Female Genital Cutting and Early Mortality: Evidence from the 1999 Senegalese Ban

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Motivation

- Female genital cutting (FGC) is the ritual cutting of some or all of the external female genitalia for reasons unrelated with health.
- 3 million girls undergo female genital cutting (FGC) every year.
- FGC is widespread among many ethnic groups in West Africa, where most girls are cut during their early infancy or childhood.
- Cut is mostly practiced using crude unsterile instruments and without anaesthetics by traditional practitioners with little knowledge of female anatomy (UNICEF, 2013).
- Complications during FGC are common: excessive bleeding (32%), genital tissue swelling (15%) and problems with wound healing (14%) (Berg et al. 2014).
- Does FGC contribute to the high prevalence of child mortality in West Africa?

Literature on health consequences of FGC

- FGC is associated with higher prevalence of sexually trasnmitted illnesses and genital sore (Wagner 2015, Berg et al. 2014).
- Once individual and household level characteristics are taken into account, little or no association between FGC and other health dimensions (BMI, weight, hemoglobin, amenorrhea and irregular menstruation) (Wagner 2015, Morrison et al. 2001, Browning et al. 2010).
- Evidence is correlational and might be affected by ommitted variable bias.
- Beyond anecdotal evidence, no systematic investigation on the link between FGC and early mortality.

This paper

- Exploits across-ethnic variation in exposure to the Senegalese law that in 1999 banned FGC to:
  - Investigate whether laws can be useful instruments to tackle traditional practices.
  - Assess the impact of the law on early mortality.
  - Establish the first causal evidence on the link between mortality and FGC.

Context

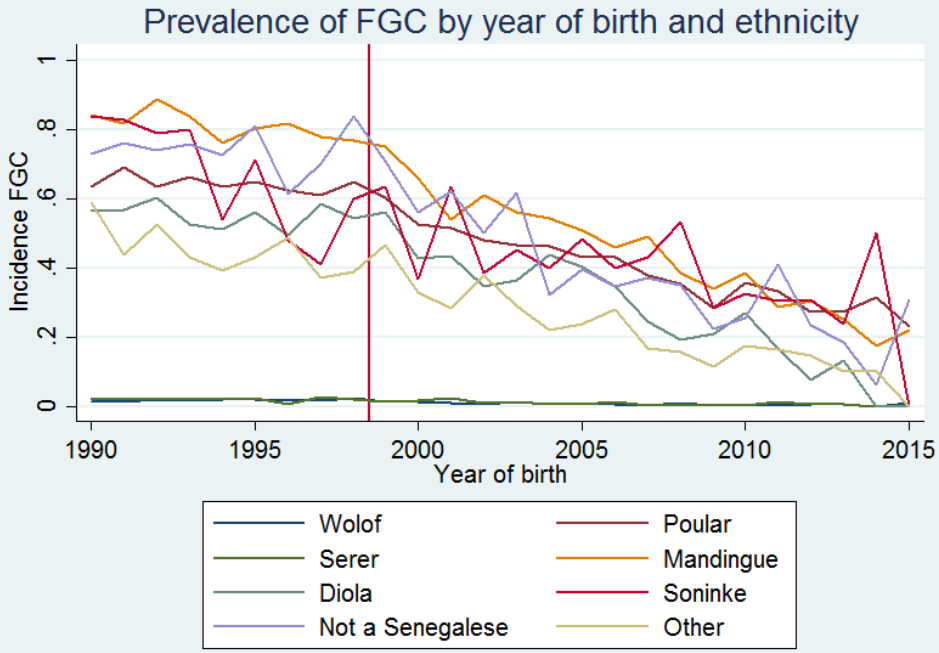
- Senegal. 28 % of women between 15 and 49 are cut. (3% in Niger and 99% in Guinea).
- Parental decision: mainly conducted during infancy or early childhood. In our data, more than 60% of cuts occur within the first year of life and only 10% of them after the age of 5.
- **Law** banned FGC and sanctions those who provoke sexual mutilations or give instructions for their commission with six months to five years of prison, or hard labor for life if cutting results in death. The law was enacted the 29th of January 1999.
- Ethnic variability rooted in tradition

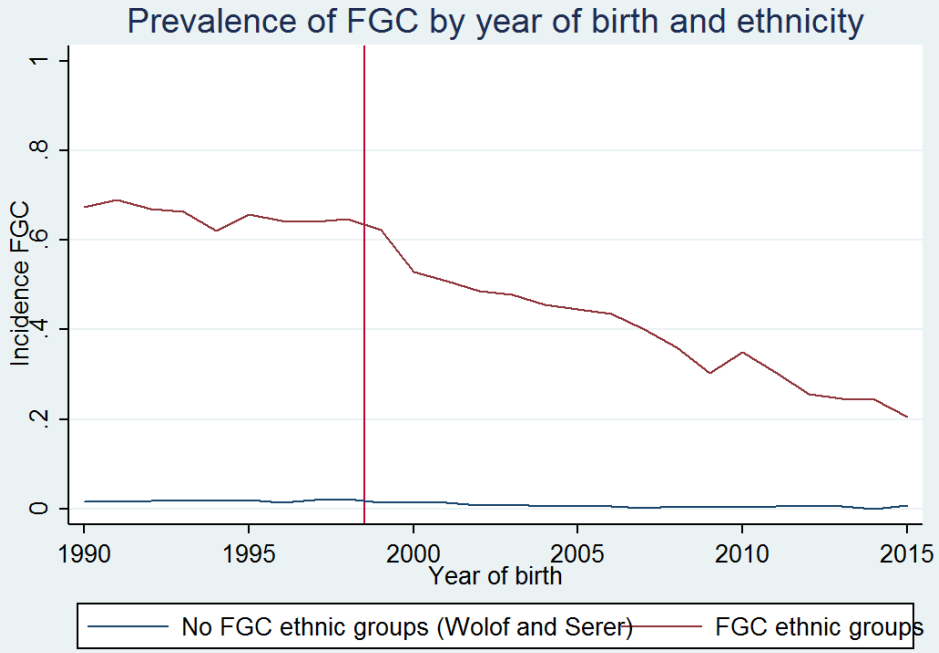
FGC across ethnic groups before the introduction of the law

Table: Pre-law prevalence of FGC across ethnic groups in Senegal:

Ethnic group	FGC prevalence	Share ethnic. in sample
Wolof	0.017	0.322
Poular	0.642	0.341
Serer	0.020	0.119
Mandingue	0.812	0.086
Diola	0.553	0.039
Soninke	0.679	0.019
Not a Senegalese	0.744	0.023
Other	0.450	0.051

FGC across ethnic groups and over time





Empirical Strategy: Estimation

Effect of the law on FGC:

$$\begin{aligned} FGC_{ikrt} = \alpha_0 + \alpha_1(POST_t \times LawIntensity_k) + \alpha_3 YearBirth_t \\ + \alpha_4 EthnicGroup_k + \alpha_5 Region_r + \alpha_6(Region_r \times YearBirth_t) \\ + \alpha_7 X_i + \mu_{ikrt} \end{aligned} \quad (1)$$

Effect of the law on child mortality:

$$\begin{aligned} EarlyMortality_{ikrt} = \beta_0 + \beta_1(POST_t \times LawIntensity_k) + \beta_3 YearBirth_t \\ + \beta_4 EthGroup_k + \beta_5 Region_r + \beta_6(Region_r \times YearBirth_t) \\ + \beta_7 X_i + u_{ikrt} \end{aligned} \quad (2)$$

Data

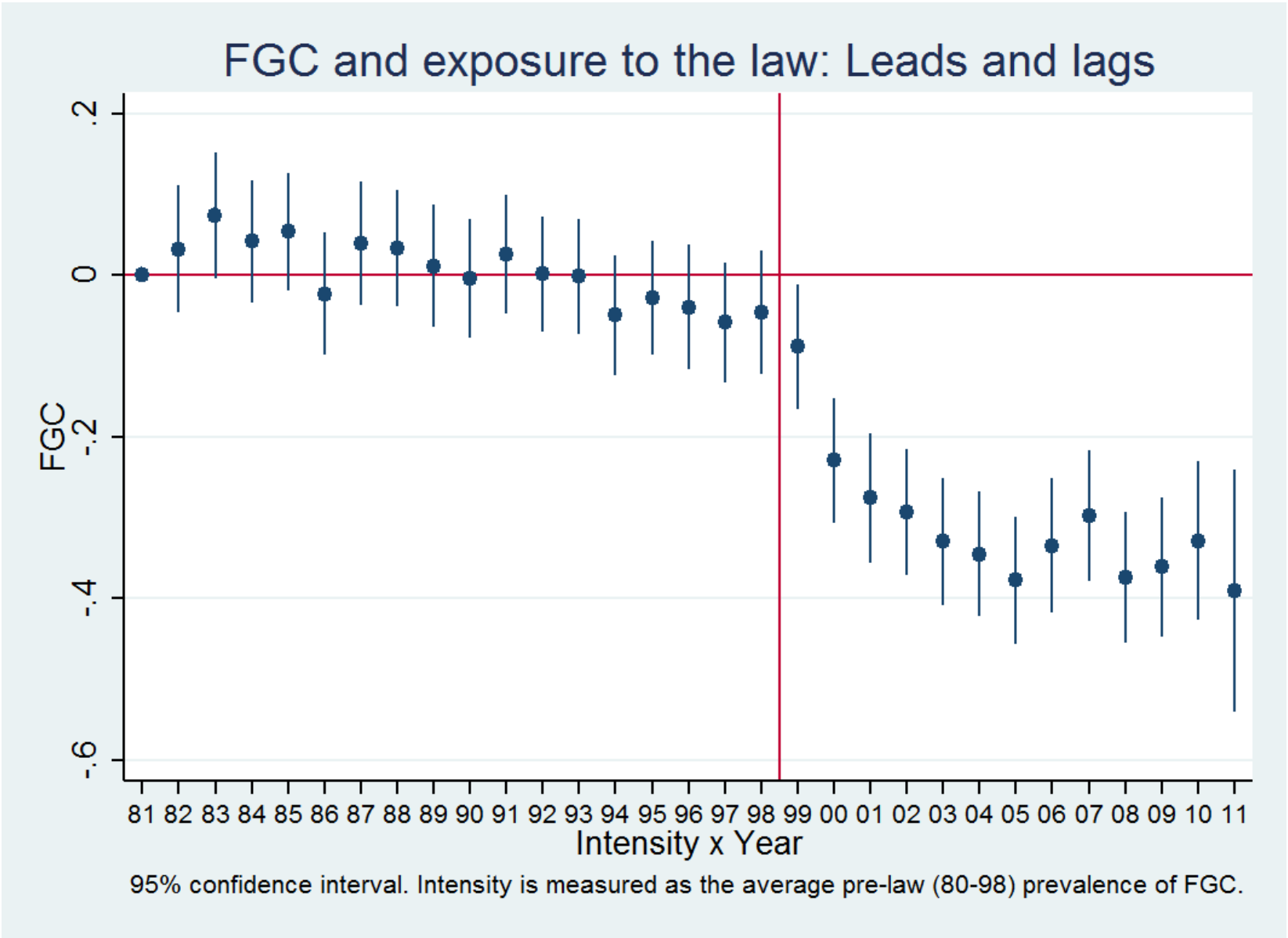
- Information on FGC: Demographic and Health Surveys (DHS) rounds 2016, 2015, 2014, 2012 and 2010 including 51,396 female born from January 1980 that by the time of the survey were at least 5 years old.
- Information on early mortality: 87,380 girls born after 1980 and older than 5 at the time of the survey from women aged 15-49 in DHS rounds 2016, 2015, 2014, 2012, 2010, 2005, 1999, 1997 and 1992.
- Information on FGC status not reported for girls that passed away, preventing *two stage estimations*.

Law and FGC:

Table: Impact of Female Genital Cutting Ban on FGC prevalence:

	(1) FGC (0/1)	(2) FGC (0/1)	(3) FGC (0/1)
Intensity × PostLaw	-0.228***	-0.291***	-0.200***
	(0.016)	(0.023)	(0.023)
Proportion FGC (0/1)	0.325	0.259	0.363
Regional Dummies	Yes	Yes	Yes
Regional time trends	Yes	Yes	Yes
N	51,396	18,724	32,672
Sample	All	Urban	Rural

Law and FGC:


FGC and exposure to the law: Leads and lags
FGC
.2
0
-.2
-.4
-.6
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11
Intensity x Year
95% confidence interval. Intensity is measured as the average pre-law (80-98) prevalence of FGC.

Law and child mortality

Table: Female Genital Cutting Ban and Infant Mortality:

	(1) Child mortality	(2) Child mortality	(3) Child mortality	(4) Child mortality
Intensity × PostLaw	-0.015**	-0.012	-0.034***	-0.005
	(0.008)	(0.008)	(0.012)	(0.011)
P-value for F test leads=0	0.55	0.61	0.44	0.83
Regional time trends	No	Yes	Yes	Yes
Sample	All	All	Urban	Rural
N	87,380	87,380	25,703	61,677

Other mortality outcomes

Table: Female Genital Cutting Ban and Other Early Mortality Outcomes:

	(1) Infant mortality	(2) Infant mortality	(3) Infant mortality	(4) First-day mortality	(5) First-day mortality	(6) First-day mortality
Intensity × PostLaw	-0.018***	-0.026***	-0.013*	-0.002	0.000	-0.003
	(0.006)	(0.010)	(0.008)	(0.002)	(0.003)	(0.002)
Regional time trends	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	Urban	Rural	All	Urban	Rural
N	87,380	25,703	61,677	87,380	25,703	61,677

Robustness checks

Table: Placebo tests: Female Genital Cutting Ban and Infant Mortality.

	Placebo test: Men			Placebo law: 1995			Placebo law: 1990		
	(1) Child mortality	(2) Child mortality	(3) Child mortality	(4) Child mortality	(5) Child mortality	(6) Child mortality	(7) Child mortality	(8) Child mortality	(9) Child mortality
Intensity × PostLaw	0.004	-0.014	0.009	-0.004	-0.028	0.006	0.003	-0.014	0.005
	(0.009)	(0.013)	(0.011)	(0.012)	(0.019)	(0.016)	(0.011)	(0.017)	(0.015)
Regional time trends	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Sample	All	Urban	Rural	All	Urban	Rural	All	Urban	Rural
N	90,802	26,697	64,105	50,490	15,411	35,079	50,490	15,411	35,079

Conclusions

- Although not fully enforced, the law contributed to reduce the prevalence of FGC.
- Higher exposure to the law reduces child mortality, particularly in urban areas, where the law was more effective.
- Results indicates a causal link between FGC and early mortality.

Early mortality in Senegal

Table: Early mortality in Senegal:

	(1) Total sample Prevalence	(2) Urban sample Prevalence	(3) Rural sample Prevalence
Girls			
Child mortality	0.144	0.098	0.163
Infant mortality	0.071	0.055	0.077
Sample	87,380	25,703	61,677
Boys			
Child mortality	0.162	0.115	0.181
Infant mortality	0.085	0.068	0.092
Sample	90,802	26,697	64,105