Searching the nexus between women empowerment and female genital cutting/mutilation
Patrizia Farina, Livia Ortensi, Thomas Pettinato, Mawa Mohamed, Enrico Ripamonti

Female Genital Mutilation or Cutting (FGM/C) is internationally recognised as an extreme violation of the rights of women and girls since these practices contravene the principle of equality and non-discrimination based on gender, as well as the right of not being exposed to torture or cruel, inhuman punishment. FGM/C is normally performed over girls before the age of puberty, causing short- and long-term health complications, including infections, increased risk of HIV transmission, chronic pain, birth complications, infertility, and, in worst cases, death. Four main types of FGM/C have been described, ranging from total removal of the clitoris to infibulation, and including other types of modification like stretching, cauterisation and piercing. FGM/C is currently quite prevalent in Africa and the Middle East, spanning at least 31 countries and affecting over 200 million girls and women (UN estimates). Decades of actions of International Agencies, governments, civil society, communities, and individuals accelerated the secular decline of FGM/C. These practices have been fought by focusing on the negative consequences in terms of health, and by considering them as a violation of women's rights. Tackling the root causes of gender inequality and work for women's social and economic empowerment is one of the targets of the 2030 Agenda for Sustainable Development. Identifying potential predictors of FGM/C discontinuation leads to implement appropriate policies aimed at reducing FGM/C and changing women position in society.

This paper aims to assess the relevance of women empowerment on individual support to FGM/C continuation. In particular, we targeted the putative protective effect of mothers' empowerment on the next generation of girls, controlling for the background and the socio-economic conditions of adult women. We expected to confirm the positive effect of women empowerment on discouraging the continuation of the practice, thus protecting daughters from the circumcision. As the family is often considered the primary socialisation context, this was also expected to play a role in attitudes related to FGM/C support.

Data and methods
We selected seven African countries in which information on FGM/C, gender violence and empowerment modules were simultaneously recently collected: Burkina Faso, Ivory Coast, Egypt, Ethiopia, Mali, Nigeria and Togo. We used data from the Demographic and Health Surveys (DHS) carried out between 2008 and 2016.
The binary dependent variable is represented by the women's support to the continuation of the practice.
As our main aim is to disentangle the relationship between empowerment and FGM/C support, we used the information provided by DHS data to produce a composite indicator of empowerment. Using the Principal component analysis, we extracted three indexes accounting for family decision making, attitude toward partner violence and decision making in the social sphere. To account for the relative position of each woman in term of empowerment we recoded scores in each dimension into quartiles at each country regional level.
Other covariates include background information of women as age, FGM/C personal experience (being cut or not), wealth index sextile, unmet need for contraception, employment status, educational level, children ever born quartile at the regional level, religion and FGM/C prevalence at each country regional level.

To carry out the analysis, we fit seven Linear Probability Models (LPMs) at the country level to allow comparison between countries (Mood, 2010). We will present results mainly in term of predicted probabilities of supporting FGM/C continuation according to each empowerment index quartile.

Preliminary results

Our data confirm the hypothesis of a relation between empowerment and FGM/C continuation. In all countries [Table 1] empowerment has negative effects/coefficients on supporting FGM/C. The dynamic is very evident in correspondence to the first factors that summarize discriminating gender roles. Also, the factors called "family decision-making" and "Autonomy" show analogous pattern, still less sharp because in some cases the coefficients do not assume negative sign.

It should be noted that two other dimensions indirectly confirm the relevance of empowerment. One is education, confirmed as a protective factor for girls since as it increases the support to FGM/C decline. Employment in paid work, even if less unilaterally, goes in the same direction as it tends – under several conditions - to encourage women independence.

Table 1 Linear Probability Model for women's support of FGM/C continuation

		Burkina Faso		Ivory Coast		Egypt		Ethiopia		Mali		Nigeria		Togo	
Respondent is cut	No	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Yes	0.0910***	(0.00459)	0.259***	(0.0142)	0.351***	(0.0118)	0.201***	(0.0133)	0.557***	(0.0193)	0.282***	(0.00787)	0.0801***	(0.0144)
	Don't Know	-0.0306***	(0.00818)	-0.0631***	(0.00805)	-0.0870	(0.106)	-0.0776***	(0.00882)	-0.200***	(0.0198)	-0.109**	(0.00469)	-0.00839***	(0.00189)
Respondent age	(single years)	-0.000695	(0.000358)	-0.00231**	(0.000702)	0.00127*	(0.000504)	-0.00162**	(0.000536)	-0.00245***	(0.000649)	0.000799**	(0.000308)	-0.000149	(0.000200)
Highest educational level	No education	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Primary	-0.0157*	(0.00786)	0.0250	(0.0132)	-0.0156	(0.0139)	-0.0553***	(0.00972)	-0.0205	(0.0174)	-0.0445***	(0.00702)	-0.00219	(0.00350)
	Secondary	-0.0507***	(0.00741)	-0.0515**	(0.0163)	-0.0736***	(0.0104)	-0.0609***	(0.0117)	-0.0723***	(0.0208)	-0.0491***	(0.00763)	-0.000894	(0.00448)
	Higher	-0.0346**	(0.0117)	0.0328	(0.0195)	-0.143***	(0.0157)	-0.0530***	(0.0152)	-0.126*	(0.0537)	-0.0790***	(0.0113)	-0.00618	(0.00453)
Wealth index	Poorest	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Poorer	-0.00318	(0.00925)	0.0117	(0.0166)	-0.0279*	(0.0118)	-0.0276	(0.0141)	-0.0104	(0.0154)	-0.0197*	(0.00782)	0.000787	(0.00395)
	Middle	-0.0189*	(0.00890)	0.00565	(0.0171)	-0.0660***	(0.0124)	0.00561	(0.0139)	0.000297	(0.0156)	-0.0591***	(0.00827)	0.00668	(0.00477)
	Richer	-0.00143	(0.00910)	0.0102	(0.0172)	-0.104***	(0.0136)	-0.0164	(0.0140)	-0.0234	(0.0165)	-0.0628***	(0.00873)	0.00841	(0.00581)
	Richest	-0.00366	(0.00886)	0.0564**	(0.0173)	-0.129***	(0.0157)	-0.0291*	(0.0123)	0.0188	(0.0167)	-0.0727***	(0.0103)	0.00554	(0.00556)
Unmet need	No	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Yes	-0.00302	(0.00686)	-0.0301*	(0.0117)	0.00442	(0.0119)	-0.0235	(0.0121)	-0.0113	(0.0123)	-0.0150*	(0.00611)	-0.000955	(0.00290)

		(1)		(2)		(3)		(4)		(5)		(6)		(7)	
current employment	not employed	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	employed	-0.0107	(0.00824)	-0.00865	(0.0120)	0.0374***	(0.0109)	-0.0251**	(0.00839)	0.00681	(0.0102)	0.0281***	(0.00591)	0.00412	(0.00344)
Age at first cohabitation	(single years)	-0.00105	(0.00112)	-0.00120	(0.00110)	-0.00216	(0.00117)	0.0000235	(0.00124)	0.00136	(0.00139)	-0.00298***	(0.000678)	0.0000962	(0.000475)
Current marital status	Married	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Living with partner	-0.00677	(0.0112)	0.00184	(0.0115)			0.0125	(0.0235)	0.00535	(0.0380)	-0.0352*	(0.0137)	0.00148	(0.00285)
Gender role violence	First quartile	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Second quartile	0.00783	(0.00877)	-0.00439	(0.0158)	0.0315**	(0.0115)	-0.0127	(0.0124)	-0.0129	(0.0151)	-0.0285***	(0.00740)	0.00461	(0.00410)
	Third quartile	-0.0184*	(0.00894)	-0.0143	(0.0164)	-0.0603***	(0.0140)	-0.0192	(0.0126)	-0.0438**	(0.0152)	-0.0314***	(0.00876)	0.00803	(0.00501)
	Fourth quartile	-0.0338***	(0.00886)	-0.00230	(0.0161)	-0.0330*	(0.0128)	-0.0101	(0.0139)	0.123***	(0.0179)	-0.0480***	(0.00738)	-0.0114**	(0.00423)
Life decision making	First quartile	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Second quartile	-0.0139	(0.00864)	0.0292	(0.0149)	0.00175	(0.0122)	0.00368	(0.0141)	-0.0115	(0.0199)	-0.00252	(0.00775)	0.00718	(0.00437)
	Third quartile	-0.0179*	(0.00879)	-0.0190	(0.0160)	-0.00726	(0.0164)	-0.00581	(0.0130)	-0.0111	(0.0203)	-0.00635	(0.00821)	0.00618	(0.00465)
	Fourth quartile	-0.00943	(0.00973)	0.00758	(0.0171)	-0.0105	(0.0122)	0.00799	(0.0126)	-0.0187	(0.0168)	-0.0218*	(0.00860)	0.00605	(0.00481)
Autonomy	First quartile	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Second quartile	-0.0360***	(0.00817)	-0.000182	(0.0154)	0.00133	(0.0132)	0.00453	(0.0140)	-0.0197	(0.0216)	-0.0354***	(0.00729)	-0.0141*	(0.00551)
	Third quartile	-0.0415***	(0.0101)	0.00440	(0.0173)	-0.0627***	(0.0156)	-0.0107	(0.0138)	0.00833	(0.0196)	-0.0235**	(0.00857)	-0.0105	(0.00654)
	Fourth quartile	-0.0147	(0.0111)	0.00602	(0.0179)	-0.0266*	(0.0125)	-0.0205	(0.0129)	0.0135	(0.0170)	-0.0252**	(0.00864)	-0.0163**	(0.00622)
Children ever born by age	First quartile	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Second quartile	-0.00251	(0.00783)	-0.00410	(0.0153)	0.0458***	(0.0114)	-0.00124	(0.0107)	-0.00593	(0.0149)	0.00571	(0.00699)	0.00419	(0.00344)
	Third quartile	-0.00375	(0.00842)	0.00876	(0.0159)	0.0467***	(0.0120)	0.0246	(0.0133)	-0.0220	(0.0154)	-0.00292	(0.00778)	0.00204	(0.00353)
	Fourth quartile	0.00533	(0.00946)	0.0279	(0.0183)	0.0934***	(0.0132)	0.0358*	(0.0146)	0.00330	(0.0160)	0.0106	(0.00844)	0.00785	(0.00434)
Religion	Muslim	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)	Ref.	(.)
	Christian	-0.0599***	(0.00540)	0.0173	(0.0140)	-0.347***	(0.0156)	0.0222*	(0.00965)	0.204***	(0.0306)	0.0463***	(0.00772)	0.00610	(0.00464)

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	Animist	-0.0341***	(0.00985)	0.0163	(0.0143)			0.0481***	(0.0108)	-0.254***	(0.0436)	0.0425	(0.0249)	0.00218	(0.00562)
	Other	-0.0958***	(0.0128)	0.0136	(0.0402)	-0.0654	(0.123)	0.00651	(0.0223)	-0.128	(0.180)	-0.0402	(0.0210)	-0.00685	(0.00646)
	None	0.0758	(0.0398)	0.0248	(0.0197)					0.00919	(0.0343)			-0.00614	(0.00520)
Regional FGM/C prevalence	(proportion)	-0.00109***	(0.000262)	0.000386	(0.000283)	0.00761***	(0.000723)	0.00103***	(0.000191)			0.0657	(0.0365)	-0.00452	(0.00822)
	_cons	0.232***	(0.0331)	0.170***	(0.0410)	-0.289***	(0.0749)	0.0938*	(0.0364)	0.278	(0.179)	0.298***	(0.0202)	0.0161	(0.0142)
	N	13336		6415		20422		9824		8737		27028		6345	
	R-sq	0.037		0.176		0.170		0.247		0.186		0.174		0.048	
	AIC	4345.0		4155.8		25401.0		2399.1		9103.5		18633.2		11030.4	

Finally, empowerment effect can be equally visible using the linear predicted probability of supporting FGM/C (Figure 2). Concerning gender role violence (a) graphs), it should be noted the decreasing in the probability of supporting FGM/C as the empowerment quartiles grow. This is very substantial in Burkina, Togo and Nigeria. Again, the pattern of this relationship is confirmed in the other two dimensions, but the magnitude of the decline of probability to support FGM/C is less consistent and not always coherent.

Fig 1 Predicted probabilities of supporting FGM according to the empowerment quartile index a) family decision making b) attitude toward partner violence and c) decision making in the social sphere
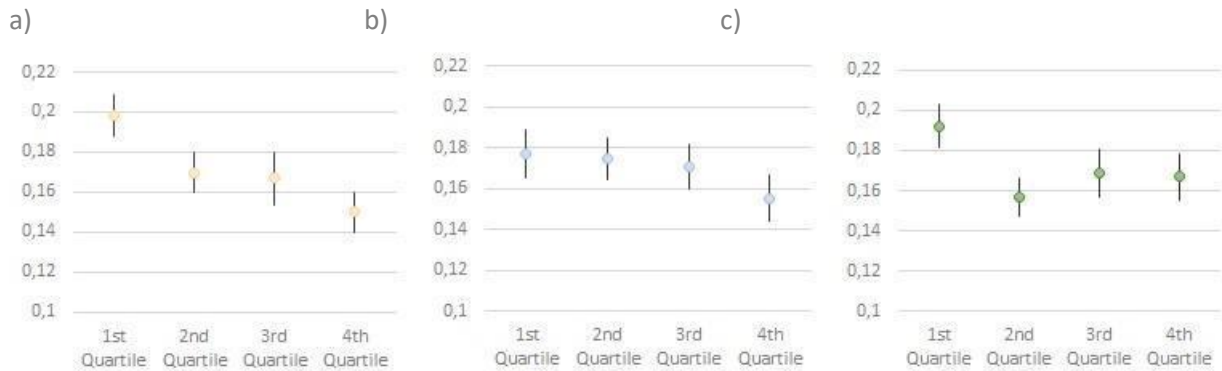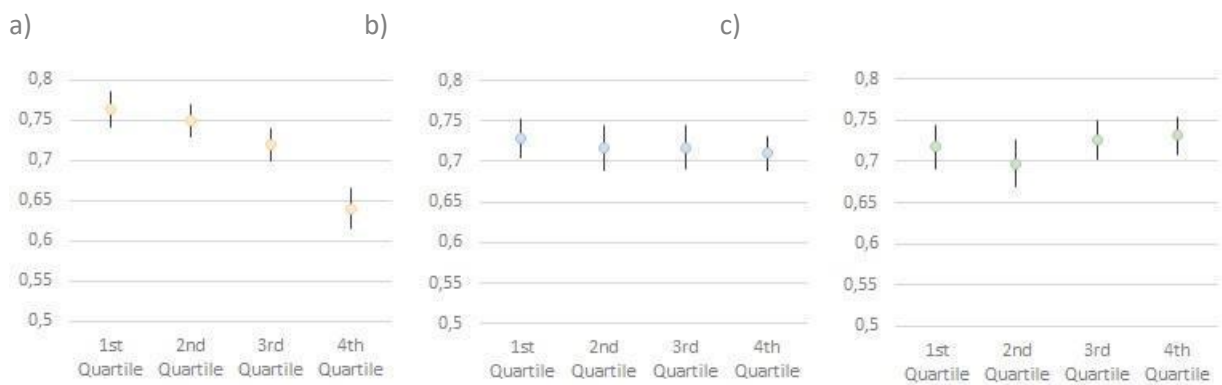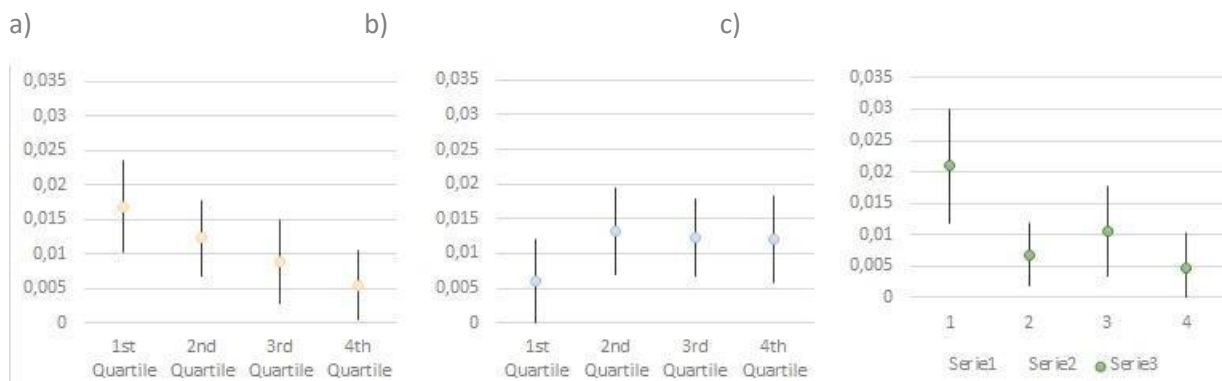
Burkina Faso

Egypt

Nigeria

a)   b)   c)

Mali

a)   b)   c)

Togo

a)   b)   c)

Ethiopia

a)   b)   c)

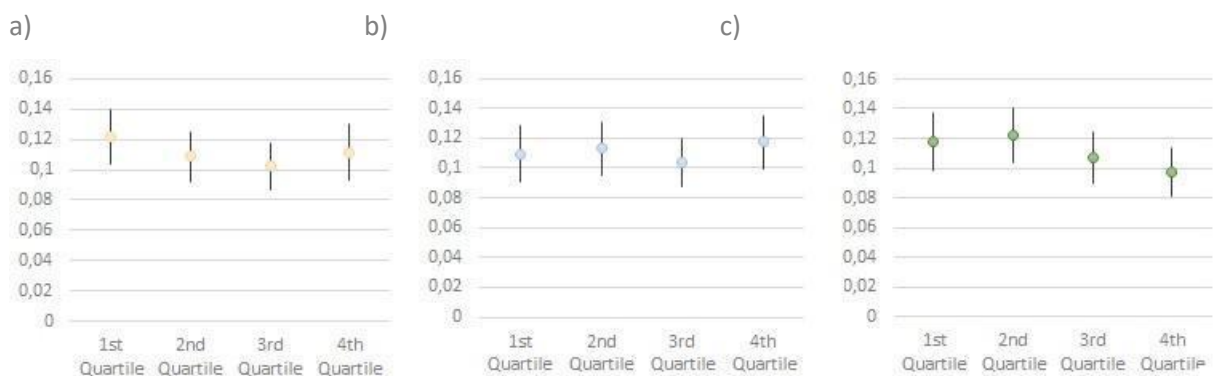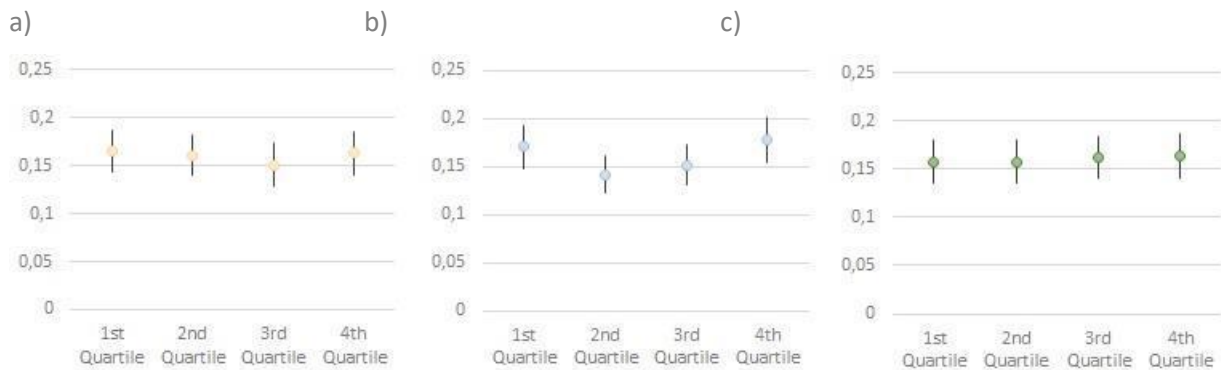**Ivory Coast**

a)   b)   c)
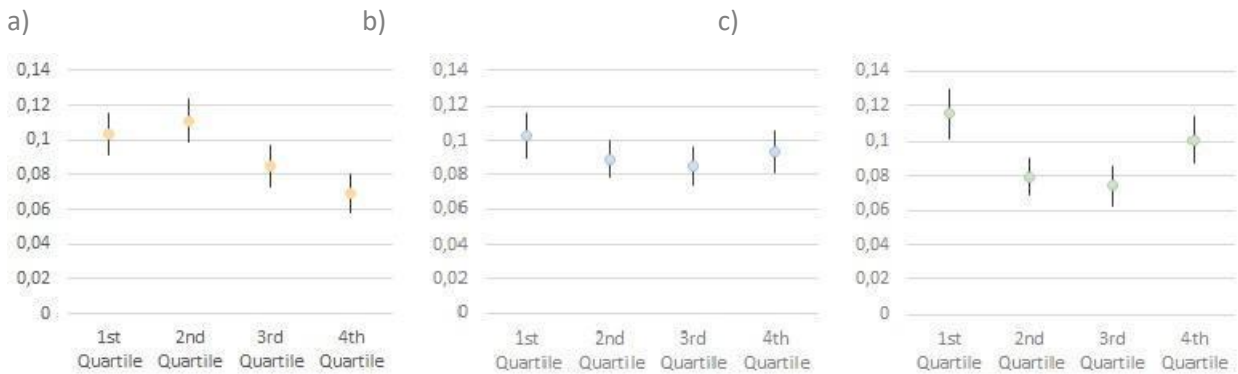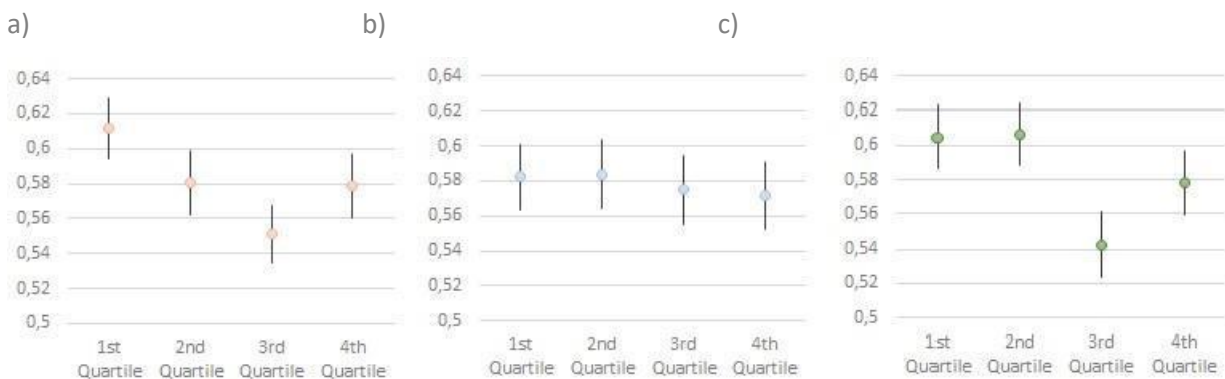
Final remarks

The aim of the present paper is to show if and how the empowerment of mothers is a protective factor for the next generation of girls in terms of discontinuation, controlling for the background and the socio-economic conditions of adult women. It is indeed shown how such influence works in the model we propose.

Among the control variables, not being cut is the most significant and most strongly associated with the probability not to support the practice. Also, it seems sustainable over time with no risk of rejoining. Thus, it is confirmed our initial suggestion of a virtuous circle: for each child who is not circumcised, a risk-free third-generation is born.

In the measurement of empowerment what has come to be more influential is the dimension of agreement among women on the subordinate role they have in the couple, that comes explicitly in the legitimization of the violence of a husband in case of transgressive behaviours. This is the first indicator of empowerment shown in the model, named "Gender role violence": it represents up to 39% of the variation. It is not the mere presence of violence, but the degree of acceptance, of legitimization, that it meets in the victim, which reflects a gender role dynamics that presents an unbalanced distribution of power.

Being it the strongest empowerment component, policy actions to enforce empowerment must go firstly in the direction of changing this legitimization, breaking the crystallized unbalance of gender gap shared by women, erasing the role of a punitive husband and a "disrespectful" wife who fully aim to be able and entitled to truly make decisions (Ewerling, 2017) with no fear of violent consequences.

As from the international organization literature, policies must go not only in the direction of human rights enforcement but also and most notably in the elimination of gender discrimination (as from WHO, 2008). As such, gender role changes reflect more the definition of empowerment as a redistribution of power provided by Dandikar (1986), than the definition of autonomy in decision making from Raham (2013) which reflects our second and third components of the empowerment definition. However Raham is precisely right when stating the objective to "maximise the opportunities available to them [women] *without* constraints", a good umbrella definition.

Therefore, it emerges the need for more specific definitions of empowerment, considering the perspective under which we may act to make a change, as in our case. Specific cultural characteristics of different contexts must be taken into consideration to understand the mechanisms operating in one defined territory. It is a limitation of the paper both to have a definition of empowerment linked to the available data and to reflect on applying a standardized definition to different cultures as well social contexts. Thus, it cannot be considered a resolutive

model of analysis over the influence of empowerment on FGM/C, even though it represents a valid study of how empowerment influences such harmful practice at the regional levels of 7 African countries.

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