

# All in the Family: Explaining the Persistence of Female Genital Cutting in The Gambia



**MARC F. BELLEMARE**

**TARA L. STEINMETZ**

**RECODE CONFERENCE  
UNIVERSITY OF OTTAWA  
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# Introduction



- Over 100 million women worldwide have had their genitalia removed partially or totally under female genital cutting (FGC).
- Three million girls are thought to undergo FGC every year worldwide (WHO 2012).
- Yet social scientists only have a limited understanding of why the practice persists (Hayford 2005).

# Introduction



- **FGC is widespread throughout Africa, Asia, and the Middle East.**
- **But it's also a public health concern here and in other OECD countries: Immigrants sometimes import the practice and practice “back-alley FGCs” on girls born to their communities (Black and Debelle 1995; US Dept. of HHS 2009).**

# Introduction

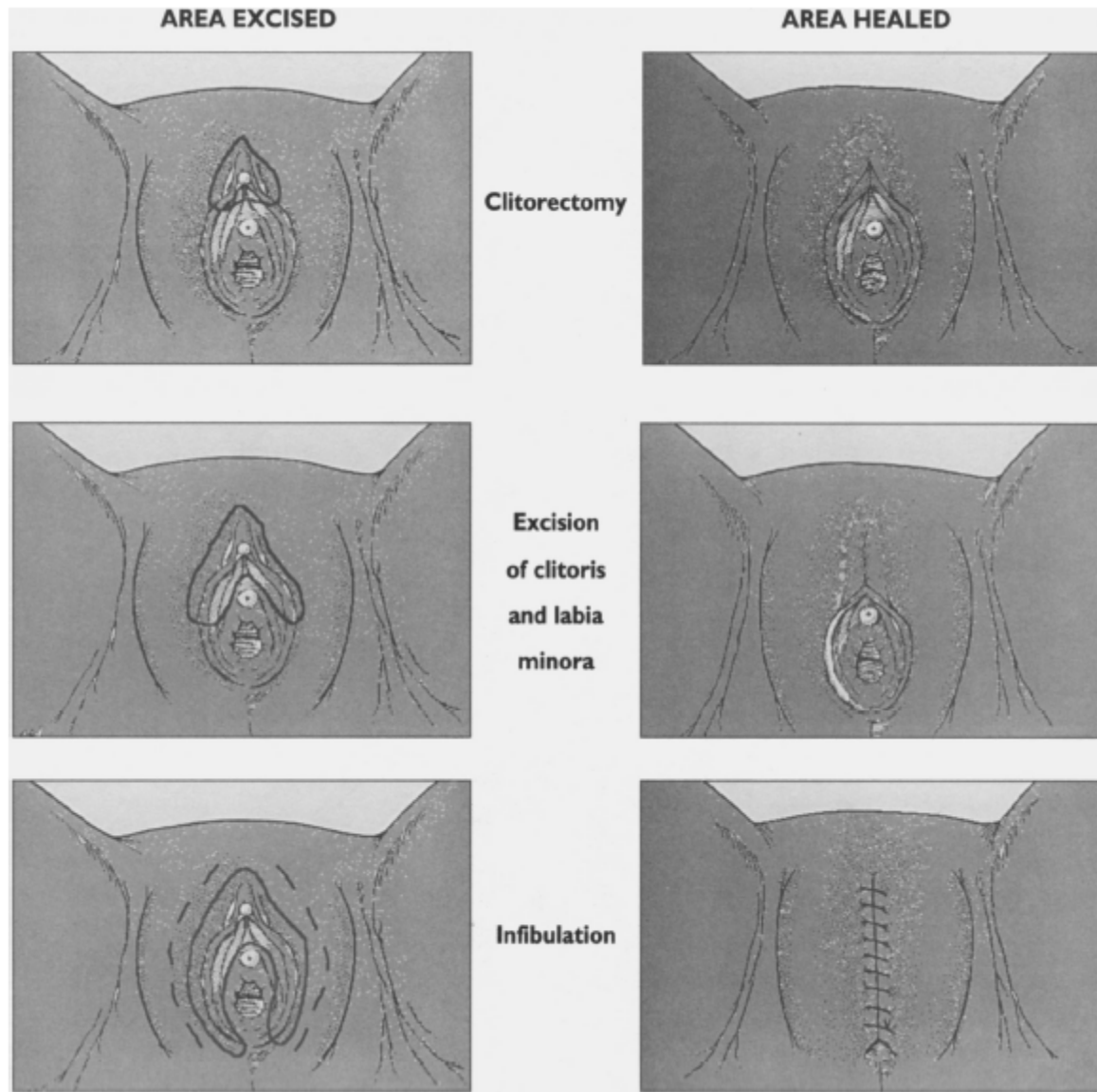


- In its typology of FGC, the WHO distinguishes between four different types of FGC (WHO, 2012).
- In the first type (clitoridectomy), the clitoris is partially or totally removed.
- In the second type (excision), both the clitoris and the labia are partially or totally removed.

# Introduction



- In the third type (infibulation), the vaginal opening is narrowed by sewing or stitching the labia together, leaving a small hole for urine and menses.
- The fourth type of FGC is a “residual” of sorts: it covers procedures that do not feat neatly in any of the first three categories.



(Source: Jones et al., 1997.)

# Introduction



- Although a woman can undergo FGC at any time between birth and age 15, the bulk of FGCs are performed on girls aged 4 to 8.
- What explains the persistence of FGC is more than just an academic question: there are physiological (and likely psychological) consequences to undergoing FGC.

# Introduction



Skaine (2005):

FGC can “(...) cause severe scarring that causes an **obstruction during delivery**. If infection is present at the time of the procedure in [clitoridectomy] and [excision], possible vulval adhesions can form that **narrow or obstruct the vaginal opening** and make labor long. The herbal pessaries used in [other types of FGC] and the use of rock salt after early pregnancies to reduce the vagina may result in **severe scarring and stenosis**.”



# Introduction



- Five percent of uncut women experience birthing complications compared to 18% for clitoridectomy, 30% for excision and infibulation (Jones et al., 1999).
- Likewise, the psychological costs are thought to include decreased trust in caregivers and the relationship problems that arise from painful intercourse because of infibulation (Jones et al., 1999; Shell-Duncan and Hernlund, 2006).

# Introduction



- The psychological damage inflicted by FGC may be deeply embedded in the consciousness of the circumcised child and that “[i]n the longer term, women may suffer anxiety, depression, chronic irritability, frigidity, and marital conflicts” (Dorkenoo, 1999).
- But there are also psychological benefits – a sense of belonging, a heightened sense of femininity for some, etc.

# Introduction



- Yet others assert that, regardless of health or psychological damage, FGC is a violation of human rights (Moore et al., 1997). As Skaine (2005) puts it, “[s]uppression and control over women’s sexuality are demeaning to women and deny an aspect of their humanity.”
- All this to say that it is worth asking why the practice persists, both from a social science, behavioral perspective and from a public health, policy perspective.

# Introduction



- We study the persistence of FGC empirically using household survey data from the Gambia.
- Specifically, we define “persistence of FGC” in this context as the relationship between (i) a woman having undergone FGC herself and (ii) her support for the practice.

# Introduction



- Our contribution lies in our ability to control for unobservable heterogeneity between communities and households.
- We have enough intrahousehold variation in both own FGC status and in whether respondents would like their daughter to be circumcised or whether respondents would like the practice of FGC to continue for society at large.

# Introduction



- This allows ruling out a variety of scenarios involving household-, community-, district-, and regional-level variables, since the variation in those levels is purged from our estimates.
- Ultimately, household- and individual-level factors explain 85% of FGC persistence.
- This may explain why village-wide pledges to eliminate FGC (Mackie, 1996) have so far not worked very well in The Gambia.

# Outline



1. **Introduction**
2. **Empirical Framework:**
  - a. **Estimation Strategy**
  - b. **Identification Strategy**
3. **Data**
4. **Results**
5. **Conclusion**

# Empirical Framework: Estimation



- We estimate the following equation:

$$y_{ihvd} = \alpha + \gamma D_{ihvd} + \beta x_{ihvd} + \varepsilon_{ihvd} \quad (1)$$

where  $y$  is equal to 1 if a respondent would like her daughter to be circumcised (alternatively, would like FGC to continue for society) and equal to 0 otherwise; subscripts denote individual  $i$  in household  $h$  in village  $v$  in district  $d$ ;  $D$  is equal to one if the respondent has undergone FGC and equal to zero otherwise;  $x$  is a vector of controls; and  $\varepsilon$  is an error term.



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# Empirical Framework: Estimation



Our data allow us to estimate the following specifications of our core equation:

$$y_{ihvd} = \alpha + \gamma D_{ihvd} + \beta x_{ihvd} + \delta_d d_d + \varepsilon_{ihvd} \quad (2)$$

$$y_{ihvd} = \alpha + \gamma D_{ihvd} + \beta x_{ihvd} + \delta_{vd} d_{vd} + \varepsilon_{ihvd} \quad (3)$$

$$y_{ihvd} = \alpha + \gamma D_{ihvd} + \beta x_{ihvd} + \delta_{hvd} d_{hvd} + \varepsilon_{ihvd} \quad (4)$$

where  $d$  denotes a fixed effect at the relevant level (i.e., district, village, or household).

# Empirical Framework: Estimation



- Equations 1 to 4 are estimated as linear probability models because nonlinear procedures such as probit and logit do not lend themselves well to the use of fixed effects (Heckman, 1979), and because OLS avoids identification based on functional form or distributional assumption.
- Also, dichotomous variables are heteroskedastic, so we use robust standard errors, which are robust to more general forms of heteroskedasticity.

# Empirical Framework: Estimation



- This allows holding constant district, village, and household level factors.
- This goes one step further than Hayford's (2005) approach – her multi-level modeling approach did not control for household-level factors, and only controlled imperfectly for village-level factors.

# Empirical Framework: Identification



- Our identification strategy is not perfect, but it is perhaps as close as one will ever get to perfect identification on this question.
- Recall that there are three sources of endogeneity: (i) reverse causality/simultaneity, (ii) unobserved heterogeneity, and (iii) measurement error.

# Empirical Framework: Identification



- Reverse causality is unlikely: although it is possible that a woman decides to undergo FGC on the basis of her support for the practice, our data covers ages 15 to 49, and FGC is usually performed from birth until age 15.
- For simultaneity, even if a girl is given a choice in the matter of undergoing FGC, it is unlikely that her future support is taken into consideration when deciding either for or against receiving the procedure.



# Empirical Framework: Identification



- As is often the case in applied micro, unobserved heterogeneity is the main source of endogeneity here: even with successive layers of fixed effects (i.e., district, village, and household), unobserved individual characteristics (e.g., trust, risk aversion, etc.) almost surely affect our estimate of FGC persistence.

# Empirical Framework: Identification



- Moreover, the stable unit treatment value assumption (SUTVA; Morgan and Winship 2007) is unlikely to hold here.
- That is, whether one respondent in a household receives the treatment is not independent of whether another respondent receives it.
- (Here, SUTVA says “within a given household, whether a woman has undergone FGC has no impact on other women in the household”—highly unlikely.)

# Empirical Framework: Identification



- Lastly, there might be some measurement error. Some question the reliability of self-reported measures of FGC (Jackson et al. 2003; Elmusharaf et al. 2006).
- In Jackson et al.'s case, however, this was because of a change in the government's official stance on FGC. In Elmusharaf et al.'s case, what's misclassified is the type of FGC, not whether respondents have undergone FGC. So we aren't too concerned with measurement error in this context.

# Empirical Framework: Identification



- Still, our estimate of FGC persistence is not perfectly identified, so it should be taken as suggestive.
- But it's difficult to think of better methods: an RCT would likely raise ethical questions, DD methods would prove difficult given young age of respondents, longitudinal data would suffer from problems similar to our data (and might not exhibit enough variation over time), etc. Even a quasi experimental setup might prove very difficult to use.

# Data



- We use the 2005-2006 Gambian Multi-Indicator Cluster Survey (MICS) data set collected by the Gambian Bureau of Statistics and UNICEF.
- The Gambian MICS is a nationally representative household survey of 6,175 households. A total of 10,252 women aged 15-49 were identified, and 9,982 were interviewed, for a 97.4 percent response rate.

# Data



- What about within-household variation?
- There are 362 households for which there is variation in either own FGC status or whether they would like their daughters to undergo FGC, and there are 357 households for which there is variation in either own FGC status or whether they think the practice should continue.

Table 1. Descriptive Statistics

	(1)	(2)
Respondent Believes FGC Should Continue for Society (Dummy)	0.755 (0.015)	-
Respondent Would Like Her Daughter to Undergo FGC (Dummy)	-	0.731 (0.016)
Respondent Has Undergone FGC (Dummy)	0.814 (0.013)	0.791 (0.015)
Respondent Age (Years)	27.533 (0.100)	27.545 (0.098)
Respondent Has Some Primary Education (Dummy)	0.119 (0.004)	0.119 (0.004)
Respondent Has Some Secondary Education (Dummy)	0.275 (0.012)	0.270 (0.012)
Household Head is Muslim (Dummy)	0.963 (0.004)	0.963 (0.004)
HIV/AIDS through Supernatural Means? Yes (Dummy)	0.115 (0.005)	0.116 (0.005)
HIV/AIDS through Supernatural Means? No (Dummy)	0.752 (0.010)	0.745 (0.010)
HIV/AIDS through Supernatural Means? Does Not Know (Dummy)	0.132 (0.008)	0.138 (0.008)
Wealth (Score)	0.028 (0.045)	0.019 (0.046)
Household Owns a Television (Dummy)	0.459 (0.015)	0.454 (0.016)
Household Owns a Radio (Dummy)	0.910 (0.005)	0.910 (0.005)
Household Has Access to Electricity (Dummy)	0.284 (0.019)	0.285 (0.019)
Domestic Violence: Woman as Property (Score)	0.711 (0.013)	0.709 (0.013)
Domestic Violence: Woman's Behavior (Score)	0.614	0.611
Observations	9,016	9,533
Robust standard errors in parentheses		

# Results



Respondent Underwent FGC	Respondent Would Like Her Daughter to Undergo FGC		
	No	Yes	Total
No	1,912	44	1,956
Yes	590	6,987	7,577
Total	2,502	7,031	9,533

Respondent Underwent FGC	Respondent Thinks Practice of FGC Should Continue		
	No	Yes	Total
No	1,582	57	1,639
Yes	570	6,807	7,377
Total	2,152	6,864	9,016



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# Results



- The (unconditional) pairwise correlation coefficients between own FGC status and whether the respondent would like her daughter to undergo FGC is equal to 0.83.
- Likewise, the (unconditional) pairwise correlation coefficients between own FGC status and whether the respondent would like the practice to continue is 0.80.

# Results



Variable	(1)	(2)	(3)	(4)
Dependent Variable: = 1 if Respondent Would Like Her Daughter to Undergo FGC; = 0 Otherwise.				
Underwent FGC	0.747***	0.734***	0.703***	0.397***
	(0.018)	(0.018)	(0.019)	(0.058)
Interviewer FEs	Yes	Yes	Yes	Yes
District FEs	No	Yes	Yes	Yes
Village FEs	No	No	Yes	Yes
Household FEs	No	No	No	Yes
Observations	9,533	9,533	9,533	9,533

Includes controls for age, education, religion, knowledge of causes of HIV transmission, wealth, asset ownership, perceptions of domestic violence, and ethnicity.

# Results

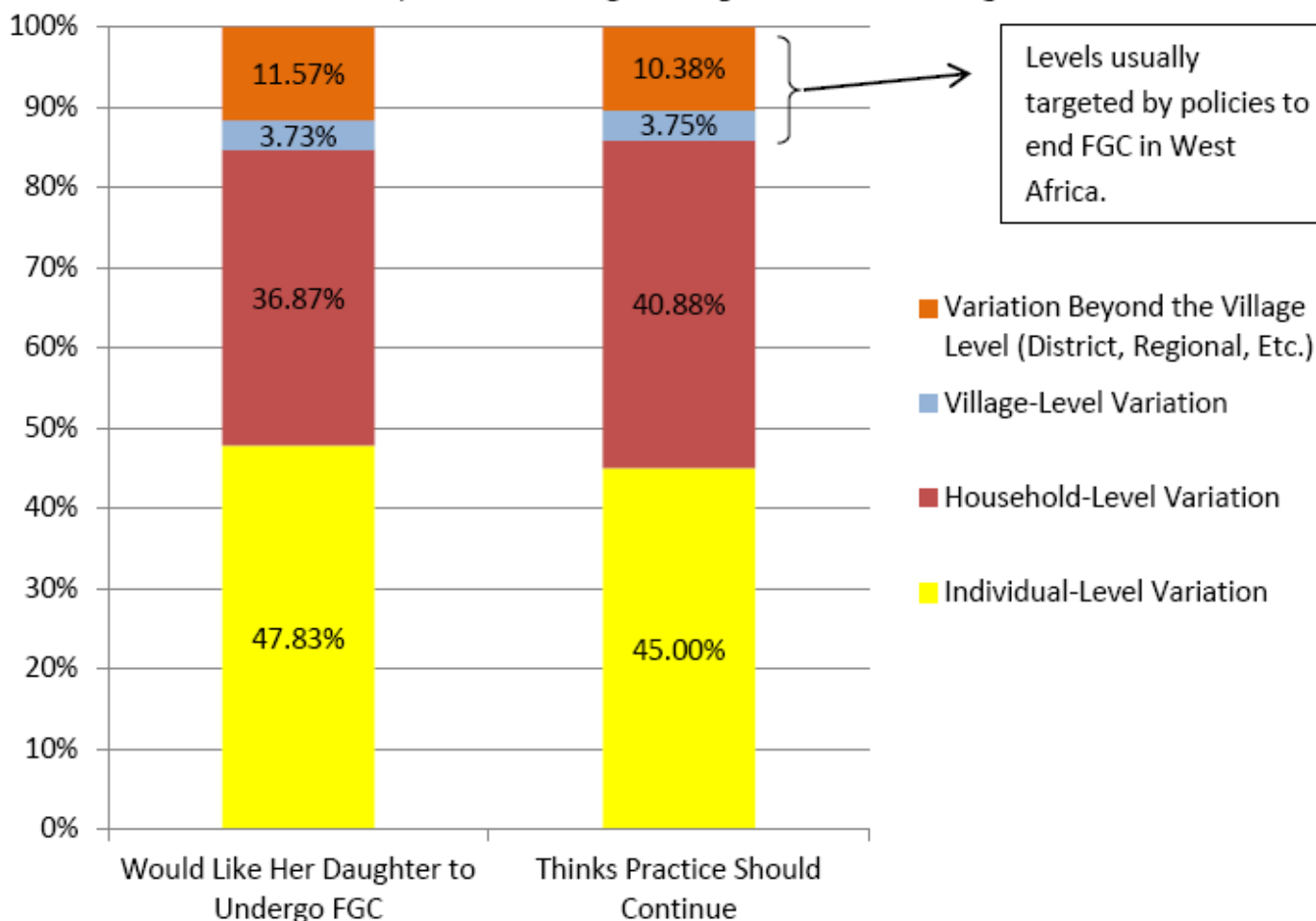


Variable	(1)	(2)	(3)	(4)
Dependent Variable: = 1 if Respondent Thinks FGC Should Continue; = 0 Otherwise.				
Underwent FGC	0.723***	0.717***	0.687***	0.360***
	(0.020)	(0.020)	(0.021)	(0.064)
Interviewer FEs	Yes	Yes	Yes	Yes
District FEs	No	Yes	Yes	Yes
Village FEs	No	No	Yes	Yes
Household FEs	No	No	No	Yes
Observations	9,016	9,016	9,016	9,016

Includes controls for age, education, religion, knowledge of causes of HIV transmission, wealth, asset ownership, perceptions of domestic violence, and ethnicity.

## Why Does Female Genital Cutting Persist in The Gambia?

Percentage Contribution of Each Level of Variation to the Relationship between a Respondent Having Undergone FGC and Being in Favor of FGC



**Figure 1. Percentage Contributions of Each Type of Factor to the Persistence of FGC in The Gambia. (Source: Authors' Own Calculations.)**

# Results



- Robustness checks: “Narrow” (both dependent variables = 1) vs. “Broad” (one of the two dependent variables = 1) definitions of support for FGC lead to almost identical results.
- Likewise for SUR estimation.

# Conclusion



- The drop in the estimated coefficient for own FGC (i.e., our measure of “persistence” of FGC) is largest when we include household fixed effects.
- In other words, the persistence of FGC in this context is largely due to sub-household-level factors: 85% of the variation in FGC persistence is due to household- and individual-level factors.



# Conclusion



- This suggests that village-level interventions might not work as well as household-level interventions in The Gambia.
- Indeed, there is some anecdotal evidence that Tostan's village-wide pledges against FGC (Mackie, 1996) – which have worked well in neighboring Senegal – have not been as effective in The Gambia.
- Our work provides some empirical evidence as to why that is.

# Appendix

# Within-Household Variation



- Estimates are largely the same between households with and without within-household variation in perceptions when including village fixed effects.
- For the daughter variable, coefficient is 0.84 (0.77) in households without (with) variation. For whether the practice should continue, coefficient is 0.81 (0.75) in households without (with) variation. This is in line with intuition.

# Within-Household Variation



- Moreover, TV and radio ownership are both negatively associated with there being within-household variation in the persistence relationship (i.e., dependent variable, variable of interest, or both). Opposite result for electricity.
- We don't quite know what to make of this. In a way, it is obvious that within-household variation will not be randomly distributed across households, but those patterns don't seem indicative of much.

# Missing Dependent Variables



- We created dummies for whether an observation has a missing dependent variable, one for each dependent variable.
- Using those dummies as dependent variables in the most complete (i.e., household FE) specifications, only the HIV variables are (negatively) associated with a missing dependent variable, and only in the “daughter” specification.