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

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Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Introduction

Introduction

▶ Over 100 million women worldwide have had their genitalia partially or totally removed for nonmedical reasons under the practice of female genital cutting (FGC).

▶ Three million girls are thought to undergo FGC every year worldwide (WHO 2012).

▶ Yet as social scientists, we only have a limited understanding of why the practice persists (Hayford 2005).

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Introduction

Introduction

- ▶ FGC is widespread throughout Africa, Asia, and the Middle East.

- ▶ It is also a public health concern in OECD countries: Immigrants sometimes import the practice and practice "back-alley" FGCs on girls born to their communities (Black and Debelle 1995; HHS 2009).

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Introduction

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.
- ▶ Given the foregoing, it is worth asking why the practice persists.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Introduction

Introduction

This is economically relevant for four reasons:

1. First, the physiological and psychological consequences of FGC can lead to lower educational attainments, worse labor market outcomes, decreased productivity, etc.

2. Second, there is a long line of research on social norms in economics (Elster 1989; Ellickson 1989, 1991; North 1990).

3. Third, the norm is often thought to be sustained because of the desirability of FGC on the marriage market (Wagner 2013).

4. Fourth, our results can provide insight about the potentially nonlinear dynamics (e.g., tipping point models) of FGC persistence (Schelling 1978; Bikhchandani et al. 1992).

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Introduction

Introduction

▶ We study the persistence of FGC empirically using household survey data from Senegal and The Gambia.

▶ Specifically, we define "persistence of FGC" in this context as *the relationship between (i) whether a woman reports having undergone FGC herself, and (ii) whether she supports for the practice.*

▶ This is an admittedly narrow definition of "persistence," but studying the full scope of FGC persistence would require longitudinal network data, which would be very costly to collect.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Introduction

Introduction

- ▶ Our contribution is threefold. First, we estimate the association between reporting undergoing FGC and support for the practice.

- ▶ Second, we quantify the contribution that each level of variation (i.e., individual, household, village, and beyond) has on the persistence of FGC as we define it in our analysis.

- ▶ Third, along with Wagner (2013), this is one of the first contributions of economics to the study of FGC.

- ▶ The strength of our approach is 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 support the practice.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Introduction

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 51% of FGC persistence in Senegal and 85% in The Gambia.
- ▶ What's more, village-level factors explain almost three times as much variation in Senegal as they do in The Gambia.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Strategy
Identification Strategy

Estimation Strategy

We estimate the following equation, progressively adding layers of fixed effects (district, village, and household):

$$y_{ihvd} = \alpha + \gamma D_{ihvd} + \beta x_{ihvd} + \delta_{hvd} + \epsilon_{ihvd}, \text{ where} \qquad (1)$$

- $y = 1$ if the individual i in household h in village v in district d would like FGC to continue for society (would like her daughter to undergo FGC), $= 0$ otherwise;
- $D = 1$ if the respondent has undergone FGC, $= 0$ otherwise;
- δ is a vector of household fixed effects
- x is a vector of controls; and
- ϵ is an error term with mean zero.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Strategy
Identification Strategy

Estimation Strategy

▶ Equations 1 is estimated as a linear probability model 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 inherently heteroskedastic, and OLS with robust standard errors allows correcting for more general forms of heteroskedasticity than either a probit or logit do.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Strategy
Identification Strategy

Identification Strategy

▶ Again: The innovation in our approach is that it allows holding constant district, village, and household level factors.

▶ So stories like "FGC is more likely in households that have more sons" (Blaydes and Izama 2013) or "FGC is more likely the further away one lives from the capital" are ruled out.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Strategy
Identification Strategy

Identification Strategy

▶ Our identification strategy is not perfect, but it is perhaps as close as one will ever get to a clean identification of a causal relationship on this question.

▶ Recall that there are three sources of endogeneity: (i) reverse causality/simultaneity, (ii) unobserved heterogeneity, and (iii) measurement error.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Strategy
Identification Strategy

Identification Strategy

▶ 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.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Strategy
Identification Strategy

Identification Strategy

- ▶ As is often the case in applications such as this one, unobserved heterogeneity is the main source of endogeneity here: even with successive layers of fixed effects, unobserved characteristics (e.g., trust, risk aversion, etc.) surely affect our estimate of FGC persistence.

- ▶ Moreover, the stable unit treatment value assumption (SUTVA; Morgan and Winship 2007) is unlikely to hold here. Whether one respondent in a household receives the treatment is not independent of whether another respondent receives it.

- ▶ (SUTVA: "Within a given household, whether a woman has undergone FGC has no impact on other women in the household"—highly unlikely.)

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Strategy
Identification Strategy

Identification Strategy

▶ As for measurement error, although some question the reliability of self-reported measures of FGC (Jackson et al. 2003; Elmusharaf et al. 2006), we argue that this is not an issue in our data.

▶ Jackson et al. (2003) report measurement error because of a government ban in Ghana. Though this can be a problem in our Senegalese data, in The Gambia, the practice is actually encouraged by the president as distinctly Gambian.

▶ Elmusharaf et al. (2006) report measurement error over the type of FGC reported. Here, we only look at whether respondents report undergoing *any* kind of FGC.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Strategy
Identification Strategy

Identification Strategy

▶ All this to say that our estimate of FGC persistence is not perfectly identified, so it should be interpreted as suggestive.

▶ Still, it is difficult to think of better methods: an RCT would likely raise serious ethical questions, difference-in-difference 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.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

The Gambia and Senegal

Data and Descriptive Statistics

- ▶ For The Gambia, we use the 2005-2006 Gambian MICS collected by the Gambian Bureau of Statistics and UNICEF; $n = 9,533$ ($n = 9,016$).

- ▶ 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.

- ▶ For Senegal, we use the 2010-2011 round of the Senegalese DHS; $n = 13,199$.

- ▶ There are 979 households for which there is variation in own FGC status; 761 for which there is variation in whether the practice should continue.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

The Gambia and Senegal

Data and Descriptive Statistics

Table 1. Cross-Tabulation of Whether a Respondent Reports Having Undergone FGC and Whether She Is In Favor of FGC for Her Daughter in The Gambia.

| Respondent Underwent FGC? | FGC for Daughter? | | |
	No	Yes	Total
No	1,912	44	1,956
Yes	590	6987	7,577
Total	2,502	7,031	9,533

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

The Gambia and Senegal

Data and Descriptive Statistics

Table 2. Cross-Tabulation of Whether a Respondent Reports Having Undergone FGC and Whether She Is In Favor of FGC Continuing in The Gambia.

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

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

The Gambia and Senegal

Data and Descriptive Statistics

Table 3. Cross-Tabulation of Whether a Respondent Reports Having Undergone FGC and Whether She Is In Favor of FGC Continuing in Senegal.

	Should FGC Continue?		
Respondent Underwent FGC?	**No**	**Yes**	**Total**
No	7,745	221	**7,966**
Yes	2,207	3,026	**5,233**
Total	**9,952**	**3,247**	**13,199**

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Results
Discussion

Estimation Results

▶ In The Gambia, the (unconditional) pairwise correlation coefficient between reported FGC status and whether the respondent would like her daughter to undergo FGC (would like the practice to continue) is equal to 0.83 (0.80).

▶ In Senegal, the (unconditional) pairwise correlation coefficient between reported FGC status and whether the respondent would like the practice to continue is 0.63.

▶ These pairwise correlation coefficients serve as benchmarks against which we compare our estimated "persistence" of FGC to quantify the contribution of each level of variation (i.e., individual, household, village, and beyond).

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Results
Discussion

Estimation Results

Table 4. Estimation Results for Whether a Respondent Would Like
Her Daughter to Undergo FGC in The Gambia

Coefficient	(1)	(2)	(3)	(4)
Respondent Reports	0.747***	0.734***	0.703***	0.397***
Undergoing FGC?	(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

Note: Controls for age, education, knowledge of public health, wealth,
TV, radio, electricity, perceptions of domestic violence, and ethnicity not
shown.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Results
Discussion

Estimation Results

Table 5. Estimation Results for Whether a Respondent Would Like
FGC to Continue in The Gambia

Coefficient	(1)	(2)	(3)	(4)
Respondent Reports	0.723***	0.717***	0.687***	0.360***
Undergoing FGC?	(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

Note: Controls for age, education, knowledge of public health, wealth,
TV, radio, electricity, perceptions of domestic violence, and ethnicity not
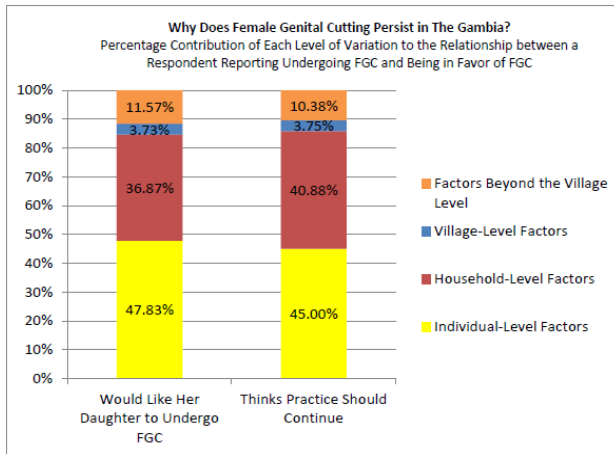shown.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Results
Discussion

Estimation Results

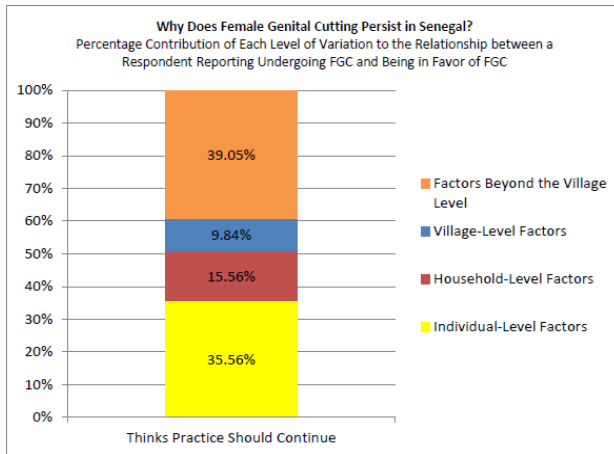Table 6. Estimation Results for Whether a Respondent Would Like
FGC to Continue in Senegal

Coefficient	(1)	(2)	(3)	(4)
Respondent Reports	0.403***	0.384***	0.322***	0.224***
Undergoing FGC?	(0.022)	(0.021)	(0.020)	(0.034)
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	13,199	13,199	13,199	13,199

Note: Controls for age, education, knowledge of public health, wealth,
TV, radio, electricity, perceptions of domestic violence, and ethnicity not
shown.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Results
Discussion

Estimation Results

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Results
Discussion

Estimation Results

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Estimation Results
Discussion

Discussion

▶ In both countries, the bulk of the variation in FGC persistence is explained by individual- and household-level factors.

▶ In Senegal, village-level factors explain almost three times as much FGC persistence as they do in The Gambia.

▶ Likewise, factors beyond the village level explain four times as much FGC persistence as they do in The Gambia.

▶ This fits a tipping point model wherein the decision to abandon FGC begins with individual-level decisions in places where it is very pervasive. Then, once enough people abandon it, it is easier to get entire villages to abandon the practice, and so on in a nonlinear fashion.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Conclusion

Conclusion

▶ We investigate the persistence of FGC – defined here as the relationship between reporting undergoing FGC and support for the practice – in Senegal and The Gambia.

▶ We find that much of the relationship between a woman's reported FGC status and her support for the practice can be attributed to individual- and household-level factors.

▶ This may explain why village-level campaigns to phase out the practice (Mackie 1996), which have reportedly worked well in Senegal, have not had a similar impact in The Gambia.

Introduction
Empirical Framework
Data and Descriptive Statistics
Estimation Results and Discussion
Conclusion

Conclusion

Conclusion

▶ Moreover, we find that reporting undergoing FGC increases the likelihood that a woman will be in favor of the practice by 22 percentage points in Senegal and by 40 percentage points in the Gambia.

▶ That said, Senegal and the Gambia are only two of many countries where the practice of FGC remains widespread. This points to the need for studies such as this one in those other countries.

▶ Finally, future research should aim at testing between competing theories – convention, feminist, or modernization theory – of FGC persistence.