PRIN 2022
Climate Change, Violent Conflicts and Welfare: A Multi-Scale Investigation of Causal Pathways in Different Institutional Contexts (CC2C)

The Unintended Effects of Crisis Response on Female Genital Cutting: Evidence from Nigeria's Response to Boko Haram

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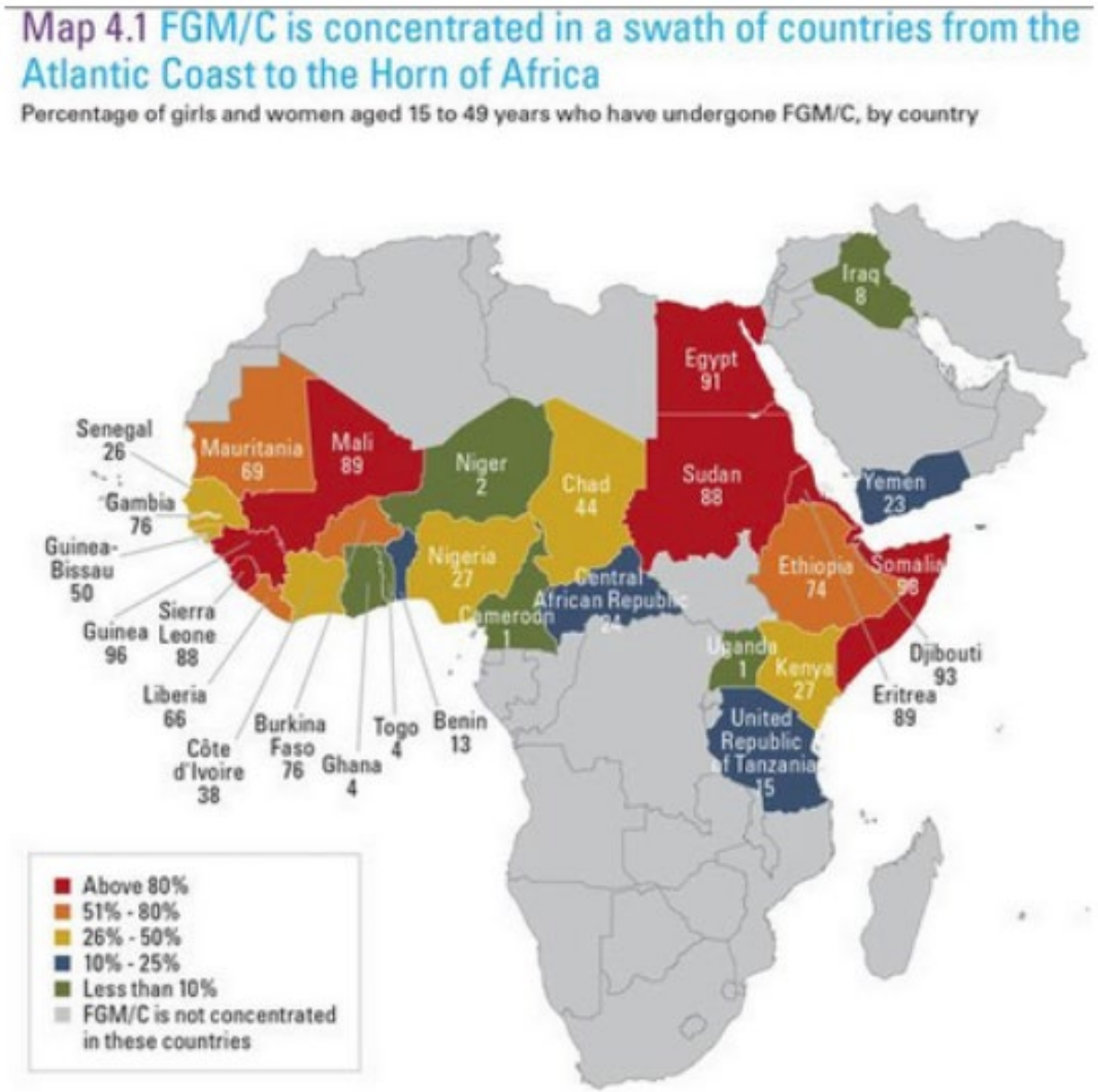
Background and Study’s motivation

- **Background on FGC**:
  - Non-medical procedures on female genitalia, mainly in Sub-Saharan Africa.
  - FGC as a Human Rights Violation: Deeply embedded in cultural beliefs and perceptions over generations.
  - It carries cultural, social, and health implications, with significant costs and perceived benefits.
- **Study's Importance**: First causal evidence linking conflict shocks, specifically Boko Haram-related, to decisions about FGC.
- **Study’s Goals**: Examine the influence of Boko Haram conflicts on FGC decisions and identify underlying pathways.



Source: UNICEF (2013) *Female Genital Mutilation/Cutting: A statistical overview and exploration of the dynamics of change.* New York

Trade-off between current/discounted (perceived) benefits and costs of FGC

- **Perceived benefits**:
  - Perceived social and cultural benefits
    - Cultural Tradition and Identity (Cultural Continuity and Social Cohesion) (Toubia and Sharief, 2003; Molloy, 2013)
    - Social Acceptance and Status (Marriageability and Respect and Honor) (Berg and Denison, 2012; Becker, 2013; Gibson et al., 2022)
  - Perceived Religious and Moral Benefits (Masterson and Swanson, 2000) – but not endorsed by Islam
  - Economic Considerations
    - Economic Dependence (bride price and FGC, especially for girls/HHs with low educ level) (Gibson et al., 2022; Khalifa, 2022). It also applies in non-bride price societies.
- **Individual and social costs**
  - Loss of Health and Well-being (physical and mental health) (WHO et al., 2008)
  - Loss of Productivity and Economic Contributions (workforce participation and economic loss) (Gemignani & Wodon, 2015)
  - Healthcare costs
  - Direct economic costs faced by HHs (procedure to excise and ceremony costs/these amount up to 20 USD – McGavock and Novak, 2023)
  - Interruption in Education
  - Social Opportunity Costs (FGC perpetuates gender inequality)

FGC legislation in Nigeria

- **Nigeria's Legislation**: In 2015, the Federal Violence Against Persons Prohibition Act banned FGC, initially in the Federal Capital Territory (Abuja). Anambra, Ekiti, and Oyo have since adopted it, but nationwide legislation is still needed.
- **Consequences for Identification**: After bans, FGC status and age may be misreported, though research (McGavock and Novak, 2023) shows no systematic changes across Sub-Saharan Africa before and after such bans.

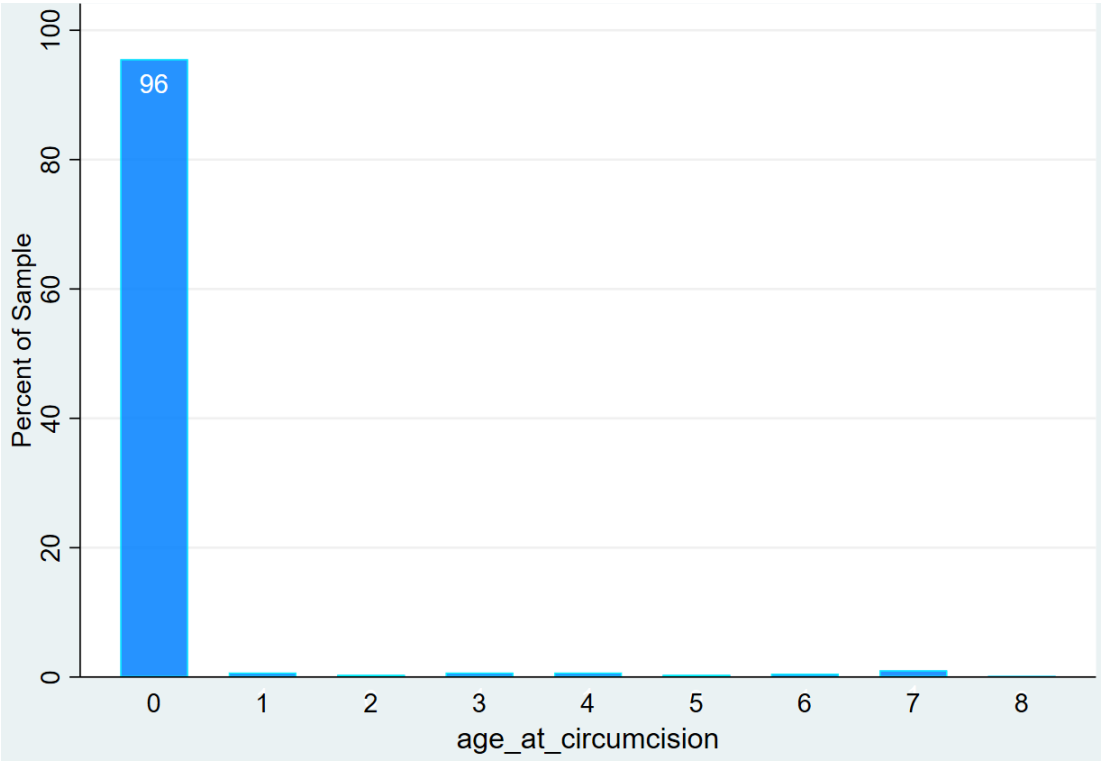
FGC in Nigeria: some descriptive stats (from 2018 NDHS)

- **FGC Prevalence**: In 2018, 81% of daughters (0-14 years) were not circumcised; 17% were circumcised before age 1. In North-East region, the prevalence is particularly high (Yobe 52%, Bauchi 38%)
- **Mother's religion**: 25% of girls (0-4 years) with Muslim mothers were circumcised;
- **Mother's Education**: Daughters of women with higher education (8%) are less likely to be circumcised compared to those of uneducated mothers (24%);
- **Mother's FGC experience**: 56% of daughters (0-14 years) of circumcised mothers are also circumcised, compared to 17% of daughters of uncircumcised mothers.

Boko Haram’s trajectory

- Before 2009, Boko Haram’s activities were largely peaceful;
- However, 2014 Chibok (Borno State – North-East – during the night of April 14-15) schoolgirl abduction propelled the group to global infamy as "the world’s deadliest terrorist group.“ (276 schoolgirls kidnapped and 98 are still captive)

Age of girls' circumcision (among those who were mutilated) – In North-East region 19% of girls aged 0-14 were cut (inter-temporal choice of practicing FGC)



Key for identification: almost all girls were cut during infancy, so we can use a sample of young girls at the time of the survey (i.e., no risk of right censoring)

Ethno-local norms determine the age at which girls are mutilated. In some societies, in late adolescence, in others in infancy/very early childhood (as here – where the expected utility of doing it earlier in infancy is higher than doing it later in adolescence or never). The **preferred age varies according to the expected benefits/costs accrued with FGC**, which vary with local contexts/ethnicities. But the **preferred age was shown to change unexpectedly due to shocks** (McGavock and Novak, 2023).

What do we do?

- We test the causal effect of Boko Haram-related conflict on the likelihood of FGC practice. We expect an (unintentional) negative/decreasing relation. Conflicts affect:
  - Positively (negatively) the perceived **health costs (bride price)**; health costs and bride price are connected through the marriage market →reduces FGC if relative health costs increases wrt to bride price
  - Positively the relative **cost of FGC practice itself and the ceremony** →reduces FGC (mostly via a reduction in household welfare)
  - Negatively the **cultural belief pro-FGC** →reduces FGC

What do we do?

- Specifically,
- We first estimate the effect of Boko Haram-related conflict on the likelihood of FGC for girls aged 0-14;
- We then test some suggestive evidence for potential mechanisms, as:
  - Household welfare;
  - Cultural beliefs pro-FGC;
  - Perceived (relative) health costs due to FGC (proxied by the availability of health centers and demand for health services);
  - Child Marriage;
  - Internet demand (to be finalised).

Estimation Strategy

- Dynamic Staggered DD (de Chaisemartin and D'Haultfoeuille, 2020a,b,c)
- Boko Haram conflict started in 2009. Not all grid-cells experienced conflict events starting from the same time, but staggered over the period (and switched in&out)

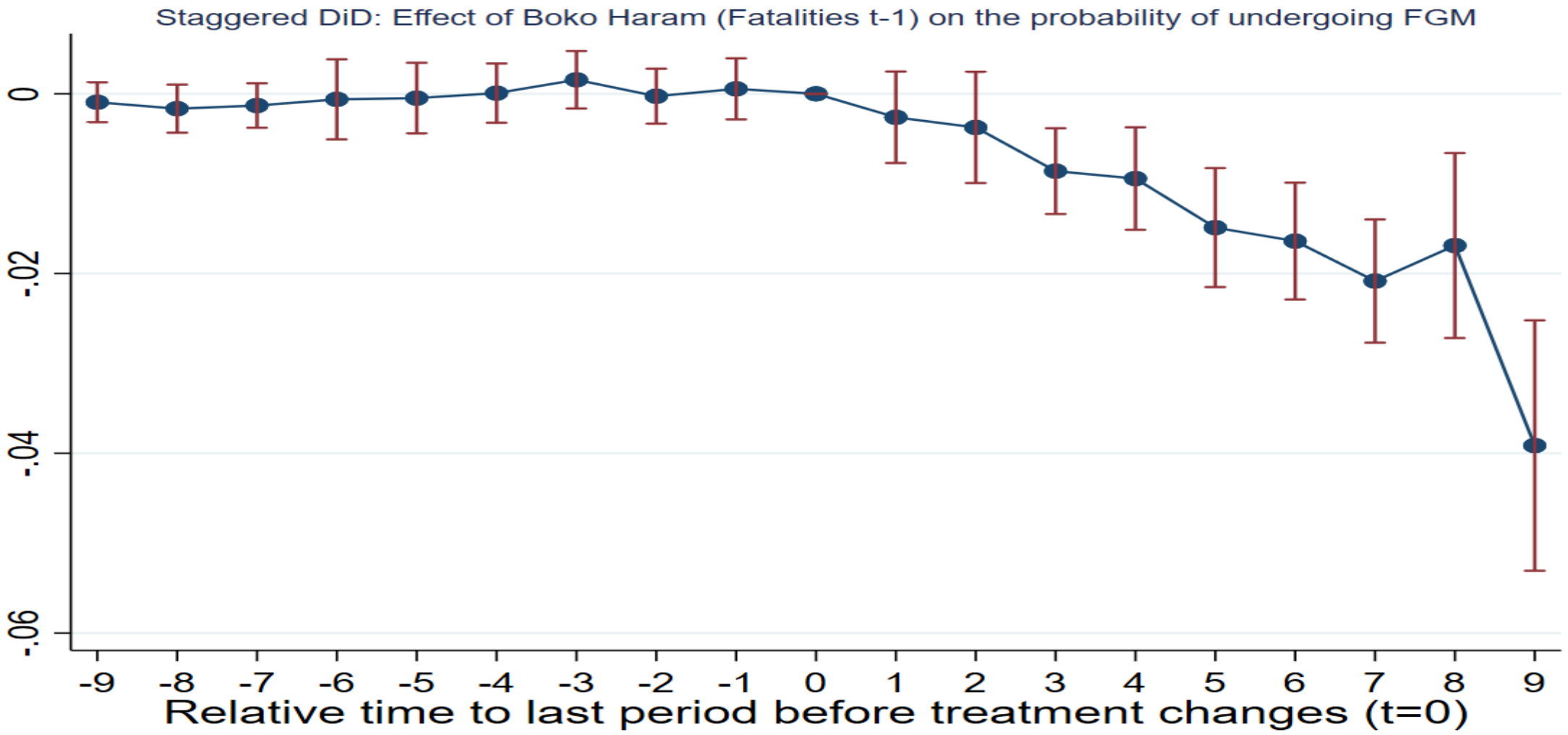
$$y_{igt} = \underbrace{\left(\sum_{j \in \{-m,\ldots,0,\ldots n\}} \gamma_j D_{i,t-j} \right)}_{\text{Event study terms}} + \underbrace{\alpha_g + \delta_t}_{\text{Panel Fixed Effects}} + \underbrace{\beta \boldsymbol{X}_{it}}_{\text{Controls}} + \epsilon_{it}$$

- $D_{i,t-j}$ is an indicator variable that identifies an event that took place j periods before this observation's time t;
- γ_j for before the event has occurred (for j<0) provide a placebo test; γ_j for after the event has occurred (for j≥0) capture the dynamic effects of the treatment;
- If no trend in j before the event has occurred should ensure that there was no anticipation effects, model misspecification or omitted confounding variables;
- S.e. clustered at the grid level;
- Controls: girls' and mothers' age FE

Data, key variables and sample

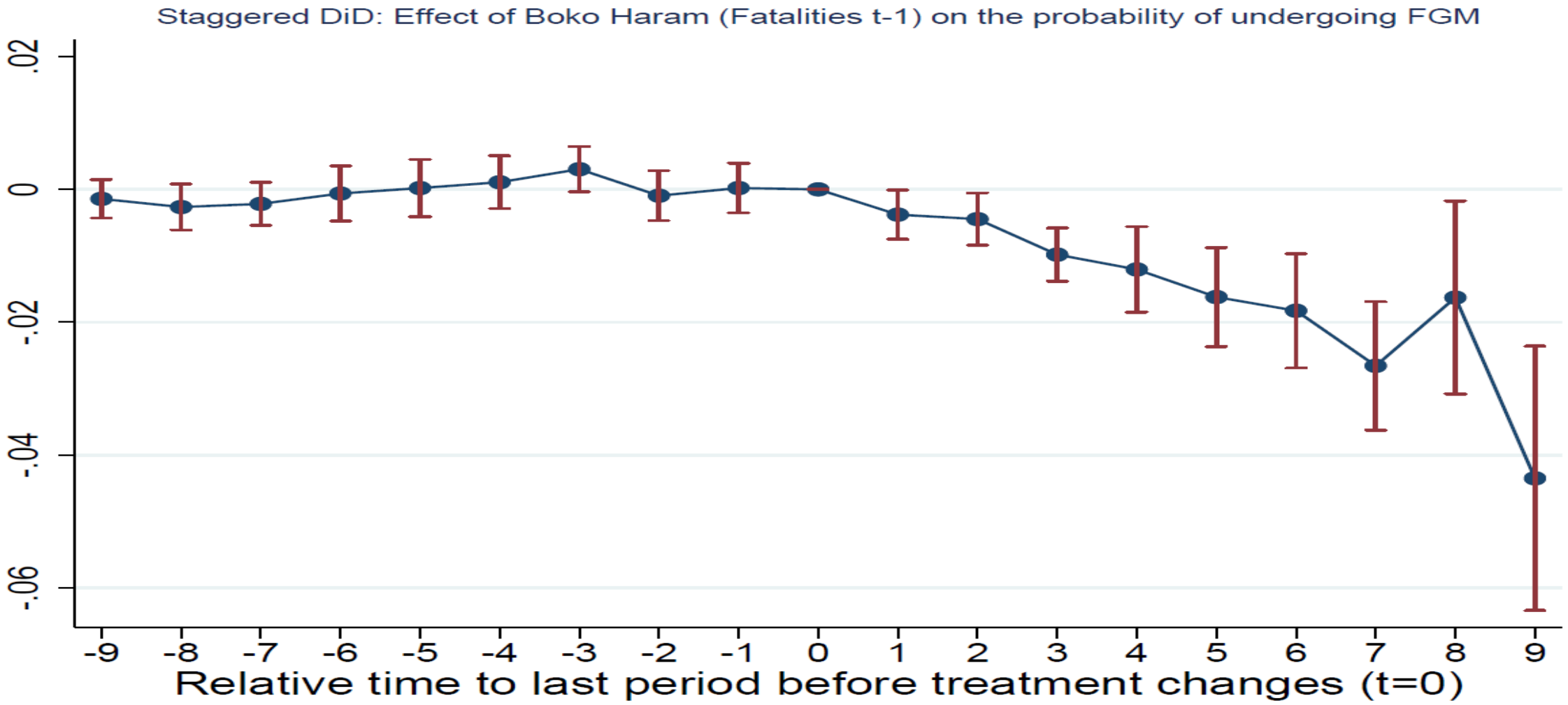
- **Main Data**: pseudo-panel based on Nigerian DHS 2013 and 2018;
- **Main outcome**: binary indicator specifying whether a girl was cut (1) or not, in any given year (as reported by their mothers – no significant difference vs. indicator based on what reported by the adult herself; hence, less concern for potential recall bias);
- **Conflict indicators** (from ACLED): continuous variables identifying the number of deaths/fatalities due to BH and, alternatively, the number of events (with or w/out deaths) due to BH;
- **Sample**: girls aged 0-14 residing in North-East region (where BH have been active), rural and urban areas; observations exit from the year after they were cut (hazard type). For rob checks, we dropped girls who experienced migration (either they do not live with their mothers or their mothers did not always live in the same district) and kept only those aged 0-1.

Main results



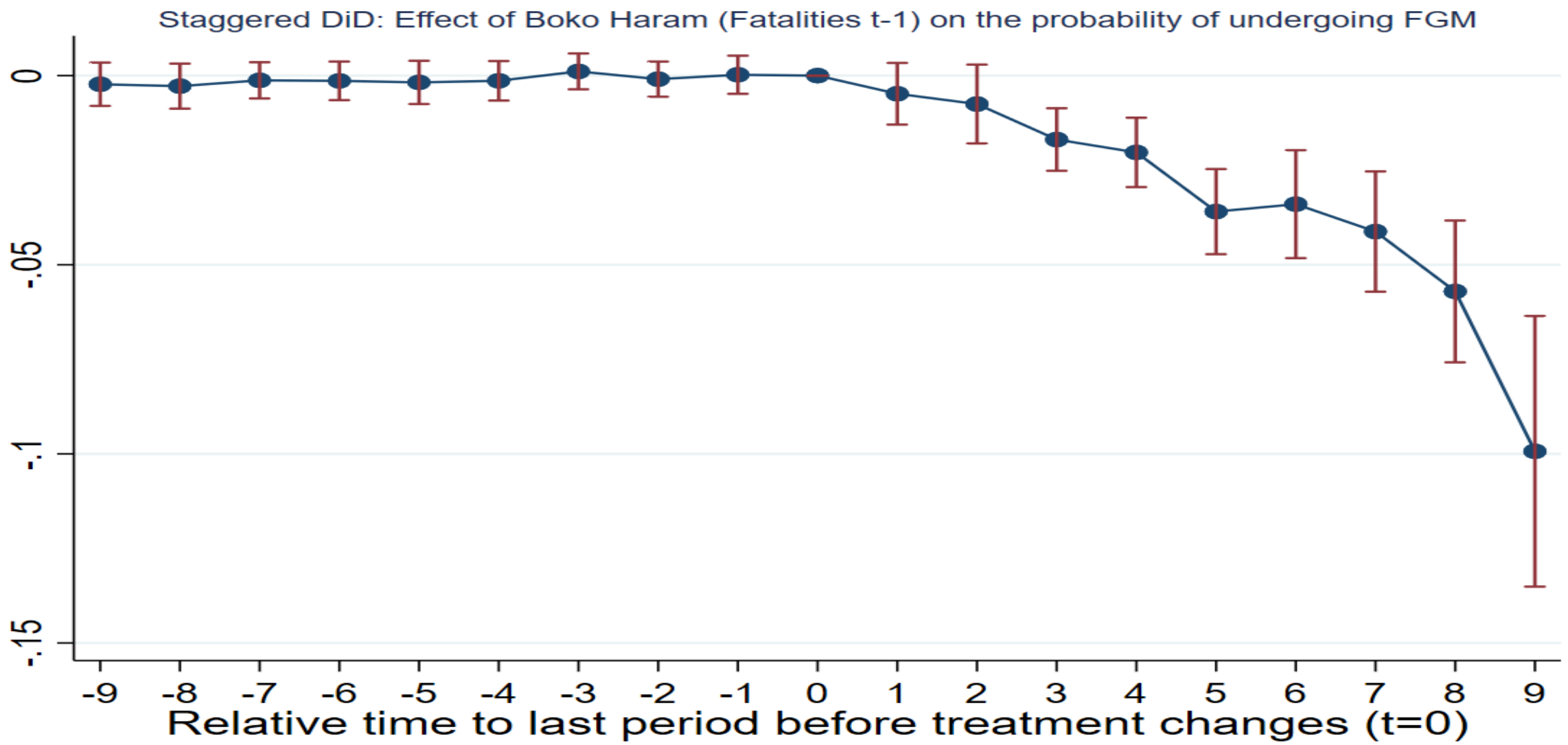
Source: authors' estimations based on Nigeria DHS 2013 and 2018

Rob. check: We exclude girls currently not living with their mothers and those whose mothers have not spent their entire lives in the same cluster.



Source: authors' estimations based on Nigeria DHS 2013 and 2018

Rob. check: Checking for right censoring—we restrict the sample to girls under the age of 2



Source: authors' estimations based on Nigeria DHS 2013 and 2018

Mechanisms (1) – Boko Haram as an income shock

	HH Expenditure per capita	HH Expenditure per capita
$Fatalities_t$	-234.4	
	(338.0)	
$Fatalities_{t-1}$	-61.87	
	(247.8)	
$Conflict\ Event_t$		-431.3
		(3,655)
$Conflict\ Event_{t-1}$		-23,993**
		(11,384)
Number of HH	802	802
Number of observation	2,173	2,173

Source: Authors' estimations based on GHS wave 1, 2, 3.
Notes: Standard errors are clustered at grid cell level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Mechanisms (2) – cultural beliefs (pro-FGC)

	FGM: required by religion	FGM should continue
$Fatalities_{t-1}$	0.0000933	-0.000104
	(0.000181)	(0.000156)
$Fatalities_{t-2}$	-0.000962**	-0.000407
	(0.000457)	(0.000402)
$Fatalities_{t-3}$	-0.000238***	-0.000204***
	(6.65e-05)	(6.45e-05)
$Fatalities_{t-4}$	0.0000867	0.0000105
	(0.000121)	(0.0000985)
Observations	5,349	6,159
Year of birth F.E	Yes	Yes
Ethnicity F.E	Yes	Yes
Religion F.E	Yes	Yes
Survey Year FE	Yes	Yes

Source: Authors' estimations based on the Nigeria DHS: 2013, 2018. *Notes*: Control variables are: year of education, area of residence (rural vs urban). Standard errors are clustered at grid cell level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Mechanisms (3) – perceived (relative) health costs due to FGC

	(1) Private clin. pres.	(2) Publ. host. pres.	(3) Midwife pres.	(4) Priv. doct/spec. pres.	(5) Pharm. pres.
$Fatalities_{t-1}$	-0.000104	-0.00108***	-0.000904**	0.000101	0.0000578
	(9.59e-05)	(0.000375)	(0.000454)	(0.000424)	(0.0000556)
Number of communities	75	79	79	79	74
Number of observations	183	205	203	200	181

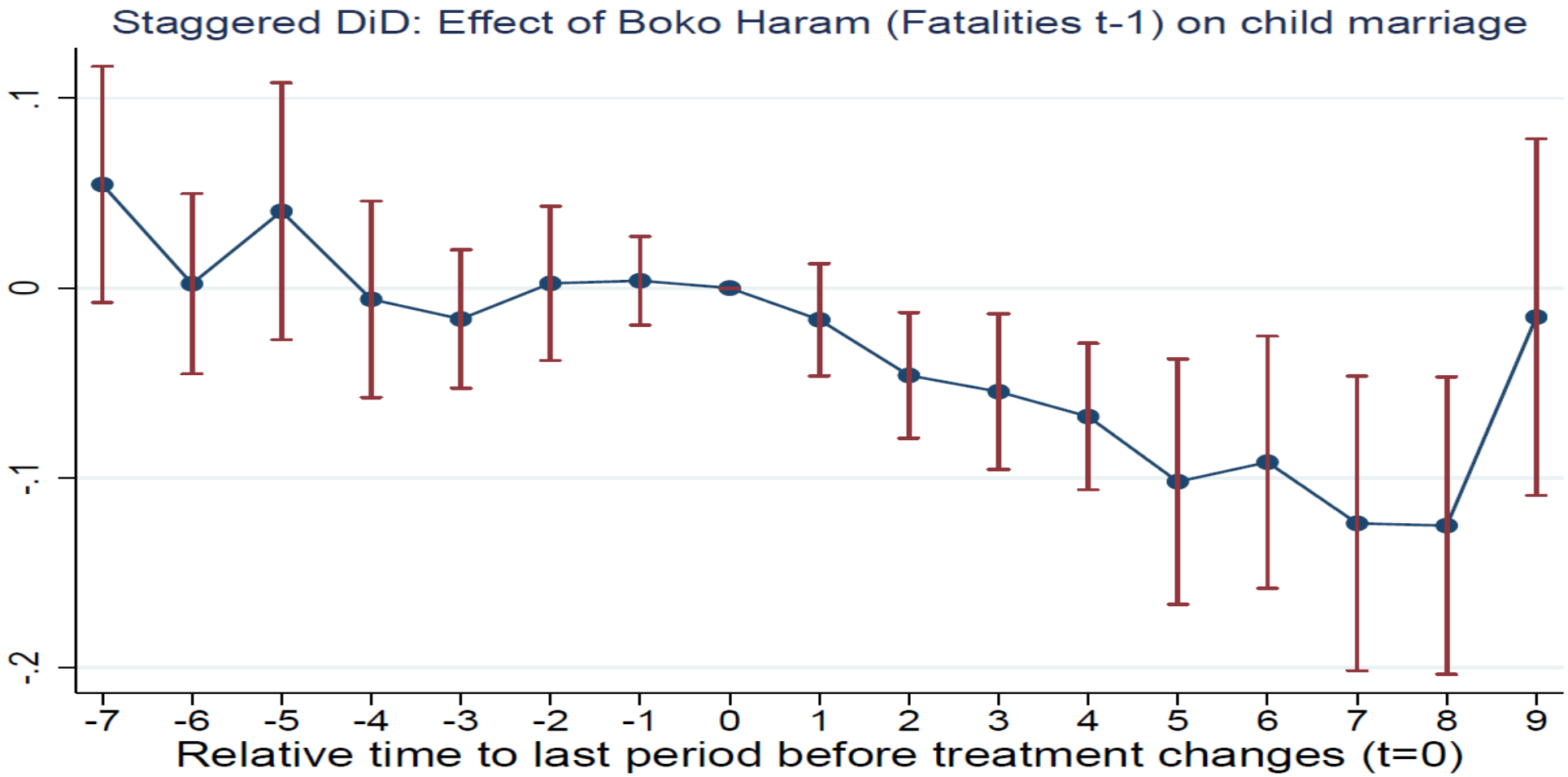
Source: Authors' estimations based on GHS wave 1, 2, 3; *Notes*: Authors' estimations based on GHS wave 1, 2, 3. *** p<0.01, ** p<0.05, * p<0.1

Mechanisms (3) – perceived (relative) health costs due to FGC

	Health center visit
$Fatalities_{t-1}$	-0.000216
	(0.000348)
$Fatalities_{t-2}$	-0.000672
	(0.000712)
$Fatalities_{t-3}$	-0.000306***
	(6.37e-05)
$Fatalities_{t-4}$	0.000156
	(9.54e-05)
Observations	14,203
Year of birth F.E	Yes
Ethnicity F.E	Yes
Religion F.E	Yes
Survey Year FE	Yes

Source: Authors' estimations based on the Nigeria DHS: 2013, 2018.
Notes: Control variables are: year of education, area of residence (rural vs urban). Standard errors are clustered at grid cell level. *** p<0.01, ** p<0.05, * p<0.1

Mechanisms (4) – child marriage as a proxy of bride price (girls aged 10-17)



Source: authors' estimations based on Nigeria DHS 2013 and 2018

Concluding remarks

- From a policy perspective, useful to know whether these results are:
  - « permanent » (changes in the lifetime probability of FGC). Difficult to say, as the conflict is still ongoing. But:
    - **Within this study cohort**: 96% of cutting happens before 1 year old (“age norm”). If delayed (as we find), it is highly unlikely it will occur later in life (also given that age at FGC is primarily determined by ancestral socio-ethnic factors);
    - **Beyond this study cohort**: If FGC prevalence among future mothers is lower, FGC among girls’ next generation might be lower as well (mothers’ FGC experience is a strong correlate) – what effects on husbands/men’s and community’s attitude?
  - driven by BH conflict itself or by Government/Intl organizations’ interventions:
    - Our study results focus on more « immediate/short » term pathways, that are mostly directly BH-driven
- Reducing the coping role of bride price and child marriage and facilitating the diffusion of better knowledge about the harmful health consequences due to FGC can permanently reduce FGC practice.

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Thank you!

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