result.

The existing empirical literature on FGC has focused on its incidence. However, FGC is not just a yes/no decision, but it includes other dimensions, such as when and how to perform it. Chapter 4, "Interventions to stop female genital cutting and the evolution of the custom: evidence on age at cutting in Senegal" (forthcoming in Journal of African Economies[1]), focuses on a different dimension of FGC. I suggest that interventions against FGC such as legal sanctions and, more generally, anti-FGC campaigns might have unintended and potentially harmful effects on the way FGC is performed. Using DHS data from Senegal, I find that girls born in a year and a region where the law against FGC has been legally enforced are cut almost one year earlier. No significant effect of the law is found on the prevalence of FGC. Using the dataset from the region of Kolda in Senegal, I find a decreasing trend in age at cutting after the year of the introduction of the law sanctioning FGC. In both cases, in line with existing qualitative evidence, I interpret the decrease in age as the result of a process of de-ritualisation and individualization of FGC due to the push towards the secrecy of the practice. This study stresses the importance of taking into account all dimensions of the custom in the design of anti-FGC interventions so that unattended evolutions of the custom can be avoided.

In Chapter 5, titled "Eradicating Women-Hurting Customs: What Role for Social Engineering?"[2] and co-authored by Jean-Philippe Platteau, we discuss

[1] DOI: 10.1093/jae/ejv013

[2] This paper is scheduled to appear in a forthcoming book co-edited by Siwan Anderson, Lori Beaman and Jean-Philippe Platteau and published at Oxford University Press.

existing approaches to fight women-hurting customs and how they can be conceptualized from the standpoint of economic theory. A popular approach to change harmful customs is what we call the "social engineering approach". It consists of two types of interventions: on the one hand, legal bans which criminalize the practice; sensitization campaigns and community-based programs aimed at changing people's perception of the customs on the other hand. The social engineering approach is commonly justified on the grounds of human rights principles. In this chapter we focus on the theoretical model underpinning this approach.

First, we study the expressive effect of the law (i.e., the legal intervention as an instrument to change people's expectations) and use a coordination model to explain under which conditions the law works as a focal point. Second, we analyze the deterrence effect - namely, the law as a tool to punish individuals - mainly within a bargaining framework. Finally, we define community-based programs and other attempts aiming at modifying people's attitude towards the custom as attempts to change their individuals' preferences. In a coordination game with heterogeneous preferences we study the effect of changing the distribution of preferences. In essence, the paper discusses the conditions under which the "social engineering approach" can work and tries to corroborate the theoretical discussion with the help of existing empirical evidence. We moreover compare the social engineering approach with a less direct approach to customs change: namely, economic reforms which modify incentives and can lead, under some conditions, to the disappearance of a harmful practice.

It is clear from the review of the existing theoretical and empirical evidence that a more careful understanding of the nature of women-harmful customs is needed to more effectively fight against them. In the case of FGC, strong claims regarding its nature being (mainly) a coordination problem are not yet supported by robust empirical evidence, as shown in the previous chapters of this thesis.

Chapter 2

The Debate on Female Genital Cutting

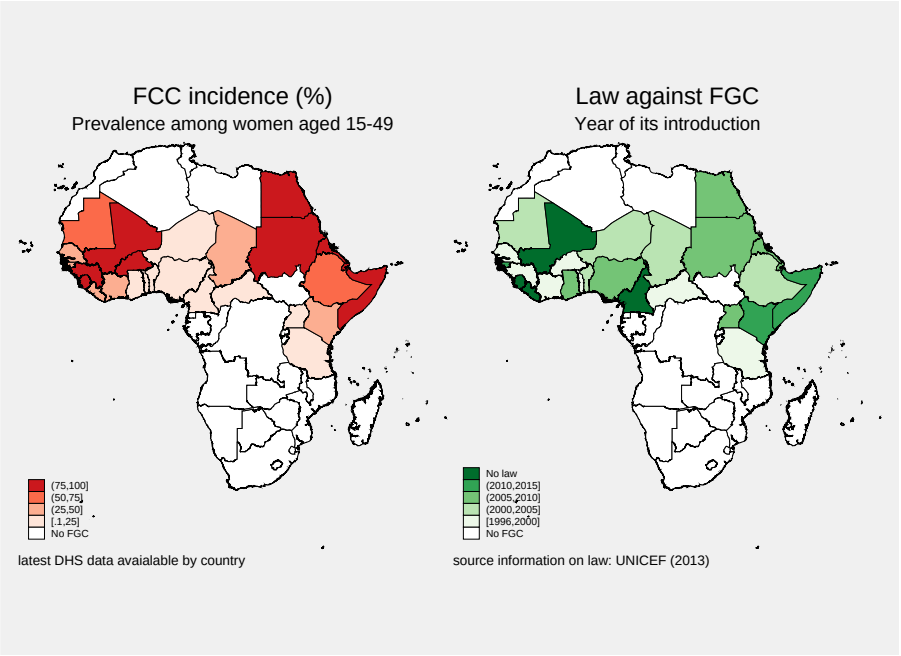
2.1 Introduction

The fight against female genital cutting (FGC), the practice of removing part of the external female genitalia for non-medical reasons, has received since the late 1990s a renewed interest among practitioners, researchers and media. International organizations such as UNICEF are leading actors in promoting interventions to end the custom. Legal reforms and grassroot-based programs to fight FGC have steadily increased over time, justified on the grounds of health concerns and human rights principles. Furthermore, a consensus seems to emerge among anti-FGC activists regarding the definition of FGC as a social norm: social ostracism and the strength of social ties can hinder change, even when individuals are willing to stop.

Economists have become recently interested in the topic, thanks to the presence of an established theoretical framework to discuss FGC and the availability of new data. Attempts have been made to understand the determinants of FGC and to assess its theoretical foundations. This chapter proposes an overview of the state of the art on FGC and offers an introduction to the topic from an economic perspective.

In Section 2.2 I describe FGC, its prevalence and origin. Section 2.3 discusses the grounds on which the fight against FGC is justified. Section 2.4 reviews the theoretical and empirical literature on FGC, focusing on the most recent works in economics. Furthermore, I discuss in detail the problem of under-reporting bias in FGC data, in particular in the Demographic and Health Surveys (DHS), and how these caveats could be partially overcome. Section 2.5 describes the anti-FGC intervention of Tostan, one of the best-known NGO working on the topic which I will study later in this thesis: its approach has inspired UNICEF's anti-FGC projects and can be considered the dominant framework for anti-FGC

Figure 2.1: Prevalence and legal status of FGC in Africa



interventions. Section 2.6 concludes.

2.2 Definition and origin

Female genital cutting (FGC), also known as female circumcision or female genital mutilation, is the practice of removing part of the external female genitalia for non-medical reasons.The World Health Organization classifies four types of FGC, depending on the severity of the mutilation, from clitoridectomy (total or partial removal of the clitoris) to infibulation (methods to narrow the vaginal opening).

This custom is present (at different degrees) in 29 African and Middle - Eastern countries. According to the latest available data, more than 125 million girls and women are cut and 30 million girls are at risk of being cut in the next decade (UNICEF, 2013a). The left map in Figure 2.1 shows the FGC prevalence in Africa, where the majority of the countries in which FGC is present are located[1]. FGC incidence varies greatly across countries: in Mali, Egypt and Sudan the practice is almost universal, while in other countries only some ethnic minorities perform it.

The origin of FGC is a matter of speculation. Some argue that its initial

[1]In the Middle East FGC is practiced in Iraq and Yemen.

purpose was to control women's fidelity and to act as a signaling device in a context of polygamy and hypergyny (Mackie, 1996). There is no unique justification for the practice, but, whatever its original scope, FGC seems to be associated with concepts of purity, sexual control, cleanliness and gender role definition[2] (Gruenbaum, 2001).

FGC has been extensively studied by anthropologists and ethnographers at least since the 19th century[3]. Two lessons can be drawn from this literature. First, in spite of some common and recurrent elements regarding the meaning of FGC, the way it is performed can vary greatly. Age at cutting, for example, varies (or used to vary) across ethnic groups from a few days after birth to 16-18 years (Erlich and Augé, 1995, p.31-33). The meaning and the ritual associated with FGC vary accordingly: if performed on infants, FGC cannot be a rite of passage to womanhood and preparation for marriage, such as in the case when it is done just before or after puberty.

Second, FGC and its interpretation change and adapt to a changing environment (Fusaschi, 2003, p.78). An interesting example is how this pre-Islamic custom has survived and been accommodated after Islamisation of West African countries in different ways. While there is no clear prescription in the Koran with regard to FGC, nowadays people often explain FGC as a religious requirement. Johnson (2000) shows that FGC among the Mandinka in Guinea Bissau has become an important part of their Muslim identity and is used to define themselves in opposition to neighboring non-Muslim groups: FGC guarantees the purity that is required to pray and behave as a good Muslim. In Mali, Gosselin (2000, p. 206) suggests that the Islamisation of Malian society has led to the de-ritualization and medicalization of the practice. A similar argument is provided in Hernlund (2000): traditional rituals can be perceived as anti-Islamic with the result that, when the practice is adopted, its form and meaning can evolve when a more orthodox form of Islam is established.

2.3 FGC: a harmful custom?

FGC is considered a harmful practice and a violation of women's human rights. At the beginning of the international movement against FGC, which can be traced back to the late seventies[4], anti-FGC campaigns were framed in terms of the health risks associated to the custom. As remarked by Shell-Duncan (2008), this approach presented several limits.

[2]It is worth noting that FGC has been practiced in Europe in the 19th century as a medical procedure to cure female masturbation and hysteria (see Erlich and Augé 1995, p. 61-70).

[3]For a historical perspective on FGC see Erlich and Augé (1995, chapter 2) and, for its relation with the rise of anthropology, Fusaschi (2003, chapter 2).

[4]At the Khartoum Seminar on Traditional Practices Affecting the Health of Women and Children in 1979, the WHO discussed for the first time strategies to address FGC. In the same year, the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) was adopted by the UN general assembly. FGC was then recognized as a human rights violation (UNICEF, 2013a, p.10).

First, practicing communities are often aware of the risks associated to the custom, but the social cost of not following it is considered higher than the health cost.

Second, the medical risks associated to FGC might have been exaggerated, in particular because most of the data were drawn from medical studies on infibulation. This is the most invasive form of FGC, but it is not representative of all types of cutting.

The medical literature suggests that FGC is associated with health problems: they can occur at the moment of cutting (excessive bleeding, poor sanitary conditions, etc.), in the long term (fistula) and at birth delivery (hemorrhagic birth delivery). The severity of the health problems depends on the type of FGC performed and on the sanitary conditions in which it is done. Health problems are, however, far from systematic.

Makhlouf Obermeyer (2005) reviews the medical literature on FGC, pointing to the lack of robust evidence on the health effects of FGC and an overall lack of reliable data to assess it. A recent meta-analysis of studies on the obstetric consequences of FGC (Berg and Underland, 2013) suggests that cut women are more likely to experience problems such as prolonged labor and obstetric laceration at the moment of delivery. However, establishing a causal link between FGC and obstetric complications remains problematic due to the overall low quality of the available data. Finally, using the largest available database on FGC (Demographic and Health Survey Data of 13 countries out of the 28 in which FGC is practiced), Wagner (2015) finds no statistically significant correlation between FGC and long-term health consequences such as the BMI and weight, but an increased risk of genital problems such as sexually transmitted infections, vaginal discharge and ulcer or genital sores. She additionally finds a positive correlation between FGC status and fertility, which seems to contradict the belief that FGC can cause infertility. In general, it might be possible that health effects are not important enough or not clearly linked to the practice by cut women, making the health argument against FGC less relevant in practicing communities[5].

A third limit of the health approach to FGC is that the emphasis on the medical risks associated to FGC can lead to the medicalization of the practice. Practicing communities might not question the practice when FGC is performed by trained practitioners in a controlled environment: it is likely that the risks for women are limited, weakening the health argument against FGC. Campaigners tend to be therefore against the medicalization of FGC: they consider it an obstacle to the eradication of the practice. Such a statement requires however a careful empirical validation, as remarked by Shell-Duncan (2001) in her discussion on the advantages and disadvantages of medicalization: this could indeed

[5]Another possible effect of FGC is on women's sexuality. In particular, FGC is often seen (mainly from a Western perspective) as a mutilation which negatively affects women's ability to experience sexual pleasure. It remains however a very controversial topic of debate, given that physiological, psychological and cultural elements play a role in the sexual experience. For a discussion on FGC and sexuality see, for example, Gruenbaum (2001, chapter 5) and O'Neill (2011, chapter 6).

be seen as an intermediate step towards the disappearance of FGC. It remains a matter of fact that medicalization is observed in several countries, among which Nigeria (Orubuloye et al., 2000), Kenya and Egypt (Shell-Duncan et al., 2000; UNICEF, 2013a, pp.107-110) and Mali (Gosselin, 2000).

Given the above-mentioned limits of the health approach to FGC, since the nineties the language used in anti-FGC campaigns has shifted: the focus is now on FGC as a human rights violation. The adoption of a human rights framework has also been object of discussion. First, it enters the general debate on universalism versus cultural relativism and the discussion on the relation between culture and human rights: both topics are transversal to the human rights literature (see Gruenbaum, 2001, pp.24-33 and Merry, 2003a). Second, one of the least controversial way to frame FGC as a human right violation is to consider the custom as a threat to the right to health and body integrity. It however re-establishes a link with the health discourse on FGC and therefore with its drawbacks (Shell-Duncan, 2008). In practice, the health perspective on FGC remains in place in anti-FGC campaigns, mixed with the human rights perspective.

An advantage of the human rights approach is that it allows to broaden the discussion from the custom itself to women's empowerment issues. As we will see in Section 2.5, Tostan's intervention uses human rights as a way to empower disadvantaged groups: the discussion on FGC becomes therefore part of a larger reflection on women's role in their community.

Another consequence of the use of the human rights language against FGC is that "protection from FGC/M became understood as a right to be enforced, granted and implemented by the state [...]." (Shell-Duncan et al., 2013, p.806). This has increased the pressure on concerned governments to adopt laws banning FGC. As the map on the right in Figure 2.1 shows, most of the African countries where FGC is present have introduced, mainly in the 2000s, laws which restrict the practice. The effectiveness of the legal approach against FGC has however yet to be proven. Up to now, the main evidence available of the effect of the criminalization of FGC are: first, an increased risk of the practice going underground (Shell-Duncan et al. (2013) and Chapter 4 in this thesis); second, an increased risk of under-reporting FGC as the pressure to abandon it intensifies (see Section 2.4.3).

2.4 Literature review on FGC: theoretical models and empirical evidence

2.4.1 Theoretical models of FGC

From a theoretical point of view, different ways to model FGC lead to different predictions regarding the most effective interventions against the custom. Following Shell-Duncan et al. (2011), we can distinguish two ways of conceptualizing FGC: a decision-theoretic framework, where FGC is the result of an

individual cost benefit analysis; or a game-theoretic framework, where FGC is the result of strategic interactions among actors.

An example of the first approach is Posner (1994), where FGC is the result of a process of balancing the cost of cutting with its benefits (in his example, the reduced wife's infidelity). In this simple framework, other agents' decisions over cutting do not affect the individual choice on FGC. This model was implicitly behind the community-based education programs on FGC health effects that were popular until the early '90s (Shell-Duncan, 2008). These campaigns should have increased the individual costs of FGC, leading to the abandonment of the practice. Yet, the impact of these projects was not satisfactory, leading to a new reflection on the nature of the custom.

On the contrary, the game-theoretic approach implies that FGC is the outcome of a strategic interaction with other agents. This framework (Mackie, 1996; Mackie and LeJeune, 2009) defines FGC as a social convention: whatever its original function, FGC, where it is practiced, is a marriageability condition. Non-cut women, in a context where all women undergo FGC, will not be able to marry. In its simplest form, the problem of FGC can be represented as a coordination game with two equilibria, a low-payoff equilibrium (everybody's cut), and a high-payoff equilibrium (nobody is cut). The structure of the payoffs implies that agents prefer no FGC. If the actual equilibrium is the (cut, cut) one, then an agent has no incentive to deviate from it, in spite of the fact that she would prefer the (no cut, no cut) equilibrium. To move to it, both agents need to switch simultaneously. In other words, even if the negative effects of FGC are understood, people still need a way to coordinate to be able to stop. The static model of coordination is then extended to take into account the heterogeneity of preferences and a progressive change in the FGC rate.

Close to this view, Chesnokova and Vaithianathan (2010) model FGC as a pre-marriage investment, where FGC increases the chances to get a better (richer) husband. The model predicts that when there is a positive rate of FGC, the returns to FGC increase with the number of cut women. No FGC is also an equilibrium: if nobody is cut, there is no incentive to start it. Building on this model, Molitor (2014) introduces education as an alternative pre-marriage investment to FGC[6]. Education increases a woman's chances on the job market, making her less dependent on marriage. It additionally increases her value on the marriage market. On the contrary, FGC only increases the marriage prospects. Her model therefore predicts that single women are less likely to be cut and better educated.

Within the coordination framework, a crucial question is who should coordinate, or, more precisely, in which network the decision to stop FGC should be agreed upon to avoid sanctions. If FGC is a marriage convention, then the group inside which marriages take place should be the relevant one. However, there are different ways to define it: at the largest level, the marriage network is the ethnic group or, more generally, the broadest group within which mar-

[6]Ouedraogo and Koissy-Kpein (2012) follow a similar approach.

riage is conceivable[7]. Wagner (2015) shows in her cross-country analysis that ethnicity is robustly correlated with FGC: the FGC rate follows ethnic rather than country borders.

However, the identification of the marriage market with the ethnic group is uninformative in large ethnically homogenous areas: other factors, such as geographical distance, historical links across villages as well as insurance motives (Munshi and Rosenzweig, 2009) might be better predictors of a marriage link.

The coordination framework - which can be seen as the current paradigm for FGC - has inspired another type of eradication programs than health sensitization campaigns. If FGC is a coordination problem within the marriage network, the decision to abandon it should be taken collectively within the reference group. Activities targeting entire communities and the introduction of devices which facilitate coordination such as public pledges have therefore become an important component of current anti-FGC interventions, as I will explain in detail in Section 2.5.

2.4.2 Empirical evidence

The discussions on the nature of FGC are not yet supported by strong quantitative evidence, which is mainly due to the lack of data on the topic. Only in recent years, modules on FGC have been introduced in the Demographic and Health Surveys in countries where the custom is present, making large database on this topic available. This has led to the development of a small but growing literature in economics that empirically investigates the determinants and the network dimension of FGC. Parallel to this development, there has been a surge of data collection projects on smaller scales, which aim at exploring different questions related to FGC.

At the cross-country level, Bellemare et al. (2015) contribute to the debate on the determinants of FGC by looking at the correlation between support of the practice and FGC in West Africa: they show that only 12% of the variation in support of FGC is explained by village level factors. They additionally find that the more widespread the practice is in a country, the more individuals factors explain its persistence. Both findings are at odds with the coordination game used to explain FGC, since, in this game, the persistence of the custom is explained by how many people practice it rather than by household and individual characteristics. These results also suggest that strategies other than public pledges or declarations, such as targeting individuals, might be more effective in countries where FGC is pervasive.

In Sudan, Efferson et al. (2015) test the validity of the coordination model of FGC which has inspired development agencies and NGOs. If FGC is a social norm at the community level, then communities should have either a zero or 100% FGC incidence and an important discontinuity in FGC rate between the two types of communities should be observed. Using a sample of girls from 45 communities, they find neither extreme rates of FGC nor discontinuity in

[7]For example, among the Fulani, marriage takes place within a caste.

the distribution of FGC incidence across communities: this is suggestive of the absence of a common cutting norm at that level. It is still possible that coordination takes place at another level than the community, in particular if this does not completely overlap with the marriage pool (under the assumption that coordination takes place within the marriage network). However, they find first, a high level of endogamy within communities and, second, in each community a substantial number of households state that their sons could marry in families not practicing FGC.

Finally, they run an implicit association test[8] within each community to test if there is any discontinuity in normative attitudes towards FGC. If, within the same community, two separated norms, cutting and not cutting, would coexist, then a bimodal distribution of the individual scores from the test should be observed: individuals should either show a positive attitude towards FGC or a negative one. On the contrary, they do no find any implicit association between being cut and positive or negative values: the distribution of test scores is unimodal and centered on zero. The authors conclude that their findings are not compatible with a model of coordination (with homogenous preferences) either within the communities or the marriage pool.

Naguib (2012) explores peer effects of FGC, finding a positive correlation between individual choice of FGC the FGC rate in the peer group. Migrants might also play a role in changing social norms: in Mali, Diabate and Mesple-Somps (2014) find that villages with higher return migration have lower FGC prevalence rates. The effect is driven by return-migration from Ivory Coast, a country with low level of FGC prevalence. Finally, Blaydes and Platas Izama (2015) observe in Egypt a more pronounced decline in FGC prevalence among the Coptics than among the Muslims, for a similar level of wealth and education. They suggest that the fact that Coptic religious leaders in Egypt have strong beliefs against FGC and a more centralized authority than their Muslim counterparts might partly explain the steeper decline in FGC among the Christians.

Coordination might be a relevant dimension of FGC, but not necessarily within the marriage network. Shell-Duncan and Herniund (2007, 2011), in a mixed method research in Senegambia, first show the variety (and fluidity) of the actors involved in the decision making process. Furthermore, they suggest that rather than a marriageability convention, FGC is more likely to be a peer-convention: FGC does not assure better marriage outcomes, but allows women to gain access to the women's network once they have moved to their husband's village. The authors argue that, in a hierarchical social structure based on age such as the Senegalese one, not being cut would imply isolation and high pressure to undergo FGC (in areas where FGC exists). They therefore suggest that, rather than the interlinked marriage network, coordination should

[8]The implicit association test is a way to test the strength of the connection people make between two concepts without explicitly asking their opinion. In this context, individuals were shown on a screen two drawings of girls, one cut and one uncut, and a set of either positive or negative words that they had to associate to one of the girls.

be achieved within the (inter-generational) female family network. The role of women (elders in particular) in perpetuating the practice within the extended family has been widely documented in the anthropological literature (Erlich and Augé, 1995; Mottin-Sylla, 1990).

It is too early to draw conclusions on the nature of FGC from these empirical studies. Additional insights could be obtained by rigorous evaluations of existing anti-FGC projects. There is however little empirical work on this issue. One exception is Diop and Askew (2009) who present a descriptive analysis of FGC change following Tostan's anti-FGC intervention in the South-East of Senegal. By comparing FGC rates before and after the program, they find a significant decrease in FGC incidence in targeted villages and no comparable change in non targeted villages. The paper presents some limitations, in particular with respect to the risk of reporting bias on FGC status, but it is, to the best of my knowledge, the only available attempt to quantitatively evaluate the impact of an anti-FGC intervention. Chapter 3 in this thesis represents a further step in this direction. I evaluate the same type of anti-FGC intervention as in Diop and Askew (2009) in a small area in Senegal. The study attempts to overcome the problem of collecting truthful information on FGC status and it quantifies the effect of the program using a difference in difference estimator. Additionally, it discusses potential sources of spillover effects to non-targeted villages and links this evidence to the social norm theory of FGC. As explained at length in the chapter, this study also presents some limitations due to the nature of the program (which is not randomly assigned) and of the data (I can assess the impact of the program only in the short run).

2.4.3 Caveats regarding FGC data

Before describing anti-FGC interventions, it is worth emphasizing the challenges in collecting reliable data on this custom. FGC, due to its link to sexuality, is a sensitive topic in many societies and it is usually not discussed in public. Asking questions on FGC status can therefore be difficult.

However, with the expansion of anti-FGC sensitization campaigns and interventions, practicing communities have started discussing it more openly, facilitating the work of data collectors. At the same time, because of these interventions, people understand that FGC is less socially acceptable. Since the FGC status of a woman can be ascertained only through a gynecological examination, the risk of under-reporting increases with the pressure on the custom. For instance, if people are aware that FGC is illegal (as it is the case in most of the concerned countries, see Figure 2.1), it is less likely that they will admit practicing it.

Evidence on the accuracy of self-reported status are still limited, even if growing. Two cross-sectional studies compared self-reported FGC status with the results of medical examination. In Egypt, a study of the Population Council (Huntington et al., 1996) finds a 92% agreement between self-report and medical examination. In Sudan, Elmusharaf et al. (2006) find no misreporting of the

FGC status. In both cases, mistakes in reporting were nevertheless made on the type of FGC performed. Notice however that in both countries the practice was not yet outlawed at the moment of data collection.

On the contrary, a longitudinal study in Ghana (Jackson et al., 2003) finds that 13% of the sampled women denied being cut during the second round of the interviews, while they had previously reported having undergone FGC. The strongest effect was found among young women. Between the two rounds of the data collection, a law against FGC was enforced and a local traditional cutter jailed. Furthermore, anti-FGC campaigns took place in the area of the study. The changing institutional environment towards FGC can possibly explain the under-reporting. At least part of the decrease in FGC incidence which is observed in the country can be due to a change in the social acceptability of the practice rather than to an effective decrease in FGC prevalence.

A recent study by the De Cao and Lutz (2015) uses a list experiment[9] to elicit unbiased answers about FGC support in Ethiopia, pointing at the risk of under-reporting due to external interventions. The experiment runs as follows: a sample is divided into two random groups. The control group is given three non-sensitive statements. Respondents answer by giving only the total number of statements they agree with. The treated group gets the same list of non-sensitive items, plus a sensitive fourth statement. In De Cao and Lutz (2015), the fourth statement was "a girl should be circumcised". The proportion of people supporting the practice is then given by the difference between the number of items the treatment and control groups agree on. The authors also asked directly a question on the support of the practice. FGC is outlawed in the country and an anti-FGC intervention took place in the sampled area: the risk of under-reporting the support to the practice was therefore high. They found that 30% of the women were in favor of the practice when asked directly, against 39.2% when elicited using the list experiment (the difference is significant at the 10% level). Furthermore, they found that women who have been targeted by the anti-FGC intervention were more likely to under-report their support to the practice.

These studies suggest therefore that, at least in contexts where anti-FGC activities have been important, direct questions on FGC can be problematic. This casts some doubts on the quality of the information elicited with the DHS module on FGC. A typical question asked is "Have you been circumcised? Is your daughter circumcised? Do you intend to circumcise your daughter?". Direct questions concerning a woman's FGC status and her support of the practice might end up being biased in countries where the pressure to abandon FGC is strong. It then becomes problematic to distinguish between a decrease in FGC incidence and under-reporting.

When in DHS the framing of the question on FGC changes, this problem of under-reporting can indeed emerge. For example, in Senegal, with respect to the previous round (DHS 2010), the FGC status of each daughter is asked

[9]This method has been extensively used in political science and health studies to study opinions on sensitive issues.

directly in 2012, while in DHS 2010 a woman is asked first if she has ever heard about FGC. Only in the case of a positive answer, the FGC status of the woman and of her daughters is investigated. As a consequence of the reframing of the question, the FGC prevalence among girls aged 0 to 9 increased from 12% of DHS 2010 to 15% (ANSD and ICF, 2012). This difference can be imputed to the change in the questionnaire rather than to an increase in FGC prevalence.

The framing of the question on FGC status is therefore crucial. A way to potentially decrease under-reporting is the procedure I adopted in the data collection I carried out in Senegal in 2012, in an area where Tostan's intervention against FGC was implemented. More generally, Senegal is a country where FGC is under pressure, given the number of initiatives (legal and NGOs based) undertaken to end the practice. The risk of under-reporting the FGC status is thus present. Rather than first inquiring whether the girl was cut, we directly asked the age at which a girl underwent FGC. The tactic was therefore to take the practice for granted so as not to cause uneasy feelings among the respondents. Admission of non-cutting a girl would come from denial at the time the question about the age at cutting was raised. While this strategy does not completely solve the problem of under-reporting bias, it is quite likely to reduce it. Furthermore, optimally lying about the FGC status of one's daughters requires some calculations to be done about the timing of the program with respect to the age of the girl at the moment of the intervention: girls who should be reported as non-cut should be the ones affected by the intervention; older daughters should be reported as cut. Answering strategically might not be obvious for illiterate women. Because for girls not at risk during the program, I have virtually 100% FGC prevalence, the strategy seems to have worked fairly well in eliciting the FGC status of girls.

Another way to indirectly elicit information on the FGC status of a girl is provided by Efferson et al. (2015). In Sudan, the authors exploit a local feature of the FGC ceremony to get information on the FGC status of girls. During the cutting ceremony, which usually takes place in the summer vacation before entering primary school, the girls' feet are decorated with henna, which tends to last for some time. By checking if the girls' feet show traces of henna, they could get a proxy for the girls' FGC status. The authors additionally compared this measure with the self-reported FGC status, finding strong coherence between the two methods (and suggesting that FGC is not a too sensitive question in that context). This method of eliciting information on FGC however depends on the regularities of the cutting and cannot be generalized. Furthermore, in contexts where FGC is under pressure, the way the cutting is performed might be affected: rituals which leave external signs of what happened might be abandoned.

Finally, concerning the measurement of people's attitude towards FGC, the works of De Cao and Lutz (2015) and Efferson et al. (2015), which use respectively a list experiment and an implicit association test, are promising ways to elicit true preferences on this topic.

2.5 Interventions to stop FGC: Tostan's model

As already said, there has been a resurgent interest in FGC since the late nineties, with a new wave of global and local campaigns taking place in developing and developed countries. The language to frame FGC issues has shifted from health to human rights, even if the health component remains present. An important actor in the fight against FGC has been the NGO Tostan. Its community empowerment program, known in French as "Programme de Reinforcement des Capacités Communautaires" (PRCC), has gained international recognition since 1997, when a group of women who attended Tostan's program publicly declared their intention to abandon FGC. Since then, Tostan's activities have steadily expanded both in Senegal and in other West African countries such as Guinea, Guinea-Bissau, Mali, Mauritania, and The Gambia, promoting their human-rights based training as a community empowerment instrument. In Tostan's intervention, FGC is defined as a social norm. Public pledges, considered as a tool to promote coordination on FGC and social change, are an important component of the program (Mackie, 2000). It is however worth emphasizing that Tostan's intervention is a rich project which addresses several questions such as alphabetization, health and conflict management. Sensitization on FGC is just a part of it, although it is the dimension for which the NGO has gained international recognition.

UNICEF has become an important partner of the NGO, financing its program in Senegal and adopting a similar approach in other countries. In 2008, UNICEF and UNFPA (United Nations Population Fund) started the "Joint-Programme on Female Genital Cutting", which is currently the largest anti-FGC initiative in place and the main instrument for the UN system to promote the abandonment of FGC. The program is active in 15 African countries and it has been extended for a second phase in 2014-2017[10] (UNICEF and UNFPA, 2014b, pp. 1-2). The program adopts a social norm's view of FGC and it promotes an approach close to Tostan's intervention: FGC is defined as a social norm and public pledges for the abandonment of FGC are organized.

In practice, the PRCC consists in classes held during a 30 week period, where different topics are discussed by participants with the help of a facilitator. The project requires a commitment from the village to provide a space to hold the classes and to provide shelter and food for the facilitator. Participation to the class is voluntary. While at the beginning only women were targeted, the program later started including men. In the next two sections I describe in detail the classes and the meaning of human-right based education and the public pledges.

2.5.1 Human rights to empower communities

The PRCC is a literacy-based non-formal education program. The term non-formal refers to the fact that it focuses on the educational needs of its partici-

[10] Nigeria and Yemen have been added to the initial 15 targeted countries.

pants: the evolution of the contents of the program, which ended up including sections on democracy, human rights and social norms, is seen as evolving with the needs expressed by its participants (Gillespie and Melching, 2010).

Concepts of human rights are introduced through the use of drawings, igniting a discussion on what they represent. Participants are encouraged to link those concepts to their personal experience and to the aspirations they have for their communities. An important dimension of the learning process is the use of poems, songs and dances as a way to bring human rights ideas into traditional customs (Mackie, 2015; Gillespie and Melching, 2010). As remarked by Merry (2006), to avoid that local communities consider human right concepts as imposed or in contrast with their own culture, a process of translation to "local language" is needed. This, according to the author, is a condition for human-rights based programs to be effective. Tostan is indeed considered as having successfully made such a process of translation.

Information on women and maternal health, including FGC, are also explained in the classes, and links with human rights principles are made. Being able to connect the health risks associated to the practice with human rights (such as the right to physical integrity) might indeed facilitate its abandonment. O'Neill (2011, chapter 8), in an anthropological study in the Senegal River Valley, argues that women who decide to stop cutting can sustain their decision due to their ability to link it to health and human rights principles and to their personal experience. More generally, awareness of principles such as equality before the law and rights to non-discrimination were used by people who felt marginalized (because of gender or social status) as a tool to gain voice within the community and challenge the existing power structure. Tostan seems to play an important role in the process of empowering marginalized groups (such as women) by providing the language and the tools to act within their own community.

It is clear from this brief description that the PRCC does not concern FGC only, but it is a broader project aiming at bringing social change in targeted communities. However, it is undeniable that the NGO is well-known at the international level primarly as providing a framework to fight FGC: its name and reputation are strongly associated with the anti-FGC movement[11]. More specifically, the project's other dimensions, such as the sensitisation activities and the public pledges have gained great attention both in the media and among scholars because of their consistency with a theoretical framework of FGC as a social norm. I discuss the role of sensitization and public pledges, known as public declarations, in the next section.

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[11]For instance, The New York Times published an article focusing mainly on Tostan's activities titled "Senegal Curbs a Bloody Rite for Girls and Women" (The New York Times, 16 October 2011).

2.5.2 Sensitization and the public declarations

An important dimension of Tostan's program is the process of sensitization or "organized diffusion" (Mackie and LeJeune, 2009): topics and discussions held in the class are communicated both inside and outside the village. Participants are encouraged to "adopt" another non-participant to explain the topics of discussions. The same is done at the village level, where participants choose another village where they are supposed to do activities (such as cleaning activities) and spread information on the contents of the program.

This process of sensitization is particularly relevant in relation to the theory of FGC as a marriageability convention, as already explained in Section 2.4.1. According to this view, sensitization is needed because people cannot sustain the decision to abandon FGC on their own, given that non-cutting could affect women's marriage opportunities. The decision to stop FGC should therefore be agreed within the intramarrying communities.

According to existing accounts (Molloy, 2013), the process of sensitization and coordination started as a result of individual initiatives. Over time it has become more institutionalized and embedded in the PRCC: in targeted villages, a committee in charge of sensitizing other villages is put in place. Funding is sometimes provided to support travel expenses. The choice of the villages to sensitize is a priori left to the villagers and this might have been the case at the beginning of the implementation of the project. It is however possible that, with the formalization and expansion of the intervention, local Tostan facilitators started to play a role in the choice of the villages to go to[12].

The public declarations are public gatherings where representatives of villages declare their decision to abandon FGC and other harmful customs. Again, the rationale is that coordination on harmful customs can be achieved within the network through these public pledges, which allow individuals to shift expectations on other people's behaviors. The public declarations can group several communities and they are organized with the help of the NGO. It is a day of celebration, where plays, songs and speeches are performed. Declarations of committment to stop FGC (and early marriage or other human-rights related topics) are made. Ideally, such commitments should be considered as binding by attending villages.

For the public public declaration to work as a coordination device for the abandonment of FGC, some conditions should be met (for a detailed discussion and available evidence from the area concerned by my study, see Chapter 3). First, the main barrier to the abandonment of the practice is lack of coordination; second, villages which attend the pledge are inter-dependent concerning FGC; third, attending villages must believe that the other participants are seriously committing to stop. It is not clear if these conditions are systematically met and more empirical evidence is needed to assess the impact of public declarations.

[12]This seems to be partially the case in the region of Kolda, as reported by local facilitators and villagers in the sampled area during the interviews I did in 2012.

What is however evident is that the number of communities attending a public pledge has become a measure of the success of Tostan's type of intervention. The 2014 report on the "Joint-Programme on Female Genital Cutting" states the following: "Public dialogues and declarations continue to be a powerful intervention. Since 2008, more than 13,000 communities (including more than 800 in 2014) across 15 countries - representing more than 10 million people - have publicly committed to ending FGM/C" (UNICEF and UNFPA, 2014a, p.35). This type of statements are not uncommon in reports on anti-FGC interventions. They implicitly suggest that participation to a public pledge is equivalent to the abandonment of the practice, an assumption which requires careful evaluation.

Whatever the importance of public pledges and sensitization as a coordination device, it has been remarked that they represent a space of discussion and deliberation (Mackie, 2015) with a potential to change community's dynamics. Deliberation has been defined as "mutual communication that involves weighting and reflecting on preferences, values and interests regarding matters of common concern" (Mansbridge, 2015, p.27, adapted from Dryzek (2006)) . Deliberation can serve two purposes (Heller and Rao, 2015, pp. 1-2). First, it can be a mechanism which helps solving a coordination failure. In this sense, sensitization activities and public pledges might play an important role in spreading information, confronting ideas and changing preferences over FGC with the aim of reaching an agreement over it, even when no immediate commitment is observed. Second, deliberation gives voice to marginalized groups by providing a space where their voices are listened to. This second mechanism seems to be generally activated by Tostan's classes, as accounted by O'Neill (2011) and it can have a broader impact on community's organizations than what is measured by the reduction in FGC incidence only.

2.6 Conclusion

In this chapter, I presented different dimensions of the ongoing debate on FGC with a specific attention to the economic perspective on the topic. Overall, in the last 15 years a consensus has emerged among practitioners in interpreting FGC as a social norm and, more specifically, as a coordination problem. Interventions which include public pledges have become widespread. There is now a growing interest among scholars in exploring this perspective, both theoretically and empirically. Challenges in collecting information on the topic should not be underestimated, but recent development in the economic literature, in particular the use of experimental settings, is promising. What still seems to be missing are rigorous quantitative evaluations of anti-FGC interventions. These should not substitute, but rather complement, the existing qualitative research on the topic.

It must nonetheless be acknowledged that randomized controlled trials to study the impact of anti-FGC interventions might be difficult to carry out. If

FGC is an inter-village coordination problem, the possibility of spillover effects (that contaminate the control group) must be taken into account in the design. There is a growing body of literature which tries to deal with this issue in RCT settings (see, for example, Baird et al., 2014 and Miguel and Kremer, 2004). Given that, a priori, spillovers effects in FGC can be geographically large, finding uncontaminated counter-factuals might however require quite an extended area to be included in the design. To summarize, while there is room for more rigorous assessment of anti-FGC interventions, there is need for a careful reflection on the way to properly design the evaluations given the nature of the topic.

Chapter 3

Changing Female Genital Cutting: Evidence from Senegal

3.1 Introduction

How to stop female genital cutting (FGC) is still an open question. Different strategies have so far been implemented with various degrees of effectiveness and no systematic evaluation: from sensitization campaigns and legal bans, to projects targeting communities or specific groups such as traditional cutters and religious leaders or creating alternative rites of passage.

There is no easy answer or generalization to the question of what works against FGC also because the determinants of this custom are not yet well understood. Furthermore, the heterogeneity in the practice shows that these determinants are quite likely to be ethnic-specific.

In the debate on the nature of FGC, however, there is an increasing consensus among practitioners and international organizations such UNICEF on conceptualizing FGC within the social norm or convention theory: FGC is seen as a problem of strategic interaction of individuals within a given network. A popular program, designed by the Senegalese NGO Tostan and adopted by UNICEF for its interventions against FGC and other harmful customs, closely follows this view. Empirically however, there is still little evidence of the validity of the coordination model for FGC and of the effectiveness of programs adopting such a view of the custom. Only recently some steps have been made to better understand the nature of FGC (Bellemare et al., 2015; Efferson et al., 2015; Shell-Duncan et al., 2011) but, to my knowledge, no quantitative evaluation of such a type of anti-FGC interventions has been done.

This chapter is a first attempt to fill this gap: I study the impact on FGC incidence of Tostan's community-based program on women empowerment which

was implemented in a small area in the south-east of Senegal. This project, called PRCC[1], is a three-year program which offers alphabetization classes and health education, but it also addresses the issue of FGC within a human right framework. A specificity of the project is its attempt to activate coordination beyond the boundaries of the targeted villages, adopting a view of FGC as a coordination problem across villages. An important element of the program's strategy is the organization of a public pledge, called Public Declaration, where representatives of villages (both with and without the program) meet to declare that they will abandon the practice of FGC. Decreasing FGC incidence is only one dimension of the intervention, even if it is the one for which the program is most known[2].

I first quantify the short-term effect of the program using a difference in difference approach: I focus on girls that were still at risk during the period of implementation of the project and I compare them with girls too old to be still at risk of being cut. Given that the project was not randomly assigned, I use a difference in difference strategy and discuss any potential bias remaining. I find that girls at risk during the implementation of the project are 8 percentage points less likely to be cut. No or very limited change seems to happen for the same cohort in non targeted villages, hinting at the lack of spillovers effects (and hence coordination) during the implementation of the project.

I additionally provide some descriptive evidence on the functioning of the Public Declaration. Almost all the non targeted villages in the sampled area have attended a Public Declaration, but villagers are not aware of the participation of their village to the event. Furthermore, village leaders do not seem to consider the participation to a Public Declaration as binding. Overall, the conditions for the Public Declaration to work as a coordination and commitment device do not seem to be met in the context analyzed here. It is therefore not possible to distinguish between a poor implementation of this part of the project and an improper conceptualization of the nature of FGC as an inter-village coordination game.

With respect to other potential channels of inter-village coordination, I find some evidence that, when extending the analysis to girls born after the end of the program, a (female) family link to a PRCC village is negatively correlated with FGC rate in non PRCC villages, which is suggestive of a role of the extended family network (across villages) in the FGC decision-making process. I cannot however exclude that some unobservable characteristics of the extended family (such as lower preferences for FGC) explain the result.

The program seems to reduce FGC incidence within the targeted villages, at least in the time frame I consider here. While simultaneous perfect coordination at the village level is not supported by the data, the decrease in FGC observed in PRCC and non-PRCC villages is compatible with alternative models of FGC such as a coordination game at the sub-village level; a cascade model with

[1] Programme de Reinforcement des Capacités Communautaires, also known as Community Empowerment Program.

[2] For more detais on the program, see Chapter 2, Section 2.5.

heterogeneous preferences at the village or extended family level; individual decision over FGC in a heterogeneous population.

In short, while the evidence suggests that this kind of community-based program can be an effective tool to fight FGC, the importance of the Public Declaration has yet to be properly evaluated. Given that public pledges have received a lot of attention by practitioners as a way to fight harmful social customs, this chapter calls for a a more careful reflection and evaluation of such a policy.

The chapter is organized as follows. In section 3.2 I describe the trend in FGC in Senegal and in the sampled area and I briefly explain the relevant characteristics of the program which has been presented in more details in Chapter 2. The empirical analysis is divided in two sections. In section 3.3.1, I present descriptive statistics on the availability of information on FGC related issues in PRCC village and I quantify the short term effect of the project. In section 3.3.2, I focus on the two potential sources of spillovers effects from PRCC to non PRCC villages and provide evidence on the relevant network dimension for FGC. In Section 3.4 discusses the results and section 3.5 concludes.

3.2 Data and context

3.2.1 Data

I use the dataset I collected in Senegal in 2012 on demand of the NGO Tostan. The data collection was part of a broader project to study networks and their role on changing social norms.

Data were collected in the region of Kolda, in the administrative area of Sare Colly Sallé and Ouassadou. In Sare Colly Sallé, seven villages that had Tostan program were sampled. In Ouassadou, a census of all the villages (both with and without the PRCC) in a small area at the frontier between Senegal and Guinea Bissau was carried out to increase the likelihood to capture inter-village networks[3]. The villages included in the survey were both in Senegal and Guinea Bissau. In Guinea no sampled village in the area had the PRCC. The empirical analysis is based on the Senegalese sample of 35 villages, for a total of of 507 households. Households were randomly selected in the sampled villages and the household head and his wife were interviewed individually. If the household was polygamous, one wife was randomly selected for the interview.

In Chapter 2, Section 2.4.3 I describe in detail the way to address a sensitive question such as FGC. Here it is worth remembering that we asked mothers

[3]We had different sampling design between the two administrative areas to address different research questions from the ones described in this paper. It might therefore raise concern on the validity of the identification strategy carried out here, in particular the fact that no "control" village is sampled in Sare Colly Sallé. While the area is overall ethnically homogenous, the administrative area of Sare Colly Sallé is relatively less isolated and had on average bigger villages than in Ouassadou. However, the villages in the area of Sare Colly Sallé are used only in the first part of the analysis and results are qualitatively unchanged when excluded.

about the age at cutting of all their daughters, not questioning therefore the existence of the custom. This method seems to reduce the risk of under-reporting bias in FGC status.

3.2.2 The context

Senegal is classified as a moderately low FGC incidence country. According to the Demographic and Health Survey (DHS) data 2010, Senegal has a FGC prevalence rate of 26% among women aged 15-45. This average hides regional differences, linked to the ethnic composition of the country. FGC is practiced mainly by the Fulani, Mandinka and Diola and concentrated in the North-East and in the South (Lower and Upper Casamance). Average age at cutting varies from 4 years old among the Fulani to 7 years old among the Diola and, for the same ethnic group, from area to area.

Senegal is an interesting case to study the decline in FGC. The Senegalese government has shown since the late 90s a growing commitment in fighting FGC[4], in parallel or through NGOs and other civil society organizations. The NGO Tostan has been a crucial actor in this process, implementing massively its projects throughout the country and inspiring the government strategy against FGC[5].

The latest available nationally representative data on FGC (Continuous DHS 2012-13) show a declining trend in FGC. In Figure 3.1 I compute the FGC prevalence by year of birth for girls aged 5 or more[6], grouping together regions having similar FGC prevalence over the period considered. The graph shows a declining trend in FGC even if FGC is far from having disappeared.

A similar decreasing trend is depicted in the sampled area, which is situated in a high FGC incidence region. It is worth noticing that high FGC incidence, ethnically homogenous rural areas such as Kolda are particularly challenging environments to change harmful customs: it is easier to promote social change where the group which practices FGC is a minority. For instance, observing that non-cut women do not behave differently from cut women, as often it is assumed (see, for instance, O'Neill, 2011, p.180), could help changing the individual's perception on the custom. This type of exposure is more likely to lack in ethnically homogenous areas.

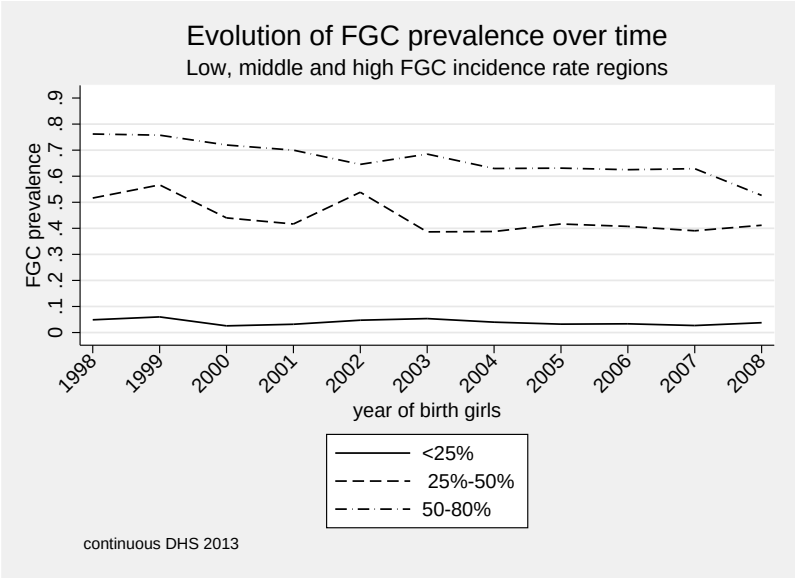
It is particularly interesting to compare the change in trend in FGC over time and across the border with Guinea Bissau: in both areas the Fulani are the dominant ethnic group (they represent 99% of the interviewed people in Guinea, 85% in Kolda) and they share similar cultural traits. Marriage links across the border are not uncommon. With respect to FGC, the main difference is that, at the moment of the survey, no PRCC program was started in Guinea.

[4] I describe these policies in details in Chapter 4.

[5] However, in the latest evaluation on the anti-FGC campaigns, (UNFPA and UNICEF, 2013) the need for more experimentation and alternative approaches seems to emerge.

[6] I consider this age group because the risk of censoring (meaning that the decreasing trend in FGC prevalence is due to girls who will be cut in the future) is limited: average age at cutting in the sample is 2 years and 94% were cut by age 5.

Figure 3.1: Trend in FGC prevalence in Senegal for girls aged 5 or more, by year of birth. Data are aggregated in three groups, depending on average FGC incidence at the regional level.



Additionally, the government was not (yet) committed to eradicate FGC and the presence of state institutions was scant[7]. Interviews and observations on the field also suggest that FGC was still strongly supported by the local population (and village authorities).

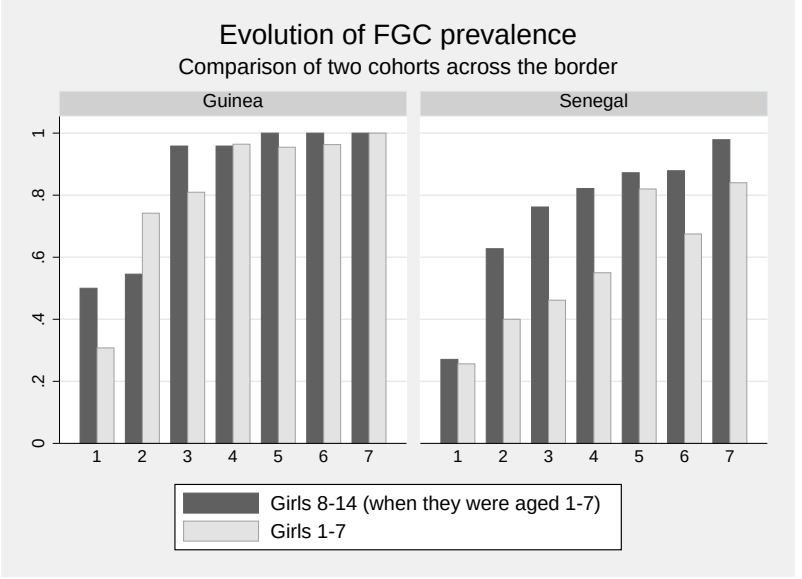
In Figure 3.2 I compare girls from 1 to 7 year old with girls from 8 to 14 when they were aged 1 to 7 in both regions.

The comparison shows that, while on the Guinean side there has been virtually no change in FGC rate over time, on the Senegalese side FGC is decreasing, in particular in the young cohort with respect to the old one, when compared at the same age. This could be a result of the anti-FGC interventions carried out in Kolda. In particular, from 2005 to 2007 Tostan implemented its PRCC project in some villages of the sampled area.

The PRCC program is a three-year program on community development, offering alphabetization and discussing questions such as child and maternal health. It targets mainly women, but it is also open to men. Traditional customs such as FGC and early marriage are also discussed in a human-right framework, without judgment of those who practice them. Although FGC is not the main focus of the project and it is addressed towards the end of the training, the NGO is well known for its work on it and it is often identified as

[7]The survey took place just after the military coup that led to the creation of an interim technical government and to the postponement of presidential elections.

Figure 3.2: Comparison of the FGC prevalence in the sampled area in Guinea (region of Gabu) and Senegal (region of Kolda)



an anti-FGC NGO.

As accounted by Mackie (2000), behind Tostan's approach there is the view of FGC as a social norm: spreading information on the contents of the program outside the group of trainees and of the village, including the issues raised on FGC, is a building block of the PRCC. This is done formally, by creating in PRCC villages a group in charge of the sensitization of other villages on FGC related issues, and informally, based on individual initiative. Furthermore, the NGO helps villagers to organize a so called Public Declaration. This is a inter-village meeting where representative of PRCC villages and sensitized ones meet to declare that they stop cutting. The rationale behind these activities is that the abandonment of FGC can be achieved only if a simultaneous change in behavior takes place. A single individual or group that stop cutting will face pressure and ostracism if the decision has not been taken within the whole relevant network.

In this perspective, the Public Declaration should work as a coordination device (and possibly as a commitment device). Ideally, villagers become aware at the meeting that several other villages are stopping simultaneously, making it possible to coordinate on a new equilibrium. Such events might serve other functions than coordination. For example, they can be conceived as a space for discussion and deliberation, a way to make people listen and discover alternative views which could lead to modify their own preferences on the custom (Heller and Rao, 2015). While this would be an interesting to explore, I focus here on

the role of the Public Declaration as a coordination device, in accordance with the popular definition of FGC as a social norm and a coordination problem.

The data collected contain detailed information on the PRCC, on the sensitization and on the Public Declaration. The exploitation of these data can offer useful information on the dynamics of FGC. In the next section, I start with the PRCC to then move to the analysis of FGC in non-PRCC villages and of the possible spillover effects of the program.

3.3 Empirical analysis

3.3.1 FGC incidence in PRCC villages

3.3.1.1 Descriptive statistics

Table 3.1 presents the descriptive statistics on household heads and their wife in both types of villages. In terms of observables characteristics, PRCC villages tend to be bigger - in line with the NGO's criteria to implement a project - and they are more ethnically diverse. The minority group is mainly Mandinka, who are also Muslim and practice FGC. Households compounds are also more likely to have cement walls rather than mud walls, a proxy for wealth. They do not differ in terms of other observable characteristics, such as schooling and religious education.

Table 3.1: Descriptive statistics PRCC and non PRCC villages: household head and wife characteristics

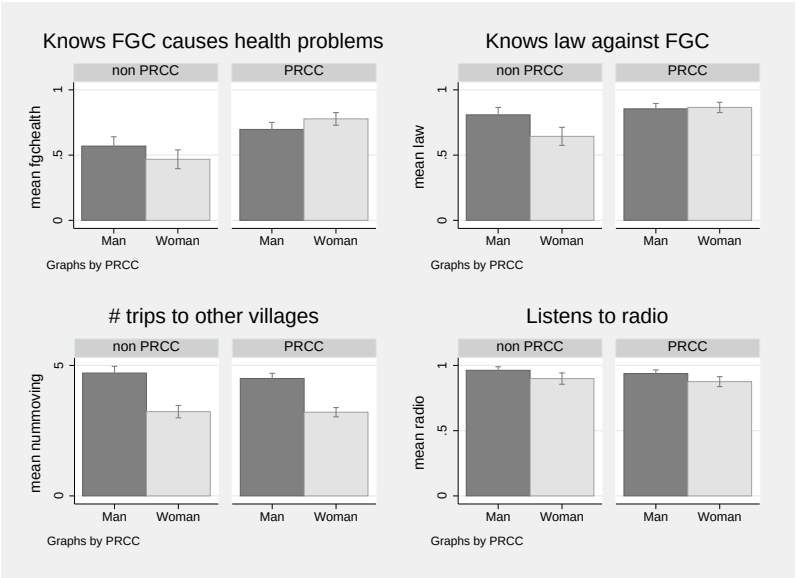
	PRCC village			**Non PRCC villages**				
	Mean	Sd	Total	Mean	Sd	Total	Diff	p value
Fulani	0.809	0.394	246	0.929	0.257	156	-0.121	0.001
Polygamous	0.382	0.487	246	0.462	0.500	156	-0.079	0.116
Woman attended formal school	0.138	0.346	246	0.083	0.277	156	0.055	0.096
Man attended formal school	0.199	0.400	246	0.231	0.423	156	-0.032	0.451
Woman had Koranic education	0.557	0.498	246	0.481	0.501	156	0.076	0.137
Man had Koranic education	0.728	0.446	246	0.723	0.449	155	0.005	0.912
Man was a talibé	0.321	0.468	246	0.282	0.451	156	0.039	0.409
Age woman	35.996	9.990	246	35.526	9.995	156	0.470	0.646
Age man	48.780	11.494	246	47.936	11.866	156	0.845	0.479
Wall house in cement	0.163	0.370	246	0.077	0.267	156	0.086	0.013
Number households	246			156				
Number villages	13			21				

As a first comparison of FGC related outcomes between PRCC and non PRCC villages, I look at information availability on FGC[8].

Figure 3.3 compares, by gender and type of village, the average number of positive answers to the questions: "*Does FGC cause health problems?*" and

[8]As already said, the PRCC touches multiple dimensions of women life and FGC is only one of them. The impression from the field was that women in PRCC villages were more assertive and ready to speak during the community questionnaire. Unfortunately, I do not have systematic measures of these other dimensions, where the program might have indeed an important effect.

Figure 3.3: Information availability on FGC, mobility and exposure to media in PRCC and non PRCC villages by gender.



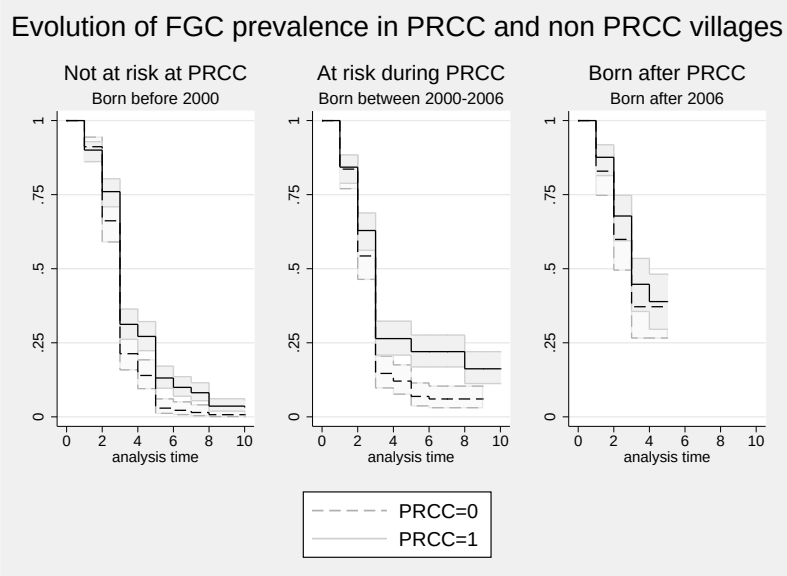
"*Do you know if a law against FGC exist?*". PRCC villages are overall better informed, meaning that they are more likely to be aware of FGC health problems and of the fact that the country has a law against FGC. More interestingly, the gender ratio is reversed in PRCC villages with respect to the non-PRCC. Given that the program targets mainly women, the fact that in the treated villages women are at least as informed as men on FGC related issues might indeed be an effect of the program. Furthermore, in both types of villages women are less mobile than men and less likely to listen to the radio, the main media to which they are exposed: PRCC villages and women in particular are equally exposed to other potential sources of information on FGC (such as radio programmes) and their difference in information is not due to a difference in the level of mobility[9]. These data are compatible with a role of the PRCC in spreading information on FGC.

With respect to FGC incidence, in Figure 3.4 I plot Kaplan Meyer survival estimates[10] of the survival rate in both villages, dividing the observations ac-

[9]There can still be a difference in the "quality" of mobility, meaning that they might visit villages that differ in terms of exposure to FGC information.

[10]The Kaplan Meier is a non parametric estimate of a survival function that gives the probability of not experiencing an event at a given time t. Here the failure is FGC and the time at which failure occurs is the age at which a girl is cut. The estimator at a given age t is the product of the probability of not being cut at each age $j < t$, conditional on survival until that moment. Formally, $\widehat{S}(t) = \prod_{j|t_j \leq t} \left(\frac{n_j - d_j}{n_j}\right)$, where n_j is the number of observations (that have not yet failed) at time j and d_j is the number of failures (girls that are cut) observed in

Figure 3.4: Kaplan-Meyer survival estimates for FGC rate, by cohort and by PRCC



cording to three categories: girls not at risk at the beginning of the program (born before 2000, therefore aged 6 or more in 2005); girls at risk during the program (born between 2000 and 2006, namely aged 5 or less in 2005) and girls born after the end of the program (2007). The distinction is based on the fact that both in this sample and in DHS data, average age at cutting for girls older than 5 is below 3 and in the sample is around 3, and by age 6 more than 95% of the cut girls have already undergone FGC.

A line measures the probability of not being cut at each possible age of the girls (from birth to age 10)[11]. For girls born before 2000, there is no statistically significant difference between PRCC and non PRCC village at age 7, when virtually all the girls are cut. The differences at earlier age are due to to differences in age at cutting, with PRCC villages cutting relatively later than non-PRCC villages. In the central graph, the probability of not being cut at each age starts to increase in targeted villages: the probability of not being cut at age 7 is 20% in PRCC villages and it is statistically different from the one in non-PRCC at the 90% confidence level. Finally, for girls born after 2006, we observe an additional increase in the probability of not being cut in both types of villages. The analysis of the last cohort suffers from censoring problem (which is the reason why I exclude it from the estimation). However, by comparing the survival probability at age 3 across cohorts, we can reasonably argue that

that period.

[11]The information on the age at cutting allows to compute survival estimates.

the probability of not (yet) being cut at that age has increased for the youngest group[12].

Table 3.2: Formal and religious education of girls, by cohort and type of village.

	PRCC Mean	Non PRCC Mean	Diff	p value
Born between 2000 and 2006				
Attended formal school	0.845	0.712	0.133	0.005
Had Koranic education	0.389	0.237	0.152	0.006
Number girls	188	118		
Born before 2000				
Attended formal school	0.682	0.503	0.179	0.000
Had Koranic education	0.562	0.353	0.209	0.000
Number girls	283	153		

Level of observation: daughters of the household head's wife

Table 3.2 shows that girls in PRCC villages born before 2000 are in general more likely to have some form of formal and religious education than in non-PRCC villages. With respect to schooling, this gap can be partially explained by the better location of PRCC villages and the fact that they are closer to schools. This gap persists for younger girls (born between 2000 and 2006). Cutting takes place before the education (both formal and religious) starts. It is theoretically possible however that the decisions over schooling, religious education and FGC are simultaneously taken and interdependent.

3.3.1.2 Identification strategy

When estimating the decrease in FGC in PRCC villages, several identification issues arise. First, the program was not randomized: the implementation of the project was the result of a negotiation between the NGO and the village[13]. Given that Tostan is well known for its anti-FGC activities, villages that are not willing to discuss the topic do not get the project. This can lead to an upward bias in the estimation of the effect of the program on FGC rate.

Second, the whole impact should arguably be measured on girls born after the end of the program. They are however aged 5 or less in 2012, at the moment of the survey. Given that average age at cutting is around 3 years old, there is a censoring issue when looking at this cohort: some girls might still get cut in the future. To address this problem, I focus on girls at risk when the PRCC starts, meaning that they are 5 or younger in 2005. My data were collected in 2012, therefore these girls were between 12 and 6 at the moment of the interview,

[12]The decision of not cutting is easily reversed: the decrease in FGC can therefore signal that cutting takes place now at older ages than in the past. This is however unlikely, because it would imply not only a reversal of the decreasing trend in age at cutting that has been observed in Senegal (see Chapter 4), but that cutting has been postponed after the age at which it was traditionally done.

[13]Given some initial requirements of the NGO to implement the project, such as the village size.

mitigating the censoring problem[14]. This can lead to an underestimation of the effect of the program, given that some girls were exposed to the PRCC when they were already cut.

Finally, generating spillover effects to non-PRCC villages is an explicit objective of the project, which attempts to coordinate villages on abandoning FGC through the Public Declaration and the sensitization. I must therefore take the possibility of spillover effects into account. If there is a decrease in FGC rate in non-PRCC villages due to the project, then a comparison between PRCC and non PRCC villages would lead to an underestimation of the project's effect.

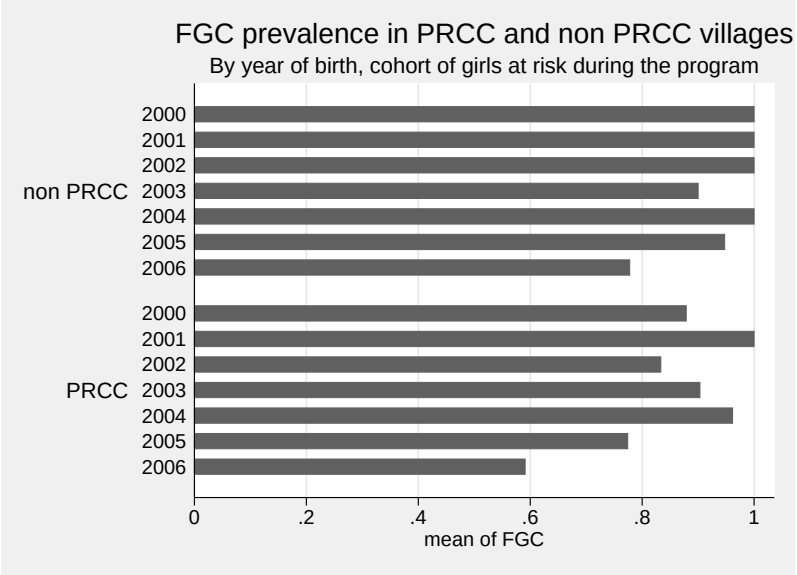
I use a difference in difference estimator to quantify the change in FGC rate in PRCC villages with respect to non-PRCC villages during the period of implementation of the project. The treated group are girls at risk at the beginning of the program (central graph in Figure 3.4), compared with girls not at risk anymore (left graph in Figure 3.4).

The difference in difference approach allows to partially solve the endogeneity problem, given that it compares girls within each type of villages. However, there is still a possible confounding effect if PRCC villages decided to stop cutting precisely when the PRCC started for reasons unrelated to the program.

The censoring problem is mitigated by the exclusion of the younger cohort (born after 2006). This has the additional advantage that, in the time period considered in the difference in difference, it is unlikely that there are important spillover effects from PRCC to non-targeted villages. The graphs in Figure 3.4 suggest that, if there is any spillover effect from PRCC to non PRCC villages (which could invalidate the identification strategy), it concerns mainly girls born after the end of the program: before that period, the decrease in FGC in non PRCC villages is very limited, and virtually all girls are cut. In any case a decrease in FGC in non-PRCC villages due to coordination with PRCC villages would lead to an underestimation of the impact of the program: my estimate would then be a lower-bound (assuming no other bias is binding).

[14]For girls born before 2000, less than 5% has still to be cut at age 6, dropping to 2.8% at age 7. Notice first, that the results of the difference in difference hold when I exclude the 6 years old. Second, as shown in Chapter 4, there is a downward trend in age at cutting, and therefore at age 6 the probability of not yet being cut for girls born after 2000 is lower than in the previous cohort.

Figure 3.5: Quantifying potential spillovers effect during the program: comparison of FGC prevalence by year of birth for the cohort at risk in targeted and non targeted villages



To better quantify possible spillover effects for girls in non-PRCC villages at risk during the program, in Figure 3.5 I plot the percentage of girls cut in the two types of villages by year of birth, within the cohort of interest. There are only 7 girls not cut in non-PRCC village in the period of interest, and they represent less than 6% of the total number of girls in these villages. Four of them were born in 2006, which is the last year I use in difference in difference[15]. The graph suggests that, if there is any change in FGC rate in non-PRCC villages in this period, the decrease occurred towards the end of project and it represents a small change. This could be just the result of an overall downward trend in FGC rate, common to both types of villages rather than an effect of the program.

The main disadvantage of excluding girls that are born after 2006 is that I capture only the short-term effect of the program, potentially linked to presence of the NGO in the village rather than to the content of the program itself. Overall, if no other confounding factor is at play during the implementation of the program, the results presented here should be seen as a lower-bound estimate of the short-term impact of the PRCC.

The estimated equation is:

$$FGC_{ihv} = \alpha_i + \beta_i(PRCC_i * bornafter2000_i) + \delta D_h + ageFE_i + villageFE_i + \epsilon_{ihv}$$

[15]Results are robust to the exclusion of the year 2006 in the estimation.

The coefficient of interest is β_i, that gives the change in FGC prevalence for girls at risk in PRCC villages. D_h is a vector of the household (parents) characteristics.

3.3.1.3 Results

Column (1) in Table 3.3 shows the result of the regression. I control (not shown) for age fixed effects; household characteristics such as ethnicity, religious and formal education, age of the mother and a proxy for wealth; at the village level for the administrative area. Column (2) controls for village fixed effects. Results are clustered at the village level[16].

Table 3.3: Change in FGC rate in PRCC villages

	(1) FGC	(2) FGC	(3) FGC	(4) FGC
PRCC=1	-.021	0	-.0134	0
	(.0132)	(.)	(.0161)	(.)
PRCC=1 × Born after 2000=1	-.075**	-.0842**		
	(.0336)	(.0342)		
PRCC=1 × Born after 1995=1			-.0147	-.0242
			(.0225)	(.0298)
Constant	1.01***	.733***	1.06***	.965***
	(.0995)	(.109)	(.118)	(.078)
age FE	Yes	Yes	Yes	Yes
village FE	No	Yes	No	Yes
HH controls	Yes	Yes	Yes	Yes
Observations	695	695	389	389

(1)-(2): Born between 1982-2006; (3)-(4):Placebo test: born between 1982-1999
Controls: formal and religious education of the parents; a dummy for the Fulani; age of the mother; a dummy for the house having cement wall; a dummy for the administrative area. Standard errors clustered at the village level.
* p<0.10, ** p<0.05, *** p<0.01

Girls at risk in PRCC villages are 8 percentage points less likely to be cut than in non PRCC villages. PRCC villages are 2.1 percentage points less likely to cut before the beginning of the program, but this difference is not statistically

[16]The limited number of clusters (32) might raise concerns. However, results on the effect of the program are robust both without clustering and with the use of wild bootstraps with 1000 replications.

significant at the 90% level. As robustness check, in columns (3) and (4) I run a placebo test, where the treated group are girls born between 1995 and 1999. It confirms that there is no statistically significant difference in the probability to be cut between the two types of villages, suggesting that the parallel trend assumption is not violated.

As an additional check of the validity of the parallel trend assumption, I run the same regression as in column (1) but I split the the control group in several cohorts: girls born between 1982 and 1984; 1985 and 1989; 1990 and 1994; 1995 and 1999. The cohort at risk remains the same, namely girls born in 2000 or after. Each cohort is interacted with being from a PRCC village. Figure 3.6 shows the coefficients of the interaction terms at the 90% confidence interval. The graph confirms that, while there was a pre-existing but not significant difference in the past between PRCC and non PRCC in terms of FGC prevalence, there is no differential trend before the beginning of the program[17]. In Appendix A I present the same graph but introducing village fixed effects. It confirms the absence of pre-existing differential trend. The coefficient for the interaction term bornafter2000*PRCC remains very similar in terms of magnitude to the one presented in Column (2) of Table 3.3 even if it is just not significant at the 90% confidence level.

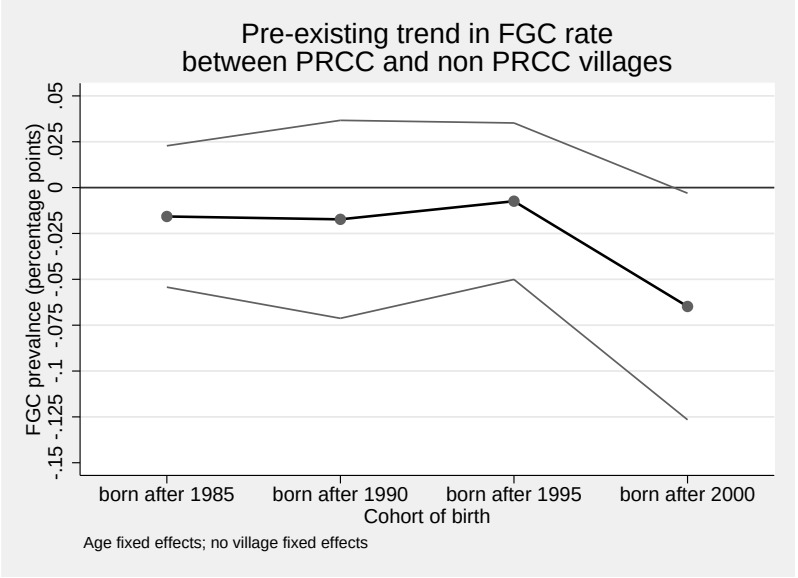
With respect to religious and formal education of the girls, I run (not shown) a difference in difference with these two variables as outcomes and I find no differential trend between PRCC and non PRCC. As an additional check, I run the same specification as in (1) adding as a control an interaction term between formal education (or Koranic education) and the cohort and the results remain unchanged.

The result is compatible with the idea that the sheer presence of the NGO in the village leads to a decrease in cutting. Bear in mind, indeed, that the NGO is well-know for its work against FGC.

If we would observe within one village perfect or quasi-perfect abandonment of the practice among the uncut girls at risk during the program and no change in other villages, then this would be compatible with FGC being a (one-shot) coordination game at the village level. To see if this is the case, in Figure 3.7 I plot the distribution of FGC incidence computed at the village level for the cohort born between 2000 and 2006 in PRCC villages. With respect to the difference in difference, I additionally exclude girls that were already cut when the program started. The histogram shows that the decrease in FGC is not driven by some villages which completely stopped cutting and some that did

[17] In an alternative specification to the one presented in column (2) of Table 3.3, I restrict the control group to girls born after 1993 (included). The interaction term remains virtually unchanged and significant. The pre-existing difference in FGC rate is of similar magnitude as the one presented in column (2) but significant at the 90% level. Furthermore, given the limited number of observations per year of birth, the significance level of the pre-existing difference is sensitive to one-year changes in the control group. However, as shown in Figure 3.6, there seems to be no differential trend before the beginning of the program, suggesting that the parallel trend assumption is not violated and changes in PRCC village during the implementation of the program could be an effect of the intervention.

Figure 3.6: Plot of the estimated coefficients of the regression as in column (1) of Table 3.3 (age fixed effects, no village fixed effects) , where the non-treated group is split in several cohorts (1985-89, 1990-94, 1995-1999). The coefficients of the interaction of each cohort with PRCC are plotted with the 90% confidence interval.



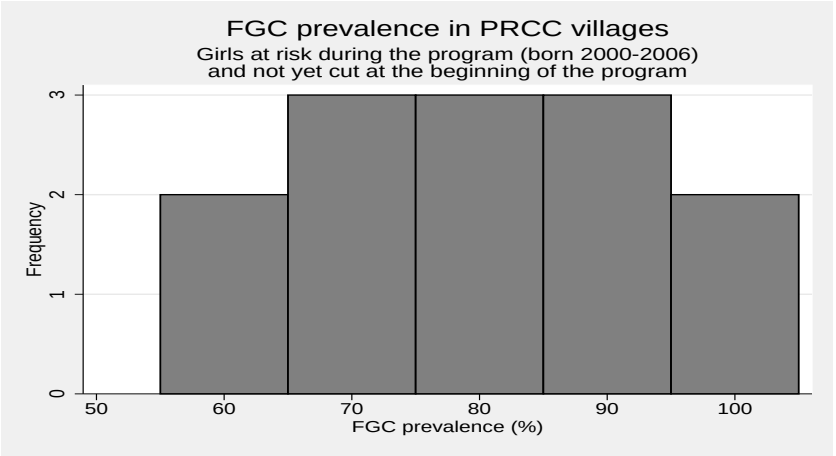
not stop. The biggest decrease observed is of 40% of the treated girls that are not cut. In all but two villages, there are some households who stopped cutting and in no village total abandonment is observed in that cohort. The result is not supportive of perfect coordination at the village level.

3.3.2 FGC incidence in non-PRCC villages after the end of the program. Which spillover?

The comparison in Figure 3.4 between the 2000-2006 cohort and the born after 2007 suggests a decrease of FGC in both PRCC and non-PRCC villages after the end of the program. In this section I discuss potential mechanisms of spillover from the interventions in other villages which could suggest the presence of coordination in the FGC decision making process. Within the project itself there are two mechanisms through which spillovers should materialize[18]: the Public Declaration and the sensitization process.

[18]In this section I restrict the analysis to the area of Ouassadou, given that it is the area where all the non-PRCC villages are located.

Figure 3.7: Distribution of FGC prevalence in PRCC villages



3.3.2.1 The Public Declaration

In a simple game-theoretic framework, a Public Declaration is the device which allows people to focus on the new equilibrium. The underlying assumption is that individuals are willing to go against the norm, but peer pressure prevent them from doing so. Furthermore, the relevant network for decision making corresponds to a group of villages.

Given that I do not have variation at the village level in participation to the event, I cannot empirically estimate the effect of participation on FGC incidence. I provide instead some descriptive statistics on the perception of the Public Declarations in the sampled area and I discuss in Section 3.4 a possible interpretation of these evidence.

Virtually all the non-PRCC villages authorities declared that they attended a Public Declaration, in line with the information available from the NGO. However, there is a discrepancy between what village authorities declared during the community interviews and individual answers to the same question. As shown in Table 3.4, most of the villagers of non-PRCC villages either have never heard of a Public Declaration (42%), or said that their village never attended such a meeting.

This discrepancy can arise from a problem of information transmission within the village. Village authorities got the information about the Public Declaration and eventually sent a group of representatives (including in most of the case themselves) but the information was not more widely shared at the village level. This lack of transmission might be partially explained by the perception that village authorities had of the event. As Figure 3.8 shows, when asked the reason(s) for their village attendance of a Public Declaration, the most common answer was “because invited” (either by Tostan or by another village). Other stated that they were interested in getting information or see

Table 3.4: Discordance in non-PRCC villages between village leaders and villagers' answers to the question: did the village attende a Public Declaration (PD)?

Individual	Officially not at PD	Officially at PD	Total
No PD	46.94	47.48	47.34
	(46)	(132)	(178)
Yes PD	11.22	10.07	10.37
	(11)	(28)	(39)
Don't know PD	41.84	42.45	42.29
	(41)	(118)	(159)
Total	100.00	100.00	100.00
	(98)	(278)	(376)

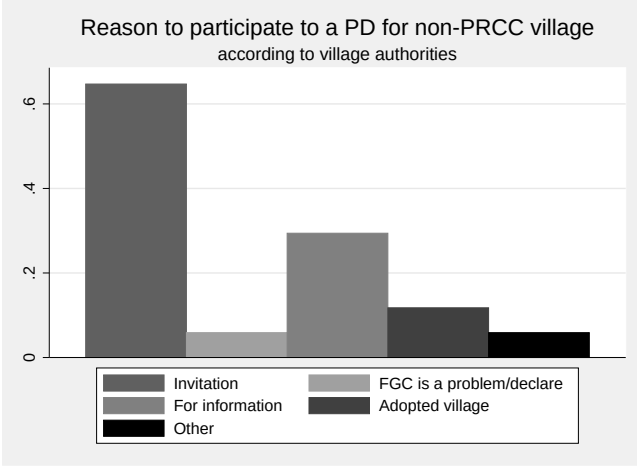


Figure 3.8: Reasons given by village authorities to justify their village's presence at a Public Declaration (more than one answer per village possible)

what was happening, but without implying a willingness to abandon. Abandonment of FGC was explicitly stated in one village only. More generally, the impression from these interviews was that village authorities were trying to understate their participation to the event, saying that no commitment was implied in their participation, but being at the same time aware that commitment to stop FGC was required.

If participation did not imply any commitment but was perceived as a due act, then it is plausible that the village was not engaged into discussions or informed about participation to the Public Declaration (and therefore over stopping FGC).

3.3.2.2 Family or village network?

The Public Declaration is not the only channel through which spillover effects from PRCC to non-PRCC villages can spread. Another important dimension is

formal and informal sensitization activities: the NGO encourages participants to spread information on the contents learned in class and to discuss FGC with others, inside and outside the village.

Therefore, it is possible that, while villagers in non-PRCC villages are not aware of the Public Declaration, they have been exposed to anti-FGC arguments or, more generally, have been involved in discussions on FGC with people from PRCC villages[19]. To investigate this channel, I look at the correlation between FGC rate and different measures of exposure to PRCC villages[20]. The definition of a link between a PRCC and non-PRCC village is guided by two factors: first, the theoretical view of FGC as a marriageability condition, second, the anthropological evidence that female household members are important actors in the decision making process on FGC.

As already stated, if FGC is a marriageability condition, then coordination should be achieved within the marriage network. In an ethnically homogeneous area such as the one considered here, the marriage network is quite dispersed and not easily identified. One way to define it is through existing marriage patterns and the extended family's location. This can be done both at the village level, assuming that FGC is a village-level problem, or at the household level, if we think that the main source of peer pressure is within the family network.

I therefore use four definitions of a link between PRCC and non PRCC villages. The first two are at the village level: the percentage of wives coming from a PRCC village (*Pct wives from PRCC*); the percentage of household having a sibling who lived in a PRCC village (*Pct households with relatives in PRCC*)[21]. The first explicitly looks at the marriage links, the second takes into account family links, but also potential marriage links: traditionally, indeed, an ideal marriage partner is a cousin (from the paternal side). In both cases, the underlying assumption is that there are village patterns that matter, rather than household-level links.

The next two definitions of links between the two types of village are at the household level. The first is a dummy saying if any wife of the household head comes from a PRCC village (*Any wife from PRCC*); the second dummy takes value one if either the household head or his wife has a brother or a sister

[19] We must be aware that the PRCC is by no mean the only source of information on FGC. As already said, sensitization campaigns have been massive in Senegal through other organizations and the radio.

[20] I cannot use average distance to a PRCC village as a measure of exposure because it is highly correlated with distance to the main town: PRCC villages are on average less isolated than non-PRCC. FGC rate and distance to town are negatively correlated also in PRCC village: this suggests that isolation, rather than distance to a PRCC, is the relevant dimension to account for.

[21] Information on siblings location (including half-siblings) were asked only to the household head and the interviewed wife, whose daughters' FGC status is known. I do not have therefore the complete family network, but only the location of the siblings of the parents of these girls. Furthermore, I do not have the information on the total number of these siblings, but the complete list of their locations. That is why I cannot construct the two variables at the village level in the same way (one is the percentage of wives, the other of households).

living (or that lived if dead) in a PRCC village (*Any relative from PRCC*). Using these definitions, I implicitly assume that the relevant network is at the household rather than village level.

In all four cases, I control for an household index of information availability on FGC (*Household information FGC*). This index is the sum of positive answers given to the questions on FGC health and the existence of the law by the household head and the wife, normalized to one. An index of 0 means the total absence of information in the household on FGC related issues; when it is equal to 1, there is perfect information.

This index is endogenous and it does not imply that more information can have a causal impact on FGC. However, it allows me to partially disentangle the individual channel from the "network" channel. If the only role of a link to a PRCC village is to provide information, then controlling for it should make the result on the network not significant. Furthermore, the index can be seen as a proxy for any unobserved individual characteristics that can explain both better information and FGC choice.

Table 3.5: Links to PRCC villages and information on FGC related issues in non PRCC villages: descriptive statistics on sampled households with girls born between 2000-2009.

	Non PRCC villages		
	Mean	Sd	N. obs
Household level			
Any relative from PRCC	0.340	0.476	97
Any wife from PRCC	0.227	0.421	97
Village level			
Distance to local administrative centre (Km)	6.702	4.539	20
Pct wives from PRCC	0.161	0.124	20
Pct households with relatives in PRCC	0.407	0.234	20
Household information FGC	0.625	0.349	20

Table 3.5 shows that links between non-PRCC and PRCC villages in the sampled area are not negligible. On average, 34% of the households have a sibling in a PRCC village and 22% of the wives (out of all the marriages contracted by the household head) come from PRCC villages. The location of sisters of the household head or siblings of the wife drives the result on family links: mobility is mainly caused by women, who traditionally join the husband's village. The aggregation of data at the village level confirms that inter-marriage and family links with the PRCC villages are present.

From a technical point of view, the analysis of FGC in PRCC village is problematic because of the low number of observations per year of birth and, more specifically, bacause of the fact that there is almost no non-cut girls in the group "at risk during the program" used in the difference in difference above. As already said, the decrease in FGC rate in non-PRCC seems to happen after 2006. I therefore need to extend the sample to younger girls, including 4 years

old. This however amplifies the problem of censoring. In Appendix B I explain in detail the magnitude of the censoring problem and the way I try to tackle it.

In Table 3.6 I present the result of a linear probability regression, where the dependent variable is the FGC status of girls born after 2000 in non PRCC villages and the controls are the network measures, the information index and some parental characteristics, as in the difference in difference. I additionally control for the isolation of a village (dummy *Close to town)* and for the censoring problem (*Pct girls not yet cut*)[22]. I cannot control for age fixed effects given the limited number of observations. I therefore control linearly for the age trend and I additionally capture non linear trends with a quadratic term. Results are clustered at the village level[23].

Table 3.6: Correlation between FGC and links to PRCC villages in non-PRCC villages. The level of observation is a girl.

	(1) FGC	(2) FGC	(3) FGC	(4) FGC	(5) FGC	(6) FGC
Pct wives from PRCC	-0.0751					
	(0.331)					
Pct households with relatives in PRCC		0.00537				
		(0.133)				
Any relative from PRCC			-0.0798	-0.167*		
			(0.0788)	(0.0844)		
Any wife from PRCC					0.0746	0.0424
					(0.0499)	(0.0443)
Close to town	-0.0814*	-0.0828	-0.0786		-0.0790*	
	(0.0429)	(0.0501)	(0.0485)		(0.0420)	
Household information FGC	-0.187*	-0.190*	-0.170	-0.154	-0.181*	-0.161
	(0.0943)	(0.0951)	(0.102)	(0.116)	(0.0988)	(0.129)
Number adults	-0.000198	-0.000197	-0.000196		-0.000221*	
	(0.000119)	(0.000123)	(0.000135)		(0.000108)	
Pct girls not yet cut	-0.00265	-0.0172	-0.0280	-0.363	0.0133	-0.165
	(0.237)	(0.228)	(0.233)	(0.425)	(0.225)	(0.434)
At least one parent has no siblings			0.000869	0.108		
			(0.0930)	(0.132)		
Constant	0.373	0.378	0.352	0.391	0.405	0.349
	(0.262)	(0.263)	(0.275)	(0.258)	(0.260)	(0.246)
Age trend	Yes	Yes	Yes	Yes	Yes	Yes
HH controls	Yes	Yes	Yes	Yes	Yes	Yes
village FE	No	No	No	Yes	No	Yes
Observations	150	150	150	150	150	150

Standard errors in parentheses. Results clustered at the village levels.The controls at the household level are the same as in Table 3.3
* p<0.10, ** p<0.05, *** p<0.01.

[22]To create this variable, I compute the percentage of girls that are not yet cut at each age by village, using girls that are older than 9 and I associate such probability to each girl below 9, by age and village. See Appendix B for the details.

[23]Both with wild bootstraps (1000 replications) or without clustering, results on the network variables and on the household information index on FGC remain virtually unchanged.

In columns (1) and (2) the coefficients of interest are the measures of links to PRCC at the village level, *"Pct wives from PRCC"* and *"Pct households with relatives in PRCC"*. In columns (3) to (6) I use the household level measures of links, with and without village fixed effects. We can see that both measures at the village level are not significant, and the magnitude of the coefficients is small. Both links based on the origin of the wife, at the village and household level, are positive but not significant. The presence of a family member in a PRCC village, when controlling for village fixed effects, is negatively and significantly correlated with FGC status.

In particular, by distinguishing the type of family relations (brother or sister), it turns out that the result is driven by the sisters (from the same parents) of the wife[24]. This suggests that while the extended family might be a relevant network for FGC, it is not necessarily a marriage link that matters (given that ideal marriage takes place from the paternal side of the girl).

3.4 Discussion of the results

Two components can be distinguished in Tostan's program: the 3-year intervention at the village level, which consists in the organization of classes where alphabetization, health care, human rights and social norms are taught and discussed; and the sensitization - formal and informal - outside the village on the topics discussed in the classes. The organization of a Public Declaration is part of the second component of the intervention.

The first level of analysis therefore concerns the changes related to FGC in PRCC villages which are suggestive of an impact of the program. Figure 3.3 shows that, compared to non-PRCC villages, PRCC villages and women in particular, the main beneficiaries of the program, have more information on the negative effects of FGC (both in terms of health and awareness of the existing law) or at least they are aware of what is the correct answer to give to that question. These correlations are suggestive of a role of the PRCC in disseminating information on FGC, although the causality of the relation cannot be tested. To be informed about the negative effect of a practice however does not necessarily lead to its abandonment. As remarked by Shell-Duncan and Herniund (2007, p.66) with respect to the relation between information on the law against FGC and the continuation of the practice in Senegal:

> those who support the practice do so not because they are unaware of alternatives or efforts to change the practice. Instead, they have been exposed to, but were unpersuaded by, arguments for ending the practice.

[24]Given that women move to the husband's compound, there are vey few brothers that live in a PRCC village (for the household head, this happens only if a brother migrated to a PRCC village or if he was the one migrating from a PRCC to a non-PRCC village. For the wife, it would mainly imply that the woman comes from a PRCC village: column (1) and (3) shows that this link does not explain FGC status.

With respect to changes in FGC incidence, in PRCC villages I observe a 8 percentage points decline for girls at risk during the program. Under some assumptions, I can reasonably attribute this effect to the program. Notice that the result is not driven by one village, since in all villages some households did stop cutting (Figure 3.7). Furthermore, for the same age cohort, I observe no or limited decrease in FGC incidence in non targeted villages (Figure 3.5) suggesting that, if spillovers exists, they do not materialize immediately during the phase of implementation of the program. A decrease in FGC incidence in non-PRCC villages is instead observed for the cohort born after the end of the program.

These results are not compatible with the simplest model of FGC, where FGC is depicted as a convention with two ranked equilibria. In this model, the agents are stuck in the low payoff equilibrium, which is the cutting equilibrium. If no credible communication takes place, the agents cannot move to the higher payoff equilibrium. Two assumptions are implicitly made: agents have homogeneous preferences and they would rather prefer not to cut (higher payoff) if they could coordinate.

I cannot however reject the idea of the presence of a cascade mechanism, whereby, after the intervention, a leading group of people with low preferences for FGC will stop because they are better off without FGC. Given that the utility of FGC depends on the number of people practicing it, the group has an incentive in recruiting others (either inside or outside the village), whose utility from FGC is also decreasing in the number of people stopping the practice. To make sure that the process is irreversible, you need enough people (the tipping point) to change behavior so that for those still cutting the utility from FGC is lower than the utility from non cutting. Coordination in some sub-village network is also possible but cannot be explored with the data available, given the lack of information on within-village links. Finally, the decrease in FGC observed in both types of villages is also compatible with a model where individual choice of FGC is not related to other people's decisions.

The decrease in FGC observed in non-PRCC villages after the end of the intervention could be a possible medium-term effect of the second dimension of the program, namely the attempts to involve non-PRCC in abandoning FGC through sensitization activities and the public pledge. This second dimension of the intervention is strictly linked to the conceptualization of FGC as a coordination problem within the marriage network (see Mackie, 1996; Mackie and LeJeune, 2009).

With respect to the impact of the Public Declaration, the configuration of the program in the studied area (almost all villages attended a Public Declaration) does not allow to formally test if the decrease in FGC incidence observed after the end of the program in non-PRCC villages can be attributed to the participation to the public pledge. However, I provide some descriptive elements which do not seem to support this specific mechanism.

For a public pledge to work as a focal point in a coordination game, three conditions should be met. First, the main barrier to the abandonment of the

practice lies in coordination: everybody is individually ready to abandon the practice, but cannot do so unless there is common agreement. The underling mechanism implies that non-PRCC sensitized villages first agree to abandon the cutting practice and then their representatives attend the Public Declaration: the pledge should be the culminating point of a discussion which takes place at the village level and makes the decision taken permanent, given that other villages are observed to behave in the same way.

In reality, however, I observe a discrepancy in the knowledge of the village participation to the Public Declaration between villagers and village authorities (Table 3.4): this suggests that it is unlikely that the decision making process followed the above pattern. Villagers in non-PRCC villages are not aware of their village's participation to a public pledge, which is not compatible with the hypothesis of a process of deliberation first taking place at the village level, then leading to participation to the pledge. It is still possible that the process took place in the opposite direction. That is, village authorities attended the Public Declaration and then influenced the villagers' choice without referring to the Public Declaration. In this case, the role of the Public Declaration would be either to coordinate opinion leaders, or to favor discussion on FGC among them.

The second condition required for the public pledge to work as a coordination device is that the villages attending the Public Declaration are members of the same network in which the decision on FGC is taken. Indeed, when discussing coordination, a crucial question is the level at which coordination should take place. Some recent works start casting doubts on the validity of the coordination model for FGC (Bellemare et al., 2015) and on the assumption that the marriage pool is the relevant dimension for decision making (Shell-Duncan et al., 2011; Efferson et al., 2015). I find some evidence of a negative correlation between having a family member in a PRCC village and FGC status. This is compatible with a process of coordination at the extended family level, where families in PRCC villages start the process and then convince families members in non-PRCC to abandon the practice. I cannot however exclude that some extended-family characteristics, such as lower initial preferences for FGC, drive the result. On the other hand, measures of family links at the village level are not significant. A tentative interpretation is that links at the household rather than at the village level matter for FGC. If this is true, coordination across villages, as presumed in the Public Declaration process, would not be the relevant dimension for FGC.

Third, a crucial condition for the Public Declaration to be a focal point is that attending villages must believe that the other villages are committed to abandon: a change in expectations about others' behavior is a necessary element to switch equilibrium in a coordination game. In Figure 3.8 I show that declaring the abandonment of FGC is not the main reason given by village authorities to explain their presence in the event. One of the most common motives stated was the desire to reciprocate an invitation made by another village or by Tostan. As already pointed out, the general impression from the

interviews is that village authorities did not perceive their participation as a commitment to stop the practice. In five non-PRCC villages I was told that some villagers went to the public pledge, but "individually, not as a delegation". I interpret such kind of statements as a way to signal that their presence to the pledge should not be considered as (collectively) binding. If this is the case, and every participant is aware that this is the other participants' interpretation of the event, it is unlikely that the Public Declaration can change people's expectations on FGC (even assuming that the underlying coordination model is correct).

These observations are still compatible with the idea that a public pledge is a mechanism to change preferences. What they suggest, however, is that in our specific context, the conditions for the Public Declaration to work as a coordination device do not seem to be met. It might still be an important space for discussion and information, but it does not seem to work as a focal point in a coordination game. It is left to future research to rigorously identify the potential impact of participation to a public pledge on FGC and, more importantly, to test the validity of the coordination model underpinning the Public Declaration.

3.5 Conclusion

In this chapter I provide evidence on the impact of an anti-FGC intervention in rural Senegal. The intervention has two components: a three-year program which takes place in targeted villages and addresses, among other things, FGC; sensitization activities in the direction of other villages; and the organization of a Public Declaration to coordinate targeted and non targeted villages on the abandonment of this harmful custom.

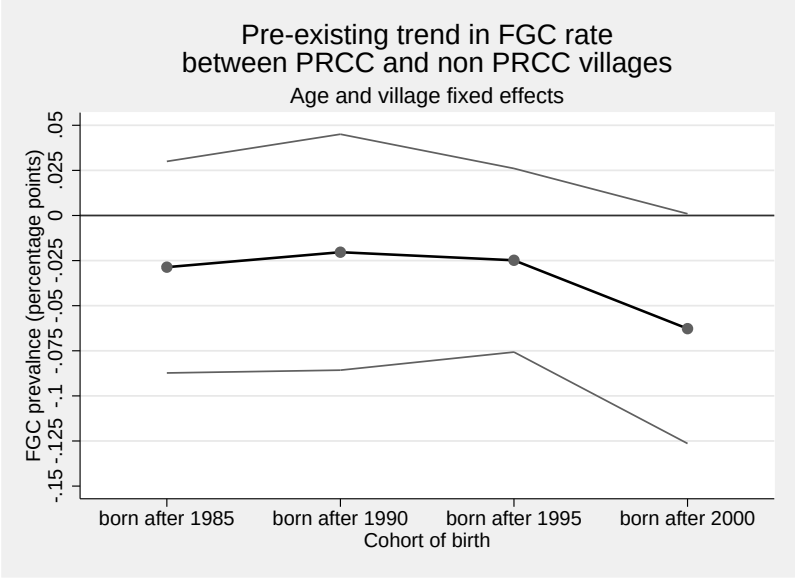
With respect to the first component of the program, I find a significant decrease in FGC rate for girls at risk during the program which can be, under some conditions, attributed to the intervention. Some households stopped cutting in each PRCC village, suggesting that the decision to abandon FGC is not a village-level decision. There is some evidence of a negative correlation between having a family member living in a PRCC village and the FGC prevalence in non targeted villages after the end of the program. This is compatible both with coordination at the extended family level and with heterogeneous preferences on FGC across households.

Available descriptive evidence on the Public Declaration suggests that the conditions for it to work as a coordination mechanism across villages are not met in our context. More research is needed to assess the importance of such public gatherings as vectors of change. This is a particularly relevant direction of research given the actual emphasis among practitioners on public pledges as a way to change social norms.

Appendix A: Parallel trend assumption

In Figure 3.6 I check the validity of the parallel trend assumption in the difference in difference estimation. I do so by splitting the per-treatment group in several cohorts. I show the results for the estimation of the same regression as in Column (1) Table 3.3, with age fixed effects only. This is my preferred specification for such a robustness check: given the low number of observations per cohort, adding village fixed effects would be quite demanding. In Figure 3.9 I present the same graph, where coefficients are estimated additionally including village fixed effects. The results are strikingly similar both in terms of pre-existing pattern and magnitude of the effect of the program. The latter however, is just not significant at the 90% confidence interval.

Figure 3.9: Plot of the estimated coefficients of the regression as in column (2) of Table 3.3 (age and village fixed effects), where the non-treated group is split in several cohorts (1985-89, 1990-94, 1995-1999). The coefficients of the interaction of each cohort with PRCC are plotted with the 90% confidence interval.



Appendix B: Censoring in the data

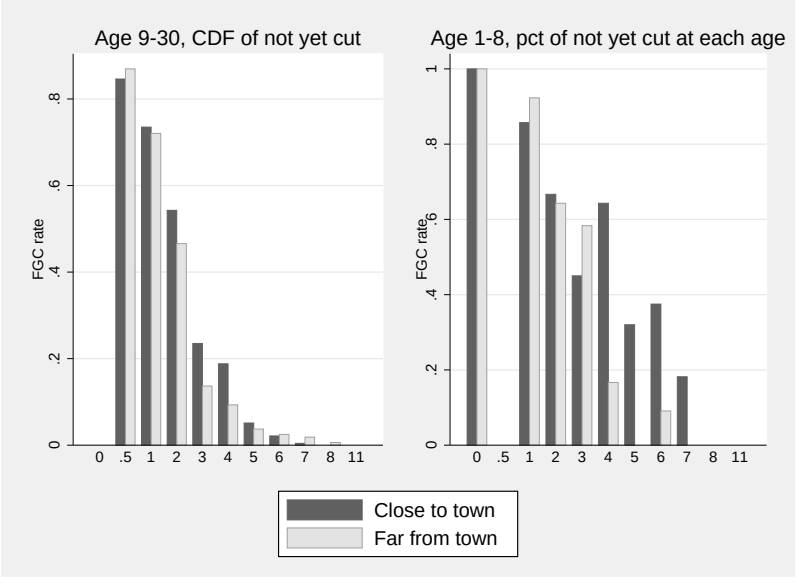
In Section 4.2.2 I extend the sample to include girls aged 4. This makes the censoring problem more severe, given that some girls might still be at risk of being cut at that age. Average age at cutting in the older cohort (born before 2000) is below 3 but there are the tails of the distribution to be taken into account.

To illustrate the nature and the implications of censoring, I take the case of the dummy *close to town*. In Table 3.6 the regressions show that, the further away is a village, the more likely that a girl in that village is cut. However, if some girls are still at risk of being cut, then the result could be interpreted as: the more isolated is a village, the earlier a girl is cut.

The two effects could also exist together: more isolated villages cut more and cut earlier. Figure 3.10 allows to visualize the magnitude of the censoring problem. In the graph on the left, I represent the probability of not being cut at each age, for girls that are older than 8, by type of village (close or far from town). The cumulative density function is constructed on girls that are cut: it represents the distribution of age at cutting in the two types of villages. Notice that at age 3 and 4, in villages that are close to town there is a higher probability of not being yet cut: the difference between the dark and light bar measures therefore the magnitude of the censoring problem.

The graph on the right represents, by age, the percentage of girls that are not yet cut in the two types of villages (close and far from town) among the girls that are younger than 9: in this case, the difference between the dark and light bar captures both differences in FGC rate and in age at cutting. A comparison, at age 3 and 4, of the difference between bars across the two graphs suggests that the censoring cannot completely explain the difference in FGC we observe in the younger cohort: while censoring is presents, it does not seem to be driving the result.

Figure 3.10: Magnitude of the censoring problem: example with the variable distance to town



As a way to account for the censoring in the regression framework, I construct the variable *"Pct girls not yet cut"*: I compute the percentage of girls that are not yet cut at each age by village, using girls that are older than 9. I then associate such probability to each girl below 9, by age and village, as a control. Stated differently, it is a way to account for the distribution of age at cutting in each village and to use it as a control. A limit of the exercise is that I implicitly assume that age at cutting has not changed over time. The inclusion of this control in the regression does not strongly affect the result. As expected, the estimated coefficient of *"Pct girls not yet cut"* increases when younger girls (3 years old or less) are included in the sample, when the censoring problem is more severe.

Chapter 4

Interventions to Stop Female Genital Cutting and the Evolution of the Custom: Evidence on Age at Cutting in Senegal[1]

4.1 Introduction

FGC is nowadays defined as a harmful custom, a human right violation of women's physical integrity, with potentially negative consequences for their health (see Section 2.3 in Chapter 2 for more details on this issue). The persistence of harmful practices and the search for the most effective interventions to end them are questions of great interest both for practitioners and social scientists. However, to focus only on the persistence or decline of a custom can be misleading if its complexity and multidimensionality are not taken into account. Traditional practices, when put under pressure by external factors, might not disappear, but evolve and adapt to the changing environment.

FGC is a particularly striking example in this respect. Since the late 80s an increasing number of governments and organizations have taken steps to reduce FGC, including laws criminalizing FGC and sensitization campaigns[2]. The nature of this custom and the best way to end it have therefore attracted the attention of social scientists[3], while little attention has been paid to the

[1]Forthcoming in Journal of African Economies (2015), DOI: 10.1093/jae/ejv013.

[2]Legislations against FGC have been introduced in 24 African countries concerned by FGC (Shell-Duncan et al., 2013).

[3]See, for example, the debate on the nature of FGC as a social convention in Mackie and

question of how FGC can adapt its forms or modalities when people, in spite of these interventions, do not abandon the practice.

The cutting itself is only part of this custom, that, depending on the context, can be a complex ritual with a well-defined timing of the event, actors involved and meaning. It is important to better understand these other dimensions of FGC for two main reasons. First, a better grasp of the whole practice can contribute to designing more effective programs to stop FGC[4]. Second, it explicitly takes into account how the custom evolves when under pressure and thereby highlights potentially perverse side effects of interventions. Such effects are rarely anticipated at the design of the programs.

There is anecdotal evidence that in several countries FGC has recently evolved in two important respects: age at cutting and de-ritualization of the practice. The two dimensions can be linked: in a context where rituals are abandoned and the meaning of FGC is transformed, the need to perform cutting at a specific age loses its importance. On the other hand, if people are forced to cut earlier, then the rituals and meaning of FGC need to evolve to accommodate that change. While in the literature the decrease in age and the disappearance of rituals have been mentioned (Shell-Duncan et al. (2011) and Hernlund (2000) for Senegal and The Gambia, Cabane (2008) and Gosselin (2000) for Mali), the reasons that could explain this change have not been systematically addressed. Some of the explanations given are, Islamisation (and its rejection of pre-Islamic rituals), the unwillingness to invest important amounts of wealth in the ceremony; beliefs that babies suffer less than girls and that enduring pain is not anymore an important part of the ritual; and the unwillingness to keep girls out of school to undergo FGC in the context of rising school enrollment rates.

A factor that, to my knowledge, has not yet been systematically studied, is the role of the introduction of laws criminalizing FGC or, more generally, all interventions against FGC that might push people to continue the practice in secrecy. The paper by Shell-Duncan et al. (2013) partially addresses this issue: in their analysis on Senegal they suggest that there has been a push towards secrecy following the introduction of the law criminalizing FGC. The same argument is given as a possible explanation for the declining age at cutting in different countries in a report by UNICEF et al. (2005).

Shell-Duncan et al. (2013) contribute to the more general debate on the interaction between formal and customary law. In this perspective, Aldashev et al. (2012b) show that, under some conditions, a law can change a custom even when not enforced, provided that people are informed about it and the distance between the custom and the law is not too large. In the same vein, I suggest that awareness of the law and of campaigns against a custom can affect the custom in an unintended negative way.

This chapter focuses on how interventions against FGC, including the crim-

LeJeune (2009) and the attempts to test different theories in Shell-Duncan et al. (2011)

[4]For instance, the role of traditional cutters in the perpetuation of the tradition is well known: interventions to end FGC have tried to target them, albeit with mixed success.

inalization of the practice, can affect the custom. Particular attention is paid to age at cutting since interventions that do not seem to lead to the abandonment of FGC can still modify the way it is practised. To provide some evidence on how people adapt the custom when it is under threat, examples are drawn from Senegal, where there are extensive interventions to fight FGC, including a law criminalizing FGC introduced in 1999.

I exploit two different databases for this purpose. First, I use the Senegal Demographic and Health Survey (DHS) 2012-13 to look at the prevalence of FGC and age at cutting in regions where the law against FGC has been enforced, leading to legal sanctions for practicing FGC. I exploit geographical and temporal variation in legal sanctions to identify the short and long term impact of this event on FGC prevalence and age at cutting. I observe a decrease in the age at cutting for girls born in the year of a case of law enforcement, but no short or long term effects on FGC prevalence.

Second, I use the database that I collected in the region of Kolda, on the border with Guinea Bissau, to show the long term evolution of the age at cutting in a context where there is almost no change in the prevalence of FGC. The data contain information on FGC for a longer time span than DHS and I can therefore compare age at cutting before and after the introduction of the law criminalizing FGC. In the post-law period, when the intensity of anti-FGC activities and campaigns increased, but still no direct interventions in the sampled villages have started, we observe a change in trend in age at cutting.

In both cases, I interpret the observed decrease in age at cutting - both temporary and in the long term - as a consequence of the de-ritualization of FGC due to the induced secrecy of the practice. Awareness of anti-FGC campaigns and an increased perceived risk of legal prosecution might not be enough to make people stop cutting, but they can push the practice underground. In turn, secrecy implies the abandonment of collective rituals, and parallel to it, cutting at an earlier age both because there is no need to wait for the ritual and because it is easier to hide infants than children during the healing period. In line with the existing anthropoligical literature, I further provide indirect evidence on the role of female family members in the ceremony and I suggest that these relations might also be affected by the changing institutional attitude toward FGC.

It is worth emphasizing that a decrease in the age at cutting due to the growing pressure against FGC does not only signal that the custom is evolving, but this might also have harmful health consequences in and of itself. Practising FGC on infants can be problematic for two reasons: first, the anatomy of a baby might make cutting more difficult, increasing the risk of more severe cutting or bleeding. Second, babies are less resistant to infections, bleeding and other health problems associated with the cutting, making it more dangerous. Furthermore, it has been argued that cutting without rituals can be psychological distressing for the child. To my knowledge, there is no systematic analysis of the health consequences of FGC at different ages, which is crucial to properly assess the health effects of the evolution of the custom.

The chapter is organized as follows. Section 4.2 explains the Senegalese context and the way the institutional attitude toward FGC has changed over time. Section 4.3 compare the two samples used, the continuous DHS data 2012-13 and the Kolda data I collected in 2012. In section 4.4 I describe the empirical strategy to estimate the effect of legal sanctions on FGC and the long term change in the age at cutting in Kolda. In Section 4.5 I discuss and interpret the available evidence. Section 4.6 concludes.

4.2 The custom, the law and interventions targeting FGC: the case of Senegal

Senegal is an interesting case to study the evolution of FGC. In the last 15 years Senegal has put in place an increasing number of initiatives at different levels to stop FGC[5]. The government, lobbied by domestic feminist groups and under rising international pressure[6], has increasingly taken a position against FGC since the late '80s. This led, almost 10 years later, to the introduction of a law criminalizing FGC[7]. The law N° 99-05 of 29th January 1999 condemns whoever is responsible for a mutilation of the female genital organs to between 6 months to 5 years of prison. The law was the object of national discussion and resistance from some religious leaders[8], leading to opposition in some areas of the country.

The importance of the law at the moment of its introduction should not, however, be overestimated. In spite of media coverage, the population was generally not aware of it in 1999. Information campaigns through the radio started afterward (see UNICEF et al., 2010, p.18-21), steadily increasing awareness among people. Further, only a few cases of legal prosecution are known since 1999.

A potentially more important set of events in the fight against FGC was the steady expansion of the activities of Tostan. It first attracted national attention in 1997, when a group of women that attended the NGO training program publicly declared their decision to stop FGC. The NGO has over time become a crucial and well known actor in the fight against FGC.

Tostan was a key partner of the government in the implementation of the first (2000-2005) and second national action plan (2010-2015) to stop FGC. Sensitization on FGC health related issues, on the law and women's human rights was done in the framework of the NGO's activities, radio programs, schools and health centers. Other associations and NGOs (for a list, see Gomis

[5] For a synthesis of the main events, see UNICEF (2013a, p.10-13).

[6] In 1979 the United Nations adopted the Convention on the Elimination of all forms of Discrimination against Women (CEDAW), which declared FGC to be a human right violation.

[7] See Ndoye (2011) for detailed information on the process leading to the introduction of the law.

[8] An influential religious leader of the Tijanne brotherhood clearly stood against the law, addressing a document to MPs with information on the religious importance of FGC (see O'Neill, 2011, p.88).

and Wone, 2008, p.8-11) were also active on the same issues. The year 1999 is therefore not only the year of the law, but the beginning of a more intense period of activities against FGC.

Given the level and variety of initiatives taken in Senegal against FGC since the late '90s, it is reasonable to argue that people's awareness of the changing institutional attitude towards FGC has steadily increased over time. This might have plausibly affected the FGC prevalence rate. However, I argue that an important unintended consequence of these initiatives is the fact that they have affected the way FGC is performed, rather than the decision to cut itself.

4.3 Data and descriptive statistics

4.3.1 Data

4.3.1.1 Continuous DHS 2012-13

The Continuous Demographic and Health Survey (Continuous DHS) 2012-13 for Senegal collects information on a nationally representative sample of women aged 15 to 49 on health and reproductive behaviours. It is the first phase of a 5 year data collection process (2012-2017) and it contains only some sections of the standard DHS questionnaire. The sample includes around 4000 households where all the eligible women (15-49) are interviewed, for a total of 8636 observations. Questions were asked to each woman about the FGC status and age at cutting of each living daughter aged 15 or less.

The way in which the questions around FGC are posed is of crucial importance. FGC status cannot be directly observed (unless a gynecological examination is done): in a context where the practice is legally forbidden and people are aware of the "institutional" attitude towards FGC, the risk of undereporting FGC is high[9]. The way of asking about FGC can therefore considerably affect the answers received. The continuous DHS 2012-13 substantially improves the framing of the question on FGC with respect to the previous round (DHS 2010) because the FGC status of each daughter is asked directly, while in DHS 2010 a woman is asked first if she has ever heard about FGC. Only in case of a positive answer, the FGC status of the woman and of her daughters is investigated. This has lead to an increase in FGC rate among girls aged 0 to 9 which could be attributed to the reframing of the question.

Furthermore, in the Continuous DHS 2012-13 information on girls' FGC status is avaialable for a longer time span (from 1998 to 2012 instead of 2000 to 2010) making it more suitable to studying the evolution of the practice. The main shortcoming of the database is the lack of information on FGC and age at cutting for girls born before the introduction of the law against FGC (1999), which does not allow for comparison of the evolution of the trend before and after that moment. Second, as we will see later, studying age at cutting when

[9]See the discussion on the problem of undereporting in Chapter 2, Section 2.4.3.

the FGC prevalence rate is decreasing might lead to sample selection issues. This seems to be a concern for these data, as explained below.

4.3.1.2 Kolda data

The database I collected for the NGO Tostan at the border between Senegal and Guinea Bissau in 2012[10] has several advantages with respect to the DHS data. First, information on FGC is collected about all living daughters, irrespective of their age. Second, on the sample of girls I use for the analysis (aged 8 to 29), I have limited sample selection issues, given that the FGC prevalence rate is 96%. Third and potentially more importantly, as explained in Chapter 2, Section 2.4.3, we directly asked the age at which a girl was cut rather than first inquiring wether the girl was cut, which might have reduced the reporting bias. Finally, the dataset has rich information on family characteristics and networks that are not available in DHS data and that prove useful to better understand the mechanisms behind FGC.

4.3.2 Descriptive statistics

4.3.2.1 The evolution of FGC over time

Both the prevalence of FGC and age at cutting are decreasing in Senegal. FGC is not equally widespread in the country and national averages hide important regional differences. I therefore plot in Figure 4.1 the average FGC prevalence and age at cutting over time for girls born in 2008 or earlier and I distinguish between regions with high, middle and low FGC prevalence[11]. Cutting takes place on average before the age of 4: if we look only at girls older than this age, censoring is limited, given that most of the non-cut girls are no longer at risk[12]. The graph suggests that the custom is indeed changing over time: middle and high incidence rate regions have experienced an average decrease in FGC prevalence of 22 percentage points between 1998 and 2008. The average age at cutting has decreased by 1.5 years over the same period.

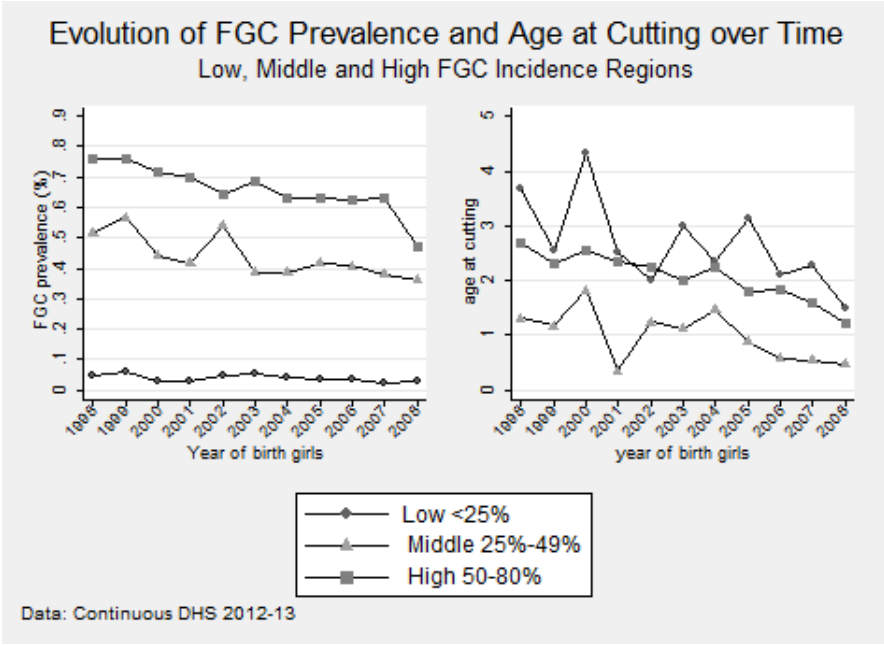
The observed change in age at cutting might be, at least partially, the result of a selection bias. Over time, some households stop cutting, as Figure 4.1 shows. If these households used to cut later than the ones that are still practicing FGC, then the observed decrease in age at cutting is the result of a selection process: the households that cut late are over time less represented in the sample because they have stopped. The selection issue seems to be indeed a concern, as Figure 4.2 suggests. In this graph I distinguish girls according to the fact that their sisters (born from the same mother) are all cut or there is at least one not cut. I then plot the average age at cutting by year of birth and by category.

[10] The sample area includes also villages in Guinea Bissau. They are not used in the analysis

[11] The regions are classified according to their average FGC prevalence, computed on the whole period of available data (1998-2013).

[12] Almost 90% of the girls born before 2009 (aged 4 or more at the moment of the interview) were cut before age 5.

Figure 4.1: FGC Prevalence (Left) and Age at Cutting (right) by Year of Birth of the Girls and Split among Region with Low, Middle and High Prevalence of FGC



The graph is indeed suggestive that mothers that have at least one non-cut daughter used to cut their daughters later than mothers that continued to practise FGC. This might lead to wrongly interpreting a decrease in the age at cutting as an evolution of the custom, while it could just be a consequence of the selection into the sample.

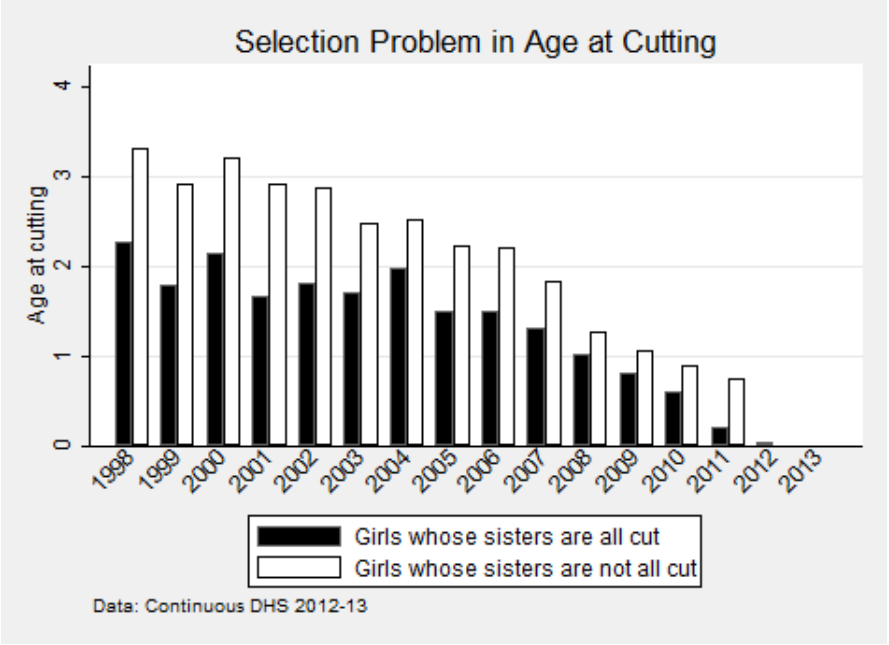
Keeping in mind this problem (I will come back to it in the analysis later), I am interested in assessing to what degree the evolution of the FGC prevalence and age at cutting can be imputed to the campaigns, legal interventions and overall institutional change towards FGC that Senegal has experienced.

4.3.2.2 Cases of legal sanctions against FGC

Using DHS data, I can exploit temporal and geographical variation in the cases of legal sanctions against FGC to see how the prevalence of FGC and age at cutting vary. I reconstruct 4 cases of prosecutions that ended in a legal sanction: in 2000 in the region of Tambacounda, in 2004 and 2007 in the region of Kolda and in 2009 in Matam, which however I do not use to limit censoring issues[13]. The list might not be exhaustive and it represents only the cases in

[13]Results are not affected by the inclusion of Matam in the analysis.

Figure 4.2: Age at Cutting by Year of Birth and by Type of Family: Girls with at Least One Sister not Cut and Girls Whose Sisters Are All Cut



which prosecution ended in a legal sanction (prison, even if the convicted were later reprieved). The information collected comes from the official documents annexed to UNICEF et al. (2010) and, according to the author of the report, they were the only cases for which he could find the proceedings of the process.

Table 4.1 shows the descriptive statistics at the different levels of observation: girls, mothers and households (recall that information are collected for all the eligible women in a household). I only use girls born before 2009 and I exclude ethnic groups that do not practice FGC (Wolof and Serer, which have an FGC prevalence of less than 1% over the whole period), leading to a total of 1627 households and 2764 girls, of whom 51% are cut

Each region where prosecution resulting in legal sanction took place represents around 13% of the sampled girls. The dummy *"Legal sanction"* takes value 1 for girls born in the year and in the region where the law against FGC was enforced. A caveat of the analysis is that only 3.4% of the girls in the sample are born in a region and in the year of a case of legal sanction, meaning that identification is based on a limited number of observations (95 girls). *"All sisters underwent FGC"* is a dummy that takes value 1 if a girl has all her sisters cut, and it partially accounts for the censoring problem. Fulani and Mandinka mothers make up 76% of the sampled women and only 20% of them ever attended school. Overall, only 36% of the households are living in a urban

Table 4.1: Girls, Mothers and Households Characteristics

	Mean	Sd
(A) Girls' Characteristics		
Age	8.376	3.072
Underwent FGC	0.507	0.500
Age at FGC	1.891	1.945
All sisters underwent FGC	0.359	0.480
Legal sanction	0.034	0.182
Region of Tambacounda	0.122	0.327
Region of Kolda	0.136	0.343
Region of Matam	0.151	0.358
(B) Mothers' Characteristics		
Age mother	35.302	7.518
Pular or Mandinka	0.764	0.425
Attended formal school	0.243	0.429
(C) Households' Characteristics		
Urban household	0.359	0.480
Wealth Index		
Poorest	0.282	0.450
Poorer	0.264	0.441
Middle	0.205	0.404
Richer	0.154	0.361
Richest	0.096	0.294
Observations (Girls)	2764	
Observations (Mothers)	2401	
Observations (Households)	1627	

Data: Continuous DHS 2012-13.

area.

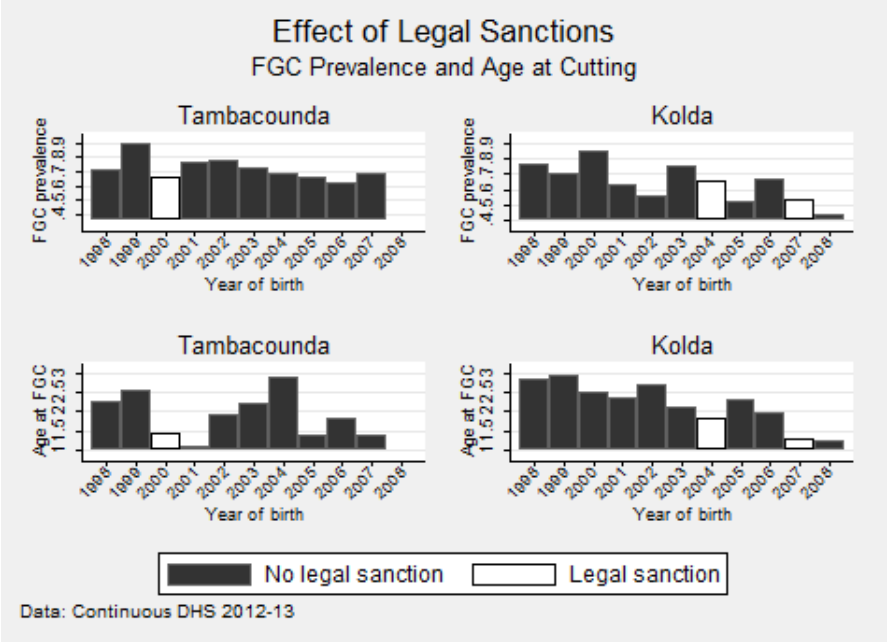
In Figure 4.3 I plot the average age at cutting and FGC prevalence (in percentage) in the regions where the law was enforced. The light coloured bars represent the years in which a case of legal sanction took place. The graph is suggestive of a change in the custom, at least in terms of a decrease in age at cutting in the year of the sanction. FGC prevalence seems to decrease, but the change is less important. A note of caution is required, given the limited number of observations per year of birth in each region.

4.3.2.3 Changing trend in age at cutting

Figure 4.3 suggests that FGC, in particular age at cutting, might have been temporarily affected by repressive actions against the custom. However, cases of legal prosecutions have been rare and they are not well known by the population. This does not mean that people are not aware that the government has taken a clear position against FGC, that a law has been introduced and that several associations are active on this issue. Several studies, including my own data, confirm that the knowledge of the law (and therefore awareness of the institutional position towards FGC) is widespread.

The data collected in Kolda can shed light on how FGC is evolving when the pressure against it increases. I consider here the year of the introduction of

Figure 4.3: Evolution of Average FGC Prevalence (Top) and Age at Cutting (Down) in the Two Regions with Cases of Legal Sanction for FGC. The Light Bar is the Year of the Legal Sanction.



the law, 1999, as the turning point in the fight against FGC.

Table 4.2: Girls Characteristics, by Age Group

Variable	<=1982	1983-99	2000-2004	2005-2012
Age	35.69 (5.411)	19.16 (4.769)	9.88 (1.457)	3.87 (2.201)
Underwent FGC	1.00 (0.000)	0.98 (0.134)	0.93 (0.255)	0.55 (0.498)
Age at FGC	3.60 (2.010)	2.75 (1.762)	2.36 (1.504)	1.87 (1.035)
Attended formal school	0.19 (0.398)	0.68 (0.468)	0.86 (0.347)	0.63 (0.486)
Koranic education	0.63 (0.486)	0.47 (0.500)	0.36 (0.480)	0.27 (0.446)
Observations	52	384	216	319

Data: Kolda database. Standard deviations in parenthesis.

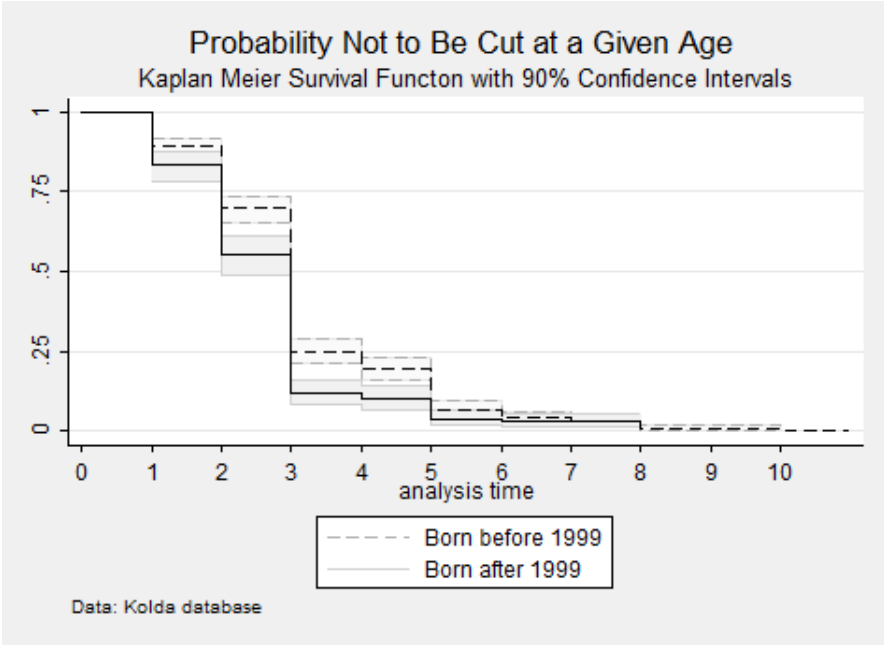
Table 4.2 presents the descriptive statistics for the whole sample of girls, by age group. The comparison between the cohort 1983-1999 (born before the introduction of the law in 1999) and 2000-2004 is at the core of the analysis.

Over the whole period, 96% of girls are cut[14]. This implies that the sample selection issue observed in the DHS data when studying age at cutting is a minor problem.

On the contrary, censoring issues arise if we include the youngest cohort, where the prevalence of FGC is 55% and some girls are still at risk of being cut because of their young age. Notice that 74% of the girls aged 8 to 29 have at least one year of formal schooling, with a rate that is increasing over time. Moreover, 43% attended Koranic schooling, but this proportion seems to be decreasing over time. For the girls cut, the average age at cutting is below 3.

The comparison of age at cutting before and after 1999 suggests a change in the trend for age at cutting after 1999. Figure 4.4 shows the Kaplan Meier survival estimates for two ages groups, girls born before the introduction of the law (1999) and girls born after.

Figure 4.4: Survival Functions (Probability of Not Being Cut) for the Two Cohorts (Born Before and Born After the Introduction of the Law)



The Kaplan Meier is a non parametric estimate of a survival function that gives the probability of not experiencing an event at a given time t. Here the

[14]In Chapter 3, I show that the decrease in prevalence of FGC for girls born between 2000 and 2004 is driven by villages that had the Tostan's program: these girls were still partially at risk when the program started in 2005. This might raise some concerns, given that the change in trend in age at cutting is observed in the same period. However, notice that the results presented in Section 4.4 on age at cutting are robust to the exclusion of the targeted villages from the analysis.

failure is FGC and the time at which failure occurs is the age at which a girl is cut. The estimator at a given age t is the product of the probability of not being cut at each age $j < t$, conditional on survival until that moment. Formally, $\widehat{S}(t) = \prod_{j|t_j \leq t} \left(\frac{n_j - d_j}{n_j}\right)$, where n_j is the number of observations (that have not yet failed) at time j and d_j is the number of failures (girls that are cut) observed in that period. Age at cutting is lower for the younger cohort: girls born before the law have a 69% probability of not being cut at age 2, against a 55% probability for girls born after 1999. A log rank test for the equality of the survival functions confirms that the two survival functions are different at the 1% significance level.

Table 4.3: Households Characteristics

	Mean	Sd
(A) Households' Characteristics		
Muslim	0.997	0.058
Fulani	0.831	0.376
Other ethnicity	0.115	0.320
Interethnic marriage	0.054	0.227
Polygamous	0.427	0.496
Own no land	0.024	0.152
House has cement walls	0.129	0.336
Mother had Koranic education	0.515	0.501
Father had Koranic education, not talibï¿œ	0.431	0.496
Father was a talibï¿œ but no Koranic education (in the village)	0.051	0.220
Father had Koranic education and was a talibï¿œ	0.261	0.440
Attended formal school	0.210	0.408
Age mother	38.400	8.724
Age father	51.132	10.447
Mother knows law	0.793	0.405
Father knows law	0.834	0.372
(B) Family Network		
Maternal grandmother lives in the village	0.298	0.458
Paternal grandmother lives in the village	0.790	0.408
Maternal aunt lives in the village	0.146	0.353
Paternal aunt lives in the village	0.288	0.454
Number paternal aunts	1.814	1.308
Number maternal aunts	1.810	1.444
Number aunts	3.624	1.884
Number uncles	3.390	2.025
Female family members live in the village	0.288	0.454
Observations (Households)	295	
Observations (Adults)	590	

Data: Kolda database.

The sample area is homogenous in terms of ethnicity and religious identity (Table 4.3). Almost 100% of the parents both declared themselves Muslims,

and 83% Fulani. Inter-ethnic marriages represent less then 6% of the sample. Polygamy concerns almost half of the sample. Only 21% of the households have at least one parent who had formal schooling (with only 7% of the women having any form of schooling). In 79% of the households at least one of the parents attended a Koranic school during childhood. Around 41% of the fathers have learned the Koran in their village, while 26% of the sampled fathers had additional training under the supervision of a religious authority called a marabout. Notice that only 10 individuals declared that they only studied with a marabout.

Finally, only 18.64% of the parents do not know about the law[15], which is in line with other studies in Senegal: both Shell-Duncan et al. (2013, p.347) and UNICEF et al. (2010, p.31) find a virtually 100% awareness of the law.

As already said, the database contains rich information on the extended family structure of the sampled households and in particular with respect to the location of the grandmothers and aunts of the girls. These are an important set of controls, given that it is well known from the anthropological literature (see Erlich and Augé (1995, p.95) and accounts in Cabane (2008)), that cutting is mainly a "women's business". Men are not present at the moment of cutting. The organization is indeed done by the women of the family: grandmothers, mothers in law and (paternal) aunts play a crucial role.

Descriptive statistics on family networks are presented in panel B of Table 4.3. Traditionally, the woman moves to her husband's village, which explains why it is more likely for a girl to live in the same village as her paternal grandmother (79% of the sample) rather than her maternal grandmother. Also, 14.6% of the sample households live in the same village as a maternal (married) aunt of the girl, and in 29% of cases in the village of a paternal (married) aunt. Note that the network is measured at the moment of the interview, which is noisily measuring location at the moment of cutting[16]. To capture the presence of female relatives in the village I construct the variable "*Female family members live in the village*" which takes value one when there is at least one woman living in the same village of the girl from the maternal side of the family and one who belongs to the paternal side.

4.4 Empirical strategy and results

4.4.1 The impact of the law: the effect of legal sanctions

4.4.1.1 Empirical strategy

I estimate the effect of legal sanctions for FGC on FGC prevalence and age at cutting. I have two regions and three cases of enforcement of legal sanctions for

[15] We asked : "Do you know if in Senegal there is a law against FGC?"

[16] However, women's mobility in this rural context is limited and mainly linked to marriage. A reason why an aunt might be living in the village at the moment of the interview but not at the time of the cutting was that she was not yet married at the moment the girl was cut.

FGC. The main specification is the following:

$$y_{imhr} = c + \beta_1 * LegalSanction_i + \lambda * X_m + \delta * D_h + AgeFE_i + RegionFE_r + \epsilon_{imhr} \quad (4.1)$$

where y is the outcome of interest (age at cutting or FGC status) for a girl i born from a mother m in household h in a given region r. I am interested in the effect on age at cutting and FGC status for a girl born the same year and in a region where the law was enforced. X is a vector of mothers characteristics, such as ethnicity, age and education and the fact that all her daughters are cut (for the regression on age at cutting). In Equation 4.1 D is a vector of household characteristics such as the location (urban or rural) and the wealth index. I additionally control for age fixed effects ($AgeFE_i$) and region fixed effects ($RegionFE_r$).

As an alternative specification, I control for household fixed effects (and by construction for region fixed effects). Results are clustered at the village level[17].

The most demanding specification is the one with household fixed effects: identification is based on within-household comparison of girls that are born in a year and region of a legal sanction with the other girls in the households that are born in a different year, controlling for any difference in the outcome variable (FGC status or age at cutting) that can be explained by the time trend (controlled for non parametrically using age dummies).

4.4.1.2 Results

Table 4.4 presents the results, where in the first two columns the dependent variable is age at cutting, in the other two the FGC status. In columns (1) and (3) I control for region fixed effects and age fixed effects, while in (2) and (4) I control for household fixed effects.

Girls born in the year and in a region where the law was enforced are cut 0.74 years earlier than girls born in another year in the same region, after controlling for the time trend and households and mother characteristics, including the fact that at least one of her daughters is not cut. The FGC prevalence does not seem to differ for the affected girls: the estimated coefficient, although negative, is small and not significant. Results are robust to the inclusion of household fixed effects.

Note that selection seems to be an issue, given that the coefficient of *"All sisters underwent FGC"* is negative and significant. This can be problematic in studying age at cutting: if some households stop cutting after the law was enforced and they are the ones cutting later, then the drop in age at cutting is not due to a change in the timing of cutting but to a change in the decision of cutting. However, the coefficient of *"All sisters underwent FGC"* decreases by

[17]Note that I cannot control for mother fixed effects given that I do not have enough observations per mother. However, given that there is on average 1.5 women per households, fixed effects at the household level are going to control for most of the mothers' characteristics. With respect to the level of clustering, results do not change when clustering at the level of region times year of birth.

half and is not significant when controlling for household fixed effects (column 2), implying that whatever unobservable characteristics it captures, it is mainly a household characteristic, and it is at least partially taken care of by the fixed effects. Furthermore, there is a small and not significant impact of the legal sanctions on FGC status: selection is not an issue when we look at the short term impact of legal sanctions. However, it can still be problematic when studying their long term effect, if age at cutting is correlated with households time-variant characteristics I cannot control for.

4.4.1.3 Robustness checks

The way I constructed the variable *"Legal sanction"* allows me to capture changes to FGC that occurred only in the year and region of a case of law enforcement. The change in the age at cutting, assuming that no other event that could affect FGC took place in the concerned areas at the time of the legal prosecution, can be interpreted as a short term effect of the law. However, one might wonder if any medium or long term effect should be observed. To test this, I construct two alternative specifications. "*Born maximum 2 years after sanction"* takes value one for girls born in a region and in the year of the legal sanction or at maximum two years later, zero otherwise. The variable *"Born after legal sanction"* is equal to one for girls born in the region and in the year or after the case of legal sanction. The former should capture the medium term effect, the latter a change in the trend in age at cutting following the legal sanction. Notice first that the last specification reduces the number of cases of legal sanctions to two, given that the case in Kolda in 2007 is absorbed by the case in 2004. Second, given that NGOs and government have been very active in the fight against FGC over time, the last specification might be capturing more than the effect of the enforcement of the law.

Table 4.5 shows the result for the coefficient of interest using the same specification as in column (2) and (4) of Table 4.4 (without household fixed effects the results are similar in magnitude and precision).

Columns (1) and (2) in Table 4.5 report the estimated coefficient of the main regression for comparison. Columns (3) and (4) present the coefficients on age at cutting and FGC prevalence for "*Born maximum 2 years after sanction"* and the columns (5) and (6) for *"Born after legal sanction"*. The coefficient for age at cutting drops in both the alternative specifications, even if estimation is not precise. The correlation with FGC prevalence also remains close to zero and not significant.

Overall, the results suggest that a legal sanction might lead to a decrease in age at cutting in the short term, but does not refrain people from cutting. However, the results should be interpreted with caution. First, other events might have taken place in those years that could have affected FGC. Second, the identification is based on a limited number of observations and cases of legal sanctions.

4.4.2 Age at cutting and anti-FGC activities: the case of Kolda

The advantage of the database I collected in Kolda is that I can compare age at cutting before and after the introduction of the law, in a context where FGC prevalence is not (yet) changing dramatically. It is important to stress that the year of the law is taken as a turning point in the fight against FGC, but that any change in trend should not be interpreted causally. First, as already explained, the law was not well known at the moment of its introduction; second, several campaigns and events took place simultaneously in the late 90s early 2000s. If the custom is evolving, it is more likely to be due to the overall effect of different interventions, including the introduction of the law and the information campaigns that followed.

4.4.2.1 Empirical strategy

To assess if there has been any change in the trend in age at cutting after 1999 I estimate the following equation:

$$y_{ihv} = c + \beta_1 * (BornAfter1999_i * YearBirth_i) + \lambda * X_h + \epsilon_{ihv} \qquad (4.2)$$

where y_{ihv} is age at cutting for a girl i born in household h and village v. *"Born After 1999"* is a dummy saying if the girl is born after 1999 and it is interacted with the year of birth of the girl centered on 1999.

X_h is a vector of households characteristics (parents characteristics and family network structure). In alternative specifications I control for village fixed effects and household fixed effects.

4.4.2.2 Results

Table 4.6 shows the results. In Column (1) I control for the two districts (communautés rurales) in which the villages are located since the two areas differ in terms of age at cutting. Column (2) controls for village fixed effects, column (3) for household fixed effects. Standard errors are clustered at the household level[18].

The coefficient of interest is the interaction term between the age trend and the dummy *"Born after 1999"*: for girls born after 1999, being one year younger decreases age at cutting by 0.13 year, while there is no time trend for the older cohorts. The result is robust to village fixed effects while it evinces similar magnitude with household fixed effects, even if it loses significance.

Turning now to the role of female members of the family in the cutting, it appears to be confirmed by our data (alternative specifications of the family

[18] Clustering at the village level gives similar results. When clustering at the age level, standard errors increases for regressions in column (1) and (2) and decreases in column (3). Results remain virtually unchanged.

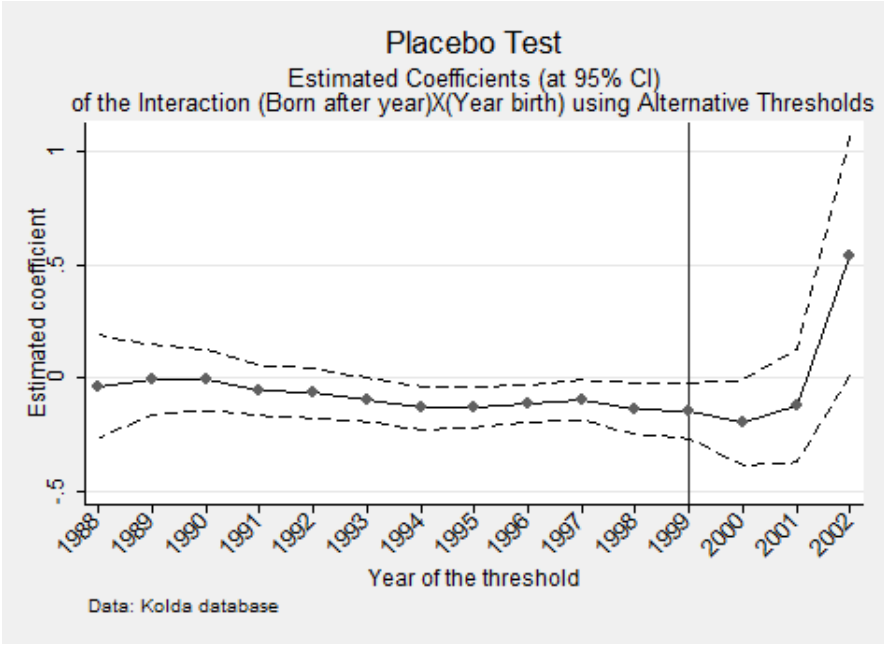
structure give similar positive coefficients, but not always significant). There is some evidence that the presence of women from the family in the same village is correlated with cutting almost half a year later (controlling for the size of the family). The result is significant when controlling for village fixed effects, meaning that the variable *"Female family members live in the village"* is not a proxy for the size of the village (within-village marriages are more likely to happen in larger villages, leading to higher family density).

A surprising result is that religious education seems to play a role in age at cutting. Mothers that attended Koranic school cut their daughters more than half a year later than other parents. The father's Koranic education does not matter: however, the ones that studied the Koran directly under the supervision of a marabout (without passing through the village school), cut almost one year and a half earlier.

4.4.2.3 Robustness checks

Given that the choice of 1999 is partially arbitrary, I run placebo tests by changing the threshold: I use other years as reference points and I estimate the difference in trend in age at cutting using the specification in column (2) of Table 4.6

Figure 4.5



In Figure 4.5 I plot the estimated coefficients of the interaction term ($bornafter_i * yearbirth_i$) at different thresholds and at the 95% confidence interval. When

I move the threshold to the left (before 1999), I do not expect the effect of the interaction term to disappear but the magnitude of the coefficient should decrease. This seems to be the case, even if the interaction at 1994 is also significant and of similar magnitude as the one at 1999. For thresholds to the right of 1999, I have too few observations and the estimation is imprecise.

4.5 Discussion

In a context where FGC is put under pressure by legal interventions and sensitization campaigns, people have two choices: either to stop cutting or, if they wish to continue practicing FGC, they should do it in secret, or at least quietly. This under the assumption that sanctions for practicing FGC are considered as a potential threat. In Senegal, Shell-Duncan et al. (2013) argue that, among their informants, the law was indeed perceived as enforceable, in spite of the lack of knowledge of cases of legal sanctions. They claimed that "simply rumors or imagining enforceability generated fear of prosecutions" (p.823). In the same vein, we can consider that, cases of effective enforcements of the law, even if ended up with a grace, can increase the perception of the risk of being legally prosecuted.

It is however quite unlikely that the fear of prosecution can lead to the abandonment of FGC. Shell-Duncan et al. (2013) show that the law had no effect on individuals unwilling to stop, while it was used as an argument to resist social pressure by people that were against the practice. In other words, coercion, in the absence of sensitization on the harmful effects of FGC, cannot change people's preferences on FGC. It can rather raise the cost of FGC by increasing the risk of being caught cutting. However, instead of abandoning FGC, individuals can use alternative strategies to perform cutting that decrease this risk.

Both the results I find on the effect of the enforcement of the law on FGC and on changing trend after 1999 are coherent with this framework and with Shell-Duncan et al. (2013) findings. Girls born in a region and year of a case of enforcement of the law have the same probability to be cut as girls born in other regions, controlling for differences in ages and household characteristics. Parents do not seem to respond to legal prosecution by stopping cutting. However, they seem to perform FGC at an earlier age, at least for the children born in the year of the legal sanction.

A priori, we can think of two mechanisms through which legal prosecution can affect age at cutting. It can increase age at cutting for the girls that, at the moment of the enforcement of the law, are not yet cut, if the prosecution increases the (temporary) fear of being caught cutting, this will push people to wait for a more opportune time, when the situation will have calmed down. Otherwise, it can lead to a faster decrease in the age of cutting in an area where the prosecution took place (at least for girls born in the years around the event), if the legal sanction increases the secrecy of the practice. Our result seems to

suggest the latter mechanism.

One possible link between secrecy and early cutting is the progressive de-ritualization of FGC. The need for secrecy in practicing has, as a first consequence, led to the disappearance of (collective) rituals. The de-ritualization of the practice leads in turn to a decrease in age at cutting, because there is no need to wait for a specific moment to cut a girl. That early cutting is correlated with individual cutting and the absence of ritual is suggested by pre-law data (Mottin-Sylla, 1990[19]). If a hostile environment leads to the disappearance of rituals, the decrease in age is a plausible effect. A second mechanism through which secrecy leads to earlier cutting is through the fact that it is easier to hide an infant than a child while she recovers from the cutting. This explanation becomes even more important if cutting is done on girls aged 5 to 7, when they have to be taken out of school during recovery. It is nonetheless not quite relevant in our sample, since even in the older cohort cutting was done before schooling age.

The results on Kolda suggest that the same mechanism can also apply in the long run. The comparison of pre and post law data in the Kolda database suggests a change in age at cutting, with a decrease in age when the intensity of interventions in the area (sensitization, law information campaigns and NGO programs) increases. I interpret this as the result of increased secrecy of the custom, or, in other words, the fact that the practice is going underground.

As already said, it would be preferable to interpret the decrease in age as a gradual process due to increasing pressure on the custom, and 1999 as a year that signals the beginning of increasing activities around FGC rather than as the year of the introduction of the law itself. As explained before, the law was unknown to most of the population at the moment of its introduction, and sensitization went hand in hand with the unfolding of other programs and activities. In the region of Kolda, for example, the first public declaration of abandonment of FGC took place in 1998, and other organizations were active, not necessarily in the sample villages[20]. Further, the lack of prosecution cases signals that people might indeed react more to an overall changing environment rather than the law itself.

This relation between the law (and, more in general, increasing awareness of anti FGC campaigns) and early cutting has been suggested by some studies and during interviews I conducted in Dakar with actors involved in FGC-related activities[21]. In a report by UNICEF (2013b, p. 31) it is stated that "the

[19]The sample included women aged between 10 and 45 in 1990. To my knowledge, this is one of the most detailed and systematic quantitative analysis of FGC in Senegal done before the introduction of law.

[20]Indeed, as shown in Chapter 3, the effect of being targeted by a women-empowerment program which includes discussion on FGC such as the PRCC, can have an effect on the decision to stop cutting. There might therefore be different reactions to "hearing" about anti-FGC interventions and being directly exposed to a program.

[21]During a stay in Dakar in June 2014 I contacted people involved in anti FGC activities at different levels. I managed to meet 10 of them, holding a variety of positions, from civil servants and government consultants on women rights and FGC issues, to NGOs members and human right activists against FGC. I conducted unstructured interviewed, focusing on

criminalization of FGC has led to alternative strategies among mothers who value the heritage of their ancestors [...] We observe in some areas the de-ritualization of cutting FGC"[22].

A human rights activist I interviewed claimed that the law had an impact, even in the absence of systematic law enforcement, by increasing the fear of being exposed to the police. As a consequence, people cut new born, in the household compound, without ceremony. She thought that family pressure was still too strong for parents to stop cutting but she argued that aside from age, the type of cutting might also be changing, with only a symbolic cutting being carried out.

The feeling that FGC is increasingly de-ritualised and individualized as a reaction to the legal framework was common among the interviewed people. While nobody was against the criminalization of the practice, they believed that coercion in itself was not useful unless sensitization was done to convince people about the harmful effects of it. A member from a women's organization claimed that the excessive media attention on FGC might have harmed the cause against FGC, pushing the practice underground, and making its eradication more difficult.

With respect to the health consequences of cutting earlier, a nurse and anti-FGC campaigner suggested that it can be worse for infants because of their higher vulnerability to infections[23]. In another interview, it has been said that the anatomy of an infant might make cutting more difficult and involuntarly more severe, in particular if the cutter is not used to carrying out the practice on girls of such young ages. There is, to my knowledge, no medical literature on the risks associated to FGC at different ages. Reviews of the existing evidence on the effects of male circumcision, conclude that it is better to practice it on infants than on children or young adults (Morris et al., 2012; Weiss et al., 2010). It is not clear up to what point these findings can be extended to FGC, given the difference in the nature of the operation. The common belief that infants suffer less than children (apparently found not only in Senegal but also in Mali, see Cabane, 2008) is disproved by studies (see, for instance, Taddio et al. (1997) on the long term effects of male circumcision) pointing at medium and long-term consequences of neonatal pain experiences.

The disappearance of the rituals (when they were present) and the secrecy needed to perform the practice also affect family dynamics on FGC. It is more likely that cutting is performed individually rather than at the village or extended family level; cutting is done in the family's compound. In urban areas, the phenomenon of mothers themselves cutting their daughter seems to be growing (UNICEF, 2013b), raising additional concerns for the risk associated

the effect of the law on FGC and how FGC was practiced in the past, with a specific focus on the region of Kolda.

[22] Author's translation.

[23] There is contrasting evidence in the pediatric surgery literature on the presence of a higher infection risk in newborns with respect to children. There is more consensus instead on the higher hemorrhagic risk in newborns: from this we might infer that cutting earlier can increase the risk of excessive bleeding.

to unexperienced women performing FGC.

As explained above, female family members traditionally play an important role in the cutting. In Senegal, my informants were unanimous in claiming that in particular paternal aunts played a crucial role, deciding when a girl was ready to be cut. According to one informant, they are the representatives of the father in a situation where men are not present[24]. Pre-law statistics presented in Mottin-Sylla (1990) seem to confirm that cutting was a collective ritual, where the (female) extended family was involved. She finds that among the Fulani in her sample, 80% of the women interviewed were cut with other girls, and only in 20% of the cases individually. Of this 80%, 43% of the women were cut with other girls of similar age of the extended family or neighborhood, the remaining at the village level [25] (Mottin-Sylla, 1990, p. 13-15).

My data seem to confirm the importance of family. The measure I use to account for family "network", *"Female family members live in the village",* in Table 4.6 suggests that the presence of another woman in the family leads to later cutting. I interpret this effect as the result of a coordination process within the family: if any female relative lives close to the girl, then she might be involved in the cutting and extending the length of the organization. If a mother has no female relatives living close by, then she takes the decision to cut individually, because she does not need to wait for the other family members to be present or to take the initiative themselves.

Whatever is the interpretation given to the coefficient, I expect that the push towards secrecy in the practice affects it. To see if data on Kolda confirms these changing family relations, I run the same regression as in Table 4.6 on the two sub-samples, girls born before and after 1999. Results are presented in Table 4.7.

Again, it shows that there is only a time trend on girls born after 1999, while the decrease in the coefficient of the family's network measure and the loss of its significance is suggestive of a change of path in family dynamics. Having a woman of the family in the village was positively correlated with age at cutting before 1999 while it loses significance after 1999 (although the two terms are not significantly different) On the contrary, the role of religious education remains stable over time. However, these changes might not be specific to FGC, but be the result of a more general evolution of intra-family relationships. More research is needed to properly address these questions.

4.6 Conclusion

This chapter provides evidence on the relation between interventions aiming at stopping FGC and the evolution of the custom. I claim that, even when

[24]More in general, aunts and uncles are, in the Mandinka society of the High Casamance, responsible of the transmission of traditions and of the education of their nephews.

[25]These data can be considered as a good approximation of the way FGC is done among the Fulani in the Upper Casamance, given the Fulani of the North-East - which have different customs concerning FGC - are not sampled.

interventions such as legal prosecution and sensitization campaigns do not lead to a decrease in FGC prevalence, the custom can change. In particular, people tend to abandon public rituals and they practice FGC in a more secret way: this leads in turn to a decrease in age at cutting. First, there is no need to perform FGC at a specific time if no ritual is required. And second, it is easier to hide an infant than a child during the cutting and the healing period.

Using DHS data, I show that girls born in a year and region where a case of legal sanction against the breach of the law has occurred are cut 0.8 year earlier, but no effect is found on either FGC prevalence or age at cutting in the medium and long term. Furthermore, exploiting a longer time span, I provide some evidence that, in the region of Kolda, the growing intensity of anti-FGC activities corresponds to a decrease in the trend in age at cutting. As an intepretation of both results, I suggest that the increasing pressure on the custom pushes the practice underground ,which in turn results in a decrease in the age at cutting.

Finally, the fear of prosecution can also affect the nature of intra-family relations regarding FGC. While the fact of having female family members living nearby seems to delay cutting - which I interpret as the result of coordination within the family - there is some evidence that this effect has become less important after 1999. This could be seen as a consequence of the individualization of the practice.

This work is, to my knowledge, the first attempt to discuss the issue of age at cutting as a way to understand the evolution of the custom. While the results are in line with the available qualitative evidence, there is a need for more research on the way people adapt FGC when facing growing pressure to stop. This is crucial both to better understand how to design anti-FGC interventions that take into account the risk of unintended harmful effects and as a way to improve our understanding of the custom itself.

Table 4.4: Effect of Legal Sanctions

	(1) Age FGC	(2) Age FGC	(3) FGC	(4) FGC
Legal sanction	-0.742***	-0.608*	-0.0388	-0.0414
	(0.232)	(0.318)	(0.0661)	(0.0879)
Pular or Mandinka	0.00723	-0.265	0.0256	-0.0273
	(0.221)	(0.734)	(0.0345)	(0.146)
Attended formal school	0.0788	0.555	-0.101***	-0.0762
	(0.155)	(0.340)	(0.0309)	(0.0821)
Urban household	0.0958		-0.180***	
	(0.217)		(0.0430)	
All sisters underwent FGC	-0.543***	-0.0756		
	(0.147)	(0.279)		
Year of interview=2013	0.127		0.0494	
	(0.151)		(0.0336)	
Wealth Index:				
Poorer	-0.301*		0.0399	
	(0.164)		(0.0406)	
Middle	-0.510**		0.0709	
	(0.201)		(0.0477)	
Richer	-0.758***		0.0424	
	(0.231)		(0.0509)	
Richest	-0.494		0.125*	
	(0.430)		(0.0698)	
Constant	3.575***	2.425***	0.268***	0.647***
	(0.997)	(0.689)	(0.0807)	(0.122)
Age FE	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes
HH FE	No	Yes	No	Yes
Observations	1385	1385	2764	2764

Data: Continuous DHS 2012-13. Standard errors clustered at the village (cluster) level.
* p<0.10, ** p<0.05, *** p<0.01

Table 4.5: Effect of Legal Sanctions: Medium and Long Term Effect

	(1) Age FGC	(2) FGC	(3) Age FGC	(4) FGC	(5) Age FGC	(6) FGC
Legal sanction	-0.608*	-0.0414				
	(0.318)	(0.0879)				
Born maximum 2 years after sanction			-0.295	0.0159		
			(0.203)	(0.0391)		
Born after legal sanction					-0.117	-0.0298
					(0.307)	(0.0428)
Age FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
HH FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1385	2764	1385	2764	1385	2764

Data: Continuous DHS 2012-13. Standard errors clustered at the village (cluster) level.
* p<0.10, ** p<0.05, *** p<0.01

Table 4.6: Dependent Variable: Age at Cutting

	(1)	(2)	(3)
At least one parent attended formal school	-0.346	-0.221	
	(0.248)	(0.250)	
Mother had Koranic education	0.683***	0.756***	
	(0.201)	(0.216)	
Father had Koranic education, not Talibé	0.0658	-0.0620	
	(0.234)	(0.248)	
Father was a talibé but no Koranic education (in the village)	-1.075***	-1.217***	
	(0.290)	(0.258)	
Father had Koranic education and was a talibé	-0.206	-0.315	
	(0.267)	(0.270)	
House has cement walls	0.120	0.234	
	(0.236)	(0.232)	
Number aunts	-0.0213	-0.0524	
	(0.0687)	(0.0620)	
Number Uncles	-0.0454	-0.0432	
	(0.0521)	(0.0519)	
Female family members live in the village	0.307	0.439*	
	(0.217)	(0.231)	
Year birth centered on 1999	-0.00516	0.00359	0.00517
	(0.0190)	(0.0205)	(0.0287)
Born after 1999	0.127	0.0445	0.0153
	(0.279)	(0.283)	(0.278)
(Born after 1999) X (Year birth centered on 1999)	-0.133**	-0.144**	-0.130
	(0.0629)	(0.0630)	(0.0786)
Administrative area of Sare Colly Sallé	0.115**		
	(0.0547)		
Constant	1.924***	2.792***	2.767***
	(0.507)	(0.396)	(0.178)
Village FE	No	Yes	No
Household FE	No	No	Yes
Observations	578	578	578

Data: Kolda database. Standard errors clustered at the household level.
* p<0.10, ** p<0.05, *** p<0.01

Table 4.7: Dependent Variable: Age at Cutting

	(1) <=1999		(2) >1999	
At least one parent attended formal school	-0.118	(0.314)	-0.353	(0.308)
Mother had Koranic education	0.862***	(0.279)	0.579*	(0.320)
Father had Koranic education, not Talibé	-0.159	(0.311)	-0.0319	(0.316)
Father was a talibé but no Koranic education (in the village)	-1.174***	(0.318)	-1.007**	(0.446)
Father had Koranic education and was a talibé	-0.483	(0.344)	-0.178	(0.371)
House has cement walls	0.353	(0.293)	0.324	(0.367)
Number aunts	-0.123	(0.0758)	0.0172	(0.0762)
Number Uncles	-0.0543	(0.0656)	-0.0223	(0.0712)
Female family members live in the village	0.559*	(0.293)	0.234	(0.338)
Year birth centered on 1999	0.00781	(0.0211)	-0.159**	(0.0693)
Constant	3.041***	(0.473)	2.701***	(0.482)
Village FE	Yes		Yes	
Observations	377		201	

Data: Kolda database. Standard errors clustered at the household level.

* p<0.10, ** p<0.05, *** p<0.01

Chapter 5

Eradicating Women-Hurting Customs: What Role for Social Engineering?[1]

5.1 Introduction

Since the birth of modern development economics in the period immediately following World War II, attention has been mostly directed to the determinants of long term economic growth performance and, in a subsequent stage, to issues of income distribution and poverty reduction. The implicit assumption was that the material level of living is the critical component of individual welfare and that non-economic factors, social norms and practices in particular, change gradually in response to the enlargement of opportunities that accompanies economic growth. Regarding the latter preconceived view, pioneer development economists such as Arthur Lewis (1955), Peter Bauer and B.S. Yamey (1957), Gerald Meyer and Robert Baldwin (1957), and Alfred Hirschman (1958) did not believe that there existed definite social and cultural prerequisites of development but that norms, customs and religious beliefs would evolve and be reinterpreted depending on the economic environment facing societies.

Recent thinking has called into question this "organic approach" to development in two ways. First, Amartya Sen in his works has emphasized that personal welfare or human happiness is crucially influenced by non-economic factors, such as autonomy, participation in a communal life, freedom to develop our talents and pursue our ends, dignity and self esteem (Sen, 1999). These factors make the whole difference between poverty and destitution (Dasgupta, 1993). Development cannot therefore be reduced to progress along a purely economic scale. Second, even if non-economic aspects are overlooked, the ability to seize upon economic opportunities, which affects economic progress, may

[1]This chapter is co-authored with Jean-Philippe Platteau.

be constrained by social norms and informal rules that do not automatically vanish as growth proceeds (Platteau, 2000; Platteau and Peccoud, 2010).

Reflecting the above questioning is the growing tendency to promote deliberate changes in customs, particularly oppressive ones. This active attitude toward harmful customs is characteristic of what may be called social engineering of which the human rights approach that has gained increasing currency since the eighties is part and parcel. In matters of gender equality, for example, the first visible step in that direction was the Convention to Eliminate all forms of Discrimination Against Women (CEDAW), adopted by the United Nations in 1979. For the first time, it was stated explicitly that member states "should engage to modify the social and cultural patterns of conduct of men and women, with a view to achieving the elimination of prejudices and customary and all other practices which are based on the idea of the inferiority or the superiority of either of the sexes or on stereotyped roles for men and women" (United Nations, 1979). This document opened the way for actions combining legal interventions in the name of universal human rights, and effective mobilization of victims so that they can perceive themselves as right-holders. In short, legal and preference changes are advocated. Non-Governmental Organisations (NGOs) and international agencies, UNICEF in particular, have run many initiatives which both refer to legal or quasi-legal principles and attempt to drive preference change. The importance of the human rights approach is well exemplified by the UN fact sheet on Harmful Traditional Practices Affecting the Health of Women and Children published in 1995 (OHCHR, 1995). It identifies five main harmful practices, namely, female genital cutting, early marriage and dowry, son preference, female infanticide, and early pregnancy and practices related to child delivery, which are clearly identified as human rights violations.

An essential feature of the "social engineering" approach is thus that it directly confronts the oppressive custom with a view to eradicating it, often in the name of human rights. An alternative, more indirect approach, consists of encouraging changes in the technological/economic environment in order to modify the costs and benefits of norm abeyance. The difference between this indirect approach and the "organic" approach advocated by many development economists of the 1950s (see above) arises from the possibility that endogenous growth processes do not necessarily lead to the cost/benefit changes that cause oppressive customs to disappear: specific policies are required to generate the economic incentives needed to alter those customs.

In this chapter, we want to explore the analytical conditions under which social engineering is more likely to succeed or fail when it comes to suppress gender-asymmetric customs. A dominant theory that has guided many efforts on the ground is a coordination game in which a bad Nash equilibrium has been selected because of pessimistic expectations of agents. There are other possible situations, however, and they need to be represented by other games. What we set out to do is to discuss the main possible interaction frameworks that can produce anti-women (Nash) equilibria, and to derive policy implications from the corresponding games. This will necessitate that we differenti-

ate between bargaining games and coordination games, games involving agents with homogenous preferences from those involving agents with heterogeneous preferences (here, great attention will be paid to different possible shapes of the distribution of preferences and their differentiated effects), and the rival claimants' game from coordination games.

Only then will we be able to determine which approach is more appropriate to fight against oppressive customs in varying contexts and what is the appropriate time frame within which it is realistic to expect results. In particular, we aim at understanding the various roles that the statutory law can play and at highlighting the conditions under which legal interventions can be expected to be effective and whether and when they need to be supplemented, or replaced, by other strategies.

To probe into this issue we start by looking at the possible impact of the law on oppressive customs in different situations depicted as games. We first look at situations in which the law has an expressive effect, starting with the most well-known model which assumes that all agents have identical anti-custom preferences (Section 5.2). We then remove the assumption of preference homogeneity to consider the more general case in which agents with different preferences interact in a purely decentralized manner (Section 5.3). In a third step, we review attempts to model the impact of the law assuming that it has a deterrence effect. Deterrence can be activated by the people themselves, by the state or by the informal authority (Section 5.4). After we will have thus understood under which conditions the law can be effective, we turn to the possibility of changing preferences, which will be done in a heterogeneous agents' framework (Section 5.5). In the next step (Section 5.6), attention is shifted to situations where oppressive customs are modified as a result of changes in the cost-benefit environment. Section 5.7 then discusses the role of culture and the way strong feelings of identity can make eradication of harmful practices more difficult. Section 5.8 concludes by deriving the main lessons from our attempt to clarify the issue of eradication of oppressive customs with the help of economic analysis.

Note that, to help the reader better perceive their relevance, the theoretical arguments exposed in the different sections will be illustrated by examples drawn from available empirical works. Besides providing a theoretical scaffolding to analyse the soundness of strategies aimed at combatting harmful customs, this chapter therefore proposes a reasoned survey of the relevant literature.

5.2 The expressive effect of the law: homogeneous agents

A first mechanism through which the law can affect a custom is the so called "expressive" effect of the law (Cooter, 2000; McAdams, 2000), which corresponds, in economics, to the idea of the law acting as a focal point in a coordination game (for a ciritical discussion of this approach, see Basu, 2015). Coordina-

tion games are used to model customs that are considered social norms. The starting point of the social norms literature, pioneered by Schelling (1960) and Akerlof (1980), is that individual choice depends on how many people in the reference group will adopt a given behaviour[2]. Traditional customs are often defined as social norms, which is a way to emphasize the difficulty of moving away from the equilibrium outcome when agents' expectations have converged on that outcome.

Let us start from the simplest case in which all agents have identical preferences and therefore agree on the ranking of the various possible equilibrium outcomes. If a socially inferior outcome prevails, such as is the case when an oppressive custom is established, it can only be because agents have (converging) pessimistic expectations. In other words, everybody dislikes the norm but nobody wants to deviate from the habit of following it owing to the expected behavior of the others. In this framework, the custom is a focal point and, to remove it, one only needs a mechanism able to make agents change their expectations in a coordinated manner so that they can establish their preferred outcome. One such mechanism is a statutory law that would act as a new focal point.

For the sake of illustration, consider a simple female genital cutting (FGC) game with a socially inefficient equilibrium. Consider a game with two players who represent parents belonging to two different households in the community. They have to decide whether to circumcise their daughter or not. The payoff matrix displayed in Table 5.1 is based on the common view that female genital cutting can be analyzed as a coordination game (see Mackie, 1996; Mackie and LeJeune, 2009). If the other parents choose to follow the practice of female genital cutting, then any parental couple is better off doing it as well lest their daughter should remain unmarried. But if no other parents follow the practice, there is no advantage for any couple of parents to cut their daughter since this would cause a lot of physical and psychological pain.

In such a game, there are two Nash equilibria (in pure strategies): parents from the two households cut their daughter, or both of them refuse to do so. Given their preferences, only the latter equilibrium is socially efficient, yet expectations may lead to the inefficient outcome. Once trapped in this nasty equilibrium, players do not want to deviate from their strategy: everybody agrees that the practice is harmful and should be abandoned but "no one dares to be the first to abandon it" [Abdalla (1982, pp.94-95) cited from Mackie (1996, p.1014)]. In this game, with the right kind of focal point - a legal ban of the practice, for example - people will coordinate their expectations on the socially efficient equilibrium.

[2]We do not precise the nature of the reference group, even when it is labelled the "community". A "community", indeed, needs not correspond to the whole village society, for example. In Munshi and Myaux's study of rural Bangladesh (2006), the authors find that the individual's contraception decision responds strongly to changes in contraceptive prevalence in her own religious group within the village whereas cross-religion effects are entirely absent.

Table 5.1: Game of female genital cutting with two Nash equilibria, one efficient and another inefficient

		Parents of household 2	
		Circumcise daughter	Reject the practice
Parents of household 2	Circumcise daughter	**0,0**	-3,-1
	Reject the practice	-1,-3	**5,5**

The above game is important precisely because it has been so influential in Non-Governmental and international organisations working to improve women's and children's well-being in a human rights framework[3]. In particular, the social norms approach and its emphasis on coordination incentives has been a dominant theoretical framework for programs promoting the abandonment of female genital cutting.

The example of anti-FGC interventions of UNICEF and UNFPA, inspired by the experience of Tostan, a Senegalese NGO working in Senegal and other countries in West Africa, is particularly appropriate in the context of our discussion. Consider the case of Senegal, the country where Tostan started its activities. There is a law in Senegal, enacted in 1999, that bans female genital cutting. Tostan worked in rural communities with a view to eradicating FGC. It did so by framing it as a human rights violation and, as part of a broader program to empower women, they used existing laws and conventions to protect women's and children's rights. Its strategy was clearly based on the social norm approach since its ultimate step was to achieve declarations whereby people from different village communities publicly announce the abandonment of the harmful practice. Public declarations were thus intended to serve as both coordination and commitment devices, expected to become the new focal point for these communities.

While theoretically appealing, the definition of female genital cutting as a social norm, therefore giving rise to a coordination problem, has not yet been empirically validated. Bellemare et al. (2015) in a cross-country analysis of the custom in West Africa find that, on average, 87% of the variation in FGC persistence (measured as the individual's support for the practice) is explained by individual level and household characteristics. They additionally find that the more widespread the practice is in a country, the more individuals factors explain its persistence. Both findings are at odds with the coordination game used to explain FGC, since, in this game, the persistence of the custom is explained by how many people practice it rather than by household and individual characteristics. These results also suggest that strategies other than public dec-

[3]Female genital cutting is considered as a violation of human rights, in particular: the right to be free from all forms of discrimination against women; the right to health, to body integrity and to freedom from violence. All these rights are protected by international treaties such as the CEDAW.

larations and pledging, such as targeting individuals, might be more effective in countries where FGC is pervasive.

In Sudan, Efferson et al. (2015) test the validity of the coordination model of FGC which has inspired development agencies and NGOs. If FGC is a social norm at the community level, then communities should have either a zero or 100% FGC incidence and an important discontinuity in FGC rate between the two types of communities should be observed. Using a sample of girls from 45 communities, they do not find neither extreme rates of FGC nor discontinuity in the distribution of FGC incidence across communities: this is suggestive of the absence of a common cutting norm at that level. It is still possible that coordination takes place at another level than the community, in particular if this does not completely overlap with the marriage pool (under the assumption that coordination takes place within the marriage network). However, first, they find high level of endogamy within communities. Second, in each community a substantial number of households state that they could marry with families not practicing FGC. Finally, they run an implicit association test[4] within each community to test if there is any discontinuity in normative attitude towards FGC . If, within the same community, two separated norms, cutting and not cutting, would coexist, then a bimodal distribution of the individual scores from the test should be observed: individuals should either show a positive attitude towards FGC or a negative one. On the contrary, they do no find any implicit association between being cut and positive or negative values: the distribution of test scores is unimodal and centered on zero. The authors conclude that their findings are not compatible with a model of coordination (with homogenous preferences) either within the communities or the marriage pool.

Finally, in a study conducted in the Senegalese region of Kolda, (Camilotti, 2015a,b) has explicitly studied the impact of Tostan's intervention, the potential role of the public declaration mechanism, and the possible effects of the legal ban on FGC. Her main findings can be summarised as follows. First, the impact of the intervention that can be ascribed to Tostan's program as such exists but appears to be quite limited: in particular, there is no complete termination of the cutting practice in the targeted villages. Second, there is evidence that the new anti-FGC environment, which includes the new law, generates perverse effects in the form of a decrease in the age at cutting, with potentially noxious consequences on the level of health. Third, there is no evidence that public declarations have worked as a coordination and commitment device. Fourth, there is nevertheless some evidence suggesting that coordination might take place at the level of the extended family network.

Overall, these results suggest that the conceptualization of FGC as a coordination game across communities might be misleading. A legal ban on the practice or any other device that should work as focal point might perform

[4]The implicit association test is a way to test the strenght of the connection people make between two concepts without explicitly asking their opinion. In this context, individuals were shown on a screen two drawings of girls, one cut and one uncut, and a set of either positive or negative words that they had to associate to one of the girls.

poorly if expectations on other people's behavior are not the leading determinant of the custom. This said, observations to the effect that there is no massive abandonment of the FGC practice but that a minority of people respond to a change in the (legal) environment do not, in and of themselves, form a sufficiently strong basis to dismiss the social norm/coordination analytical approach. As a matter of fact, such observations are compatible with this approach if either of the two following situations prevail. First, people have homogeneous anti-custom preferences, but coordination takes place at other levels than the village or the inter-village network. For example, there exist strong sub-village networks through which people coordinate their actions related to social activities. Second, people have heterogeneous preferences. Although the former explanation cannot be ruled out, the latter must be taken seriously in the light of existing evidence (see, in particular, the aforementioned study of Bellemare et al. (2015)).

We therefore devote the next section to the case of heterogeneous preferences.

5.3 The expressive effect of the law: heterogeneous agents

There is a straightforward way of conceptualising agents' heterogeneity. In conformity with the social norm approach (see Granovetter 1978; Schelling, 1960) we assume that the positive component of the agent's utility function varies positively with the proportion of the population that follows the custom[5]. The negative component, however, is idiosyncratic and reflects the agent's aversion towards the custom or the cost incurred by following it. The net utility obtained by an agent from following the (bad) custom can thus be written as:

$$U_i = u\left(P\right) - \theta_i V\left(E\right)$$

where P stands for the proportion of the population that abides by the custom, θ_i is the aversion coefficient of individual i, and E represents the (legal) environment bearing upon the custom while the function $V(E)$ describes its impact. We thus assume that each member of the population is characterised by a parameter $\theta_i \in [0, 1]$, which is distributed according to the continuous density $f\left(\theta\right)$ and cumulative distribution $F\left(\theta\right)$ functions. For a given environment E, agents therefore incur different costs depending upon their degree of aversion towards the custom (the greater this aversion, the higher θ_i). We assume that $V'(E)$ is positive, implying that an environment that has become more hostile to the custom, reflected in a higher value of E, causes higher costs for those who continue to follow it. The positive component of the utility function has the following properties: $u'\left(P\right) > 0$, $u"(P) \geq 0$, $u\left(0\right) = 0$, $u(1) = \overline{u}$.

[5]A different way to model social norms is by assuming that non conformity leads to a decrease in utility due to sanctions or loss of reputation. The utility loss is then proportional to the number of people following the norm (see Akerlof, 1980; Ambec, 2008).

At equilibrium, if we consider the case of the indifferent agent whose aversion coefficient is defined as $\theta_i = \theta^*$ such that her net utility from the custom is equal to zero, we observe that $P = \int_0^{\theta^*} f(\theta)d\theta = F(\theta^*)$. This means that the proportion of the population which has a lower or equal aversion for the custom than the indifferent agent is equivalent to the proportion of the population that abide by the custom (having a positive or null net utility from the custom).

The utility of the indifferent agent then is:

$$u(F(\theta^*)) = V(E)\theta^*, \text{ which implies } \frac{u(F(\theta^*))}{V(E)} = \theta^* \tag{5.1}$$

where $F(\theta^*) = P$, the proportion of people who abide by the custom. Equation 5.1 requires that an interior solution exists.

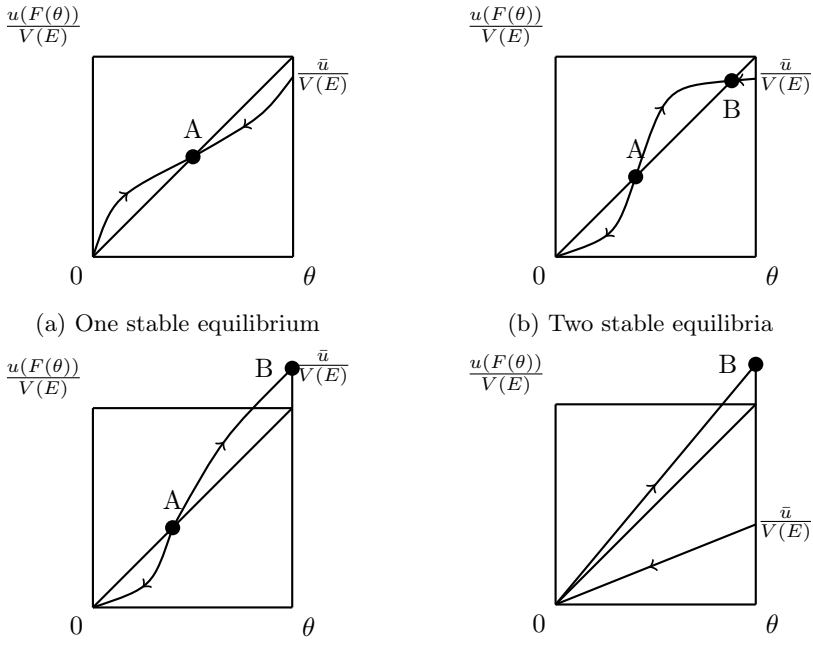
Since there are obviously multiple Nash equilibria in such a static coordination game (the Nash equilibrium where nobody follows the custom, θ^*, thus always exists), it is convenient to restrict the number of equilibria by introducing some dynamics. We thus assume that at each point of time there is a probability that a new agent is added to the pool of existing members. This new agent is drawn at random from the set $[0, 1]$ according to the density function $f(\theta)$. She enters the pool of members with a given $\theta^a$and will have to decide whether to follow the custom or not. She chooses to abide by it if $u(F(\theta^*)) > \theta^\alpha V(E)$, where $F(\theta^*)$ is the equilibrium point before the introduction of the new agent. This assumption helps us to solve the selection issue.

It is evident that the characteristics of the equilibria critically depend on the shape of the distribution function over θ_i, for a given level of $V(E)$ and function $u(\cdot)$.

Figure 5.1 shows some possible situations. The horizontal axis represents the type of agents, θ_i, and the curve shows the agent's utility from conforming to the custom divided by the individual cost, that is, $\frac{u(F(\theta))}{V(E)}$. Given equation (1), an equilibrium is when the 45 degrees line, corresponding to the identity function $\theta = \theta$, crosses the curve. It is a stable equilibrium if, increasing θ_i, the curve reaches the point from above the 45 degrees line.

We can now examine important possible equilibrium configurations. To begin with, Figure 5.1a depicts the case where the density function $f(\theta)$ is U-shaped (i.e. convex), representing a distribution of people which puts more weight at the extremes. In this bimodal distribution, there are thus two masses of individuals with very high or very low aversion to the custom. With such a polarised population, the interior equilibrium, when it exists (that is, when the two curves have an intersection point, such as they have at point A), is stable: any random perturbation around the equilibrium point will bring back the system to that point. Indeed, the curve $\frac{u(F(\theta))}{V(E)}$ lies above the identity function below the intersection point and below the identity function beyond that point.[6]

[6]At equilibrium, θ^* is such that any agent with $\theta_i > \theta^*$ refuses to follow the custom and any agent with $\theta_i < \theta^*$ follows it. Assume now that a new agent is randomly drawn from the population and comes up with a θ_i larger than θ^*. Since the curve $\frac{u(F(\theta))}{V(E)}$ lies below



(a) One stable equilibrium

(b) Two stable equilibria

(c) Stable equilibria at (0,0) and (1,1)

(d) Stable equilibria at (0,0) and (1,1)

Figure 5.1: Examples of coordination games with multiple equilibria

We can therefore conclude that, with a U-shaped density function, a fraction of the people follows the custom while the remainder does not whenever the curve crosses the identity line. This (stable) interior equilibrium is unique.

Figure 5.1b describes a quite different situation in which most of the people tend to be concentrated around the middle of the distribution of θ values: the density function $f(\theta)$ is unimodal and its peak lies around the middle of the $[0, 1]$ range. This means that the majority of people have a moderate (medium) aversion to the custom. In our Figure, the first intersection point (denoted by A) is unstable while the second one (denoted by B) is stable. In such an instance, there are two possible stable equilibria: either nobody follows the custom or a rather large proportion of the population does it. It is easy to check from Figure 5.1c that, if the curve $\frac{u(F(\theta))}{V(E)}$ were crossing the 45° degree line only once (at point A) inside the $[0, 1]$ set, the second intersection point would lie on the vertical axis corresponding to $\theta = 1$. This second intersection

the identity function (the 45° degree line) to the right of A, this agent will refuse to follow the custom, exactly like an agent from the existing population and with $\theta_i > \theta^*$ would have done. On the other hand, if the new agent comes up with a θ_i smaller than θ^*, since the curve $\frac{u(F(\theta))}{V(E)}$ lies above the identity function to the left of A, this agent will decide to follow the custom, exactly like an agent from the existing population and with $\theta_i < \theta^*$ would have done. Equilibrium θ^* is therefore stable.

point, where $\frac{\overline{u}}{V(E)}$ exceeds θ, corresponds to a corner solution with $\theta^* = 1$, as a possible stable equilibrium. Here is therefore a case where either nobody or everybody follows the custom.

Let us now turn to extreme situations in which the overwhelming majority of the people have very low or very large values of θ_i. It is then easy to see that a unique stable equilibrium will prevail. If almost all the people are clustered around a value of θ_i close to zero, and $\bar{u}/V$ is high enough, the $\frac{u(F(\theta))}{V(E)}$ curve will have a strongly concave shape which entirely lies above the 45° line and crosses the vertical axis above the point $\frac{u(F(\theta))}{V(E)} = 1$. The only (stable) equilibrium is then $\theta^* = 1$: everybody sticks to the custom. Conversely, if almost all the people are clustered around a value of θ_i close to one, and $\bar{u}/V$ is small enough, the $\frac{u(F(\theta))}{V(E)}$ curve will have a strongly convex shape which entirely lies below the 45° line and crosses the vertical axis below the point $\frac{u(F(\theta))}{V(E)} = 1$: nobody follows the custom.

A last case to consider is that of a uniform density function that translates into a linear cumulative distribution function. As Figure 5.1d shows, two main possibilities arise: either the $\frac{u(F(\theta))}{V(E)}$ curve lies entirely below, or entirely above the 45° line. In the former case, which corresponds to a situation where $\bar{u}/V < 1$, the unique stable equilibrium is $\theta^* = 0$: nobody abides by the custom, which is according to intuition since the utility obtained when everybody follows the custom, $\bar{u}$, is smaller than the cost $V(\mathrm{E})$. In the latter case, which corresponds to a situation where $\bar{u}/V > 1$, the unique stable equilibrium is $\theta^* = 1$: everybody abides by the custom.

We have earlier discussed the role of the law in a coordination game when multiple stable equilibria exist, highlighting the way it can help to change the focal point and move from one equilibrium to another. Allowing for preference heterogeneity, we now understand that the final equilibrium the law can lead to fundamentally depends on the underlying distribution of preferences (or aversion) to the custom. Thus, when many people have a moderate aversion toward the custom so as to be clustered around the average value of θ (see Figures 5.1b and 5.1c), the law can possibly act as a new focal point entailing the disappearance of the harmful custom (the shift from large or total adoption to zero adoption). But if the distribution of preferences is such that no equilibrium exists at (0,0), -when the density function is U-shaped, for example-, the total disappearance of the harmful custom cannot be achieved by changing people's expectations. This point has been well emphasised by Cooter (2000), in particular.

That the distribution of preferences plays a critical role has now become clear: it determines the type of effect that we should expect from any coordination device aiming at changing people's expectations. In particular, coordination might not be enough to eradicate harmful social norms, as it has been empirically shown in the aforementioned study of Efferson et al. (2015). As a consequence, interventions designed for modifying the payoffs or the preferences of individuals are most likely needed. From the model depicted above, it is ac-

tually evident that the law can activate another mechanism than the expressive one: a stricter law can thus increase the cost of following the custom, $V(E)$, which amounts to changing the payoff matrix. Equilibrium outcomes can be consequently modified. The increase in the cost is reflected in the fact that being caught breaking the law now leads to punishment by the formal authority. This is what in the legal literature is called "the deterrence effect of the law". We explore this dimension in the following section.

Before embarking upon that task, however, a remark deserves to be made. We have assumed above that agents take their decision to follow the harmful custom or not in a simultaneous manner. It is well known that in coordination games sequential playing instead of simultaneous playing yields the efficient equilibrium. For example, in the simple 2x2 FGC game depicted in Table 1, if one of the parental couples could make the decision in a first move while the other couple decides therefater, the first-mover would always choose to abstain from cutting the daughter. This is because, having done so, the first-mover knows that it will be in the interest of the second-mover to follow suit. This outcome obeys the logic of a coordination game and obviously causes the socially inefficient $(0, 0)$ equilibrium to vanish. Things are more complicated when preferences are heterogeneous. Indeed, the outcome then depends upon the preference of the first-mover. If the first-mover rather likes the custom, she will follow it and the second-mover may choose to make the same decision although she is more averse to the custom. But the converse outcome could also happen: if the first-mover rather dislikes the custom, she will shun it and the second-mover may choose to also renounce the custom although she is less averse to it. This nicer result is obtained by Mackie (1996; 2000) in the context of an n-person game. Considering again the case of female genital cutting, he shows that the disappearence of the custom can start from a group of individuals with high aversion for the custom: the group of custom-breakers grows in size until a critical mass is reached and the utility from non-cutting becomes higher for everybody. Note that the underlying assumption behind this cascade model is a distribution of preferences similar to the one assumed in Figures 5.1b and 5.1c. An important question is therefore whether the position of first-mover(s) is randomly decided, or whether those individuals with highest aversion to the harmful custom are ready and able to take up the leadership position. It is obvious that the second possibility is more conducive to the demise of the harmful custom than the first one.

Given that our main objective is to explore the role of preference distribution within a general social norm framework, we have focused on static games, where the different assumptions on the preference distribution can be easily investigated. However, it is worth remembering that dynamic games can be useful to model FGC as a pre-marital investment: parents cut their daughter to increase their future value on the marriage market. While this assumption requires more empirical investigation[7], recent work in economics (Chesnokova

[7]For instance, Shell-Duncan et al. (2011), do not find support for the idea that a circumcised woman is more likely to get a "better husband".

and Vaithianathan, 2010; Molitor, 2014) has taken this dimension into account by explicitly modeling the marriage market and how it affects FGC incidence (when the decision to cut is taken before entering the marriage market). If such a modelling choice is perhaps well adapted to the FGC problem, it is nevertheless too specific to warrant applicability to a wider set of harmful customs.

5.4 The deterrence effect of the law

We are now ready to examine the impact of the law when its function includes punishing deviant behaviour when detected: the expected cost of punishment is the ultimate threat that leads people to re-negotiate the custom. This is a standard element of the law and economics approach, where prominence is given to the legal tool and to a positive probability of being caught. The law therefore changes the payoffs of the game, increasing the cost of following the custom and modifying the agents' cost-benefit analysis. Such an approach is therefore based on a conception of the law as a change-driver, and it stands in striking contrast to the perspective adopted by Benabou and Tirole (2011) who stress the aforediscussed expressive effect of the law. According to them, indeed, the law "is not merely a price system for bad and good behaviour, it also plays an important role in expressing and shaping the values of societies". Laws (and policies) thus reflect the knowledge that legislators (and decision-makers) have about societal preferences, and "these same community standards are also what shapes social norms (conferring esteem or stigma) and moral sentiments (pride and shame)" (pp. 1-2).

In the model used in Section 5.3, the government creates an environment, labeled E, which is more or less hostile to the harmful custom. A larger value of E means that the environment is more hostile, thereby inflicting greater cost on custom-followers. A direct effect of a larger E is to cause a fall in $\frac{\bar{u}}{V(E)}$, and therefore a downward shift of the $\frac{u(F(\theta))}{V(E)}$ curve. In Figure 5.1a, the effect of that downward shift is to lower the equilibrium value of θ, and therefore also that of $F(\theta)$. The proportion of custom-followers is thus decreasing. To complete the argument, we can specify the objective function of the government. A simple way to do this is to assume that the positive component of its utility increases as the proportion of custom-followers decreases while the negative component is a cost function linear in the number of E units. That is, we write:

$$\max_{E,\theta^*} U^p = v\left(1 - F(\theta^*)\right) - cE \tag{5.2}$$

$$s.t.\ u\left(F(\theta^*)\right) = \theta^* V(E)$$

where $v'(.) > 0$, $v"(.) \leq 0$, and c measures the (constant) unit cost. The government, acting as a principal, maximises U^p with respect to E and θ^* subject to the citizens' participation constraint. We assume that an interior solution

exists for θ^*. Replacing E in the principal's objective function by its value in the participation constraint, the maximisation problem can be simplified thus:

$$\max_{\theta^*} v\left(1 - F(\theta^*)\right) - cV^{-1}(\theta^*)\left[\frac{u\left(F(\theta^*)\right)}{\theta^*}\right]$$

where V^{-1} is the inverse function of $V(E)$.

The first-order condition, with respect to θ, comes out as:

$$v'(.)f(\theta^*) = -c\left(V^{-1}(\theta^*)\right)' \frac{\theta^* u'(.)f(\theta^*) - u(.)}{\theta^{*2}}$$

Since the LHS of this equilibrium condition is positive, the RHS must also be positive, and this obviously implies that $u(.) > \theta^* u' f(\theta^*)$. It is worth noticing that this is precisely the condition under which the comparative-static effect $d\theta^*/dE$ is unambiguously negative[8].

If corner solutions are allowed and, as we know, their existence will depend on the shape of $f(\theta)$, other outcomes become possible. In particular, it may happen that the government's increased effort to make custom-following more costly leads to a complete abandonment of the noxious customary practice, as dreamed up by the proponents of the social engineering approach. This will happen if, in Figure 5.1a for example, the downward shift of the curve $\frac{u(F(\theta))}{V(E)}$ is such that it now lies entirely below the identity function: in this instance, from a positive value in the $[0, 1]$ range, θ^* falls to zero. Another possibility, however, is that the government's intervention produces no impact at all. Consider the case in which the function $\frac{u(F(\theta))}{V(E)}$ is convex and lies entirely above the identity function, reflecting a situation in which the reward for custom abidance is quite large. The equilibrium is the corner solution $\theta^* = 1$. It is quite possible in this instance that a larger E, translated into a smaller $\bar{u}/V(E)$, will not succeed in lowering the value of θ^* below unity.

An interesting question is whether the government will optimally choose θ^* in the range $[0, 1]$, or $\theta^* = 1$, given a U-shape density function $f(\theta)$ where an interior solution and a corner solution at $\theta^* = 1$ exist. The answer to that question hinges upon a comparison between the sensitivity of the people to the hostile pressure against the custom measured by E, that is, on the shape of $V(E)$, on the one hand, and the weight attached by the government to the objective of fighting that custom, that is, the form of $v\left(1 - F(\theta)\right)$, on the other hand. When the former is large in relation to the latter, the government will choose the undesirable corner solution while in the opposite case, it will choose the interior solution where fewer people (less than the complete population)

[8]From the participation constraint: $u(F(\theta^*)) - \theta^* V(E) = 0$, we get that $\frac{d\theta^*}{dE} = \frac{\theta^* V'(E)}{u'(.)f(\theta^*) - V(E)}$. In order that $d\theta^*/dE$ is negative, we need $u'(.)f(\theta^*) < V(E)$. Since $V(E) = u(.)/\theta^*$ according to the participation constraint, the condition can also be written as $u'(.)f(\theta^*) < u(.)/\theta^*$, or, equivalently, $u(.) > u'(.)f(\theta^*)\theta^*$ This is identical to the condition derived from the first-order condition of the principal's maximisation problem.

abide by the custom.[9]

The deterrence effect can also be studied in a framework that creates interesting interactions between formal and informal enforcement. One of the most recent examples is Acemoglu and Jackson (2015), where they focus on the role of whistle-blowing by law-abiders as an instrument of law enforcement. In their model, the norm is a continuous rather than dichotomous variable, and agents have heterogeneous preferred behavior over the norm. The law sets a maximum value of the tolerated behaviour of the individuals. The latter are assumed to be randomly matched. In line with the social norm literature, a behaviour is a social norm in the sense that an agent is better off if she matches her behavior with the expected average behavior in the society. In the model, a law-breaker can be detected in two different ways: by the state with a positive probability, or by being whistle-blowed by the agent she has been randomly matched with, if the latter is law-abiding. Whistle-blowing happens because the closer the other agent's behavior is to her own, the higher the law-abider's utility. This is done by denouncing the law-breaker who, once discovered, is forced to adjust his behaviour to the level allowed by the law. In this setting, and under some conditions, laws which are too radical with respect to the existing social norm can backfire, because there will be little whistle-blowing and then little enforcement.

An alternative to the social norm (and coordination) framework consists of assuming antagonistic preferences between alleged oppressors and victims of the custom: the game is a rival claimants's game. A first example of this setting is a bargaining model in which two agents have diverging interests and the resulting conflicts can be settled by appealing to the court. In this framework, the cost of legal proceedings for the parties involved in the litigation represents the threat point, so that a law more favourable to one of the parties will increase her bargaining power and lead to a Nash bargaining position closer to her preferred choice.

Assume that X stands for the value of a custom favourable to agent 1 and harmful for agent 2. We call α the degree to which the customary rule is applied (with $\alpha \in [0, 1]$). Since agent 1, who earns αX, derives maximum benefit from the full implementation of the custom, her preferred choice is $\alpha = 1$. Agent 2 is in the opposite situation and her preferred choice is $\alpha = 0$, implying that the custom is not applied at all. If the conflict of interests is not settled informally, it is referred to the court which always chooses the degree of implementation f. Since the court is, by assumption, more favourable to the interests of agent 2, the party victimised by the custom, we have that $f < \alpha$. Think, for example, of X as the amount of parental wealth and the custom as the rule governing its distribution between a son and a daughter. Or X is the amount of wealth of a deceased husband and the custom is the rule governing its distribution between the widow and the in-laws (as assumed in Platteau and Wahhaj, 2014). Functions V_1 and V_2 measure the utility obtained by each party from the share

[9]The proof of that result is not easy but can be obtained by analogy with the proof found in Auriol and Platteau (2015) to which we explicitly refer below.

of wealth received while $(1-\alpha)$ and $(1-f)$ denote the shares accruing to the daughter in the first example and to the widow in the second example, respectively according to the custom and to the formal law. Finally, we assume that C_1 and C_2 represent costs, respectively for agents 1 and 2, of accessing the formal court, including legal fees, and the delay in obtaining a decision. A change in the formal law which gives the weaker party (the daughter or the widow) a greater share of the wealth would improve her utility from the threat point and lower that of the stronger party. In a large number of cases, this would also improve her welfare from bargaining at the other party' expense. Too see this, write the Nash bargaining solution to the problem as:

$$\alpha^* = \text{argmax}_{0\leq\alpha\leq 1} \left[V_1(\alpha X) - (V_1(fX) - C_1)\right] \left[V_2((1-\alpha)\, X) - (V_2((1-f)\, X - C_2)\right] \quad (5.3)$$

Assuming $X = 1$, , $V_i'(.) > 0$ and $V"_i(.) \leq 0$, with $i = 1, 2$, the first-order condition is given by:

$$V_1'(\alpha*)\left[V_2(1-\alpha*) - V_2(1-f) + C_2\right] - V_2'(1-\alpha*)\left[V_1(\alpha*) - V_1(f) + C_1\right] = 0 \quad (5.4)$$

The derivative of (5.4) with respect to f gives the following expression:

$$\frac{\partial \alpha*}{\partial f} = -\frac{V_1'(\alpha*)\left[V_2'(1-f)\right] - V_2'(1-\alpha*)\left[-V_1'(f)\right]}{G(\alpha*,\ f,\ C_1, C_2)}$$

Since the numerator of the above expression is positive and $G(.)$, the derivative of the FOC with respect to α^*, is negative in the solution to the bargaining problem, we have that $\delta\alpha^*/\delta f > 0$. Bearing in mind that a legal reform in favour of agent 2 is reflected by a fall of f, this is seen to cause a decrease in the share of agent 1, measured by α.

Some recent empirical works on the role of law in combatting harmful customs present evidence coherent with a bargaining framework. Deininger et al. (2013) study the impact of the the introduction of the Hindu Succession Act in India, which gives equal inheritance rights to women. They find that the likelihood of inheriting for a Hindu woman has increased, pointing at an effect of the law (however, gender disparities persist). The outcome can be explained by a bargaining model where the law improves women's bargaining position with respect to husbands and brothers concerning land inheritance. In Ethiopia, Hallward-Driemeier and Gajigo (2015) exploit geographical variations in the implementation of a new family law that granted more power to women: some important dimensions of the law are that women do not need anymore the spouse's permission to work outside the house; husband's administration of marital property is changed into joint administration; divorce now requires the consensus of both partners and not only of the husband; the age at marriage increases to 18 for women. The law also affects traditional family arbitrators (mainly men), who were the customary authority in charge of adjudicating cases of divorce, leaving them with reconciliatory power while divorce may only be

granted by formal courts. The authors find that the law affects both age at marriage and (young) women's occupational choice: the shares of women employed in paid activities outside their home have significantly increased in the post-reform period in the regions where the law was implemented. Age at marriage for non-married women has also increased. The result is again compatible with a growing bargaining power of women within the household due to a law-driven shift in the threat point.

Theoretically, whichever factor affects women's threat point can increase their bargaining power in the negotiation over a custom. Such a factor does not need to be linked to the custom itself. Take the case of domestic violence. With respect to the US, Stevenson and Wolfers (2006) show that switching from consensual to unilateral divorce law decreases violence within the marriage. This is not only because violent marriage can more easily dissolve, but because making the exit option less costly for women increases their credibility in threatening the end of the marriage. In other words, bargaining power acquired through the changing law can improve women's conditions in other dimensions that are not targeted by the law. In a study on Ethiopia, Kumar and Quisumbing (2015) suggest that the interaction of the new family law discussed above and the process of community land registration have contributed to improve women's conditions and increase gender equality. In different ways, both reforms strengthen women's property rights, increasing their overall bargaining power within the household.

All these examples refer to legal interventions that directly or indirectly affect women's bargaining power vis-à-vis customs. There is however an extensive literature studying how economic factors can affect women's bargaining power and therefore contribute to the disappearence of unfair customs. As an example, we will discuss the relation between domestic violence and income in Section 5.6.

In the remainder of the present section, we want to mention two new theoretical approaches to the problem of using the law with the purpose of combatting noxious social norms or harmful customs. The first one uses the social norm framework made explicit in Section 5.3 while the second one is based on a bargaining argument. But both approaches share the similar feature that they give an explicit role to informal, customary authorities. The first approach results from a free adaptation and reinterpretation of the recent work of Auriol and Platteau (2015) to the issue at hand. Formally, it is best understood as the combination of a government's objective function that is a refinement of 5.2, and an agent's behaviour akin to the partial model presented in Section 5.3. The government's utility is a positive function of the degree of progressive reforms (or of the extent of measures taken against backward customs) and a negative function of the wages paid to traditional leaders to obtain their compliance. The ruler therefore resorts to a co-optation or seduction tactic so as to suppress criticisms against anti-custom reforms. His chance of staying in power depends upon the support of traditional leaders who are heterogeneous in their aversion to progressive reforms (or, conversely, in their attachment to customs), mea-

sured by θ_i. Traditional leaders trade off their support for the ruler's reforms (or, at least, their silence in the presence of these reforms) against material privileges. The more attached they are to customs, the larger the material compensations they require from the ruler. Assuming an interior solution in θ, the problem of the government can then be written as follows:

$$\max_{E,w,\theta} F(\theta)\left[G(E) - w\right]$$

$$s.t.\ F(\theta)w - \theta V(E) = 0,$$

where $G'(E) > 0, G"(E) \leq 0$, w is the wage paid to each traditional leader, and the other symbols have the same meaning as before.

In such a setting, the ruler may choose to pay sufficiently high wages to enlist the support of the entire group of traditional leaders, including those intrinsically most averse to reforms (in this case, he opts for a corner solution). If that tactic is too costly, the ruler will stop short of seeking the full support of traditional leadership (he chooses an interior solution). Whether smaller compensations to traditional leaders are associated with more or fewer progressive reforms cannot be predicted without an additional assumption regarding the shape of the function representing the cost of reforms for these leaders. An important result concerns the way the shape of the distribution of θ_i affects the intensity of reforms chosen by the government. In particular, it comes out that more progressive reforms are undertaken when traditional leadership is quite homogeneous in terms of attitudes towards customs (the distribution of θ_i is unimodal or single-peaked) than when it is split along the θ-axis. In the next section, we will present a remarkable illustration of this theoretical result.

In the second approach developed by Aldashev et al. (2012a; 2012b), the custom is no more given but is chosen by a traditional authority. This authority is intrinsically conservative, implying that it is in favour of the custom that protects the interests of traditional elite groups, say men. However, it may consider the possibility of reducing the retrograde character of the custom because it is also sensitive to its social influence and local power, which itself depends on its jurisdictional domain. In turn, the size of its jurisdiction is determined by the number of local residents who seek and abide by its judgement when a conflict arises. This is where the statutory law performs its role. By assumption, it is more progressive than the custom and, therefore, people disadvantaged by the custom may be induced to appeal to the modern court which applies the law. Yet, they will actually do it only if the better judgement obtained in the court exceeds the cost of circumventing the customary authority (or ignoring its judgement), which includes not only the cost of going to the court but also that of calling the traditional authority into question.

A central result of this second approach is what the authors have called the "magnet effect of the law": a more progressive law may induce the traditional authority to change the custom in the same direction. Although the custom will not move as far as the law, the important point is that the custom is

transformed to the benefit of the disadvantaged sections of the population. In this way, indeed, even the victims who choose to stay within the traditional jurisdiction will benefit from the legal reform, albeit indirectly. The underlying mechanism is the following: by improving the exit opportunity available to these sections, the law enhances their bargaining strength. Their members can now threaten to appeal to the modern court and the customary authority, which acts strategically, changes the custom to prevent the threat from being carried out.

Another challenging result is that too radical a law may defeat its purpose in the sense that the interests of the intended beneficiaries (say, the women) may be eventually harmed rather than promoted by the legal intervention. The mechanism, here, is different from the one at work in the aforementioned study of Acemoglu and Jackson (2015). If the law is too radical, many members of the victimised group may decide to leave the community, thereby causing a loss in the welfare of the poorer ones who are staying behind. Another plausible mechanism becomes evident once the model is refined by allowing modern judges to behave in a way similar to that of the customary authority. More precisely, the modern judges now have their own, intrinsic and idiosyncratic preferences about the law and, in deciding about the actual settlement of a case, they balance the cost of departing from their preferred outcome if they were to implement the law strictly against the benefit of doing what they are supposed to do, that is, to apply the law (they obtain a positive utility from law abidance). There exists a threshold value of the statutory law above which a judge will stop passing judgements prescribed by it and will start to follow her own preferred judgement. Because of the heterogeneity of the judges, there are as many such thresholds as there are values of the preferred judgement among the modern judges. Given these assumptions, it is possible that a radical law will deter a significant proportion of the judges from applying it strictly so that these judges will now choose to provide judgements according to their own, more conservative preferences. The authors show rigorously that the overall effect may be to decrease the expected judicial outcome for the disadvantaged people whom the law seeks to protect (Aldashev et al., 2012b).

Note that the same argument can be actually applied to modern law enforcers. Legal enforcers have a preference for enforcing the legal verdict, which is their formal duty, but suffer a loss of utility increasing in the distance between this verdict and their preferred outcome. If the distance becomes too large, they stop enforcing the law (Platteau and Wahhaj, 2014, p.659). Such a line of reasoning has been persuasively followed by Kahan (2000) on the basis of US evidence. According to him, the resistance of law enforcers sometimes confounds the efforts of law makers to change social norms. For example, as legislators (in the United States) expand liability for date rape, domestic violence, sexual harassment, drugs, and drunk driving, not only do prosecutors become less likely to charge, jurors to convict, and judges to sentence severely (our second line of argument), but also the police become less likely to arrest the culprits and enforce the legal verdicts. The conspicuous resistance of

these decision-makers in turn reinforces the norms that law makers intended to change. Kahan concludes that the pathology of 'sticky norms' can be surmounted if law makers apply 'gentle nudges' rather than 'hard shoves'. When the law embodies a relatively mild degree of condemnation, the desire of most decision-makers to discharge their civic duties will override their reluctance to enforce a law that attacks a widespread social norm.

In their works, the authors of the "magnet effect" theory have provided a number of illustrations in support of their approach. Interestingly, most of these examples deal with issues of gender, with a particular focus on inheritance practices in poor countries of Asia and SubSaharan Africa. It is worth noting that, in the above-mentioned empirical studies pointing at an effect of legal reforms on customary practices, the presence of a "magnet effect" cannot be ruled out and may actually be part of the bargaining argument invoked by their authors.

5.5 Changing preferences

A limitation of all the models reviewed above is that they rely on the transparency and the credibility of the legal intervention: to change expectations, agents must not only be reasonably well informed about the content of the law, but they must also believe that other agents will also expect the law to be effective. The latter requirement means that payoffs will not be changed unless the threat of punishment for law-breaking is credible. It is nonetheless a known fact that laws that criminalize customary practices and protect human rights often remain dead letters. This is especially true for developing countries where the legal system is weak, and it is also true whenever laws are introduced under severe international pressure but without a true committment by the government to implement them. Thus, when in Senegal the law to ban FGC was voted, the MP who introduced the bill in the parliament hinted that the government will not really apply the law (Hecht (1999) quoted in Shell-Duncan et al., 2013, p.817). Enforcing the law could be quite effective if the organisation in charge is able to punish violations in another, interlinked game where ample benefits accrue to people. This mechanism could have been used by the Grameen Bank, for example, since the granting of its loans could be conditioned on the willingness of parents to forsake the payment of dowries and the early marriage (before the age of 17) of their daughters, as mentioned by La Ferrara (2011, p.120). In reality, however, and much like what happened in the aforementioned case of the Senegalese law banning FGC, this provison amounted to no more than a simple recommendation to the Bank's clients (Yunus, 1999, pp.135-137).

It is interesting to remark that the analytics of the previous sections is not entirely helpless regarding the government's credibility issue. As a matter of fact, a low commitment of the government can be represented in the model expounded at the beginning of Section 5.4 since the weight attached by the government to fighting the custom is then small with the expected consequence

that the whole population continues to follow the custom[10].

An additional limitation of legal interventions is that they do not necessarily change the perceptions that right-holders have of themselves. A law can protect a woman against domestic violence, but if the victim does not perceive herself as such and as a right-holder, it is quite likely that she will not be able to escape violence.

The process through which victims of unfair customs can change the perception they have of themselves is therefore a crucial element in achieving change through a social engineering approach. They must first realise that they are the victims of a discriminatory treatment and, in a second step, that they have the right to be in a better situation (Merry, 2009; Nussbaum, 2000, p.140). The problem is that individuals tend to internalise and appropriate the system of values they live in whereas no change can take place if the status quo is not called into question. Coming back to the example of domestic violence, available data in 2012 show that 29% of women in countries with data on this topic considered that wife beating is justified when the wife is arguing against the husband, 25% when she refuses sex, and 21% when she burns food. In Ethiopia, 81% of women justified wife beating for at least one of these reasons (World Bank, 2012, p.84). Under these conditions, it is difficult for any legal intervention to be effective, since those whom the law seeks to protect do not consider themselves as victims.

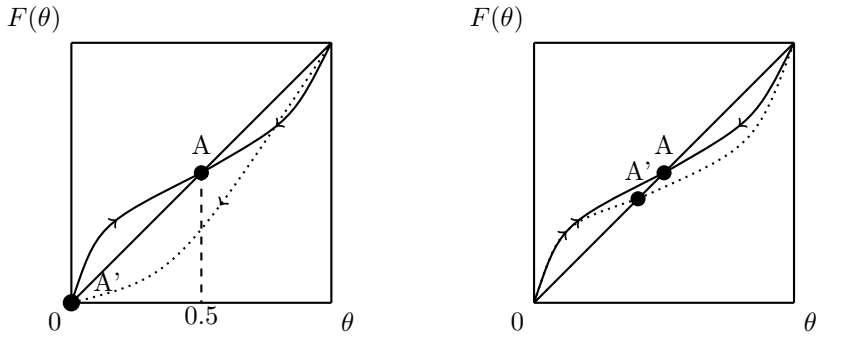
For social change to happen, a process of awareness-building must clearly take place so that women, or other victimised groups, develop their capacity to aspire and exert voice (Appadurai, 2004). We focus here on the social norm setting described in Section 5.3 and explore the role of preference changes.

In order to facilitate the discussion of the effect of the shape of distribution $f(\theta)$, we start by considering an initial situation in which $f(\theta)$ is U-shaped. With respect to the utility function $U_i = u\left(F(\theta)\right) - \theta_i V\left(E\right)$, we assume that the positive component of people's utility is a linear and strictly proportional function $u\left(F(\theta)\right) = aF(\theta)$, and that E is set in such a way that $V(E) = a$ (with a constant). Since we want E to be fixed, it is immaterial how we set its value. We then have that the $\frac{u(F(\theta))}{V(E)}$ function is transformed into the cumulative distribution function $F(\theta)$. In Figure 5.2a, the intersection point between the transformed function and the identity function may therefore be interpreted as an equilibrium (In this instance, as it should be, the function is equal to zero when $\theta = 0$ and to one when $\theta = 1$). We know that this equilibrium is stable. To suppress the custom entirely, what is required is a shift from that interior equilibrium to the corner equilibrium $(0, 0)$. Since the latter is not a stable equilibrium accessible with the initial distribution $f(\theta)$, the shape of that distribution has to be altered. If the transformation results in a cumulative distribution function that has the shape depicted by the dotted curve in Figure 5.2a, the shift will occur and the harmful custom will disappear. Concretely

[10] Assume that the positive component of government's utility, $v\left(1 - F(\theta^*)\right)$, has the following specific form: $v = W\left(1 - F(\theta^*)\right)^{\beta}$, where W is a constant and $0 < \beta < 1$. A government with a low (high) credibility is then represented by a low (high) value of W.

and in full accordance with intuition, this means that a bunch of people who initially had a relatively low aversion to the custom must become more averse so that they move rightwards on the CDF. The move must be important enough to ensure that the $F(\theta)$ curve does not anymore lie above the 45° degree line even in the range close to $\theta = 0$.

Returning to the example of domestic violence (and assuming that the practice crucially depends on the number of people following it), the implication is that individuals who tend to consider the practice as legitimate should be targeted in any awareness-raising campaign. The problem is that they may also be the most difficult to persuade of the desirability of a behavioural change. Much easier, as many NGOs have experienced, is to work among women with a moderate aversion to the harmful custom. As is evident from Figure 5.2b, changing the attitudes of people located to the immediate left neighbourhood of A will cause a shift of equilibrium from A to A'. This is of course a much more modest move than the one envisaged in Figure 5.2a, but it may turn out to be the only one feasible at least in the short or medium term.



(a) Targeting agents with low θ (b) Targeting agents with medium-high θ

Figure 5.2: Examples of changing preferences

Note that a different initial distribution of preferences would lead to different predictions in terms of identification of the people whose preferences should be moved. Consider the case of a logistic or a normal distribution with two possible equilibria, one where everybody follows the custom and the other where nobody does (see Figure 5.1c). To transform such a game in a way that only the $(0, 0)$ equilibrium is accessible, people to the center-right of the distribution, that is people with medium-high aversion to the custom, should be targeted for preference change. In this case, moving people with low aversion to the custom would not radically affect the equilibrium outcome.

There is another way to read the above figures if some individuals are more important than others. Instead of defining P, at equilibrium, as the proportion of people that abide by the custom, we alternatively define it as a weighted sum of the individuals who adopt it (and the same weights apply to $F(\theta)$). Look

at the case where some of the individuals whose preferences matter more are strongly in favour of the custom. In Figure 5.2a, the equilibrium proportion of custom-followers is no more 50 percent as it was when every individual had the same weight. It is now much smaller than 50 percent. As a consequence, to move from the continuous to the dashed line in Figure 5.2a, a smaller mass of individuals needs be targeted than when the preferences of all agents are equally weighed.

Empirically, the role of "opinion leaders" in facilitating change has been studied in different domains such as technological adoption and health education. The challenge is to be able to identify those opinion leaders and target them, which can be seen as trying to define the network structure that matters for a specific innovation. An insightful illustration is provided by Blaydes and Platas Izama (2015) who have studied recent changes in FGC prevalence in Egypt. One of their most striking observations is the contrast between the perceptible decrease of the practice among the Copts and the rather unchanged situation among the Muslims. The authors tentatively explain this situation by the different religious authority structures prevailing in the two communities: whereas an hierarchical order prevails among the Copts, the Muslims are used to a much more decentralised system. More precisely, there exists a centralised Coptic Church that exerts a significant influence on the believers and its leaders have chosen to take a clear stand against FGC. Muslims go to mosques that are run by different imams who have themselves varying opinions about FGC. This example is an apt illustration of the aforementioned prediction of the theory of Auriol and Platteau (2015) according to which more progressive reforms can be undertaken with a homogeneous traditional leadership (possibly regrouped into a centralised structure) than with a heterogeneous one (represented by decentralised clerics).

Another relevant study that also deals with FGC is that of Diabate and Mesple-Somps (2014). An interesting result that they have obtained is the following: Malian migrants to non-FGC countries play an important role in influencing decisions about FGC when they come back to their village (the authors attempt to control for selection into migration and return-migration). Having observed behaviour in a non-FGC country, they come home with changed opinions on the custom and they eventually become important vectors of change.

In Sourif, a small Palestinian market town not far from Hebron in Cisjordania, a young woman called Ayah Baradeya was murdered by her uncle on the grounds that she entertained 'improper relations' with a university comrade who wanted to marry her. The discovery of her dead body one year later (May 2011) aroused a wave of angry reactions among the local community. The important point is that one brother of Ayah, an educated young man, played a key role in the protest movement and succeeded in persuading his family to forsake its customary right to impose a collective punishment on the whole murderer's family (expulsion from the area) in revenge for the crime. He and his close friends and collaborators also used the opportunity to convince their village community and neighbouring communities as well to change an erstwhile prac-

tice that harmed the people. Following massive street demonstrations (first in Sourif, then in Hebron and Ramallah) and protests via internet, the Palestinian Authority eventually decided to rescind a law which punished honour crimes very leniently. It is interesting to observe that earlier initiatives to change the criminal code ended in failure owing to the strong objections of powerful conservative members of the Palestinian Parliament who themselves belong to big patriarchal families.[11]

5.6 The role of economic environment

In the previous sections, we presented two different social engineering approaches to harmful customs and their underlying theoretical foundations: legal interventions and sensitization aimed at changing the victims' preferences.

One of the risks of the actual focus on the social engineering approach, and of the human rights discourse in particular, is to associate harmful customs to a given "culture" or "identity", often wrongly seen as fixed over time (Merry, 2003a). Harmful customs are the results of particular socio-economic contexts. Even if they tend to be sticky and survive to mutated economic conditions, they can over time be modified and abandoned following changes in the macro-economic environment: technological, economic or demographic changes can affect the individual-decision making process concerning harmful customs [12].

The effects of a changing environment are easily elucidated with the help of theoretical approaches that have been already discussed. Thus, in the social norm framework, a change in the environment that is favourable to the demise of a harmful custom can be represented as an increase in the cost of following it (an exogenous increase in E). In a simple bargaining framework, it is conceptualised as an improvement in the victims' exit opportunities that enhances their bargaining strength. Such a representation also applies to the "magnet effect" theory. Interestingly, the authors of the latter have shown that the effect on the custom of expanded outside economic opportunities for the victims is formally analogous to the effect of a more progressive legislation. This analogy is not surprising since the operating mechanism is the same whether the triggering factor is a change in the statutory law or in the scope of outside opportunities, i.e., the conferring of increased bargaining power upon the weakest party.

Other mechanisms depicting the effects of changing environments are, of

[11] The event was reported in the French newspaper Le Monde (19th May 2011). The title of the article is "L'indignation d'un village palestinien met fin à l'indulgence pour les crimes d'honneur".

[12] In this section we focus on how technological changes can move harmful customs. It is worth mentioning however that the two can be complements rather than substitutues: Ashraf et al. (2014) find that projets of school construction in Indonesia and Zambia increase school enrollement for girls belonging to ethnic groups which practice bride price. No effect is observed for girls from ethnic groups where such a custom does not exist. One possible explanation is given by the positive correlation found between bride price and educational atteinement of a woman. In this context, bride price seems to favor girls' education, and any attempt to eradicate the practice should take this dimension into account.

course, possible. For example, Doepke and Tertilt (2009) construct a theoretical argument according to which technological change can explain the expansion of women's economic rights (in the absence of a change in women's political rights). Under the assumptions that men are altruistic towards their children and women care relatively more about the children's education, men may be willing to give economic rights to women[13]. In their model, when technological change enhances the importance of human capital, men have more incentives to grant rights to women, therefore facilitatating human capital accumulation.

Turning to the empirical evidence, let us start by the practice of FGC which we have mentioned on several occasions. The recent emphasis on FGC as a social norm - and therefore on coordination - has at least partially originated from the parallel between this custom and footbinding in China. As accounted in Mackie (1996), footbinding can be interpreted as a social convention: the act of binding the feet of a girl signals her good qualities, such as modesty. Not doing it in a context where everybody follows the practice would leave the girl unmarried. Appeared in the Sung dynasty (960-1279) and "spread by imitation until people were ashamed not to practice it", it became normal practice by the Ming dynasty (1368-1644) and lasted for no less than 1,000 years (Mackie, 1996, p.1001). It suddenly ended during the years culminating in the 1911-1912 revolution. Mackie argues that the central factor behind the rapid disappearance of footbinding consisted of the campaigning efforts of the natural-foot movement identified with liberal modernizers and women's rights advocates. By analogy, FGC could be fought in the same way (pp. 1013-14).

Another explanation of the demise of footbinding nevertheless exists in the anthropological literature. Gates and others (Gates, 2001; Bossen et al., 2011; Brown et al., 2012) thus emphasise the importance of quickly changing economic conditions during the twentieth century. They see that custom as part of an economic system that depended on women's intensive labor, in particular in the textile sector: binding feet forced girls to become sedentary and start at an early age domestic activities such as spinning and weaving and other handwork for whose products there was a high demand. More importantly, they argue that footbiding declined when industrial textile production - more efficient and cheaper - developed on a large scale, which undermined the competitiveness of women's artisanal, home-based production. Using quantitative and qualitative data collected in different rural areas of China, they find suggestive evidence that the presence of footbinding coincided with the presence of sendentary economic activities for women[14]. Furthermore, the timing of its demise corresponds

[13]While they would prefer not to give rights to their wives, they care about others men's wives. The reasons are the following. First, because they want their own daughters, for whom they care, to have stronger bargaining power with respect to their future husband. Second, stronger bargaining power of women within a household will increase investment in the children's human capital: since fathers care about the quality of their children's future spouses, therefore they want the bargaining power of their children's future mothers-in-law to increase.

[14]In Fujian, in the south-eastern part of China, different counties presented heterogeneity both in the incidence of footbinding and the type of activities available for women. In Tong'an,

to the emergence of industrially produced textile products on the local markets.

Returning to FGC, the practice has often been analysed as an investment in the girl for the marriage market. If this is true, FGC could be replaced by an alternative investment in the girl's education. As a matter of fact, it is negatively correlated with education virtually in all the countries where it is practiced (Wagner, 2015). Even though the causality of this relationship has not yet been established, the correlation suggests that changes in the labour/education market can affect the custom.

To underline the potential role of economic factors in the decline of these two customs does not exclude that they can be interpreted as marriageability conventions: a girl's footbinding could signal her "economic" value. The fact remains that massive technological changes could have played a crucial role in causing the abrupt decline of the practice and could play a similar role for FGC. In other words, expectations regarding others' behaviour might not be the only driving force behind these customs. The same is true for early (and forced) marriage, another custom which has negative consequences on women's health and well-being and which, in some cases, has also been interpreted as a social norm giving rise to a coordination problem. In India, Maertens (2013) finds that the ideal age at marriage shapes parents' educational aspirations for their daughters, controlling for the expected returns to education. She therefore suggests that closing the gender gap on the labour market might not be enough to increase women's education attainement: marriage norms should also be changed to make them less binding. In Senegal, Tostan and other NGOs have thus used public pledges as commitment devices to end both FGC and early marriage. Yet, the effectiveness of this approach regarding early marriage in particular remains to be demonstrated. There is some evidence that economic factors can also influence age at marriage: in Zimbabwe, Hoogeveen et al. (2003) find that negative idyosincratics shocks to livestocks decreases age at marriage for unmarried daughters. The family of the groom traditionally pays a bride price in cattle, which is an important agricultural asset. A decrease in livestock can then push families to marry daughters as an insurance motive. In India, in rice-growing areas, a positive rainfall shock delays marriage for girls, whose labour productivity increases (Mbiti, 2008): this suggests that increasing women's productivity could have positive impact on age at marriage.

Customary rules governing marriage are also liable to change under the pressure of evolving economic or demographic conditions. A striking illustration of this possibility rests on anecdotal yet insightful evidence (Economist, April 2015) It concerns inter-caste marriage restrictions, ranging from prohibitions of all unions between people of different castes to restrictions of marriage between

where weaving and spanning persisted over time and there was little agricultural land, 32% of living informant have been bounded during their life (92% of their mothers). In Hua'an county, where textile activities have been replaced by portrage, only 17% of living informant have been bounded (against 91% of their mother). In the interviewed villages in Nanjng, 9% of the informant and 56% of their mothers experienced footbinding: this was a poor area, with little spinning and weaving and where women were employed in agricultural activities (Gates, 2001).

people of the same village. In north-western India, these rules are laid down by informal local councils known as *khaps*, and they are strictly enforced by them, if needed by resorting to honour killings. While these customs have been in force for five centuries, even when they were declared illegal by the Supreme Court of India, they have recently been called into question. Thus, in April 2014, the *Satrol khap,* the largest in Haryana, relaxed its ban on inter-caste marriage and made it easier for villagers to marry among their neighbours. The cause behind this rather surprising decision was the declining male-female sex ratio in the state (114 males of all ages for every 100 females in Haryana), which made marriage increasingly difficult for men. In the eyes of the customary authorities, a conflict thus arose between two aspects of their traditions: inter-caste and other marriage prohibitions and the associated value of purity, on the one hand, and marriage as a source of identity and manhood, on the other hand. In choosing to relax the former, the *khaps* aim at keeping the latter tradition alive.

Preference for sons is also defined as a harmful custom against women and it has been widely studied in economics. One of its causes is the smaller "economic" value, and, therefore, the lower status, of women relative to men in some societies (Sen, 1992). A change in women's economic opportunities - and therefore in their valuation within the household - can affect the birth sex ratio in favour of the girls. Qian (2008) shows, for example, that an economic reform in post-Mao China, which had the effect of raising women's income, led to an increase in the survival rates for girls. That reform consisted of an increase in the relative price of tea which benefited women who play a major role in tea plucking. As stated above, however, customs tend to evolve more slowly than economic conditions and we cannot rule out the possibility that demographic changes interact badly with the preference-for-son custom. This is the central point made by Jayachandran (2014) with respect to India. Her argument is that a decline in the fertility rate may actually worsen female-to-male birth ratios if a norm of son's preference is present. Indeed, the desire to have a son combined with the desire to have fewer children may well intensify the use of sex-selective abortion.

Regarding the relation between domestic violence against women and income, the evidence is contrasted. Some studies point at a negative correlation between domestic violence and income or wealth (Agarwal and Panda, 2007). Other studies, however, tend to find the opposite relation (Anderson and Genicot, 2015; Luke and Munshi, 2011): within a intra-household bargaining framework, an increase in female income can indeed enhance women's bargaining power but, as a consequence, tensions and violence between spouses can be escalating. In this sense, it is useful to think of customs as being both the objects of bargaining and as constraints that shape the bargaining process itself, defining the limit of what can be bargained over (Agarwal, 1997). Interventions which combine activities to improve women's economic conditions with sensitization on gender issues could potentially diminish the risk of domestic violence caused by the changing power relations within the household (Kim et al., 2007).

Two final remarks need to be made before moving to the last stage of our analysis. First, as our above example from Haryana shows, customs may have to be considered simultaneously rather than separately. This necessity arises when customs are interlinked, giving rise to the possibility that customs which were compatible with each other cease to be so as a consequence of changes in the environment. The consistency of the traditional system of rules is then disrupted, and the transformation or disapperance of one custom may be the only way to preserve another custom. The good scenario unfolds if the former (the banning of inter-caste marriages in our example) is a harmful practice while the latter (universal marriage) is not.

Another illustration of the interlinked nature of some customs is directly relevant to the main argument presented in this section. It is indeed obvious that expansion of outside opportunities for women can increase their bargaining strength only if they are allowed to participate in the labour market, which requires that norms or customs limiting women's economic or physical mobility (such as women's seclusion rules in parts of India and the Muslim world) are modified or abandoned. In other words, the impact of new outside opportunities on some customs (say, patriarchal rules ensuring submission of wife to husband in a series of matters) is conditional on the relaxing of a particular norm. The demise of that critical norm may be facilitated by hard economic conditions that compel parents or husbands to accept that women work outside their home on a regular basis. Or, as assumed in the theory of the "magnet effect", the same norm is undermined by the fact that women can threaten to leave the family space on a more or less permanent basis. In such cases, men may feel helpless and give in to the demand of their daughters or wives.

The second remark is rather straightforward. In the discussion of this section, we have assumed that expansion of outside opportunities for women is an exogenous force, say because it results from the endogenous evolution of the economy. In actual fact, however, these opportunities may well be promoted by public agencies and voluntary organisations in a deliberate and purposeful manner. To put it otherwise, public action may aim at fighting against obnoxious customs in a roundabout way rather than through direct means. Precisely because public action operating through the labour market does not confront customary ways of living head-on, it can avoid the counter-productive effects that may be caused by legal reforms and information or sensitisation campaigns. We now turn our attention to the mechanism liable to yield these unintended effects of policies generally associated with the social engineering approach, the legal approach in particular.

5.7 The role of culture

In all the foregoing sections, the role of culture has been overlooked: in the social norm approach, the focus is on people's desire to conform while in the bargaining and the "magnet effect" approaches it is placed on the determi-

nants of women's bargaining strength, including the statutory law and outside economic opportunities. This is ignoring that social norms and customs are typically embedded in a local culture from which they derive their symbolic meaning. It is this embedding that makes them part of a community-centered rather than an individual-centered system of values, and that accounts for the deep link between custom-following behaviour and expression of identity. Violating the custom might therefore have wider consequences than what a purely rational view stressing conventional cost-benefit calculus would suggest. These effects can nevertheless be predicted in the light of the approaches presented in Sections 5.3 to 5.5.

In the social norm approach, a natural way to think about the "identity effect" is to represent communities where traditional identity is strong as sets of individuals clustered around low values of θ. People strongly attached to their traditional mores have a low aversion toward harmful customs which are seen as an ingredient of their culture. Therefore, they are little inclined to depart from their customary habits.

In the bargaining and "magnet effect" approaches, on the other hand, the cost of appealing to the modern court system is explicitly modeled. Since it includes non-material costs such as guilt feelings arising from going against the will of one's community, stronger community ties tend to make the cost of appealing large and, hence, to discourage the questioning of customary norms. The same consequence arises if severe punishment against norm-breaking (also explicitly modeled in the "magnet effect" approach) also results from strong community ties.

It is worth providing a few illustrations of the aforementioned effects.

The example of FGC again seems appropriate. In Senegal, particularly in the Senegal river valley where Fulani or Toucouleur communities have powerful identity feelings based on their traditional culture, attempts to change customs, such as that of cutting girls, are strongly resented. Negative reactions are pervaded by the fear of Westernisation of the local cultures (O'Neill, 2011, chapter 7). FGC is thus regarded as a cultural trait, or as a symbolic aspect of a traditional culture that stands on its own in the face of outside influences and pressures. It is identity-defining, and circumcision is seen as part of the initiation process that leads girls into genuine and moral womanhood (Gruenbaum, 2001; O'Neill, 2011) When this happens, 'outside' attempts to eradicate the practice are perceived as an act of cultural aggression. Thus, laws banning FGC are seen as imposed by the Western world and arouse cultural resistance. Hence statements such as «They want us to be like them», or «We will not let our culture be destroyed» (Shell-Duncan et al., 2013, p.830).

In Egypt, where FGC is overwhelmingly dominant, there has been an intense debate about the introduction of a law criminalizing FGC. The government was trapped between international pressure and popular support for the practice (Boyle Heger et al., 2001), usually justified in terms of tradition, control over women's sexual desire, and cleanness (Assaad, 1980). More generally, clashing interpretations regarding the meaning of FGC can lead practicing communities

to strongly resent attempts to eradicate the custom. The Western description of FGC as a mutilation which ensures patriarchal control over women's bodies and sexuality contrasts with the widespread perception among these communities that FGC does not affect marital sexual life (Fahmy et al., 2010; Shell-Duncan and Hernlund, 2000). In this perspective, the criminalisation of FGC is easily seen as a manifestation of blunt Western imperialism.

In the light of the above, it is not surprising that NGOs which are heavily involved in sensitisation work strive to persuade villagers that the harmful practice is separable from their cultural makeup. Efforts to fight againts FGC should not therefore be seen as an attack on the local culture. Our personal field observations (in October 2012) have shown that entry into strongly traditional communities is quite hard for external agencies and may even prove to be infeasible. The latter was true in the Fulani communities around the southern Senegalese town of Medinha-Gounas which are ruled by a puritan Islamist brotherhood (the Tijane) led by a powerful maraboutic family. Indeed, Tostan and other NGOs were denied access to this area on the ground that they were trying to destroy or subvert the local culture.

That strong community ties backed by deep-rooted identity feelings easily lead to high costs of appealing to modern courts is evident from the following example. In 1985, the government of Ghana enacted a new inheritance law, known as PNDC Law 111. This law was designed to regulate practices of intestate succession in favour of the wives and children of a deceased man, particularly among people (the Akans) governed by a matrilineal system[15]. The nuclear family thus became the focus of succession, which explains why Law 111 appeared to many to be "an attack on customary law" (Josiah-Aryeh, 2008, p.29). The take-up rate of litigation has been quite low, which tends to be attributed to women's perception of the high cost of a legal recourse, typically the fear of severe sanctions in the form of separation from their children, ejection from their house, and loss of valuable family and clan relationships (Gedzi (2009, p.16-17); see also Benneh et al. (1995); Fenrich and Higgins (2001)). Due to "fear of spiritual reprisals from the family, family and community pressure and the strong moral sense not to wash the family linen in public", they are reluctant to take the family members of their deceased husband to the formal courts when these members infringe on their inheritance rights Gedzi (2009, p.27). In short, most disputants prefer to solve their cases in local informal settings than in the formal court. This is not only because the procedure is less adversarial in these settings, centered on reconciliation and repair of damaged relationships, but also because reporting local affairs before an outside agency generally arouses the grave accusation of betrayal of the community and the family. Interestingly, the few women who seek formal litigation to defend their rights are strong characters, often with a comparatively high level of education (and outside option), and ready to defy the social pressure and threats emanating from the extended family.

In a field study on female domestic violence in the Hawai'i, Merry (2003b)

[15]The example is taken from Platteau and Wahhaj (2014).

analyses the complex process through which battered women develop, or fail to develop, a (human) rights-defined self with respect to violence. The implied shift in identity requires to move away from a sense of self based on family, kin and community to one relying on state protection. It is moreover argued that, until the end of the whole prosecuting process, support by formal institutions (police, court etc), and by family and friends, are important determinants of a victim's ability to pursue the charges against the abuser. Local women's shelters and support groups also turn out to play a crucial role in forging the new sense of identity and in raising the victims' use of the legal tool.

5.8 Conclusion

How to fight against harmful customs is a complex issue that has attracted renewed interest during the last decades, particularly when the so-called human rights approach came to center stage. Economic analysis can be quite useful to clarify a number of aspects related to this issue, especially so because that approach involves social engineering. In actual fact, the dominant model in the minds of the proponents of the new approach corresponds to a well-known game of strategic interactions: a coordination game with multiple (Nash) equilibria which are not equivalent in social efficiency terms. It provides a strong rationale for the enacting of pro-women laws whose expressive effect should cause the socially efficient outcome to replace the bad outcome represented by the harmful custom. Unfortunately, things are not so simple, and there is little empirical evidence supporting the coordination story. The most naïve underlying assumption is the idea that all the people dislike the custom and follow it only because they hold pessimistic expectations about others' behaviour.

Much more realistic is the alternative assumption that people have different preferences regarding the desirability of the custom. Allowing for preference heterogeneity complicates the problem quite a bit: the impact of the law now depends critically on the distribution of individual preferences, even if we restrict our attention to its "expressive" function. If the distribution is bimodal with many people strongly averse to the custom and many people strongly supporting it, or if the distribution is uniform, just enacting a pro-women law will be of no avail since the (stable) equilibrium is unique. By contrast, when many people have a moderate aversion to the custom, the law can possibly act as a new focal point with the effect of destroying the harmful custom.

To eradicate oppressive social norms, interventions aimed at modifying individual preferences or payoffs may therefore be required. Modifying preferences is typically not done with the help of legal means. It requires the intervention of non-governmental organisations operating at the grassroots level and/or the staging of nationwide awareness campaigns. The purpose of these actions is to make people aware that they are the victims of a discriminatory treatment and that they are entitled to be in a better situation. Again, it is probably too much to expect that a radical departure from the bad customary habit will

result from them. Given the difficulty of converting the most ardent supporters of the custom, it is reasonable to bank on its partial rather than its complete abandonment.

Modifying payoffs can be achieved either through a legislative process or through economic policies. In the former case, violation of legal prescriptions must trigger sufficiently severe sanctions, which implies not only that punishment is sufficiently severe and actually meted out, but also that the detecting of violations is sufficiently effective. Or, alternatively, quasi-legal means may be used, such as when public agencies create a 'shaming' environment that increases the cost of following the custom. The impact of these interventions may be the total or the partial disappearance of the custom, or it may be nil depending upon the initial distribution of the preferences.

Payoffs can also be modified as a result of economic policies, or endogenous economic processes, that have the effect of expanding economic opportunities for the victimised sections of the population, or of changing the costs of following the custom. A great advantage of this approach, compared to the legal approach, lies in the fact that, being indirect, it avoids a head-on confrontation with the tradition and the identity-defining culture in which it is embedded. Changes appear to be imposed by abstract forces that are beyond the control of customary authorities, and they better allow for face-saving among the upholders of tradition. The opposite happens when pro-women lawmaking is clearly inspired, or influenced, by the universalistic norms and values originated in the Western world.

Instead of examining the role of outside economic opportunities within a social norm (and coordination) framework, we can use the lens of a bargaining setup in which the oppressors (men) and the victims (women) have antagonistic preferences. Outside economic opportunities then appear as conferring enhanced bargaining strength upon women. But legal reforms can be analysed as another way to increase their negotiating power, and it has in fact been shown that the effect of pro-women laws on oppressive customs is formally analogous to that of new economic opportunities available to women (Aldashev et al., 2012b; Platteau and Wahhaj, 2014). The idea is that in both cases women can threaten to exit from the traditional judicial domain and escape the rule of the associated customary authority: they either appeal directly to the formal court system, or they seize economic opportunities outside their home and in this way hopefully place themselves under the purview of the same system.

The interesting point is that, in a bargaining framework, legal reforms and the development of outside economic opportunities generate similar effects which can be added up. Since the two strategies are substitutes, one strategy can be used in preference to the other if circumstances (not allowed for in the model) make either strategy relatively difficult to implement. Two main limitations thus jeopardise the success of the legal reform strategy. First, if the law needs to yield a deterring effect, and not only an expressive effect, it must be credible, implying that the court system works impartially and effectively. Second, almost by definition, it involves a head-on confrontation with traditional

culture (see above).

On the other hand, the major limitation of the economic approach is that, in order to work, it must be the case that women are able to move, or threaten to move, to locations outside their home where new economic opportunities are available. Seclusion norms can precisely prevent that outcome from occurring, indicating that one social norm may inhibit the change in other anti-women norms (say, norms associated with patriarchal control). Therefore, traditional social norms are better seen as being interlinked inside a customary system and, when this is done, different situations can arise.

For example, economic forces or policies can undermine all anti-women norms or customs, but over different time frames. In other words, all customs are eventually transformed yet some are more sticky than others. Alternatively, economic (or demographic) changes can break the complementarity between various parts of the customary system by significantly increasing the cost of following some norms while leaving unchanged the cost-benefit structure pertaining to the other norms. The best scenario unfolds when anti-women norms are those under attack, and the worst scenario corresponds to the opposite case. It is under this second scenario that the law should lend a helping hand to economic processes and strategies. Unfortunately, the same noxious custom that withstands the pressure of economic change may also put up strong resistance against law-induced change. This is probably the situation that most evidently calls for a combined effort on the three fronts of a broad social engineering approach: economic policies, legal reforms, and preference change. The latter component of the overall strategy, which together with legal reforms forms the basis of the human rights approach, can be achieved by all the actors and organisations working in close relationship with the women who are victims of abuse. In particular, community-based projects have the advantage of being based on a deep understanding of the local context and on long-term relationships with the victims, a setting that better enables them to transform the victims' perception of themselves.

The role of awareness-building campaigns and grassroots activities is also justified when economic forces or strategies take a rather long time to produce their effects. When women's empowerment is thus slow to materialize, the struggle to achieve gender parity must be supported by reforms and institutional interventions directly addressing the problem (Duflo, 2012).

Bibliography

(2015). Bare branches, redundant males. The marriage squeeze in India and China. The Economist.

Abdalla, R. H. D. (1982). *Sisters in Affliction: Circumcision and Infibulation of Women in Africa*. Zed Press, London UK.

Acemoglu, D. and Jackson, M. O. (2015). Social norms and the enforcement of laws. Nber working paper series, National Bureau of Economic Research.

Agarwal, B. (1997). "Bargaining" and Gender Relations: Within and Beyond the Household. *Feminist economics*, 3(1):1–51.

Agarwal, B. and Panda, P. (2007). Toward freedom from domestic violence: the neglected obvious. *Journal of human development*, 8(3):359–388.

Akerlof, G. A. (1980). A theory of social custom, of which unemployment may be one consequence. *The quarterly journal of economics*, pages 749–775.

Aldashev, G., Chaara, I., Platteau, J.-P., and Wahhaj, Z. (2012a). Formal law as a magnet to reform custom. *Economic Development and Cultural Change*, 60(4):795–828.

Aldashev, G., Chaara, I., Platteau, J.-P., and Wahhaj, Z. (2012b). Using the Law to Change the Custom. *Journal of Development Economics*, 97(2):182–200.

Ambec, S. (2008). Voting over Informal Risk–Sharing Rules. *Journal of African Economies*, 17(4):635–659.

Anderson, S. and Genicot, G. (2015). Suicide and property rights in India. *Journal of Development Economics*, 114:64–78.

ANSD and ICF (2012). Enquête Démographique et de Santé Continue (EDS-Continue 2012-2013). Technical report.

Appadurai, A. (2004). The Capacity to Aspire. In Vijayendra, R. and Walton, M., editors, *Culture and Public Action*, chapter 3, pages 59–84. Stanford University Press, Palo Alto, CA.

Ashraf, N., Bau, N., Nunn, N., and Voena, A. (2014). Bride price and the returns to education for women. Working Paper.

Assaad, M. B. (1980). Female circumcision in Egypt: social implications, current research, and prospects for change. *Studies in family planning*, pages 3–16.

Auriol, E. and Platteau, J.-P. (2015). Religious Seduction in Autocracy: A Theory Inspired by History. Mimeo, University of Toulouse.

Baird, S., Bohren, J. A., McIntosh, C., and Ozler, B. (2014). Designing experiments to measure spillover effects. Technical report, PIER Working Paper No. 14-032.

Basu, K. (2015). The Republic of Beliefs. *World Bank Policy Research Working Paper*.

Bauer, P. and Yamey, B. S. (1957). *The Economic of Under-Developed Countries*. Cambridge University Press, Cambridge.

Bellemare, M. F., Novak, L., and Steinmetz, T. (2015). All in the Family: Explaining the Persistence of Female Genital Cutting in West Africa. *Journal of Development Economics*, 116:252–265.

Benabou, R. and Tirole, J. (2011). Laws and norms. Nber working paper series, National Bureau of Economic Research.

Benneh, G., Kasanga, R. K., and Amoyaw, D. (1995). Women's access to agricultural land in the household: A case study of three selected districts in Ghana. University of Ghana Press, Accra.

Berg, R. C. and Underland, V. (2013). The Obstetric Consequences of Female Genital Mutilation/Cutting: a Systematic Review and Meta-Analysis. *Obstetrics and gynecology international*, 2013.

Blaydes, L. and Platas Izama, M. (2015). Religion, Patriarchy and the Perpetuation of Harmful Social Conventions: The Case of Female Genital Cutting in Egypt. Mimeo, University of Stanford.

Bossen, L., Xurui, W., Brown, M. J., and Gates, H. (2011). Feet and Fabrication: Footbinding and Early Twentieth-Century Rural Women's Labor in Shaanxi. *Modern China*, 37(4):347–383.

Boyle Heger, E., Songora, F., and Foss, G. (2001). International discourse and local politics: Anti-female-genital-cutting laws in Egypt, Tanzania, and the United States. *Social Problems*, 48 (1):524–544.

Brown, M. J., Bossen, L., Gates, H., and Satterthwaite-Phillips, D. (2012). Marriage mobility and footbinding in pre-1949 rural China: A reconsideration of gender, economics, and meaning in social causation. *The Journal of Asian Studies*, 71(04):1035–1067.

Cabane, C. B. (2008). *La Coupure: l'Excision ou les Identités Douloureuses*. La Dispute.

Camilotti, G. (2015a). Changing Female Genital Cutting: Evidence from Senegal. Mimeo, University of Namur.

Camilotti, G. (2015b). Interventions to Stop Female Genital Cutting and the Evolution of the Custom. Evidence on Age at Cutting in Senegal. *Forthcoming Journal of African Economies*.

Chesnokova, T. and Vaithianathan, R. (2010). The Economics of Female Genital Cutting. *The BE Journal of Economic Analysis & Policy*, 10(1).

Cooter, R. D. (2000). Three effects of social norms on law: expression, deterrence, and internalization. *Or. L. Rev.*, 79:1.

Dasgupta, P. (1993). *A Inquiry into Well-Being and Destitution*. Oxford University Press, New York.

De Cao, E. and Lutz, C. (2015). Measuring attitudes regarding female genital mutilation through a list experiment. Technical report, CSAE Working Paper WPS/2015-20.

Deininger, K., Goyal, A., and Nagarajan, H. (2013). Women's inheritance rights and intergenerational transmission of resources in India. *Journal of Human Resources*, 48(1):114–141.

Diabate, I. and Mesple-Somps, S. (2014). Female Genital Mutilation and Migration in Mali. Do Migrants Transfer Social Norms? *Document de Travail UMR DIAL*.

Diop, N. J. and Askew, I. (2009). The Effectiveness of a Community-based Education Program on Abandoning Female Genital Mutilation/Cutting in Senegal. *Studies in Family Planning*, 40(4):307–318.

Doepke, M. and Tertilt, M. (2009). Women's Liberation: What's in It for Men? *The Quarterly Journal of Economics*, 124(4):1541–1591.

Dryzek, J. S. (2000). *Deliberative democracy and beyond: liberals, critics, contestations*. Oxford University Press.

Duflo, E. (2012). Women Empowerment and Economic Development. *Journal of Economic Literature*, 50(4):1051–79.

Dugger, C. W. (2011). Senegal Curbs a Bloody Rite for Girls and Women. The New York Times.

Efferson, C., Vogt, S., Elhadi, A., Ahmed, H. E. F., and Ernst, F. (2015). Female Genital Cutting is not a Social Coordination Norm. *Science*, 349:1446–1447.

Elmusharaf, S., Elhadi, N., Almroth, L., et al. (2006). Reliability of self reported form of female genital mutilation and WHO classification: cross sectional study. *bmj*, 333(7559):124.

Erlich, M. and Augé, M. (1995). *La Femme Blessée: Essai sur les Mutilations Sexuelles Féminines*. Ed. l'Harmattan, Paris.

Fahmy, A., El-Mouelhy, M. T., and Ragab, A. R. (2010). Female genital mutilation/cutting and issues of sexuality in Egypt. *Reproductive health matters*, 18(36):181–190.

Fenrich, J. and Higgins, T. E. (2001). Promise Unfulfilled: Law, Culture, and Women's Inheritance Rights in Ghana. *Fordham Int'l LJ*, 25:259.

Fusaschi, M. (2003). *I Segni sul Corpo: per un'Antropologia delle Modificazioni dei Genitali Femminili*. Bollati Boringhieri Torino.

Gates, H. (2001). Footloose in Fujian: Economic correlates of footbinding. *Comparative studies in society and history*, 43(01):130–148.

Gedzi, V. S. (2009). Women and Property Inheritance after Intestate Succession, Law 111 in Ghana. *Research on Humanities and Social Sciences*. mimeo.

Gillespie, D. and Melching, M. (2010). The transformative power of democracy and human rights in nonformal education: The case of Tostan. *Adult Education Quarterly*, 60(5):477–498.

Gomis, D. and Wone, M. M. (2008). L' Excision au Sénégal: Sens, Portée et Enseignements Tirés de la Réponse Nationale. UNICEF Dakar.

Gosselin, C. (2000). Handing over the knife: Numu women and the campaign against excision in Mali. In Shell-Duncan, B. and Hernlund, Y., editors, *Female Circumcision in Africa: Culture, Controversy, and Change*, pages 193–214. Lynne Reiner Publishers.

Granovetter, M. (1978). Threshold models of collective behavior. *American journal of sociology*, pages 1420–1443.

Gruenbaum, E. (2001). *The Female Circumcision Controversy: an Anthropological Perspective*. University of Pennsylvania Press.

Hallward-Driemeier, M. and Gajigo, O. (2015). Strengthening economic rights and women's occupational choice: the impact of reforming Ethiopia's family law. *World Development*, 70:260–273.

Hecht, D. (1999). When a Law Sweeps in, Tradition Lashes Back. Christian Science Monitor.

Heller, P. and Rao, V. (2015). Deliberation and Development. In Heller, P. and Rao, V., editors, *Deliberation and Development: Rethinking the Role of Voice and Collective Action in Unequal Societies*, chapter 1. World Bank Publications, Washington, DC.

Hernlund, Y. (2000). Cutting without ritual and ritual without cutting: female circumcision and the re-ritualization of initiation in The Gambia. In Shell-Duncan, B. and Hernlund, Y., editors, *Female Circumcision in Africa: Culture, Controversy, and Change*, pages 235–252. Lynne Reiner Publishers.

Hirschman, A. (1958). *The Strategy of Economic Development*. Yale University Press, New Haven and London.

Hoogeveen, J., Van der Klaauw, B., and Van Lomwel, A. G. C. (2003). On the Timing of Marriage, Cattle and Weather Shocks in Rural Zimbabwe. *World Bank Policy Research Working Paper*, (3112).

Huntington, D., Nawar, L., Tawab, N. A., and Hegazi, S. (1996). Clinic-based Investigation of the Typology and Self-reporting of FGM in Egypt. *Asia and Near East Operations Research and Technical Assistance Project Final Report. Cairo: Population Council*.

Jackson, E. F., Akweongo, P., Sakeah, E., Hodgson, A., Asuru, R., and Phillips, J. F. (2003). Inconsistent reporting of female genital cutting status in northern Ghana: Explanatory factors and analytical consequences. *Studies in Family Planning*, 34(3):200–210.

Jayachandran, S. (2014). Fertility decline and missing women. Technical report, National Bureau of Economic Research.

Johnson, M. C. (2000). Becoming a Muslim, becoming a person: Female circumcision,religious identity, and personhood in Guinea-Bissau. In Shell-Duncan, B. and Hernlund, Y., editors, *Female Circumcision in Africa: Culture, Controversy, and Change*, pages 215–233. Lynne Reiner Publishers.

Josiah-Aryeh, N. (2008). The right to walk in another man's shoes: The Intestate Succession Law in context. *Inter-Faculty Lecture, University of Ghana, Legon*.

Kahan, D. M. (2000). Gentle nudges vs. hard shoves: Solving the sticky norms problem. *The University of Chicago Law Review*, pages 607–645.

Kim, J. C., Watts, C. H., Hargreaves, J. R., Ndhlovu, L. X., Phetla, G., Morison, L. A., Busza, J., Porter, J. D., and Pronyk, P. (2007). Understanding the impact of a microfinance-based intervention on women's empowerment and the reduction of intimate partner violence in South Africa. *American journal of public health*, 97(10):1794–1802.

Kumar, N. and Quisumbing, A. R. (2015). Policy reform toward gender equality in Ethiopia: Little by little the egg begins to walk. *World Development*, 67:406–423.

La Ferrara, E. (2011). Family and Kinship Ties in Development: an Economist Perspective. In Platteau, J.-P. and Peccoud, R., editors, *Culture, Institutions and Development*, pages 107–124. Routledge, London.

Lewis, A. W. (1955). *The Theory of Economic Growth*. George Allen & Unwin, London.

Luke, N. and Munshi, K. (2011). Women as agents of change: Female income and mobility in India. *Journal of Development Economics*, 94(1):1–17.

Mackie, G. (1996). Ending Footbinding and Infibulation: A Convention Account. *American Sociological Review*, 61(6):999–1017.

Mackie, G. (2000). Female Genital Cutting: the Beginning of the End. In Shell-Duncan, B. and Hernlund, Y., editors, *Female Circumcision in Africa: Culture, Controversy, and Change*, pages 253–282. Lynne Reiner Publishers, London.

Mackie, G. (2015). Traveling to the Village of Knowledge. In Heller, P. and Rao, V., editors, *Deliberation and Development: Rethinking the Role of Voice and Collective Action in Unequal Societies*, pages 85–106. World Bank Publications.

Mackie, G. and LeJeune, J. (2009). Social Dynamics of Abandonment of Harmful Practices: a New Look at the Theory. *Special Series on Social Norms and Harmful Practices, Innocenti Working Paper*.

Maertens, A. (2013). Social norms and aspirations: Age of marriage and education in rural India. *World Development*, 47:1–15.

Makhlouf Obermeyer, C. (2005). The Consequences of Female Circumcision for Health and Sexuality: an Update on the Evidence. *Culture, Health & Sexuality*, 7(5):443–461.

Mansbridge, J. (2015). A Minimalist Definition of Deliberation. In Heller, P. and Rao, V., editors, *Deliberation and Development: Rethinking the Role of Voice and Collective Action in Unequal Societies*, pages 27–50. World Bank Publications, Washington DC.

Mbiti, I. M. (2008). Monsoon wedding?: The effect of female labor demand on marriage markets in India. Mimeo, Southern Methodist University.

McAdams, R. H. (2000). A focal point theory of expressive law. *Virginia Law Review*, pages 1649–1729.

Meier, G. M. and Baldwin, R. E. (1957). *Economic Development*. John Wiley & Sons, New York.

Merry, S. E. (2003a). Human rights law and the demonization of culture (and anthropology along the way). *Polar: Political and Legal Anthropology Review*, 26(1):55–76.

Merry, S. E. (2003b). Rights talk and the experience of law: implementing women's human rights to protection from violence. *Human Rights Quarterly*, 25(2):343–381.

Merry, S. E. (2006). Transnational human rights and local activism: Mapping the middle. *American anthropologist*, 108(1):38–51.

Merry, S. E. (2009). *Human rights and gender violence: Translating international law into local justice*. University of Chicago Press.

Miguel, E. and Kremer, M. (2004). Worms: identifying impacts on education and health in the presence of treatment externalities. *Econometrica*, pages 159–217.

Molitor, V. (2014). *Family Economics in Developing Countries*. PhD thesis, Mannheim, Universität Mannheim, Diss., 2014.

Molloy, A. (2013). *However Long the Night: Molly Melching's Journey to Help Millions of African Women and Girls Triumph*. Harper Collins, New York.

Morris, B. J., Waskett, J. H., Banerjee, J., Wamai, R. G., Tobian, A. A., Gray, R. H., Bailis, S. A., Bailey, R. C., Klausner, J. D., Willcourt, R. J., et al. (2012). A 'snip' in time: what is the best age to circumcise? *BMC pediatrics*, 12(1):20.

Mottin-Sylla, M. (1990). *L'excision au Sénégal: elements d'information pour l'action*. Dakar, Environnement et Developpement du Tiers-Monde (ENDA).

Munshi, K. and Myaux, J. (2006). Social norms and the fertility transition. *Journal of development Economics*, 80(1):1–38.

Munshi, K. and Rosenzweig, M. (2009). Why is mobility in India so low? Social insurance, inequality, and growth. Technical report, National Bureau of Economic Research.

Naguib, K. (2012). The Effects of Social Interactions on Female Genital Mutilation: Evidence from Egypt. Unpublished paper.

Ndoye, M. (2011). *Le processus de pénalisation de l'excision au Sénégal: Enjeux et perspective pour les droits sexuelles des femmes*. PhD thesis, Institut de Hautes Etudes Internationales et du Développment.

Nussbaum, M. C. (2000). *Women and human development: The capabilities approach*. Cambridge University Press, New York.

OHCHR (1995). Fact Sheet No. 23, Harmful Traditional Practices Affecting the Health of Women and Children.

O'Neill, S. (2011). *Defying the Law, Negotiating the Change. The Futanke's Opposition to the National Ban on FGM in Senegal*. PhD thesis, Goldsmiths, University of London.

Orubuloye, I. O., Caldwell, P., and Caldwell, J. C. (2000). Female'Circumcision'Among the Yoruba of Southwestern Nigeria: The Beginning of Change. In Shell-Duncan, B. and Hernlund, Y., editors, *Female Circumcision in Africa*, chapter 4, pages 73–94. Lynne Reiner Publishers.

Ouedraogo, S. and Koissy-Kpein, S. A. (2012). An economic analysis of female Genital Mutilation: How the marriage market affects the household decision of excision. unpublished paper.

Platteau, J.-P. (2000). *Institutions, social norms, and economic development*, volume 1. Harwood Academic Publishers, Amsterdam.

Platteau, J.-P. and Peccoud, R., editors (2010). *Culture, institutions, and development: new insights into an old debate*. Routledge, New York.

Platteau, J.-P. and Wahhaj, Z. (2014). Strategic Interactions between Modern Law and Custom. In Ginsburgh, V. A. and Throsby, D., editors, *Handbook of the Economics of Art and Culture*. Elsevier.

Posner, R. A. (1994). *Sex and Reason*. Harvard University Press.

Qian, N. (2008). Missing Women and the Price of Tea in China: The Effect of Sex-Specific Earnings on Sex Imbalance. *The Quarterly Journal of Economics*, 123(3):1251–1285.

Schelling, T. C. (1960). *The strategy of conflict*. Harvard university press.

Sen, A. (1992). Missing women. *Bmj*, 304(6827):587–588.

Sen, A. (1999). *Development as freedom*. Oxford University Press, New York.

Shell-Duncan, B. (2001). The medicalization of female 'circumcision': harm reduction or promotion of a dangerous practice? *Social Science & Medicine*, 52(7):1013–1028.

Shell-Duncan, B. (2008). From health to human rights: Female genital cutting and the politics of intervention. *American Anthropologist*, 110(2):225–236.

Shell-Duncan, B. and Herniund, Y. (2007). Are There "Stages of Change" in the practice of Female Genital Cutting? Qualitative Research Finding from Senegal and the Gambia. *African journal of reproductive health*, 10(2):57–71.

Shell-Duncan, B. and Hernlund, Y. (2000). Female circumcision in Africa: Dimensions of the practice and debates. *Female 'circumcision' in Africa: Culture, controversy, and change*, pages 1–40.

Shell-Duncan, B., Obiero, W. O., and Muruli, L. A. (2000). Women without choices: the debate over medicalization of female genital cutting and its impact on a northern Kenyan community. In Shell-Duncan, B. and Hernlund, Y., editors, *Female Circumcision in Africa*, chapter 6, pages 109–128. Lynne Rienner Publishers.

Shell-Duncan, B., Wander, K., Hernlund, Y., and Moreau, A. (2011). Dynamics of Change in the Practice of Female Genital Cutting in Senegambia: Testing Predictions of Social Convention theory. *Social Science & Medicine*, 73(8):1275–1283.

Shell-Duncan, B., Wander, K., Hernlund, Y., and Moreau, A. (2013). Legislating Change? Responses to Criminalizing Female Genital Cutting in Senegal. *Law & society review*, 47(4):803–835.

Stevenson, B. and Wolfers, J. (2006). Bargaining in the shadow of the law: Divorce laws and family distress. *The Quarterly Journal of Economics*, pages 267–288.

Taddio, A., Katz, J., Ilersich, A. L., and Koren, G. (1997). Effect of Neonatal Circumcision on Pain Response During Subsequent Routine Vaccination. *The Lancet*, 349(9052):599–603.

UNFPA and UNICEF (2013). Sénégal. Etude de cas de pays. Evaluation conjointe programme conjoint UNFPA-UNICEF sur les mutilations génitales féminines/excision: accélérer le changement 2008 - 2012. http://www.unfpa.org/public/home/about/Evaluation/EBIER/TE/pid/10103.

UNICEF (2013a). Female Genital Mutilation/Cutting: A Statistical Overview and Exploration of the Dynamics of Change. *New York: UNICEF*.

UNICEF (2013b). La Pratique des MGF/E chez la Population Locale et Migrante à Dakar et à Tambacounda.

UNICEF et al. (2005). Changing a Harmful Social Convention: Female Genital Mutilation/cutting. Innocenti Digest. Florence: UNICEF;. Innocenti Digest. Florence: UNICEF;.

UNICEF and UNFPA (2014a). 2014 Annual Report of the UNFPA-UNICEF joint programme on female genital mutilation/cutting: accelerating change. Technical report, United Nations.

UNICEF and UNFPA (2014b). UNFPA-UNICEF Joined Programme on Female Genital Mutilation/Cutting: Accelerating Change. Summary Report of Phase 1 (2008-2013). Technical report, United Nations.

UNICEF, UNFPA, and Ministère de la Famille Sénégal (2010). L'Etat d'Application de la Loi sur l'Excision au Sénégal.

United Nations (1979). Convention on the Elimination of All Forms of Discrimination against Women.

Wagner, N. (2015). Female Genital Cutting and Long-Term Health Consequences: Nationally Representative Estimates across 13 Countries. *The Journal of Development Studies*, 51(3):226–246.

Weiss, H. A., Larke, N., Halperin, D., and Schenker, I. (2010). Complications of Circumcision in Male Neonates, Infants and Children: a Systematic Review. *BMC Urology*, 10(1):2.

World Bank (2012). *World Development Report 2012 : Gender Equality and Development*. The World Bank.

Yunus, M. (1999). *Banker to the Poor. Micro-lending and the battle against world poverty.* PublicAffairs, New York.