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Gender-based violence and gender bias in schooling decision

Evidence from sub-Saharan Africa

Sandrine A. Koissy-Kpein*

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United Nations University World Institute for Development Economics Research

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Abstract: This paper examines the impact of gender based violence against women and girls (GBV), in the environment the children live in, on school attendance, school achievement, as well as boys' and girls' dropouts. Based on the sixth phase of the Demographic and Health Surveys from 18 sub-Saharan African countries, it appears that the acts of GBV—measured through intimate partner violence, early marriage, and female genital mutilations—negatively affect the schooling of boys and girls. Obviously, significant heterogeneities exist among countries. However, the effect of GBV seems more important for girls.

Keywords: education, gender-based violence, female genital mutilation, early marriage, intimate partner violence, collective household models
JEL classification: J120, J160, D13, I21

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*Oxfam GB West Africa, Dakar, Senegal; Sandrine_koissykpein@yahoo.fr

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UNU-WIDER, Katajanokanlaituri 6 B, 00160 Helsinki, Finland, wider.unu.edu

1 Introduction

In April 2014, more than two hundred schoolgirls were kidnapped from the Government Secondary School in the town of Chibok in the Borno State of Nigeria by the terrorist organization, Boko Haram. Against 'western-style modern education' (McElroy 2013; Dorell 2014; Lister 2014), Boko Haram claims that girls as young as nine are suitable for marriage; therefore they must not be at school, or be educated. This disturbing claim reveals an uncomfortable reality girls face in some societies: early marriage. This claim reveals the place to which women and girls are reduced, through gender norms and rules, in the name of tradition or culture.

The United Nations Children's Fund (2014) support that more than 700 million women around the world, and alive today, were married as children. Furthermore, about 250 million were married before age 15. In fact, 40 per cent of the women in sub-Sahara Africa (SSA) were married as children. The organization predicts that SSA will have the largest number and global share of child brides by 2050.

Child marriage is an important part of Gender Based Violence (GBV), which represents violence occurring as a result of the genders' role expectations or the unequal power relationships between the two genders (Bloom 2008). The victims of GBV are both female and male.[1] However, the focus of this work is related to the gender based acts of Violence Against Women and Girls (VAW/G), which disproportionately affect women and girls within the family, the community and the whole society. VAW/G includes Female Genital Mutilation/cutting (FGM/C), Leblouh or girls' gavage,[2] foot binding or lotus feet,[3] as well as other harmful practices to increase the girls' marriage potential.

The goal of this paper is to assess the impact of these gender-based acts of violence on the schooling decision, especially, the lower schooling of girls compared to boys.

To achieve this goal, I first consider a conceptual framework based on the collective models of household behaviour, which apply the tools of game theory to the household decision-making process, to figure out how GBV enters into household decisions. Then, I rely on the multilevel models and the Demographic and Health Surveys from 18 sub-Saharan African countries for the empirical analysis. The school outcomes considered are: school attendance, primary school achievement and school dropout. The acts of GBV are measured through intimate partner violence, early marriage, and female genital mutilations. I find empirical evidence that delays in marriage are associated with greater school attendance, greater school completion, and lower school dropout. Furthermore, wife beating by their partners leads to a lower probability for both boys and girls to attend school or to achieve the primary level of education, and a higher probability of school dropout. The marriage market pressure in the community affects the schooling decision. A one-year increase in the median age at first marriage in the community raises school attendance and school achievement, and decreases school dropout. The same is true

1 In the case of men and boys, GBV includes violence among men who have sex with men, male sex workers, trans-genders, homosexuals, and abused men by their female or male partners.

2 Girls' gavage is a practice of force-feeding girls as young as five to teenagers, in society where obesity is traditionally regarded as desirable, to increase their marriageability.

3 Lotus feet took place in China. The practice usually starts between the ages of four and nine. Girls' feet were broken and shaped in such a way that they have little foot sizes in order to increase their marriageability.

for a higher prevalence of FGM/C in the environment the children live in, which increases the probability of dropout, and decreases the probability of school attendance and primary school achievement. Additionally, excision lowers the girls' probability to attend school and to achieve primary education, and increases their probability of school dropout. However, the male circumcision—defined as equivalent to female excision by the defenders of FGM/C—does not affect boys' schooling. Obviously, significant differences appear among the countries, because VAW/G, rooted in traditional practices, vary among countries. However, girls appear to be impacted more by VAW/G than boys are.

The interest in this work is to emphasize how bias in education could be reduced by addressing and supporting community actions against harmful practices.

2 Literature review

Violence against women and children occurring in the household are known as the biggest source of violence in the world (Hoeffler and Fearon 2014; Lomborg 2014). They impose a social cost of USD8 trillion each year (Lomborg 2014) and include: Intimate Partner Violence against women (IPV), child marriage, honour crimes, FGM/C, skewed sex-ratio,[4] rape, and coerced sex (Bloom 2008; Devries et al. 2013). The welfare cost of IPV is estimated at USD4.4 trillion, equivalent to 5.2 per cent of the global GDP (Hoeffler and Fearon 2014; Lomborg 2014).

The social sciences researchers highlight the serious concern of VAW/G regarding women's empowerment, women's reproductive health, and overall human development. They have mainly paid attention to IPV and they have shown the range of reproductive health problems associated with IPV, such as: Sexually Transmitted Infections (STIs), unwanted pregnancies, abortion, maternal morbidity, and mortality (Koenig et al. 2003; Hindin et al. 2008; Goo and Harlow 2012; Singh et al. 2013). Furthermore, there is evidence that IPV adversely affects the women's labour supply, their financial stability, and contributes to women's social isolation (Lloyd and Taluc 1999; Moe and Bell 2004). For instance, Lloyd and Taluc (1999) noted that women abused by their partners are more likely to experience unemployment and to receive public assistance; they face more job rejections, and a lower personal income. The authors also emphasized the victims' difficulties in terms of physical and mental health. Other evidence stressed that women's attitude related to wife beating is associated with the children's immunizations and the use of maternal health services (Woldemicael and Tenkorang 2010; Singh et al. 2013).

Regarding the impact on education, the findings mainly consist of reports, testimonies, or anecdotal evidence (Miller et al. 2005). These findings generally suggest that VAW/G creates powerful disincentives regarding girls' schooling. For instance, Magno et al. (2003) noted that in the rural areas of Albania and Tajikistan, early marriage is a way for poor families to lighten their economic burden, and it leads to withdrawing girls from school. Other works report girls' kidnapping on their way to school, or within the school, by the parents of boys for marriage to their sons, which deter any parents' incentives to send their daughters to school (Rose et al. 1997; UNESCO 2003). Some reports also revealed that armed conflicts and girls' kidnapping in zones of conflict deter parents' incentive to send their daughters to school (Human Rights Watch 2002; UNESCO 2003). Furthermore, FGM/C is reported to lead to school dropout of girls, because of

4 The skewed sex ratio is a sex ratio altered from the norm in a given region due to social influence, which is manifested by sex selective abortion, female infanticide, or son preference (Bloom 2008).

poor concentration and health issues. From the school side, there is proof that acts of violence encountered by girls within schools deter their schooling, and increases the risk of early pregnancy and STIs (Bloom 2008).

A violent environment is also an ideal setting that enhances the level of VAW/G. In fact, evidence suggests that, exposure to violence induces more GBV (Bradshaw 2013) and desensitization to violence (Flake 2005). Miller and his coauthors (2005) noted that FGM/C increases the feeling of community membership, in the communities where FGM/C is practiced, and not conforming to the practice leads to stigmatization, isolation, and loss of social status for the girls and their families. The political and socio-cultural context, the role played by society's laws, and cultural norms regarding the image of the 'perfect', 'ideal' and 'good' wife, significantly impact on GBV (Rani et al. 2004; Rani and Bonu 2009; Uthman et al. 2011). In addition, the harmful practices differ widely in the same country, according to culture and ethnic groups. For instance, DHS analysts emphasized the importance of ethnicity in the practice of FGM/C, rather than other social and demographic variables (Miller et al. 2005). FGM/C occurs in some ethnic groups and regions, while other ethnic groups, in the same country, do not know or practice it at all. This is the case in Nigeria, where FGM/C is practiced by the Yoruba and Igbo (Ahanonu and Victor 2014). This point reveals the importance of accounting for the community in any analysis of gender based violence.

In addition, there is clear evidence of the environmental effects and social pressures on women's empowerment and children's educational outcomes (Kenny 2010). Singh and his coauthors (2013) noted in Nigeria that the association of societal gender attitudes and women's autonomy are significantly linked with children's health. Holla and Kremer (2009) showed that, through the PROGRESA, cash provided to mothers for children's school attendance, has increased the enrolment rate even amongst families who did not receive any payment. Therefore, living in a village with a high proportion of children who attend school, leads to increase in social pressure to enrol. A similar neighbourhood impact was found by Bobonis and Finan (2009) and Lalive and Cattaneo (2009).

Equal access to education is another huge challenge facing sub-Saharan Africa, notwithstanding major progress. Statistics generally suggest lower levels of achievement, and lower levels of enrolment in secondary schools, among girls compared to boys. The Global Monitoring Report 2015 reveals a decrease in the participation of males and females, as well as a decline in the Gender Parity Index (GPI), as the level of education increases (UNESCO 2015).[5] For instance, in Ghana, the gender parity is achieved in primary levels. The GPI decreases and equals 0.95 in the lower secondary, and 0.85 in the upper secondary. In Tanzania, the disparity is in favour of girls in primary level enrolments (GPI equals 1.02); the reverse is true after the primary education, and the GPI in the lower secondary and the upper secondary are respectively equal to 0.9 and 0.7 (Table A1).

In reality, gender bias in schooling is rooted in social standards, which determine the role of women (girls) and men (boys) within the household, the community, society, and affects parents' decision to send their sons and daughters to school (Koissy-Kpein 2008, 2010).

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5 The Gender Parity Index (GPI) is calculated by dividing the female Gross Enrolment Ratio by the male Gross Enrolment Ratio for the given level of education. A GPI of 1 indicates parity between the sexes; a GPI that varies between 0 and 1 typically means a disparity in favour of males; whereas a GPI greater than 1 indicates a disparity in favour of females.

The economists generally rely on the quantity-quality models to assess the household's decision regarding investment in education (Becker and Lewis 1973; Becker and Tomes 1976, 1986). Drawing on this, the inequalities between girls and boys appear either as a result of an efficient allocation of resources among children by the household head, or as a result of a strategic behaviour to ensure future remittances when financing children's education. In this context, the girls receive a lower share of investment in education because of the household's budget constraints (Alderman and Gertler 1997; Alderman and King 1998; Glick and Sahn 2000); because of the higher direct costs of girls' schooling compared to boys' (Lavy 1996; Mason and Khandker 1996); because of the opportunity costs of girls schooling, especially their contribution to household chores (UNESCO 2003; Koissy-Kpein, 2012a, 2012c, 2014); because of the expected benefits of educational investment (including labour market discriminations) and the expected remittances (Alderman and King 1998; Cremer and Pestieau 2004; Koissy-Kpein 2008); because of the expectations for girls in the marriage market to find a husband who provides for their needs (Echevarria and Merlo 1999; Colclough et al. 2004; Koissy-Kpein 2008); and because their mothers hold a weak position in the household decision-making process (Koissy-Kpein 2008, 2010).

The part of gender-based violence in the schooling decision is not well known.

3 Conceptual framework: Violence in the household decision-making process

Schooling decisions have largely been studied in the context of traditional household models with an application of the usual tools of consumer theory, which considers the household as a single decision-making unit. The assumptions supporting this unitary model ignored the gendered nature of the decision-making process within the household.

From a theoretical point of view, the unitary model does not comply with the methodological individualism principle, which states that all economic models must find their meaning in the behaviour of individual agents. Thus, the household should be considered as a group of individuals, with their own preferences, and among whom, a collective decision takes place (Bourguignon and Chiappori 1992).

The traditional household model supposes a common family income where all sources of revenue are added. The implicit income-pooling hypothesis implies that the source of income does not play any role in the household's allocation of resources. However, empirical proof suggests that incomes generated by women and men influence household behaviours differently. It appears that the income controlled by women has a stronger impact on family health and children's outcomes, than the income controlled by men (Handa 1996; Lundberg et al. 1997; Levin et al. 1999; Guha-Khasnobis and Hazarika 2006). For instance, Guha-Khasnobis and Gautam Hazarika (2006) noted that, improvement in the women's cash income from labour activity, leads to an increase in the children's nutrition in Pakistan, and a decrease in the share of the household's budget, expended upon adult goods.

Additionally, empirical works show the existence of a preference for the gender of the offspring, which influences the allocation of resources within the household (Strauss et al. 2000; Koissy-Kpein 2008). Thomas (1994) suggested that children's good health achievements, is linked to non-labour income, from the parent of the same sex as they are. Whittington et al. (2008) found that, in Thailand, mothers are more likely, as opposed to their husbands, to allocate vaccines to their daughters, rather than to their sons. Other authors found that, women's relative advantage in assets or income shares, lead to benefits for the sons, but not necessarily for the daughters

(Hoddinott and Haddad 1995 for Côte d'Ivoire; Thomas et al. 1997 for Indonesia; Koissy-Kpein 2008 for the Guinean monogamous household). In Mexico, the PROGRESA programme, which consists of paying parents to enrol their children, shows that cash received by the mothers has a higher impact on girls' secondary enrolment, than boys' (Holla and Kremer 2009). Authors noted that the parents' preference, reflects tastes and expected future returns, especially if one of the children is expected to maintain closer relations with the parents, later in life (Strauss et al. 2000; Koissy-Kpein 2008).

Developed in the 1980s, collective models of household behaviour, apply the tools of game theory to fill in the gaps in the traditional unitary model (Bourguignon and Chiappori 1992; Alderman et al. 1995; Browning and Chiappori 1998). In a general way, the models indicate that the allocation of resources within the household will depend on the member with the highest weight in the household decision-making process.

Let's consider a household with two parent decision makers (mother, father) and children (boys and girls). The parents, altruistic towards their children, have their own utility function, and their own preferences concerning the household's outcomes. The labour supply and the number of children are fixed. The decisions within the household only concern the consumption (C) and the schooling of girls (S_g) and boys (S_b).

Following the collective model of Chiappori (1988, 1992), there is a set of weights, such as household's utility function is a linear combination of the father's and the mother's utilities, where the weight of each person's utility reflects his/her bargaining power within the household. Subject to budget constraints, the household's allocation is a solution of:

$$Max\ W = \pi(I_m; E_m)U_m\big(C, S_b, S_g\big) + (1 - \pi(I_m; E_m))U_f\big(C, S_b, S_g\big) \quad (1)$$

With U_m and U_f the utilities of the mother (m) and the father (f), which are quasi concave, twice differentiable, and increasing in each argument. π represents the mother's weight, which depends on external factors: E_m, such as gender role expectations from the communities, and intrinsic factors: I_m, such as education and incomes.

An educational demand function is derived from the first order conditions:

$$S_i = f\left(X_i, \alpha_{m_{si}}, \alpha_{f_{si}}, \alpha_{m_c}, \alpha_{f_c};\ \pi(I_m; E_m)\right);\ \text{i= b,g} \quad (2)$$

The schooling of the child i depends on a set of characteristics (X_i) and on each parent's preferences and weight in the decision-making process. $\alpha_{m_{si}}, \alpha_{f_{si}}, \alpha_{m_c}, \alpha_{f_c}$ respectively represent the mother's and father's preferences for schooling of the child i, and the mother's and the father's preferences for consumption.

Through a two period model, and a one period model, Koissy-Kpein (2008, 2010) noted how the preferences, the bargaining positions, and the expected returns of education, interact and affect the decisions of schooling. The main conclusion is that the schooling of child i will depend on the weight of the parents who prefer the schooling of child i.

For instance, if the father's and the mother's preferences, regarding the boys' and girls' schooling differ. Suppose that the mother has a preference for girls' schooling, while the father has a preference for boys' schooling. In this case, the girls will have a sub-optimal investment in their

education compared to the boys if the mother has a lower weight in the decision-making process compared to the father.[6]

In fact, VAW/G could impact on the schooling decisions through:

- The mother's ability to argue freely without being beaten by her spouse. Of course, women with a higher education and income could incur less risks of violence by their partners. However, findings diverge regarding the impact of women's status on IPV. Some authors stressed the importance of women's personal resources and education in reducing IPV, and the re-victimization; while others noted the risks associated with IPV for women in the labour market, and especially when their status exceeded those of their partners (Kabeer 2001; Koenig et al. 2003; Moe and Bell 2004; Flake 2005).
- The gender norms as a means of controlling women's autonomy and acceptable behaviours (Bloom 2008). In fact, women's status in the household is highly related to their status in the community. Regarding IPV, the community can insulate or, conversely, enhance the risks of violence (Levine and Rosich 1996). Some authors stressed that women's tolerance of IPV is influenced by the idea of men's natural rights to their wives (Liu and Chan 1999).
- The preference for investment in the girls' education ($\alpha_{m_{sg}}, \alpha_{f_{sg}}$), which can be influenced by social pressure, lead to an investment in the girls' marriageability via harmful practices such as FGM/C.
- The social pressure regarding early marriage as a means of security for girls' future (Echevarria and Merlo 1999; Colclough et al. 2000, 2004).

An important set of quantitative and qualitative proxies have been considered to measure the women's weight in the household. The quantitative indicators included: education (Glick and Sahn 2000; Koissy-Kpein 2010); assets and unearned income (Guha-Khasnobis and Hazarika 2006; Koissy-Kpein 2010); the cash transfer received (Lundberg et al. 1997; Holla and Kremer 2009); the labour income and the labour activity unrelated to the husband (Anderson and Eswaran 2009; Koissy-Kpein 2008, 2010); age at first marriage (Guha-Khasnobis and Hazarika 2006); sex ratio in the marriage market (Lundberg et al. 1997; Chiappori et al. 2002; Koissy-Kpein 2008); and the rank among wives in the polygamous union (Koissy-Kpein 2008).

Agarwal (1997), Malhotra et al. (2002), and Koissy-Kpein (2010) noted a range of qualitative factors considered in the literature. Some of them are: freedom of movement, decision-making with regards to the fecundity, meals, or purchases (Jejeebhoy 1998; Durrant and Sathar Zeba 2000; Smith et al. 2003; Roushdy 2004), and exposure to mass media (Jensen and Oster 2009; Koissy-Kpein 2010). For instance, there is evidence that mothers who watch television are more likely to send their children to school (Koissy-Kpein 2010). Jensen and Oster (2009) stress that the introduction of cable and satellite services, with movies showing strong female characters, educated, and autonomous women, in some Indian villages, is positively associated with girls' schooling and female autonomy; and negatively associated with fertility. Clark (2004) notes that exposure to mass media increases women's ability to negotiate in the household.

In a general way, the choice of indicators is strongly related to data availability.

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6 In Koissy-Kpein's previous works, the part of violence is left behind.

4 Data and method

4.1 The sixth phase of the Demographic and Health Surveys (DHS-VI)

Since 1984, the DHS programme collected, analysed, and disseminated accurate and representative data on population, through more than 300 surveys, in more than 90 countries. The programme enables the production of internationally comparable estimates on the MDGs indicators. It provides standardized questionnaires and methodology that allow a cross-country comparable analysis. The sample is generally representative at the national level and at sub-national levels. The DHS sample is based on a stratified two-stage cluster design. In the first stage, enumeration areas (EA) are generally drawn from census files. Then, in the second stage, a sample of households is drawn in each EA selected from an updated list of households. The survey consists of four (4) standard questionnaires and additional questions of countries particular interests.

1. A Household Questionnaire with information on the characteristics of the household's dwelling unit, and characteristics of the usual residents and visitors. It allows for identification of eligible members for individual interviews.
2. Eligible women and men are then interviewed, using an individual Woman's or Man's Questionnaire. The woman's questionnaire topics include women's and their husbands' characteristics, children´s health, reproductive behaviours, contraception, and women´s status.[7]
3. The Biomarker Questionnaire collects biomarker data on children, women, and men.
4. The interviews are also conducted for consenting informed volunteer respondents, through optional Questionnaire Modules on FGM/C and domestic violence (DV).

GBV in DHS

The DHS programme has been contributing to growing interest on GBV in the developing world (Borwankar et al. 2008). The DV module included in the Woman's questionnaire implies that only women between 15 and 49 years of age are interviewed. The selection of households where the DV module is conducted varies across countries. According to the country, one selected woman is interviewed in each household, each second household, or each third household. The DV module addresses experience of violence by partners, family members, and unrelated individuals.[8]

The measures adopted to ensure women's safety, and enhance the quality of information collected, does not prevent underreporting, especially because violence remains sensitive and because of women's fear of reprisal upon disclosure (Bloom 2008); but also because legal systems do not see such violence as a serious case worth investigating (Bradshaw 2013).[9]

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7 All the eligible women in the selected households are interviewed, except in Ghana where all the women in half of the selected households are interviewed. Regarding the Man's Questionnaire, eligible man between 15-59 years old are interviewed in each second or each third household according to the country.

8 IPV is measured in much more detail than violence by other household members, using a set of questions for currently married or never married women only.

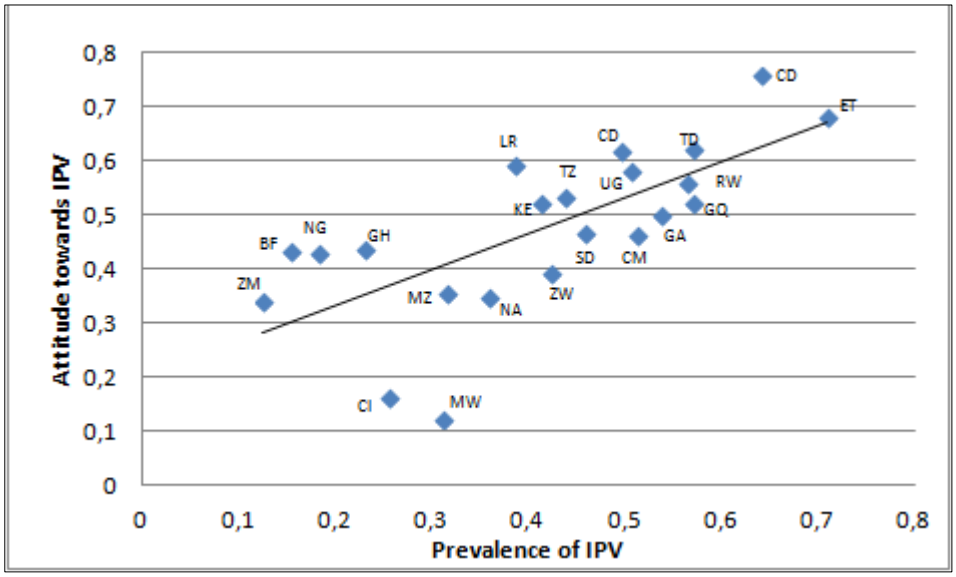
9 The DHS protocol specifies that only one randomly selected woman per household—selected using the Kish grid built into the household questionnaire—should receive the DV module. The informed consent is obtained at the beginning of the interview and consenting respondents are reassured about the confidentiality of the interview. The staff of interviewers should receive special training on how to administer the module as well as provide emotional

To skirt the issue of underreporting, women's opinion about IPV—reported for all women between 15-49 years of age—is considered as a measure of IPV. The women are asked questions about their attitudes towards domestic violence. The question is:

> *Sometimes a husband is annoyed or angered by things that his wife does. In your opinion, is a husband justified in hitting or beating his wife in the following situation: … If she argues with him?*

Based on information provided by the OECD Development Centre's Social Institutions and Gender Index for sub-Saharan African countries, a positive and strong correlation (coefficient of correlation equals 0.7042) is observed between countries' level of tolerance vis-à-vis IPV, and the prevalence of domestic violence. Generally speaking, countries with a high prevalence of DV tend to have a high level of acceptance for DV (Figure 1).[10]

Figure 1 : Attitude towards IPV and prevalence of IPV



Source: Author provided.

In the DHS, VAW/G also concern FGM/C, and early marriage. The surveys asked women from 15-49 years, about their experiences of excision via the FGM/C module (available for some countries), as well as their age at first cohabitation or marriage.

In my analysis, GBV is measured at the household and the neighbourhood level, through:

- The mother's opinion regarding wife beating, if she argues with her husband. I consider a binary variable equals 1 if the mothers responded that wife beating is justified. This indicator not only shows if the mother feels free and secure to argue and to bargain with

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support. The interviewer should use a range of techniques for ensuring privacy. To that end, a translator should be avoided.

10 The countries in Figure 1 are: Burkina Faso (BF), Cameroon (CM), Chad (TD), Congo Dem Rep (CD), Côte d'Ivoire 'CI), Eq. Guinea (GQ), Ethiopia (ET), Gabon (GA), Ghana (GH), Kenya (KE), Liberia (LR), Malawi (MW), Mozambique (MZ), Namibia (NA), Nigeria (NG), Rwanda (RW), Sudan (SD), Tanzania (TZ), Uganda (UG), Zambia (ZM), and Zimbabwe (ZW).

her spouse, but also the position she thinks she should have regarding the decision-making process in the household. It reveals the mother's agency: meaning her capacity to make decisions and achieve desired outcomes, free of violence, retributions, or fears (World Bank 2014). The indicator also contains norms, received through her education, that dictate what is appropriate. It probably hides exposure to IPV, the mother faced during childhood and current experience of IPV. In fact, there is evidence that children who grew up in abusive households have a higher probability to be abused by their intimate partners, or to become abusers themselves (Ellsberg and Heise 2005; Flake 2005).

- The mother's age at first marriage or cohabitation (quadratic and non-quadratic form). Women married during their childhood have a low level of education and very few opportunities outside marriage (Guha-Khasnobis and Hazarika 2006; United Nations Children's Fund 2014).[11] This reinforces their vulnerability vis-à-vis their husbands, and they are expected to have a weak weight in the decision-making process. Furthermore, there is some evidence that the younger a woman gets married, the higher her risks to experience IPV (Bumpass et al. 1991; Jejeebhoy and Cook 1997); and the higher the risks of sexual abuse, early pregnancies, and sexually transmitted infections (Bruce and Clark 2003, 2004; Clark et al. 2006; Bloom 2008).
- The median age at first marriage in the neighbourhood. This indicator refers to the importance child marriage has in the neighbourhood.
- The prevalence of FGM/C in the neighbourhood among women between 15-49 years. It represents the number of women in the cluster aged 15-49 years, who have undergone FGM/C under the total number of women aged 15-49 years, in the cluster.[12] This rate also shows the importance of the marriage market in the community (Ouedraogo and Koissy-Kpein 2012).

The two last indicators considered for GBV in the neighbourhood, are generally used for monitoring the MDGs progress at the country level (Bloom 2008).

The other indicators of the mother's empowerment considered, are:

- The mother's education.
- The assets owned (house and land). In fact, property ownership can enhance women's agency through an increase in their social status and their bargaining power within the household decision-making process (Koissy-Kpein 2010; World Bank 2014).
- The presence of other co-wives in the household.

Education in DHS

In terms of educational outcomes, two questions are asked in the household questionnaire. First, individuals five years and older are asked if they have ever attended school, their grades, and the level attended. Then, individuals between 5 and 24 years of age are asked about their current/recent school attendance, levels attended, and grades obtained.

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11 Early marriage could lead to discontinuation of schooling for girls. However, the correlation between mother's age at first marriage and mother's education for the sample considered is weak and ranges from 0.4 to 0.05 according to the country. Consequently, I can consider the two indicators.

12 Self-reported status could lead to underreported in countries where the practice is legally banned (Bloom 2008).

The educational outcomes are:

- The school attendance for primary age group and secondary age group. A binary outcome variable, that takes the value 1 in case of current/recent school attendance.
- The primary education completion for children of the secondary age group. The focus is on the MDGs 2 target 2.A: 'Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling'.[13] The secondary school age group differs among countries regarding the entry age in primary education, and the duration of primary education (Table A1). The reference group is composed of children of the secondary school age group, who have never attended school, who have left school, or who are still in the primary education level. This outcome shows that a significant threshold has been crossed. It also accounts for school performances, school delays, and dropouts.
- The last outcome is the school dropout for children between 7 to 17 years of age, who have ever attended school—that means with at least one completed year of education—and who are not at school. The reference group is children still at school. Unlike the first outcome, this outcome does not include new entries.

The sample

The countries are selected according to: 1. Availability of the DHS-VI in the public domain (about 30 countries); 2. Module recording attitudes towards IPV (25 countries);[14] and 3. Existence of a law regarding compulsory education (18 countries). The countries are: Benin, Burkina Faso, Cameroon, Comoros, Democratic Republic of Congo, Côte d'Ivoire, Gabon, Ghana, Guinea Bissau, Mali, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, and Uganda. Among these countries, eight have the additional module on FGM/C (see Table A1).[15]

Seeing that the bargaining decision-making process implies that children live with their two parents, I narrow down the sample to this group. In addition, the sample consists of children whose mothers answered the women's questionnaire (aged between 15-49 years). The limit is that we have no information on children outside the household, no information on ever married girls, and no information on children whose mothers are more than 50 years old.

Additional estimations assess the probability for girls (boys), between 15-18 years, interviewed for the FGM/C (circumcision) module to attend school, to achieve primary education, and to abandon school. The idea is to compare the impact of the two practices, as the defenders of FGM/C tend to assume that the practice is similar to male circumcision. However, whereas male circumcision is known for decreasing impact on STIs, FGM/C are known as harmful practices, with reproductive health consequences for mothers, newborns, and as a public health issue.

In fact, women between 15-49 years old are asked if: 1. They have ever heard of FGM/C and 2. If they have ever had their genitals cut. And men between 15-59 years old are asked if they are circumcised. The sample consists of all girls or boys between 15-18 years old, regardless of

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[13] For a complete list of the MDG's education target list, please refer to http://www.un.org/millenniumgoals/education.shtml.

14 Some countries are not considered because of differences in question, which do not allow for comparable analysis.

15 Only eight are considered for analysis of the impact of FGM/C because of missing information for Senegal.

relationship with the head of household. The status of excision is defined as a binary variable equals 1 if the girl has her genitals cut and null if not. I suppose that girls who have never heard of FGM/C are not excised.[16]

The status of circumcision is defined as a binary variable equals 1 if the boy is circumcised. The prevalence of FGM/C for the sample are: 3.2 per cent in Benin, 55 per cent in Burkina Faso, 37 per cent in Côte d'Ivoire, 96 per cent in Guinea, 91 per cent in Mali, 34 per cent in Nigeria, 70 per cent in Sierra Leone, and 8 per cent in Tanzania. The prevalence of circumcision for the sample are: 94 per cent in Benin, 83 per cent in Burkina Faso, 94.5 per cent in Côte d'Ivoire, 98 per cent in Mali, 99 per cent in Nigeria, 99 per cent in Sierra Leone, and 74 per cent in Tanzania.

Table A2 reports some statistics on the different samples. When looking at school attendance, the statistics suggest that the proportion of girls at school is lower than the proportion of boys, in 8 out of the 18 countries: Benin, Burkina, Cameroon, Congo R., Côte d'Ivoire, Guinea, Mali, and Nigeria. The reverse is true in Namibia, Rwanda, and Sierra Leone. For instance, 85.5 per cent of the boys and 80 per cent of the girls in Congo R. currently attend school; while 92 per cent of the girls and 88 per cent of the boys in Namibia currently attend school.

The proportion of girls that attend secondary school is significantly lower than the proportion of boys in 4 of the 18 countries: Benin, Congo, Cote d'Ivoire, and Guinea. The reverse is true in 6 of the 18 countries: Gabon, Mozambique, Namibia, Sierra Leone, Tanzania, and Uganda. For instance, 46.5 per cent of the boys versus 43 per cent of the girls of secondary school age group in Benin have completed the primary education level; while 36 per cent of the boys and 42 per cent of the boys in Gabon have completed the primary level of education.

In terms of dropouts, in 5 out of the 18 countries, the proportion of girls who drop out of school is significantly higher than the proportion of boys: Benin, Cameroon, Congo R., Gabon, and Guinea. The reverse is true in Mali and Burkina Faso. For instance, 4 per cent of the boys versus 6 per cent of the girls between 7 and 17 years old in Cameroon have left school; while 10 per cent of the boys and 8 per cent of the girls in Burkina Faso have left school.[17]

4.2 Method

The multilevel models allow for accounting of the hierarchical structure of the data, the examination of between group and within group variability, as well as the way neighbourhood level variables are related to variability at different levels (Rabe-Hesketh et al. 2005). In a general way, the individuals tend to exist within a hierarchical societal structure. The children are nested in households, which are nested in clusters (communities or neighbourhood). As a consequence, children living in the same cluster tend to be more homogeneous to each other than children randomly sampled from the entire population. They face the same exposure to violence, the same socio-economic status, ethnicity, norms, and traditions, especially in rural areas. As a result, observations based on these children are not fully independent while independence of observations is a primary assumption of most analytical techniques. The multilevel models enable to control for clustering and have accurate standard errors. The models address the unobserved factors, which can affect children's educational outcomes at different levels. One specific

16 There is also a risk of underestimation especially for countries where the practice is forbidden.

17 The mean comparison tests performed suggest a significant difference between the mean school attendance/primary school completion/school dropout for boys and girls.

advantage of these models is their ability to account for the effects of group-level variables, while simultaneously allowing for unmeasured group factors to influence individual behaviours, and the school outcome.

The maximum-likelihood is considered to estimate a bivariate Logit model and the model can be expressed as a latent response model:

$$S^*_{ik=} X'_{ik}\beta_1 + \pi'_{ik}\beta_2 + \eta_k + \varepsilon_{ik} \quad (3)$$

Where β_1 is the parameter associated to the characteristics X of the child i living in cluster k. The independent variables included in X are those generally considered for analysis of the demand of schooling such as age, sex, siblings, household wealth and size, residence, and parents' education. The mother's empowerment and violence she faces are represented by π with β_2 the associated parameter. The random part of the model is represented by $\eta_k + \varepsilon_{ik}$ where ε_{ik} represents the residuals at the individual level, and η_k represents the cluster specific random intercept that varies across clusters and is normally distributed with a mean of zero and a constant variance.

The introduction of cluster level predictors Z allow the analysis of the effect of group level variable, while simultaneously allowing the possibility that the outcome variable may be influenced by unmeasured group factors. The model in equation (3) becomes:

$$S^*_{ik=} X'_{ik}\beta_1 + \pi'_{ik}\beta_2 + \bar{Z}'_k\alpha + \eta_k + \varepsilon_{ik} \quad (4)$$

Z includes the cluster level factors (prevalence of FGM/C, median age at first marriage, and residence in urban area) and α represents the set of associated parameters.

VAW/G is captured in the empirical model through the mother's empowerment π and through the contextual factor Z.

The correlation between children in the same cluster is represented by the Intraclass Correlation Coefficient (ICC), which represents the share of the total variance attributable to the neighbourhood: $\rho_k = \frac{Var(\eta_k)}{Var(\eta_k)+\Pi^2/_3}$ with $\Pi^2/_3$ the variance of the standard logistic distribution.

I estimate separate models for girls and boys as I assume that parents differently influence children's outcomes because of differences in their preferences and/or differences in the children's human capital technologies (Koissy-Kpein 2008, 2010).

The meqrlogit command for STATA is used to carry out the estimations. I first consider the model without cluster level factors and then the model with cluster level factors. The Likelihood Ratio (LR) test is performed to check: 1. Whether the random intercept model without cluster level factors and the standard Logit model are significantly different; and 2. Whether the model without cluster level factors and the model with cluster level factors are significantly different.

The estimations are considered for the children, boys and girls, for the entire pooled sample. In this case, the country level variables are considered for the prevalence of FGM/C and the median age at first marriage, instead of cluster level variables. Then, the estimations are considered for each of the 18 countries.

5 Results and discussion

First, the LR tests allow deducing that the random coefficients model provides a better fit than the standard Logit model. In addition, the non-null variance between clusters shows the importance of accounting for the hierarchical structure of the data. As a conclusion, the neighbourhood is important to understand the schooling decision. Then, the second test shows that the random intercept model with cluster level variables is preferable to the model without cluster level variables, except in some cases.

5.1 School attendance for primary and secondary school age group

The estimations for the entire pooled sample presented in Table A3 suggest a lower probability for girls to attend school compared to boys, all other factors being equal. It appears that violence, females face in the household and the community, affect both boys' and girls' school attendance. Indeed, one-year increase in the mother's age at first marriage is associated with an increase in the odds for boys and girls to attend school. The quadratic form observed for the age of first marriage suggests that the difference in the estimated odds ratio depends on the level of the risk factor itself. In addition, one-year increase in the women's age at first marriage in the country is associated with a 32 per cent (20 per cent) increase in the girls (boys) probability to attend school. The prevalence of FGM/C in the country appears non-significant. However, the results in Table A9 suggest a lower probability for excised girls to attend school compared to non-excised girls, while no significant effect appears for male circumcision. The odds for an excised girl to attend school are 36.5 per cent lower compared to the odds of a non-excised girl. The estimations considered here for the pooled sample hide significant heterogeneities among countries because of utmost variations in VAW/G among countries. For instance, FGM/C ranges from 88.5 per cent in Mali to 1 per cent in Uganda and Cameroon. Early marriage ranges from 59 per cent in Mali to 4 per cent in Rwanda. Acceptance of IPV ranges from 87 per cent in Mali to 16 per cent in Benin (Table 1). Differences in ethnic groups and their cultural and religious norms are important parts of observed heterogeneities.

The estimations for each country suggest that the girls have a lower probability to attend school compared to the boys, all other factors being equal, in 10 out of the 18 countries: Benin, Burkina Faso, Cameroon, Congo R., Côte d'Ivoire, Gabon, Guinea, Mali, Mozambique, and Nigeria.[18] The results are in accordance with the descriptive statistics except in some cases. In Mozambique and Gabon, the mean comparison test reveals no significant difference between genders while the estimations show the lower probability of school attendance for girls. In the case of Namibia, Rwanda, and Sierra Leone, the descriptive statistics reveal that the proportion of girls at school is significantly higher than the proportion of boys, while no significant effect appears from the estimations.

In terms of VAW/G, significant differences appear among genders and among countries. Indeed, the mother's age at first marriage is positively associated with the girls' probability to attend school in 9 out of the 18 countries: Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, Nigeria, Rwanda, Senegal, and Sierra Leone. However, delays in the mother's age at first marriage positively influence boys' school attendance only in 5 countries: Burkina Faso, Cameroon,

18 The result is derived from the estimation of the entire sample with a dichotomous variable 'female'. The odds to attend school are 42 per cent (in Benin), 22 per cent (in Burkina Faso), 56 per cent (in Cameroon), 38.5 per cent (in Congo Rep), 40 per cent (in Côte d'Ivoire), 34 per cent (in Gabon), 44 per cent (in Guinea), 26 per cent (in Mali), 14 per cent (in Mozambique), and 44 per cent (in Nigeria) lower for girls compared to boys.

Mozambique, Namibia, and Sierra Leone. The results also suggest that for boys in Ghana, the probability to attend school decreases as the mother's age at first marriage increases.

Regarding the second indicator of violence against mothers, it appears that the girls' probability of schooling is lower in the case where their mothers have fear of being beaten by arguing with their partner in Comoros, Mali, Mozambique, and Sierra Leone. This represents 4 out of 18 countries against only 1 case for boys' school attendance. Indeed, in Mali, the odds of schooling are 13.5 per cent lower for boys and 15 per cent lower for girls whose mother justified IPV compared to their counterparts whose mothers do not. In Comoros, Mozambique, and Sierra Leone, the odds to attend school are, respectively, 42 per cent, 24.5 per cent, and 14.5 per cent lower for girls whose mothers justified IPV compared to those whose mothers do not.

However, a positive and significant association appears between the mother's opinion about IPV and the boys' probability to attend school in Côte d'Ivoire. The odds of schooling are almost 30 per cent higher for the boys in Côte d'Ivoire compared to their counterpart, whose mothers do not find any justification in wife beating. In the case of Nigeria, a weak significant association appears for the girls' probability to attend school; and their odds are 13.5 per cent higher to their counterpart whose mothers do not find any justification in wife beating. This means that the boys in Côte d'Ivoire and the girls in Nigeria have a higher probability to attend school when the schooling decision mainly rests with their fathers.

The results also suggest a significant impact of VAW/G in the neighbourhood on school attendance of boys and girls. In fact, school attendance of boys and girls increases with the women's median age at first marriage in the neighbourhood in 10 out of the 18 countries, but not the same countries. The results suggest that a one unit increase in the women's median age at first marriage in the neighbourhood increases by 45 per cent (36 per cent) in Burkina Faso, 21 per cent (20 per cent) in Cameroon, 18.5 per cent (20 per cent) in Guinea, 18 per cent (11 per cent) in Mali, 33 per cent (42.5 per cent) in Nigeria, 20 per cent (10.5 per cent) in Rwanda, 16 per cent (30 per cent) in Senegal, and 14 per cent (16 per cent) in Tanzania the odds to attend school for girls (boys). The impact of this component seems much larger on girls' schooling compared to boys' schooling in Burkina Faso, Cameroon, Mali, and Rwanda. In Benin and Mozambique, this component only impacts boys' school attendance, while the significant and positive impact appears for girls only in Sierra Leone and Namibia. In Ghana, the effect is weakly significant on girls' school attendance, but negative. However, I also considered the proportion of women who married as a child rather than the median age at first marriage, which appears non-significant.

Regarding FGM/C, the estimations suggest that the prevalence of excised women in the neighbourhood impacts girls' (boy's) school attendance in 5 (4) out of the 8 countries. In fact, both boys and girls will have a lower probability to attend school in clusters with a higher prevalence of FGM/C in Benin, Côte d'Ivoire, and Mali. The effects seem more important on the girls' odds to attend school in Côte d'Ivoire and Mali. Indeed, the odds to attend school are 66.5 per cent (60 per cent) lower for girls (boys) living in clusters where all women are excised compared to clusters where the prevalence of FGM/C is null in Côte d'Ivoire. In Mali, the odds to attend school are 84.5 per cent (65 per cent) lower for the girls (boys) living in clusters where all women are excised compared to clusters where the prevalence is null. The prevalence of FGM/C seems most important for boys in Benin and the odds to attend school are 39 per cent (71 per cent) lower for the girls (boys) living in clusters where the prevalence of FGM/C equals one compared to clusters where the prevalence is null. The prevalence of FGM/C negatively affects boys' schooling in Guinea while no significant effect appears on girls' probability to attend school.

In Tanzania, girls will have a lower probability to attend school in clusters where all women are excised, while the reverse is true for girls in Nigeria. The unexpected results for Nigeria are not so surprising. FGM/C is reported to be most prevalent among the Yoruba and the Igbo, located in the south west of the country (Ahanonu and Victor 2014). The south east of Nigeria includes important cities such as Lagos, and records substantial level of wealth, education, and schools. This result certainly explains the results and reinforces the importance of accounting for cluster effects.

In most of the countries with a lower probability of school attendance for girls compared to boys, the effect of VAW/G seems much more important on girls. These countries are Burkina Faso, Cameroon, Côte d'Ivoire, and Mali. For instance, in Mali, wife beating decreases by 15 per cent the odds for girls to attend school, while a woman's acceptance of IPV decreases by 13.5 per cent the odds for boys. One-year increase in the median age at first marriage in the neighbourhood increases by 17.5 per cent the girls' odds to attend school versus 11 per cent for their male counterparts. Then, the prevalence of FGM/C in the neighbourhood suggests that the odds to attend school for girls living in a community where all the women between 15-49 years old are excised are 84.5 per cent lower than the odds for girls living in a community where no women are excised. The odds to attend school for boys are 65 per cent lower when they live in a community where all the women are excised compared to the boys living in a non-FGM/C environment.

The additional estimations are presented in Table A7. The estimations for girls between 15-18 years old, suggest that excised girls in 5 of the 8 countries have a lower probability to attend school compared to non-excised girls: Benin, Burkina Faso, Côte d'Ivoire, Sierra Leone, and Tanzania. A non-significant effect appears in Guinea and Mali (which record the highest prevalence rate of excision), and Nigeria. Regarding the sample of boys, the status of circumcision does not impact on school attendance, except in Tanzania where the component is positive and significant.

The mothers' education is obviously an important determinant of school attendance. It significantly and positively impacts the probability to attend school except for children in Comoros and Ghana, and for girls in Namibia where the impact is non-significant. For instance, in Burkina Faso, one-year increase in the mother's education increases by 12.5 per cent (12 per cent) the odds for girls (boys) to attend school. In Sierra Leone, one-year increase in the mother's education increases by 7 per cent (6.5 per cent) the odds for girls (boys) to attend school. In Cameroon, one-year increase in the mother's education increases by 23.5 per cent (18 per cent) the odds for girls (boys) to attend school.

The mothers' education has largely been considered as an important determinant of child development, health, and education. The analysis suggests that in some cases, violence they face impacts more on school attendance compared to their level of education. For instance, in Rwanda, one-year increase in the mother's level of education increase by 7.5 per cent the odds for girls to attend school, while one-year increase in mother's age at first marriage increases by 8.5 per cent the odds for girls to attend school.[19] In the Comoros, the mother's education does not significantly impact girls' school attendance, while the girls' odds to attend school significantly increase with the mother's age at first marriage. In this country, no significant effect appears for mother's age at first marriage and mother's education on boys' probability to attend school.

19 I test the null hypothesis that the coefficients are equal. The test statistic is 13.51 with pvalue 0.0012.

In terms of other indicators of empowerment, the mothers' land ownership negatively affects the schooling of girls in Comoros and Mali, and boys in Uganda. These results refer to the wealth paradox, which emphasizes the paradoxical observation that children in land-rich households are more likely to work and less likely to attend school than children in land-poor households (Basu and Tzannatos 2003; Bhalotra and Heady 2003; Kambhampati and Rajan 2005, 2006; Nkamleu 2006; Basu et al. 2010; Koissy-Kpein 2012b, 2012c).

In the same vein, boys in Benin, girls in Côte d'Ivoire, and both boys and girls in Gabon have a lower probability to attend school if their mothers own a house compared to those whose mothers do not own this asset. However, in the case of girls in Comoros, boys in Côte d'Ivoire, and both boys and girls in Mozambique, Namibia, Nigeria, and Rwanda, the results suggest a positive and significant effect of houses owned by mothers on school attendance. Regarding the wealth paradox, Koissy-Kpein (2012b) notes that the relationship between land and child outcomes (school attendance and labour) depends on the child's gender, definition of wealth, and outcomes considered.

It also appears that children whose mothers do not have another co-spouse have a higher probability to attend school in Burkina Faso and Rwanda. The girls only have a higher probability to attend school in this case in Guinea, Mali, Mozambique, and Sierra Leone; while the boys only have a higher probability to attend school in Congo R., Ghana, and Uganda. However, an unexpected negative effect appears for girls in Gabon and children in Uganda.

The other results are consistent with those generally found in the literature. I only quote some of them. In accordance with the quantity-quality model, in most of the countries, school attendance decreases with the siblings' size and children with a higher proportion of sisters among siblings have a higher probability to attend school. As suggested by Garg and Morduch (1998) and Morduch (2000), there is a net advantage for children to have sisters. It also appears that children from wealthier households have a higher probability to attend school compared to children from poor household.

In almost all the countries, the children of Muslim mothers have a lower probability to attend school compared to the others. In Ghana, the daughters of Muslim mothers have a lower probability to attend school while the reverse is observed for boys in Guinea and Sierra Leone. Finally, all other things being equal, children in urban areas have a higher probability to attend school compared to children in rural areas in Burkina Faso, Guinea, Mali, Nigeria, Senegal, and Sierra Leone. In Congo R. and Comoros, the residency in an urban zone increases school attendance for girls only.

Table 1: Results from random intercept Logit estimations for probability to attend school

	Benin		Burkina		Cameroon		Comoros		Congo r.		Côte d'Ivoire		Gabon		Ghana		Guinea	
Independent Variables	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**
VAW/G																		
Age First Cohabitation	0.044	0.097**	0.175**	0.385***	0.044**	0.238**	0.123	0.558***	-0.001	0.089	0.064	0.194**	0.139	-0.319	0.014	0.234	0.011	0.18
Age First Cohabitation²	-0.001	-0.002**	-0.004*	-0.009***		-0.005**	-0.003	-0.014***	-0.078	-0.002	-0.001	-0.004**	-0.004	0.007	-0.001	-0.006	0	-0.005
Opinion IPV	0.101	-0.107	-0.058	-0.092	0.108	0.017	-0.319	-0.540**	-0.043	-0.029	0.259**	0.149	-0.072	-0.2	-0.148	0.248	0.024	0.059
Neighbourhood Factors																		
Median Age First Marriage	0.062*	0.051	0.306***	0.373***	0.185**	0.192**	0.078	0.029	-0.065	0.051	0.027	0.075	0.113	-0.063	-0.043	-0.137*	0.182**	0.165**
Prevalence FGM/C	-1.242***	-0.488*	-0.24	-0.195							-0.910***	-1.093***					-2.914*	-0.177
Other Indicators Mother's Empowerment																		
Mother's education	0.197***	0.154***	0.113***	0.118***	0.167***	0.211***	0.032	-0.013	0.113***	0.120***	0.127***	0.105***	0.096	0.211***	0.028	0.001	0.213***	0.125***
Land owned	0.135	0.169	-0.032	-0.007	-0.501	-0.726	-0.379	-0.660**	-0.103	0.079	-0.157	0.073	-0.204	0.397			-0.182	0.022
House owned	-0.194*	-0.154	0.068	0.102	0.206	0.229	0.3	0.681**	0.076	0.087	0.234*	-0.223*	-0.728*	-0.702*			0.093	-0.086
Monogamous union	-0.026	0.101	0.304***	0.210**	0.006	0.059	-0.051	0.600**	0.181*	0.005	0.088	0.173	0.577	-0.966**	0.461**	0.218	0.04	0.221*
Observations	7 704	6 506	8 768	7 827	4 496	4 207	1 658	1 497	7 367	7 127	2 736	2 489	1 478	1 520	1 703	1 582	3 145	2 857
Clusters	744	744	573	569	560	571	245	240	534	535	342	344	302	292	357	362	299	295
ICC	0.27	0.266	0.150	0.198	0.222	0.209	0.270	0.274	0.200	0.150	0.173	0.181	0.196	0.161	0.339	0.383	0.159	0.213

	Mali		Mozambique		Namibia		Nigeria		Rwanda		Senegal		Sierra Leone		Tanzania		Uganda	
Independent Variables	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**
VAW/G																		
Age First Cohabitation	0.06	0.01	0.031**	0.066	0.505***	0.238	0.009	0.016*	0.03	0.082***	0.033	0.033*	0.113*	0.140**	-0.074	0.016	-0.098	-0.083
Age First Cohabitation²	-0.002	0		-0.002	-0.009***	-0.004							-0.003*	-0.003**	0.003	0	0.003	0.002
Opinion IPV	-0.145*	-0.161**	-0.023	-0.280*	-0.064	-0.756	0.105	0.126*	0.001	0.132	-0.067	0.114	-0.037	-0.154*	-0.076	-0.129	-0.028	-0.039
Neighbourhood Factors																		
Median Age First Marriage	0.101**	0.160**	0.093**	0.011	0.059	0.161*	0.354***	0.282***	0.099*	0.179**	0.257**	0.148*	0.058	0.148**	0.146**	0.129**	-0.052	0.031
Prevalence FGM/C	-1.051**	-1.855***					0.157	0.499**					0.066	0.227	0.034	-0.426*		
Other Indicators Mother's Empowerment																		
Mother's education	0.104***	0.123***	0.107***	0.085**	0.108**	0.026	0.089***	0.114***	0.088***	0.072**	0.116**	0.141***	0.061**	0.067**	0.078***	0.099***	0.143***	0.151***

Land owned	-0.131	-0.200*	-0.181	-0.131	0.093	0.631	0.007	-0.027	-0.051	-0.235	0.23	-0.151	-0.116	0.089	0.095	-0.107	-0.425**	-0.282
House owned	0.024	0.05	0.533**	0.617**	0.994*	1.234**	0.360***	0.497***	0.532**	0.717**	0.151	0.149	0.03	0.145	-0.164	0.173	0.039	0.243
Monogamous union	-0.062	0.328***	0.139	0.317**	-1.157**	-1.305**	-0.068	0.029	0.645***	0.457**	-0.06	0.181	0.024	0.287**	0.133	0.102	0.572***	0.204
Observations	5 258	4 539	3 774	3 731	1 012	938	16 269	15 222	3 692	3 549	2 100	2 000	4 657	4 020	3 315	3 100	3 249	3 042
Clusters	413	413	576	586	375	364	896	894	490	487	199	198	434	433	466	459	390	388
ICC	0.227	0.216	0.170	0.280	0.523	0.671	0.408	0.371	0.144	0.160	0.401	0.407	0.229	0.233	0.161	0.182	0.172	0.246

Note 1: Significant at *** 1, ** 5, and * 10 per cent levels respectively; Note 2: The other explanatory variables are: the child's age, sibling size, proportion of girls to boys, father's education, household's wealth, urban residence, and mother's religion; Note 3: The table presents the coefficients derived from the random intercept Logit estimations without cluster variables and quadratic form for age at first cohabitation, without cluster variables and non-quadratic form for age at first cohabitation, and with cluster variables. The tables are available upon request.
Source: Author's calculations.

5.2 Primary school achievement

The focus of this part is on the MDGs 2 target 2.A.[20] The sample considered is children from the secondary school age group, which is different among countries regarding duration of primary education and entry age in primary education. The reference group is composed of children of the secondary school age group who have never attended school, who have left school, or who have repeated classes.

The estimations for the entire pooled sample are presented in Table A4. In terms of the probability to attend school, the component 'girls' is non-significant, suggesting that no difference appears between boys and girls. However, the sample restricted to the eight countries with the FGM/C module suggests a lower probability for girls to achieve primary level of education compared to boys. It appears that the VAW/G in the household affects both boys' and girls' school attendance. Indeed, a one-year increase in mother's age at first marriage is associated with an increase in the odds for girls and boys to achieve primary level of education. Furthermore, boys and girls will have a higher probability to achieve primary level of education if their mothers feel free to argue with their fathers without fear of being beaten. In fact, the odds to achieve primary education are 19.5 per cent (10 per cent) lower for girls (boys) if the mothers run the risk of IPV by arguing with their partners.

Regarding, women's age at first marriage and prevalence of FGM/C in the country, no significant association appears. Nevertheless, the results in Table A9 suggest a lower probability for excised girls to attend school compared to non-excised girls, while no significant effect appears for male circumcision. The odds of an excised girl to attend school are 30 per cent lower compared to the odds of a non-excised girl.

The results for each country suggest a lower probability to achieve primary level of education for girls compared to boys in 4 out of 18 countries: Benin, Burkina Faso, Congo R., and Cote d'Ivoire.[21] The reverse is true in 4 out of 18 countries: Gabon, Namibia, Tanzania, and Uganda where the girls have a higher probability to complete primary education.[22]

The results suggest a significant effect of gender-based acts of violence against women and girls on the children's probability to achieve primary education.

In Burkina Faso, Gabon, and Rwanda, the girls whose mothers justify wife beating have a lower probability to achieve primary education compared to girls whose mothers do not find any justification in wife beating. However, no significant effect appears on boys' probability to achieve primary school for these countries. In Comoros, Guinea, and Namibia, the reverse is true as there is a significant association between mother's opinion regarding wife beating and boys' probability to achieve primary education, while no significant effect appears for girls. Indeed, boys from households where the mother runs the risk of IPV by arguing with her husband have a lower probability to achieve primary education compared to their counterparts whose mothers do not justify IPV.

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20 For more information, please refer to http://www.un.org/millenniumgoals/education.shtml.

21 The results are derived from estimation of the entire sample with a dichotomous variable 'girls'. The odds are 39 per cent, 26 per cent, 32 per cent, and 34 per cent lower for girls compared to boys, respectively in Benin, Burkina Faso, Congo Rep., and Côte d'Ivoire.

22 For instance, the odds are 52 per cent and 91 per cent lower for boys, respectively in Gabon and Uganda.

In Nigeria and Uganda, a negative and significant impact appears on school achievement of both boys and girls. In Nigeria, the odds to achieve primary education are 27 per cent (17 per cent) lower for girls (boys) if mothers run the risk of IPV by arguing with their partners. In Uganda, the odds to achieve primary education are 55 per cent (56 per cent) lower for girls (boys) if the mothers run the risk of IPV by arguing with their partners.

In terms of mothers' age at first marriage, it appears a significant and positive impact on primary school achievement for girls in 8 of the 18 countries and for boys in 11 of the 18 countries. In Benin, Ghana, Mali, Rwanda, and Sierra Leone, one-year increase in the mother's age at first marriage increases the boys' odds to achieve primary education while no significant effect appears for the girls. The reverse is true for Côte d'Ivoire and Uganda with a significant and positive relationship between mother's age at first marriage and girls' odds to achieve primary level of education while no significant relationship appears for boys.

In terms of violence women and girls face at the neighbourhood level, the results suggest that girls' probability to achieve primary education increases as the median age of marriage increases in the community in 9 out of the 18 countries: Burkina Faso, Cameroon, Congo R., Gabon, Mali, Nigeria, Senegal, Sierra Leone, and Tanzania. Regarding boys, the probability to achieve primary education increases with the median age at first marriage in 9 out of the 18 countries: Benin, Burkina Faso, Cameroon, Mali, Nigeria, Rwanda, Senegal, Sierra Leone, and Tanzania. Only girls are affected by early marriage in the neighbourhood in Congo and Gabon, while boys, only are affected by early marriage in Benin and Rwanda. The results suggest that one-year increase in the median age at first marriage in the neighbourhood increases by 35 per cent (16 per cent) in Burkina Faso, 40 per cent (19.5 per cent) in Cameroon, 22 per cent (17 per cent) in Mali, 19 per cent (11.5 per cent) in Nigeria, 42.5 per cent (31.5 per cent) in Senegal, 28.5 per cent (13 per cent) in Sierra Leone, and 33 per cent (16 per cent) in Tanzania girls' (boys') odds to achieve primary level of education. The effect of the marriage market in the neighbourhood seems much more important for girls than boys.

Regarding the prevalence of FGM/C in the neighbourhood, a significant and negative effect appears on girls' primary school achievement in Côte d'Ivoire and Mali; and on boys' school achievement in Benin and Côte d'Ivoire. In the case of Tanzania, there is a counterintuitive result and a significant and positive effect of the prevalence rate of FGM/C on primary school completion of boys and girls. According to the Tanzania's DHS reports, the practice of FGM/C varies significantly across the regions and these variations by zone and residence reflect ethnic differentials and advocacy campaigns (National Bureau of Statistics Tanzania and ICF Macro 2011). The highest prevalence rates are recorded in the northern (38 per cent) and central (59 per cent) zones, especially the regions of Manyara (71 per cent) and Dodoma, which includes the administrative capital (64 per cent). The fact is these regions and areas record high levels of primary school completion for men and women according to the report. These certainly explain the higher probability of achievement, as in the counterintuitive case for FGM/C and school attendance of girls in Nigeria. However, the previous estimations have shown a negative and significant effect of the prevalence of FGM/C on girls' probability to attend school in Tanzania. The difference with the previous estimation for Tanzania could emerge from the sample considered as well as the reference group considered.

In the case of Nigeria, the component is negative and non-significant on girls' school achievement while the previous estimation has shown a positive relationship between probability to attend school and prevalence of FGM/C. This suggests that significant differences among areas in terms of prevalence of FGM/C recede regarding school achievement of secondary school age group.

Regarding the countries with lower probability for girls to achieve primary level of education, it appears that the effect of VAW/G is most important in girls' primary school achievement compared to boys' in 3 out of the 4 countries: Burkina Faso, Congo R., and Côte d'Ivoire. For instance, in the Congo R., one-year increase in the median age at first marriage in the neighbourhood increases by 12.5 per cent the odds for girls to achieve primary education, while the marriage market pressure in the neighbourhood does not affect boys' probability to achieve primary level of education at all. In Burkina Faso, one-year increase in the median age at first marriage in the neighbourhood increases by 35 per cent the odds for girls to achieve primary level of education versus 16 per cent for boys. In Côte d'Ivoire, the odds to achieve primary education for girls living in a community where all the women between 14-49 years old are excised are 76 per cent lower than girls living in communities where no woman is excised, while the odds for boys are 54 per cent lower in this case.

The additional estimations are presented in Table A7. The estimations for girls between 15-18 years old, suggest that excised girls in 4 of the 8 countries have a lower probability to achieve primary level of education compared to non-excised girls: Benin, Burkina Faso, Côte d'Ivoire, and Sierra Leone. In Guinea, Mali, Nigeria, and Tanzania, the status of excision is non-significant. Regarding the sample of boys, the status of circumcised does not impact on probability to achieve primary level of education, except in Tanzania where the component is positive and significant.

From the other indicators of mothers' empowerment, I note a significant and positive effect of mothers' education on the probability to achieve primary school except for girls in Comoros, Ghana, and Senegal; and for boys in Namibia. For instance, one-year increase in mothers' education increases by 12.5 per cent (9 per cent) the girls' (boys') odds to achieve primary level of schooling in Benin. In Sierra Leone, one-year increase in mothers' education increases by 9 per cent (12 per cent) the girls' (boys') odds to achieve primary level of schooling.

The results also show evidence of a much more important effect of violence the mothers face within the household compared to mothers' education in some cases. For instance, in the case of girls' in Senegal and Comoros, the probability to achieve primary level of education increases with mother's age at first marriage while no significant effect of mother's level of education appears. Additionally, boys in Namibia whose mothers justify IPV will have a lower probability to attend school compared to their counterpart whose mothers do not. In other cases, the effect of mothers' education is much larger. For instance, the odds to achieve primary education for boys in Mozambique and Rwanda increase by 7.5 per cent and 9 per cent, respectively, with one additional year in mother's age at first marriage, while the odds increase by 18 per cent and 14.5 per cent, respectively, with one additional year in mother's education. In Uganda, one year increase in mother's age at first marriage increases by 8 per cent the odds for girls to achieve primary level of education, while one year increase in mother's education increases by 13.5 per cent the odds for girls to achieve primary education.

In Benin, Cameroon, Guinea, Rwanda, and Tanzania, boys whose mothers own a house have a higher probability to achieve primary education compared to boys whose mothers do not. However, no significant effect appears on the girls' probability in these countries. In Nigeria, boys whose mothers own land have a higher probability to complete primary level of education compared to boys whose mothers do not own land, while no significant effect appears for girls. I also find the wealth paradox conclusions in cases of boys in Burkina Faso, Mozambique, and Uganda; and girls in Congo R. and Uganda. Indeed, a negative and significant relationship appears between the probability to complete primary level of education and mother's ownership of land.

Then, it appears that boys and girls from monogamous households have a higher probability to complete primary level of education in Tanzania. In Burkina Faso, Congo R., and Côte d'Ivoire, a significant and positive link appears for boys, while no significant effect appears on girls' probability to achieve primary level of education. In Sierra Leone, girls from monogamous households have a higher probability to complete primary education compared to their counterparts from polygamous households, while no significant effect appears for boys. In the cases of Nigeria and Uganda, the results show that boys from monogamous households have a lower probability to achieve primary education compared to their counterparts from polygamous households. In Uganda, girls' are in a better position regarding primary school achievement in monogamous households, while the reverse is true for boys.

The other independent variables suggest that children from wealthier households, in urban areas, have a higher probability to achieve primary level of education. Except cases where the components are not significant, the probability to achieve primary level of education decreases with sibling size and increases with proportion of sisters among the siblings.

Table 2: Results from random intercept Logit estimations for probability to achieve primary level of education

	Benin		Burkina		Cameroon		Comoros		Congo Rep		Côte d'Ivoire		Gabon		Ghana		Guinea	
Independent Variables	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**
VAW/G																		
Age First Cohabitation	0.147**	0.014	0.118***	0.086***	0.123	0.104	0.478**	0.442**	0.028*	0.031*	-0.05	0.335*	0.034	-0.085	0.522**	0.445	-0.276	0.109
Age First Cohabitation²	-0.003*	0			-0.003	-0.003	-0.013**	-0.011**	0.003	0	0.003	-0.007	-0.001	0.002	-0.013**	-0.011	0.007	-0.004
Opinion IPV	0.111	-0.172	-0.029	-0.339**	-0.106	0.022	-0.800**	-0.447	-0.074	-0.192	-0.233	-0.328	-0.334	-0.825**	-0.018	0.031	-0.512*	0.295
Neighbourhood Factors																		
Median Age First Marriage	0.114**	-0.024	0.150**	0.299**	0.176**	0.334***	-0.037	-0.02	0	0.117*	0.072	-0.055	0.09	0.118*	0.119	-0.005	-0.045	0.007
Prevalence FGM/C	-1.077**	-0.057	-0.03	-0.074							-0.777*	-1.416**					-1.854	2.037
Other Indicators Mother's Empowerment																		
Mother's education (years)	0.089**	0.116***	0.115***	0.146***	0.235***	0.244***	0.117**	0.059	0.086***	0.161***	0.148***	0.094**	0.101**	0.233***	0.102**	0.071	0.093**	0.082**
Land owned	0.176	0.241	-0.321**	0.079	-0.922	0.116	-0.269	0.034	-0.189	-0.412**	-0.201	-0.463	-0.189	0.094			0.036	0.222
House owned	0.314*	0.018	0.195	-0.074	2.885**	-1.168	-0.808*	0.008	0.061	0.252	-0.23	-0.303	-0.426	-0.163			0.387*	0.139
Monogamous union	-0.06	0.176	0.330**	0.209	0.057	0.284	-0.097	0.439	0.249*	0.199	0.521**	0.055	-0.037	-0.289	0.519	0.399	-0.314	0.127
Observations	2622	2109	3093	2705	1595	1416	615	518	2579	2346	885	771	656	725	488	469	1282	1093
Clusters	682	664	561	557	480	476	206	195	516	517	289	294	248	255	246	241	287	279
ICC	0.181	0.167	0.181	0.269	0.118	0.27	0.208	0.135	0.156	0.19	0.195	0.04	0.132	0.156	0.074	0.306	0.193	0.160

	Mali		Mozambique		Namibia		Nigeria		Rwanda		Senegal		Sierra Leone		Tanzania		Uganda	
Independent Variables	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**
VAW/G																		
Age First Cohabitation	0.178**	0.16	0.072**	0.585**	-0.184	-0.115	0.018*	0.026**	0.088**	0.041	0.111**	0.071*	0.031*	0.045	0.348	-0.391	0.078	0.075*
Age First Cohabitation²	-0.004*	-0.004		-0.013**	0.004	0.001								0.001	-0.008	0.011	-0.001	
Opinion IPV	-0.18	-0.241	-0.283	0.039	-1.324**	-1.748	-0.183*	-0.313**	-0.207	-0.453*	-0.26	-0.408	0.146	0.067	-0.027	-0.163	-0.821**	-0.798**
Neighbourhood Factors																		
Median Age First Marriage	0.154**	0.199**	0.082	0.01	0.079	0.214	0.108***	0.174***	0.199**	0.093	0.274**	0.354**	0.123*	0.251**	0.146*	0.285**	-0.082	0.009
Prevalence FGM/C	-0.968	-2.038**					0.002	-0.036					-0.231	1.112	0.815**	1.164**		
Other Indicators Mother's Empowerment																		
Mother's education (years)	0.086**	0.152***	0.164***	0.148***	0.105	0.336*	0.077***	0.101***	0.135***	0.123***	0.138**	0.108	0.113***	0.083**	0.092**	0.134***	0.124**	0.127**
Land owned	-0.098	-0.291	-0.585**	-0.307	0.401	-0.281	0.215*	0.141	-0.347	0.014	0.268	0.036	-0.085	0.213	-0.499	0.280	-0.651*	-0.521*
House owned	0.035	0.302	0.158	0.021	0.283	1.361	0.011	0.192	1.037**	0.274	0.085	0.525	-0.04	0.023	0.951**	-0.414	0.102	0.016
Monogamous union	0.169	0.090	-0.084	-0.002	-0.181	0.223	-0.233**	0.008	0.649	-0.171	-0.145	-0.156	0.112	0.317*	0.474**	0.484**	-0.640**	0.534*
Observations	1538	1152	997	893	242	229	5623	4926	1007	1105	605	547	1590	1425	817	767	888	780
Clusters	389	375	430	411	172	173	859	864	388	419	177	170	409	389	358	331	301	299
ICC	0.181	0.179	0.230	0.135	0.000	0.712	0.224	0.236	0.338	0.315	0.277	0.430	0.208	0.233	0.202	0.220	0.232	0.072

Note 1: Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: The other explanatory variables are: child's age, sibling size, proportion of girls to boys, father's education, household's wealth, residence in an urban area, and the mother's religion; Note 3: The table presents the coefficients derived from the random intercept Logit estimations without cluster variables and quadratic form for age at first cohabitation, without cluster variables and non-quadratic form for age at first cohabitation, and with cluster variables. The tables are available upon request.

Source: Author's calculations.

5.3 School dropout for primary and secondary school age group

The estimations for the entire pooled sample are presented in Table A5. It first appears that there's a higher probability of school dropout for girls. In fact, the odds to leave school are 24.5 per cent higher for girls compared to boys. In terms of VAW/G, an increase in the mother's age at first marriage decreases both boys' and girls' probability of school dropout. However, IPV increases the school dropout of girls only. Indeed, the odds of school dropout for girls' whose mothers justify wife beating are 11 per cent higher than the odds for girls whose mothers feel free to argue with their husbands. Regarding the women's age at first marriage and the prevalence of FGM/C in the country, no significant association appears. Nevertheless, the results in Table A9 suggest a higher probability of school dropout for excised girls compared to non-excised girls, while no significant effect appears for male circumcision. An excised girl is 32 per cent more likely to dropout compared to the odds of a non-excised girl. The estimations considered here for the pooled sample hide significant heterogeneities among countries.

First, the results of the estimations for children suggest that girls have a higher probability of school dropout compared to boys in 7 out of 18 countries: Benin, Cameroon, Congo R., Côte d'Ivoire, Gabon, Guinea, and Nigeria.[23]

In terms of VAW/G, delays in marriage are associated with a lower probability of school dropout for boys in 7 out of the 18 countries: Ghana, Mali, Namibia, Nigeria, Rwanda, Senegal, and Sierra Leone. In the same vein, delays in marriage are associated with a lower probability of girls' school dropout in 4 out of the 18 countries: Cameroon, Namibia, Rwanda, and Sierra Leone.

The results also show that girls have a higher probability of school dropout if their mothers do not feel free to argue with their fathers in 3 countries: Benin, Burkina Faso, and Mali. However, no significant effect appears on boys' probability of school dropout.

In terms of marriage market pressure at the neighbourhood level, an increase in the median age at first marriage in the neighbourhood is associated with a lower probability of school dropout for girls in 7 out of 18 countries: Burkina Faso, Mali, Nigeria, Rwanda, Sierra Leone, Tanzania, and Uganda. The negative association between median age at first marriage and probability of dropout is observed for boys in 2 countries: Mali and Rwanda.

Regarding the FGM/C, a significant and positive association appears between prevalence of FGM/C in the neighbourhood and boys' probability of school dropout in: Côte d'Ivoire, Nigeria, and Sierra Leone. A significant and positive association appears between the prevalence of FGM/C in the neighbourhood and girls' probability of school dropout in Mali.

In terms of the countries with a higher probability of school dropout for girls compared to boys, it seems that the VAW/G has a higher impact on girls' than boys in 2 out of the 7 countries: Benin and Cameroon. For instance, in Benin, the odds of school dropout for girls are 65 per cent higher when their mothers do not feel free to argue with their husbands compared to girls whose mothers reject IPV. No significant difference appears for boys. In Cameroon, one-year increase in the mother's age at first marriage decreases girls' probability of school dropout while no significant effect appears for boys.

23 For instance, the odds of school dropout for girls compared to boys are 74 per cent and 47.5 per cent higher, respectively in Benin and Nigeria.

Regarding additional estimations, the results are presented in Table A8. The effect of excision on the probability of girls with at least one year of school attendance to abandon school is significant only in 6 out of 8 countries: Benin, Burkina Faso, Côte d'Ivoire, Mali, Sierra Leone, and Tanzania. In Nigeria and Guinea, no significant difference appears in school dropout between excised or non-excised women, as in school attendance and primary school achievement. Regarding the sample of boys, the status of circumcised does not impact the probability of school dropout at all.

In terms of other indicators of mother's empowerment, the mother's education is obviously an important factor because the probability of school dropout decreases as the mother's education increases, except in some cases. For instance, one-year increase in mother's education decreases by 15.5 per cent (13 per cent) the boys' (girls') odds of school dropout in Benin. With one-year increase in mother's education, it is expected to see about 13 per cent, 23 per cent, 4 per cent, and 5 per cent decrease in girls' odds of school dropout in Cameroon, Gabon, Nigeria, and Tanzania, respectively.

The results also reveal that in some cases, acts of violence faced by mothers have a higher impact compared to their level of education. Girls in Burkina Faso have a higher probability of dropout if their mothers do not feel free to argue with their husband, while no significant effect of mother's education appears on the probability of school dropout. In Ghana, the boys' probability of dropout decreases with mother's age at first marriage while the mother's education has no impact on probability of dropout. In Mali, one-year increase in mother's age at first marriage decreases by 5 per cent the boys' probability of school dropout while no significant association appears between the mother's education and the probability of dropout. In Rwanda, one-year increase in mother's age at first marriage decreases girls' probability of dropout by 9.5 per cent while no significant effect appears for mother's education.

It also appears that girls in Burkina Faso, whose mothers own land, have a lower probability of school dropout versus their counterparts whose mothers do not own land. The boys in Côte d'Ivoire and Senegal, and the girls in Nigeria, whose mothers own houses have a lower probability of school dropout versus their counterparts whose mothers are not house owners.

The girls in Benin, Comoros, Ghana, Mali, Mozambique, Sierra Leone; and the boys in Gabon, Ghana, and Rwanda in monogamous households have a lower probability of school dropout compared to their counterparts in polygamous households. However, it appears that girls in Gabon have a higher probability of school dropout in monogamous households compared to their counterparts in polygamous households.

In terms of other determinants of school dropout, the results generally suggest a lower probability of school dropout for children from middle income, rich income, and the richest income households versus their counterparts from poor income households. In Cameroon and Nigeria, children from Muslim households have a higher probability of school dropout.

Children's probability of school dropout generally decreases with the father's education. Various scenarios emerge among the countries. There is no unique path; this is certainly due to the differences in each country. In Côte d'Ivoire, no significant effect appears for the father's years of education, while the boys' probability of school dropout decreases as mother's education increases. The opposite is observed in Guinea. Indeed, the girls' probability of school dropout decreases as the father's education increases, while no significant effect appears for mother's years of education. In Gabon, girls' probability of school dropout decreases as both parents' education increases. However, the effect of the mother's level of education is more important

compared to the effect of the father's level of education. In Uganda, the boys' probability of school dropout decreases with mother's education, while the girls' probability of school dropout decreases with the father's years of education.

Table 3: Results from the random intercept Logit estimations for school dropout

Independent Variables	Benin		Burkina		Cameroon		Comoros		Congo R.		Côte d'Ivoire		Gabon		Ghana		Guinea	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
VAW/G																		
Age First Cohabitation	0.097	-0.105	0.047	0.138	-0.165	-0.256**	-0.249	-0.211	0.099	-0.043	-0.105	-0.217	-0.068	0.099	-0.501*	-0.465	-0.24	0.197
Age First Cohabitation²	-0.003	0.002	-0.002	-0.003	0.003	0.007**	0.006	0.005	-0.002	0.001	0.003	0.006	0.002	-0.002	0.014**	0.013	0.007	-0.006
Opinion IPV	0.166	0.489**	-0.168	0.257*	0.005	-0.121	0.368	0.17	0.115	0.076	-0.333	-0.013	-0.235	-0.314	0.167	-0.045	0.289	0.2224
Neighbourhood Factors																		
Median Age First Marriage	-0.022	-0.03	0.052	-0.275**	0.05	-0.015	-0.129	-0.027	-0.052	-0.101	-0.009	-0.107	-0.089	0.098	0.208	0.234	-0.034	-0.154
Prevalence FGM/C	-0.644	-0.304	0.346	0.581							0.638*	0.678					3.413	1.142
Other Indicators Mother's Empowerment																		
Mother's education	-0.167**	-0.142**	-0.126**	-0.034	-0.051	-0.141***	0.012	0.083	-0.128***	-0.113***	-0.077*	-0.041	0.04	-0.264**	0.042	0.02	-0.148*	-0.046
Land owned	-0.048	-0.107	-0.171	-0.433**	13.026	-0.247	0.421	0.058	0.012	0.107	0.189	0.001	-0.092	-1.307			0.293	0.069
House owned	-0.027	0.009	0.047	0.144	27.484	-0.701	-0.184	-0.714	-0.27	-0.13	-0.564**	0.234	0.868	1.007			0.041	0.037
Monogamous union	-0.016	-0.371**	0.038	-0.016	0.142	0.049	0.107	-1.479***	-0.126	0.1351	-0.007	0.101	-0.962*	3.531**	-0.795*	-1.010*	-0.049	-0.277
Observations	5424	4354	4474	3735	3567	3138	1335	1175	5910	5488	1768	1479	1235	1298	1044	974	2096	1654
Clusters	736	723	565	546	553	559	237	234	534	535	329	332	292	281	342	326	295	288
ICC	0.299	0.226	0.152	0.133	0.378	0.235	0.415	0.430	0.374	0.248	0.048	0.144	0.186	0.511	0.579	0.552	0.275	0.256
Independent Variables	**Mali**		**Mozambique**		**Namibia**		**Nigeria**		**Rwanda**		**Senegal**		**Sierra Leone**		**Tanzania**		**Uganda**	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
VAW/G																		
Age First Cohabitation	-0.052**	0.02	0.035	-0.088	-0.398**	-0.957*	-0.049**	-0.084	-0.067**	-0.100**	-0.102**	0.258	-0.088**	-0.088**	-0.017	-0.281	0.669*	-0.063
Age First Cohabitation²		-0.001	-0.001	0.002	0.008**	0.016*		0.002				-0.007			0	0.008*	-0.017*	0.002
Opinion IPV	0.166	0.462**	0.125	0.289	-0.541	0.658	-0.118	-0.073	0.263	0.143	0.276	-0.013	-0.277	-0.008	0.01	0.226	-0.053	0.101
Neighbourhood Factors																		
Median Age First Marriage	-0.115*	-0.192**	0.009	0.138	-0.019	-0.045	-0.04	-0.078*	-0.166**	-0.184**	-0.121	-0.156	-0.025	-0.243**	0.011	-0.132*	-0.119	-0.303*
Prevalence FGM/C	0.311	1.457*					0.459*	-0.295					3.564**	-3.106	-0.2	0.498		
Other Indicators Mother's Empowerment																		
Mother's education	-0.049	-0.059	-0.068	-0.05	-0.096	0.401	-0.026	-0.038**	-0.067**	-0.047	-0.144*	0.035	-0.056	0.021	-0.024	-0.049*	-0.109*	-0.086
Land owned	0.248	-0.024	0.277	0.246	-0.381	-2.58	0.048	0.272	-0.256	0.001	0.123	0.224	0.406	0.065	0.018	0.328	0.381	0.115
House owned	-0.321	-0.133	-0.23	-0.477	-1.173	-2.031	0.016	-0.315*	-0.513	-0.234	-0.660*	-0.427	-0.216	-0.425	0.268	-0.187	-0.417	0.103
Monogamous union	0.186	-0.457**	-0.075	-0.361*	1.383	1.479	-0.176	-0.218	-0.701**	-0.135	0.284	0.263	-0.167	-0.524**	-0.019	0.199	-0.262	0.033

Observations	3202	2583	2815	2762	832	794	10335	9076	3502	3395	1181	1153	3226	2857	2942	2796	2630	2376
Clusters	395	387	557	566	345	329	860	845	490	487	186	182	423	426	460	452	380	376
ICC	0.117	0.168	0.151	0.240	0.335	0.772	0.279	0.286	0.183	0.067	0.161	0.267	0.130	0.366	0.191	0.212	0.000	0.241

Note 1: Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: Other explanatory variables are: child's age, sibling size, proportion of girls to boys, father's education, household's wealth, residence in an urban area, and mother's religion; Note 3: The table presents the coefficients derived from random intercept Logit estimations without cluster variables and quadratic form for age at first cohabitation, without cluster variables and non-quadratic form for age at first cohabitation, and with cluster variables. The tables are available upon request.

Source: Author's calculations.

6 Conclusion

Does gender based violence hidden behind traditions and norms impact schooling decisions? To what extent do early marriages or FGM/C affect lower school outcomes of girls compared to boys? To what extent does wife beating affect schooling decisions?

I started this work with a skewed conception of female victimization leading to a lower schooling of girls compared to boys; with the idea of GBV in the environment the children live in as a driver of gender bias in schooling. Nevertheless, this paper shows that gender based violence is not only a female issue because boys are also affected.

Acts of violence females face impact the schooling decision through the mother's weight in the household, through community pressure, which imposes gender norms and expectations, as well as women's acceptable behaviours, and through society, which can insulate or enhance GBV.

I find empirical evidence that GBV, rooted in norms and traditions, is a driver of gender bias in schooling. Consequently, addressing violence against females could lead to increase in human capital investment, mainly for girls.

As a consequence, it is important to implement community-based action regarding the abandonment of harmful practices. The success of the Tostan's community empowerment programme have led to notable results regarding FGM/C (Miller et al. 2005). This programme could be readjusted and extended to various VAW/G. The World Bank (2014) emphasized the need to support collective actions, which involve men, boys, communities, and traditional authorities. We find evidence that any aid addressing community-oriented GBV actions could go beyond intervention against harmful practices, because of the positive effect on girls' schooling and probably women's participation in economic activities.

There is also a need to provide aid to collect accurate data on other practices, which remain 'invisible' in the surveys. For instance, ritual servitude observed in some tribes in Ghana, Togo, and Benin consists in offering young virgin girls in servitude to priests in reparation for sins of family members. One study estimated that in southern Ghana, there were more than 4,700 women in bondage in 1997 (UNESCO 2003). In Cameroon, breast ironing is a tradition in which the breasts of young girls are massaged with hot spatulas or rocks in hopes of stunting breast development and discouraging men's attraction, so that the girls' won't get pregnant and instead be able to continue their education. Important health issues are associated with this practice such as mutilation, cancer, cysts, breastfeeding issues, and psychological effects. In Mauritania, the girls' gavage, practiced at a very early age, is similar to geese gavage for foie gras. The idea is to increase the girls' marriageability, especially because of men's preference for curvy women in West Africa.

This work is limited by the fact that the sample considered for the impact of the mother's weight in the household decision is restricted to children living with their two parents and whose mother answered the women's questionnaire. There is no information on children outside the household or those with parents who never married.

Another limit is related to the possible endogeneity of the mother's opinion regarding the ability to argue with the husband. In fact, there is no consensus in the literature on the relationship between intimate partner violence and women's empowerment. Some authors reveal a negative/positive relationship, while others reveal no relationship. The difficulty to handle this

issue is in the definition of good instruments, which are probably linked to the mother's family background. However, the data considered here do not allow such analysis.

Africa is characterized by large heterogeneities in norms across countries. In each country, large differences appear across ethnic groups. This analysis can be extended to assess these differences across tribes. The idea is to consider a mapping of acts of violence against women and girls, and to assess the impact of different practices on investment in education and female participation in economic activities.

Reference

Agarwal, B. (1997). '"Bargaining" and Gender Relations: Within and Beyond the Household'. *Feminist Economics*, 3(1): 1-51.

Ahanonu, E.L., and O. Victor (2014). 'Mothers' Perceptions of Female Genital Mutilation'. *Health Education Research*, 29(4), 683-9. Available at: http://doi.org/10.1093/her/cyt118.

Alderman, H., P-A. Chiappori, L. Haddad, J. Hoddinott, and R. Kanbur (1995). 'Unitary Versus Collective Models of the Household: Is It Time to Shift the Burden of Proof?' *The World Bank Research Observer*, 10(1): 1-19. Available at: http://doi.org/10.1093/wbro/10.1.1.

Alderman, H., and P. Gertler (1997). 'Family Resources and Gender Differences in Human Capital Investments: The Demand for Children's Medical Care in Pakistan'. In L.J. Haddad, J.F. Hoddinott, and H. Alderman (eds), *Intrahousehold Resource Allocation in Developing Countries: Methods, Models, and Policy* (pp. 231-248). Baltimore: Johns Hopkins University Press.

Alderman, H., and E.M. King (1998). 'Gender Differences in Parental Investment in Education'. *Structural Change and Economic Dynamics*, 9: 453-468. Available at: http://www.ingentaconnect.com/content/els/0954349x/1998/00000009/00000004/art00040.

Anderson, S., and M. Eswaran (2009). 'What Determines Female Autonomy? Evidence from Bangladesh'. *Journal of Development Economics*, 90(2): 179-191. Available at: http://www.sciencedirect.com/science/article/B6VBV-4TVTJW5-1/2/f4aaf3438c5cabfd7ff26a89a6f3a8e4.

Basu, K., S. Das, and B. Dutta (2010). 'Child Labor and Household Wealth: Theory and Empirical Evidence of an Inverted-U'. *Journal of Development Economics*, I(1): 8-14. Available at: http://www.sciencedirect.com/science/article/B6VBV-4VHSDM3-2/2/17f2d4e9d0cb5a0bfd1b48df0876ceca.

Basu, K., and Z. Tzannatos (2003). 'The Global Child Labor Problem: What Do We Know and What Can We Do?' *The World Bank Economic Review*, 17(2): 147-173.

Becker, G.S., and H.G. Lewis (1973). 'On the Interaction between the Quantity and Quality of Children'. *The Journal of Political Economy*, 81(2): S279-S288. Available at: http://www.jstor.org/stable/1840425.

Becker, G.S., and N. Tomes (1976). 'Child Endowments and the Quantity and Quality of Children. *The Journal of Political Economy*, 84(4): S143-S162. Available at: http://www.jstor.org/stable/1831106.

Becker, G.S., and N. Tomes (1986). 'Human Capital and the Rise and Fall of Families'. *Journal of Labor Economics*, 4(3): 1-39.

Bhalotra, S., and C. Heady (2003). 'Child Farm Labor: The Wealth Paradox'. *The World Bank Economic Review*, 17(2): 197-227.

Bloom, S.S. (2008). *Violence Against Women and Girls: A Compendium of Monitoring and Evaluation Indicators*. Chapel Hill, NC: Measure Evaluation. Available at: http://www.cpc.unc.edu/measure/publications/ms-08-30.

Bobonis, G., and F. Finan (2009). 'Neighborhood Peer Effects in Secondary School Enrollment Decisions'. *The Review of Economics and Statistics*, 91(4): 695-716. Available at: http://www.mitpressjournals.org/doi/abs/10.1162/rest.91.4.695.

Borwankar, R., R. Diallo, and A.E. Sommerfelt (2008). *Gender based Violence in sub-Saharan Africa: A review of Demographic and Health Survey findings and their use in National Planning*. Washington DC: USAID/AFR/SD and Africa's Health in 2010/AED.

Bourguignon, F., and P.-A. Chiappori (1992). 'Collective Models of Household Behavior'. *European Economic Review,* 36(2-3): 355-364.

Bradshaw, S. (2013). *Gender, Development and Disasters*. US/UK: Edward Elgar Publishing. Available at: http://doi.org/10.4337/9781782548232.

Browning, M., and P-A. Chiappori (1998). 'Efficient Intra-Household Allocations: A General Characterization and Empirical Tests'. *Econometrica*, 66(6): 1241-1278. Available at: http://doi.org/10.2307/2999616.

Bruce, J., and S. Clark (2003). 'Including Married Adolescents in Adolescent Reproductive Health and HIV/AIDS Policy'. *The WHO/UNFPA/Population Council Technical Consultation on Married Adolescents*. Geneva: WHO.

Bumpass, L.L., T.C. Martin, and J.A. Sweet (1991). 'The Impact of Family Background and Early Marital Factors on Marital Disruption'. *Journal of Family Issues*, 12(1): 22-42. Available at: http://doi.org/10.1177/019251391012001003.

Chiappori, P.-A. (1988). 'Nash-Bargained Households Decisions: A Comment'. *International Economic Review*, 29(4): 791-796. Available at: http://ideas.repec.org/a/ier/iecrev/v29y1988i4p791-96.html.

Chiappori, P.-A. (1992). 'Collective Labor Supply and Welfare'. *The Journal of Political Economy*, 100(3): 437-467. Available at: http://www.jstor.org/stable/2138727.

Chiappori, P.-A., B. Fortin, and G. Lacroix (2002). 'Marriage Market, Divorce Legislation, and Household Labor Supply'. *The Journal of Political Economy*, 110(1): 37-72. Available at: http://www.jstor.org/stable/3078483.

Clark, S. (2004). 'Early Marriage and HIV Risks in Sub-Saharan Africa'. *Studies in Family Planning*, 35(3): 149-160.

Clark, S., J. Bruce, and A. Dude (2006). 'Protecting Young Women from HIV/AIDS: The Case Against Child and Adolescent Marriage'. *International Family Planning Perspectives*, 32(2): 79-88.

Colclough, C., S. Al-Samarrai, P. Rose, and M. Tembon (2004). *Achieving Schooling for All in Africa: Costs, Commitment, and Gender.*. Surrey, UK/Burlington, VA: Ashgate Publishing Ltd.

Colclough, C., P. Rose, and M. Tembon (2000). 'Gender Inequalities in Primary Schooling: The Roles of Poverty and Adverse Cultural Practice'. *International Journal of Educational Development*, 20(1): 5-27.

Cremer, H., and P. Pestieau (2004). *Intergenerational Transfer of Human Capital and Optimal Education Policy. CEPR Discussion Paper No. 4201*. Available at SSRN: http://ssrn.com/abstract=506943.

Devries, K.M., J.Y.T. Mak, C. Garcia-Moreno, M. Petzold, J.C. Child, G. Falder,… and C.H. Watts (2013). 'The Global Prevalence of Intimate Partner Violence Against Women'. *Science*, 340(6140): 1527-1528. Available at: http://doi.org/10.1126/science.1240937.

Dorell, O. (2014, April 21). 'Terrorists Kidnap more than 200 Nigerian Girls'. Available at: http://www.usatoday.com/story/news/world/2014/04/21/parents-234-girls-kidnapped-from-nigeria-school/7958307/.

Durrant, V.L., and A. Sathar Zeba (2000). *Greater Investments in Children Through Women's Empowerment: A Key to Demographic Change in Pakistan? Policy Research Division No. 137*. New York : Population Council.

Echevarria, C., and A. Merlo (1999). 'Gender Differences in Education in a Dynamic Household Bargaining Model'. *International Economic Review*, 40(2): 265-286.

Ellsberg, M.C., and L. Heise (2005). *Researching Violence Against Women: A Practical Guide for Researchers and Activists*. Washington DC: World Health Organization, PATH.

Flake, D.F. (2005). 'Individual, Family, and Community Risk Markers for Domestic Violence in Peru'. *Violence Against Women*, 11(3): 353-373.

Garg, A., and J. Morduch (1998). 'Sibling Rivalry and the Gender Gap: Evidence from Child Health Outcomes in Ghana. *Journal of Population Economics*, 11(4): 471-493.

Glick, P., and D.E. Sahn (2000). 'Schooling of Girls and Boys in a West African Country: The Effects of Parental Education, Income, and Household Structure'. *Economics of Education Review*, 19(1): 63-87. Available at: http://www.sciencedirect.com/science/article/B6VB9-3XNT1V1-6/2/7d01fba3d2426ad303f376a43ec78987.

Goo, L., and S. Harlow (2012). 'Intimate Partner Violence Affects Skilled Attendance at Most Recent Delivery Among Women in Kenya'. *Maternal and Child Health Journal*, 16(5): 1131-1137.

Guha-Khasnobis, B., & G. Hazarika (2006). 'Women's Status and Children's Food Security in Pakistan'. WIDER Discussion Paper 2006/03. Helsinki, Finland: WIDER.

Handa, S. (1996). 'Expenditure Behavior and Children's Welfare: An Analysis of Female Headed Households in Jamaica'. *Journal of Development Economics*, 50(1): 165-187.

Hindin, M.J., S. Kishor, and D.L. Ansara (2008). 'Intimate Partner Violence among Couples in 10 DHS Countries: Predictors and Health Outcomes'. DHS Analytical Studies No. 18. Calverton, MD, USA: Macro International.

Hoeffler, A., and J. Fearon (2014). 'Benefits and Costs of the Conflict and Violence Targets for the Post-2015 Development Agenda'. Copenhagen: Copenhagen Consensus Center. Available at: http://www.copenhagenconsensus.com/publication/post-2015-consensus-conflict-and-violence-assessment-hoeffler-fearon.

Hoddinott, J., and L. Haddad (1995). 'Does Female Income Share Influence Household Expenditures? Evidence from Côte d'Ivoire'. *Oxford Bulletin of Economics and Statistics*, 57(1): 77-95.

Holla, A., and M. Kremer (2009). 'Pricing and Access: Lessons from Randomized Evaluations in Education and Health'. Working Paper No. 158. What Works in Development? Thinking Big and Thinking Small. Washington, DC: Center for Global Development. Available at:

http://www.cgdev.org/publication/pricing-and-access-lessons-randomized-evaluations-education-and-health-working-paper-158.

Human Rights Watch. (2002). *Suffering in Silence: The Links between Human Rights Abuses and HIV Transmission to Girls in Zambia*. New York, Washington, DC, London, Brussels: Human Rights Watch. Available at: http://pantheon.hrw.org/reports/2003/zambia/.

Jejeebhoy, S.J. (1998). 'Associations between Wife-Beating and Fetal and Infant Death: Impressions from a Survey in Rural India'. *Studies in Family Planning*, 29(3): 300-308. Available at: http://www.jstor.org/stable/172276.

Jejeebhoy, S.J., and Cook, R.J. (1997). *State Accountability for Wife-beating: the Indian Challenge* (Vol. 349 Suppl). Available at: http://www.biomedsearch.com/nih/State-accountability-wife-beating-Indian/9057772.html.

Jensen, R., and E. Oster (2009). 'The Power of TV: Cable Television and Women's Status in India'. *The Quarterly Journal of Economics*, 124(3): 1057-1094.

Kabeer, N. (2001). 'Conflicts Over Credit: Re-Evaluating the Empowerment Potential of Loans to Women in Rural Bangladesh'. *World Development*, 29(1): 63-84. Available at: http://doi.org/http://dx.doi.org/10.1016/S0305-750X(00)00081-4.

Kambhampati, U.S., and R. Rajan (2005). 'Does Child Work Decrease with Parental Income? The Luxury Axiom Revisited in India'. *The European Journal of Development Research*, 17: 649-680. Available at: http://www.ingentaconnect.com/content/routledg/edr/2005/00000017/00000004/art00004.

Kambhampati, U.S., and R. Rajan (2006). 'Economic Growth: A Panacea for Child Labor?' *World Development*, 34(3): 426-445. Available at: http://www.sciencedirect.com/science/article/pii/S0305750X05002172.

Kenny, C. (2010). 'Learning about Schools in Development'. Working Paper No. 236. Washington, DC: Center for Global Development. Available at: http://www.cgdev.org/content/publications/detail/1424678.

Koenig, M.A., S. Ahmed, M.B. Hossain, and A.B. Khorshed Alam Mozumder (2003). 'Women's Status and Domestic Violence in Rural Bangladesh: Individual- and Community-Level Effects'. *Demography*, 40(2): 269-288. Available at: http://doi.org/10.2307/3180801.

Koissy-Kpein, S.A. (2008). *Genre et Investissement Educatif en Afrique Sub Saharienne*. *IAE-IEMN* . Nantes: Université de Nantes.

Koissy-Kpein, S.A. (2010). 'The Greater Mothers' Empowerment, the Higher Girls' Schooling: Evidence from DHS Monogamous Households'. CEPS/INSTEAD Working Paper Series 2010-19. Esch Sur Alzette: CEPS/INSTEAD. Available at: http://ideas.repec.org/p/irs/cepswp/2010-19.html.

Koissy-Kpein, S.A. (2012a). *Bien être Subjectif des Ménages et Arbitrage entre Travail et Scolarisation des Enfants*. Esch Sur Alzette: CEPS/INSTEAD.

Koissy-Kpein, S.A. (2012b). 'Gender and Competition between Economic and Non Economic Labor and Schooling: Evidence from EPAM MALI. *African Development Review*, 24(1): 1-17.

Koissy-Kpein, S.A. (2014). 'Indoor Water Connection and Gender Bias in Schooling. *European Journal of Social Sciences*, 44(1).

Lalive, R., and M.A. Cattaneo (2009). 'Social Interactions and Schooling Decisions'. *Review of Economics and Statistics*, 91(3): 457-477.

Lavy, V. (1996). 'School Supply Constraints and Children's Educational Outcomes in Rural Ghana'. *Journal of Development Economics*, 51(2): 291-314.

Levin, C.E., M.T. Ruel, S.S. Morris, D.G. Maxwell, M. Armar-Klemesu, and C. Ahiadeke (1999). 'Working Women in an Urban Setting: Traders, Vendors and Food Security in Accra'. *World Development*.

Levine, F.J., and K.J. Rosich (1996). *Social Causes of Violence: Crafting a Science Agenda*. Washington DC: American Sociological Association. Available at: http://hdl.handle.net/2027/heb.06870.0001.001.

Lister, T. (2014). 'Boko Haram: The Essence of Terror'. Available at: http://edition.cnn.com/2014/05/06/world/africa/nigeria-boko-haram-analysis/.

Liu, M., and C. Chan (1999). 'Enduring Violence and Staying in Marriage: Stories of Battered Women in Rural China'. *Violence Against Women*, 5(12): 1469-1492.

Lloyd, S., and N. Taluc (1999). 'The Effects of Male Violence on Female Employment'. *Violence Against Women*, 5(4): 370-392.

Lomborg, B. (2014). 'Why Domestic Violence Costs more than War. New York: World Economic Forum. Available at: https://agenda.weforum.org/2014/09/domestic-violence-cost-war-development-goals/.

Lundberg, S.J., R.A. Pollak, and T.J. Wales (1997). 'Do Husbands and Wives Pool Their Resources? Evidence from the United Kingdom Child Benefit'. *The Journal of Human Resources*, 32(3): 463-480.

Magno, C., I. Silova, S. Wright, and E. Demeny (2003). *Open Minds Opportunities for Gender Equity in Education A Report on Central and South Eastern Europe and the Former Soviet Union*. New York: Open Society Foundations. Available at: https://www.opensocietyfoundations.org/sites/default/files/Open%2520Minds.pdf.

Malhotra, A., S.R. Schuler, and C. Boender (2002). 'Measuring Women's Empowerment as a Variable in International Development'. Paper Prepared for the World Bank Workshop on Poverty and Gender: New Perspectives.

Mason, A.D., and S.R. Khandker (1996). 'Measuring the Opportunity Costs of Children's Time in a Developing Country: Implications for Education Sector Analysis and Interventions'. Human Capital Development Working Paper 72. Washington DC: The World Bank .

McElroy, D. (2013). 'Extremist Attack in Nigeria Kills 42 at Boarding School'. Available at: http://www.telegraph.co.uk/news/worldnews/africaandindianocean/nigeria/10163942/Extremist-attack-in-Nigeria-kills-42-at-boarding-school.html.

Miller, M., F. Moneti, C. Landini, and A. Lewnes (2005). *Changing a Harmful Social Convention: Female Genital Mutilation/Cutting*. Florence, Italy: UNICEF.

Moe, A.M., and M.P. Bell (2004). 'Abject Economics: The Effects of Battering and Violence on Women's Work and Employability'. *Violence Against Women*, 10(1): 29-55.

Morduch, J. (2000). 'Sibling Rivalry in Africa'. *The American Economic Review*, 90(2): 405-409. Available at: http://www.jstor.org/stable/117259.

National Bureau of Statistics Tanzania and ICF Macro (2011). *Tanzania Demographic and Health Survey 2010*. Dar es Salaam, Tanzania: National Bureau of Statistics.

Nkamleu, G.B. (2006). 'Poverty and Child Farm Labor in Africa: Wealth Paradox or Bad Orthodoxy'. *African Journal of Economic Policy*, 13(1): 1-24.

Ouedraogo, S., and S.A. Koissy-Kpein (2012). 'An Economic Analysis of Females' Genital Mutilation: How the Marriage Market affects the Household Decision of Excision'. *Congrès Annuel de la Société Canadienne de Sciences Économiques,* (p. 27).

Rabe-Hesketh, S., and A. Skrondal (2005). *Multilevel and Longitudinal Modeling using Stata*. College Station, TX: Stata Press.

Rabe-Hesketh, S., A. Skrondal, and A. Pickles (2005). 'Maximum Likelihood Estimation of Limited and Discrete Dependent Variable Models with Nested Random Effects'. *Journal of Econometrics*, 128(2): 301-323. Available at: http://doi.org/http://dx.doi.org/10.1016/j.jeconom.2004.08.017.

Rani, M., and S. Bonu (2009). 'Attitudes toward Wife Beating: A Cross-Country Study in Asia'. *Journal of Interpersonal Violence*, 24(8): 1371-1397. Available at: http://doi.org/10.1177/0886260508322182.

Rani, M., S. Bonu, and N. Diop-Sidibe (2004). 'An Empirical Investigation of Attitudes towards Wife-Beating among Men and Women in Seven Sub-Saharan African Countries. *African Journal of Reproductive Health*, 8(3): 116-136. Available at: http://doi.org/10.2307/3583398.

Rose, P., G. Yoseph, A. Berihun, and T. Nuresu (1997). *Gender and Primary Schooling in Ethiopia*. Brighton, England: University of Sussex, Institute of Development Studies.

Roushdy, R. (2004). *Intrahousehold Resource Allocation in Egypt: Does Women's Empowerment Lead to Greater Investments in Children?* Cairo: Population Council West Asia and North Africa Region.

Singh, K., E. Haney, and C. Olorunsaiye (2013). 'Maternal Autonomy and Attitudes towards Gender Norms: Associations with Childhood Immunization in Nigeria'. *Maternal and Child Health Journal*, 17(5): 837-841.

Smith, L.C., U. Ramakrishnan, A. Ndiaye, L.J. Haddad, and R. Martorell (2003). *The Importance of Women's Status for Child Nutrition in Developing Countries*. Washington DC: International Food Policy Research Institute (IFPRI). Available at: http://ideas.repec.org/p/fpr/resrep/131.html.

Strauss, J., G. Mwabu, K. v Beegle (2000). 'Intrahousehold Allocations: a Review of Theories and Empirical Evidence'. *Journal of African Economies*, 9(Supplement 1): 83-143. Available at: http://jae.oxfordjournals.org/content/9/Supplement_1/83.abstract.

Thomas, D. (1994). 'Like Father, Like Son; Like Mother, Like Daughter: Parental Resources and Child Height'. *Journal of Human Resources*, 29(4): 950-998.

Thomas, D., D. Contreras, and E. Frankenberg (1997). *Distribution of Power Within the Household and Child Health*. Santa Monica, CA: RAND.

UNESCO. (2003). 'Why are Girls still Held Back?' *EFA Global Monitoring Report 2003/4. Gender and Education for All THE LEAP TO EQUALITY* (pp. 115-153). Paris, France: UNESCO. Available at: http://www.uis.unesco.org/Education/Documents/efa_gmr_2003-4.pdf.

UNESCO. (2015). *EFA Global Monitoring Report, Education for All 2000-2015: Achievements and Challenges*. Paris: UNESCO, United Nations Educational, Scientific and Cultural Organization.

United Nations Children's Fund. (2014). *Ending Child Marriage: Progress and prospects*. New York: UNICEF.

Uthman, O.A., T. Moradi, and S. Lawoko (2011). 'Are Individual and Community Acceptance and Witnessing of Intimate Partner Violence Related to its Occurrence? Multilevel Structural Equation Model'. *PLoS ONE*, 6(12).

Whittington, D., C. Suraratdecha, C. Poulos, M. Ainsworth, V. Prabhu, and V. Tangcharoensathien (2008). 'Household Demand for Preventive HIVAIDS Vaccines in Thailand: Do Husbands' and Wives' Preferences Differ?' *Value in Health*, 11: 965-974. Available at: http://www.ingentaconnect.com/content/bsc/vhe/2008/00000011/00000005/art00020.

World Bank. (2014). *Voice Agency and Empowering Women and Girls for Shared Prosperity*. Washington DC: The World Bank. Available at: http://www.worldbank.org/content/dam/Worldbank/document/Gender/Voice_and_agency_LOWRES.pdf.

Annexes

Table A1: Selected countries characteristics

COUNTRY		DHS-VI				EDUCATION							VAW/G			
		Year	Attitude Toward IPV	DV Module	FGM	Compulsory School Age	Duration Primary Education	Secondary Education Age Group	GPI (F/M) (SCHOOL YEAR ENDING IN 2012) Primary	Lower Secondary	Upper Secondary	Total Secondary	Early Child Marriage	FGM/C	Attitude Toward IPV	IPV
Benin	BEN	2011-2012	Yes	No	Yes	6-11	6	12-18	0.89	0.68	0.45	0.61	0.22	0.129	0.162	
Burkina Faso	BFR	2010	Yes	Yes	Yes	6-16	6	12-18		0.86			0.32	0.758	0.435	0.154
Cameroon	CMR	2011	Yes	Yes	No	6-11	6	12-18	0.88	0.87	0.81	0.86	0.26	0.014	0.465	0.511
Comoros	COM	2012	Yes	Yes	No	6-14	6	12-18	0.91	0.92	1.03	0.96				
Congo Dem Rep	COD	2013-2014	Yes	Yes	No	6-15	6	12-17	0.88	0.66	0.54	0.59	0.25		0.759	0.641
Côte d'Ivoire	CIV	2011-2012	Yes	Yes	Yes	6-15	6	12-18	0.85		0.67		0.25	0.364	0.167	0.255
Gabon	GAB	2012	Yes	Yes	No	6-16	5	11-17	0.97				0.224		0.502	0.537
Ghana	GHA	2008	Yes	Yes	No	4-15	6	12-18	1	0.95	0.85	0.91	0.094	0.038	0.441	0.229
Guinea Bissau	GNB	2012	Yes	No	Yes	7-13	6	12-16	0.93				0.22	0.498	0.402	
Mali	MLI	2012-2013	Yes	Yes	Yes	7-16	6	13-18	0.88	0.75	0.63	0.72	0.53	0.885	0.872	
Mozambique	MOZ	2011	Yes	Yes	No	6-12	7	13-17	0.91	0.89	0.88	0.89	0.45		0.358	0.315
Namibia	NAM	2013	Yes	Yes	No	6-16	7	14-18	0.97				0.05		0.352	0.359
Nigeria	NGA	2013	Yes	Yes	Yes	6-15	6	12-17	0.92	0.89	0.88	0.89	0.29	0.300	0.430	0.183
Rwanda	RWA	2010	Yes	Yes	No	7-16	6	13-18	1.02	1.14	0.95	1.07	0.037		0.562	0.564
Senegal	SEN	2012-2013	Yes	No	Yes	6-16	6	13-19	1.08			0.91	0.253	0.257	0.600	
Sierra Leone	SLE	2013	Yes	Yes	Yes	6-11	6	12-17	0.99	0.91			0.309	0.883	0.733	
Tanzania	TZA	2010	Yes	Yes	Yes	7-13	7	14-19	1.02	0.9	0.7	0.88	0.197	0.146	0.535	0.436
Uganda	UGA	2011	Yes	Yes	No	6-12	7	13-18	1.03	0.88			0.23	0.014	0.583	0.505

Source DHS: DHS programme countries' reports http://www.dhsprogram.com/; source education: Education For All Global Monitoring Report 2015 (UNESCO 2015); source VAW/G: *The OECD Development Centre's Social Institutions and Gender Index* (http://www.genderindex.org/). Early child marriage represents the percentage of women married between 15-19 years of age.

Table A2: Statistics for the samples: School attendance, primary education completion, and school dropout

	School Attendance						Primary Education Completion						Dropout					
	Boys		Girls		Mean Comparison Test Ha: Diff != 0		Boys		Girls		Mean Comparison Test Ha: Diff != 0		Boys		Girls		Mean Comparison Test Ha: Diff != 0	
Country	Mean	N	Mean	N	t	*Pvalue*	Mean	N	Mean	N	t	*Pvalue*	Mean	N	Mean	N	t	*Pvalue*
Benin	0.756	7704	0.707	6506	6.511	0.000	0.465	2622	0.431	2109	2.392	0.017	0.050	5424	0.071	4354	-4.254	0.000
Burkina	0.476	8768	0.462	7827	1.905	0.057	0.221	3093	0.208	2705	1.269	0.205	0.101	4474	0.080	3735	3.383	0.001
Cameroon	0.846	4496	0.787	4207	7.009	0.000	0.452	1595	0.480	1416	-1.509	0.132	0.040	3567	0.057	3138	-3.322	0.001
Comoros	0.851	1658	0.845	1497	0.469	0.639	0.540	615	0.585	518	-1.526	0.127	0.051	1335	0.040	1175	1.317	0.188
Congo Dem Rep	0.853	7367	0.802	7127	8.040	0.000	0.435	2579	0.364	2346	5.102	0.000	0.036	5910	0.061	5488	-6.101	0.000
Cote d'Ivoire	0.669	2736	0.618	2489	3.839	0.000	0.339	885	0.278	771	2.710	0.007	0.078	1768	0.074	1479	0.467	0.640
Gabon	0.956	1478	0.943	1520	1.580	0.114	0.360	656	0.418	725	-2.219	0.027	0.017	1235	0.030	1298	-2.173	0.030
Ghana	0.774	1703	0.779	1582	-0.376	0.707	0.445	488	0.465	469	-0.625	0.532	0.068	1044	0.068	974	0.022	0.983
Guinea	0.606	3145	0.519	2857	6.832	0.000	0.173	1282	0.146	1093	1.781	0.075	0.053	2096	0.076	1654	-2.717	0.007
Mali	0.550	5258	0.525	4539	2.455	0.014	0.391	1538	0.382	1152	0.499	0.618	0.097	3202	0.077	2583	2.670	0.008
Mozambique	0.750	3774	0.752	3731	-0.194	0.846	0.256	997	0.314	893	-2.779	0.006	0.086	2815	0.075	2762	1.514	0.130
Namibia	0.877	1012	0.917	938	-2.874	0.004	0.628	242	0.747	229	-2.797	0.005	0.040	832	0.028	794	1.338	0.181
Nigeria	0.694	16269	0.651	15222	8.078	0.000	0.497	5623	0.510	4926	-1.396	0.163	0.038	10335	0.040	9076	-0.675	0.499
Rwanda	0.900	3692	0.914	3549	-2.130	0.033	0.198	1007	0.219	1105	-1.210	0.227	0.052	3502	0.044	3395	1.400	0.162
Senegal	0.547	2100	0.555	2000	-0.506	0.613	0.369	605	0.362	547	0.233	0.816	0.082	1181	0.095	1153	-1.055	0.292
Sierra Leone	0.729	4657	0.751	4020	-2.335	0.020	0.453	1590	0.496	1425	-2.344	0.019	0.040	3226	0.045	2857	-0.994	0.320
Tanzania	0.810	3315	0.815	3100	-0.498	0.618	0.458	817	0.587	767	-5.175	0.000	0.088	2942	0.097	2796	-1.206	0.228
Uganda	0.879	3249	0.868	3042	1.334	0.182	0.128	888	0.165	780	-2.125	0.034	0.023	2630	0.027	2376	-0.935	0.350
TOTAL	0.719	82381	0.696	75753	10.384	0.000	0.387	27122	0.389	23976	0.582	0.5603	0.056	57518	0.059	51087	-2.550	0.011

Source: Author calculations.

Table A3: Multilevel estimation for school attendance: Entire pooled sample

	Without cluster level variable						With cluster level variable					
	No quadratic form for age at first marriage			Quadratic form for age at first marriage			All the countries			Countries with FGM module		
Variables	Children	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls
Age	1.190***	1.221***	1.175***	1.193***	1.224***	1.178***	1.193***	1.224***	1.178***	1.057***	1.103***	1.024***
	-0.015	-0.021	-0.022	-0.015	-0.021	-0.022	-0.015	-0.021	-0.022	-0.019	-0.026	-0.028
Age²	-5.217***	-5.295***	-5.227***	-5.229***	-5.305***	-5.244***	-5.229***	-5.305***	-5.243***	-4.719***	-4.873***	-4.642***
	-0.068	-0.093	-0.101	-0.068	-0.093	-0.101	-0.068	-0.093	-0.101	-0.085	-0.115	-0.128
Girls	-0.273***			-0.272***			-0.272***			-0.291***		
	-0.015			-0.015			-0.015			-0.018		
Siblings	-0.029***	-0.032***	-0.030***	-0.029***	-0.032***	-0.031***	-0.029***	-0.032***	-0.031***	-0.032***	-0.034***	-0.032***
	-0.003	-0.004	-0.004	-0.003	-0.004	-0.004	-0.003	-0.004	-0.004	-0.003	-0.005	-0.005
Proportion girls	0.214***	0.293***	0.079*	0.214***	0.290***	0.082*	0.214***	0.290***	0.082*	0.193***	0.219***	0.117**
	-0.031	-0.045	-0.046	-0.031	-0.045	-0.047	-0.031	-0.045	-0.047	-0.038	-0.054	-0.056
Other HH members	0.030***	0.028***	0.033***	0.030***	0.028***	0.033***	0.030***	0.028***	0.033***	0.059***	0.058***	0.062***
	-0.004	-0.005	-0.006	-0.004	-0.005	-0.006	-0.004	-0.005	-0.006	-0.006	-0.008	-0.008
Middle income HH	0.620***	0.609***	0.635***	0.617***	0.607***	0.631***	0.617***	0.607***	0.631***	0.705***	0.694***	0.718***
	-0.017	-0.023	-0.024	-0.017	-0.023	-0.024	-0.017	-0.023	-0.024	-0.02	-0.028	-0.029
Rich income HH	1.048***	1.042***	1.058***	1.043***	1.038***	1.053***	1.043***	1.038***	1.053***	1.155***	1.143***	1.172***
	-0.02	-0.028	-0.028	-0.02	-0.028	-0.028	-0.02	-0.028	-0.028	-0.023	-0.032	-0.033
Richest income HH	1.629***	1.572***	1.687***	1.625***	1.570***	1.682***	1.625***	1.570***	1.683***	1.782***	1.750***	1.813***
	-0.031	-0.043	-0.043	-0.031	-0.043	-0.043	-0.031	-0.043	-0.043	-0.035	-0.05	-0.05
Father's education	0.131***	0.132***	0.131***	0.131***	0.132***	0.131***	0.131***	0.132***	0.131***	0.135***	0.139***	0.133***
	-0.002	-0.003	-0.003	-0.002	-0.003	-0.003	-0.002	-0.003	-0.003	-0.003	-0.004	-0.004
Mother's education	0.134***	0.126***	0.144***	0.133***	0.125***	0.143***	0.133***	0.125***	0.143***	0.151***	0.141***	0.162***
	-0.003	-0.004	-0.005	-0.003	-0.004	-0.005	-0.003	-0.004	-0.005	-0.004	-0.006	-0.006
Land owned	-0.018	-0.024	-0.012	-0.016	-0.022	-0.009	-0.015	-0.022	-0.009	0.013	-0.002	0.029
	-0.018	-0.026	-0.027	-0.018	-0.026	-0.027	-0.018	-0.026	-0.027	-0.022	-0.03	-0.032
House owned	0.172***	0.167***	0.179***	0.171***	0.166***	0.177***	0.171***	0.166***	0.177***	0.150***	0.153***	0.148***
	-0.019	-0.026	-0.027	-0.019	-0.026	-0.027	-0.019	-0.026	-0.027	-0.022	-0.03	-0.031
Age first marriage	0.019***	0.019***	0.020***	0.117***	0.108***	0.127***	0.117***	0.108***	0.127***	0.126***	0.113***	0.143***
	-0.002	-0.003	-0.003	-0.01	-0.014	-0.014	-0.01	-0.014	-0.014	-0.012	-0.017	-0.018
Age first marriage²				-0.003***	-0.002***	-0.003***	-0.003***	-0.002***	-0.003***	-0.003***	-0.002***	-0.003***
				0	0	0	0	0	0	0	0	0
Monogamous union	0.184***	0.148***	0.221***	0.182***	0.145***	0.219***	0.182***	0.145***	0.219***	0.190***	0.140***	0.243***
	-0.015	-0.021	-0.022	-0.015	-0.021	-0.022	-0.015	-0.021	-0.022	-0.019	-0.026	-0.027
Opinion IPV	-0.014	0.001	-0.031	-0.014	0.000	-0.030	-0.013	0.001	-0.03	-0.01	0.006	-0.03
	0	0	0	0	0	0	-0.015	-0.02	-0.021	-0.018	-0.024	-0.026
Median age first marriage							0.222**	0.183*	0.275**	0.128	0.026	0.243

Prevalence FGM							-0.092	-0.095	-0.093	-0.378	-0.367	-0.41
										-0.393	-0.608	-0.15
										-0.77	-0.748	-0.834
Constant	-6.572***	-6.796***	-6.618***	-7.476***	-7.616***	-7.618***	-11.424***	-10.874***	-12.504***	-9.301	-7.551	-11.63
	-0.168	-0.186	-0.201	-0.190	-0.224	-0.238	-1.646	-1.704	-1.664	-6.902	-6.71	-7.483
Random-Effects Parameters												
Cluster: Var(_Cons)	0.363	0.349	0.406	0.366	0.352	0.409	0.276	0.290	0.273	0.150	0.140	0.175
	0.122	0.118	0.137	0.123	0.119	0.138	0.093	0.099	0.093	0.075	0.071	0.088
Observations	158,134	82,381	75,753	158,134	82,381	75,753	158,134	82,381	75,753	98,412	51,852	46,560
Number Of countries	18	18	18	18	18	18	18	18	18	8	8	8
-2ll	-70895	-36632	-34155	-70843	-36610	-34123	-70841	-36608	-34120	-48505	-25461	-22979
Lr Test Vs. Logistic Regression												
Chi2	5738.37	2884.59	2970.18	5762.17	2904.07	2969.52	4013.66	2185.57	1914.94	1974.62	967.84	1018.45
Pvalue	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
ICC	0.099	0.096	0.110	0.100	0.097	0.111	0.077	0.081	0.077	0.043	0.041	0.050

Note 1: Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: Standard errors are reported below the related coefficient.; Note 3: The tables for each country are available upon request.

Source: Author calculations.

Table A4: Multilevel estimation for primary school completion: Entire pooled sample

	Without cluster level variable						With cluster level variable					
	No quadratic form for age at first marriage			Quadratic form for age at first marriage			All the countries			Countries with FGM module		
VARIABLES	Children	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls
Age	3.008***	3.015***	2.965***	3.011***	3.017***	2.971***	3.011***	3.017***	2.971***	3.258***	3.258***	3.176***
	-0.14	-0.188	-0.213	-0.14	-0.188	-0.213	-0.14	-0.188	-0.213	-0.176	-0.231	-0.274
Age²	-8.467***	-8.574***	-8.222***	-8.480***	-8.581***	-8.244***	-8.480***	-8.581***	-8.244***	-9.531***	-9.635***	-9.113***
	-0.484	-0.646	-0.735	-0.484	-0.646	-0.735	-0.484	-0.646	-0.735	-0.608	-0.798	-0.948
Girls	-0.032			-0.032			-0.032			-0.072**		
	-0.026			-0.026			-0.026			-0.032		
Siblings	-0.039***	-0.037***	-0.044***	-0.039***	-0.038***	-0.044***	-0.039***	-0.038***	-0.044***	-0.032***	-0.032***	-0.035***
	-0.005	-0.007	-0.008	-0.005	-0.007	-0.008	-0.005	-0.007	-0.008	-0.006	-0.008	-0.009
Proportion girls	0.208***	0.205**	0.119	0.206***	0.201**	0.119	0.206***	0.201**	0.119	0.234***	0.246**	0.172
	-0.055	-0.077	-0.086	-0.055	-0.077	-0.086	-0.055	-0.077	-0.086	-0.069	-0.095	-0.108
Other HH members	0.017**	0.018**	0.017*	0.018**	0.018**	0.017*	0.018**	0.018**	0.017*	0.027**	0.031**	0.021
	-0.006	-0.008	-0.009	-0.006	-0.008	-0.009	-0.006	-0.008	-0.009	-0.009	-0.012	-0.013
Middle income HH	0.682***	0.681***	0.695***	0.679***	0.680***	0.690***	0.679***	0.680***	0.690***	0.709***	0.709***	0.726***
	-0.031	-0.041	-0.047	-0.031	-0.041	-0.047	-0.031	-0.041	-0.047	-0.038	-0.05	-0.059
Rich income HH	1.129***	1.110***	1.170***	1.125***	1.106***	1.166***	1.125***	1.106***	1.166***	1.196***	1.136***	1.291***
	-0.032	-0.043	-0.048	-0.032	-0.043	-0.048	-0.032	-0.043	-0.048	-0.039	-0.053	-0.06
Richest income HH	1.948***	1.824***	2.108***	1.945***	1.821***	2.103***	1.945***	1.821***	2.103***	1.968***	1.872***	2.105***
	-0.04	-0.055	-0.06	-0.04	-0.055	-0.06	-0.04	-0.055	-0.06	-0.05	-0.068	-0.075
Father's education	0.087***	0.087***	0.088***	0.087***	0.087***	0.088***	0.087***	0.087***	0.088***	0.085***	0.085***	0.086***
	-0.003	-0.004	-0.005	-0.003	-0.004	-0.005	-0.003	-0.004	-0.005	-0.004	-0.005	-0.006
Mother's education	0.107***	0.093***	0.122***	0.106***	0.092***	0.121***	0.106***	0.092***	0.121***	0.094***	0.082***	0.109***
	-0.004	-0.006	-0.006	-0.004	-0.006	-0.006	-0.004	-0.006	-0.006	-0.005	-0.007	-0.008
Land owned	-0.044	-0.043	-0.046	-0.043	-0.044	-0.044	-0.043	-0.044	-0.044	0.046	0.007	0.084
	-0.032	-0.043	-0.048	-0.032	-0.043	-0.048	-0.032	-0.043	-0.048	-0.039	-0.052	-0.06
House owned	0.118***	0.130**	0.102**	0.116***	0.129**	0.099**	0.116***	0.129**	0.099**	0.118**	0.150**	0.078
	-0.032	-0.043	-0.049	-0.032	-0.043	-0.049	-0.032	-0.043	-0.049	-0.039	-0.051	-0.059
Age first marriage	0.023***	0.025***	0.021***	0.089***	0.087***	0.091***	0.089***	0.087***	0.091***	0.081***	0.101***	0.047
	-0.003	-0.004	-0.005	-0.017	-0.022	-0.025	-0.017	-0.022	-0.025	-0.022	-0.028	-0.036
Age first marriage²				-0.002***	-0.002**	-0.002**	-0.002***	-0.002**	-0.002**	-0.002**	-0.002**	-0.001
				0	-0.001	-0.001	0	-0.001	-0.001	-0.001	-0.001	-0.001
Monogamous union	0.102***	0.068*	0.144***	0.100***	0.066*	0.143***	0.100***	0.066*	0.143***	0.130***	0.086*	0.180***
	-0.027	-0.036	-0.041	-0.027	-0.036	-0.041	-0.027	-0.036	-0.041	-0.033	-0.045	-0.051
Opinion IPV	-0.153***	-0.105**	-0.215***	-0.154***	-0.106**	-0.215***	-0.154***	-0.106**	-0.215***	-0.112***	-0.073*	-0.168***
	-0.026	-0.035	-0.04	-0.026	-0.035	-0.04	-0.026	-0.035	-0.04	-0.033	-0.044	-0.05
Median age first marriage							-0.047	-0.084	-0.006	0.249	0.257	0.236
							-0.151	-0.153	-0.153	-0.532	-0.558	-0.541
Prevalence FGM										-0.132	-0.068	-0.203

Constant	-27.945***	-27.847***	-27.809***	-28.578***	-28.436***	-28.495***	-27.751***	-26.948***	-28.396***	-1.084 -33.916***	-1.134 -34.024***	-1.099 -33.098**
	-1.037	-1.378	-1.552	-1.05	-1.394	-1.572	-2.874	-3.054	-3.138	-9.81	-10.323	-10.07
Random-effects Parameters												
Cluster: var(_cons)	0.743	0.769	0.749	0.745	0.770	0.753	0.741	0.757	0.753	0.295	0.322	0.300
	0.249	0.260	0.253	0.250	0.260	0.254	0.249	0.256	0.254	0.149	0.163	0.153
Observations	51,098	27,122	23,976	51,098	27,122	23,976	51,098	27,122	23,976	32,398	17,450	14,948
Number of countries	18	18	18	18	18	18	18	18	18	8	8	8
-2LL	-23389	-12900	-10445	-23381	-12896	-10441	-23381	-12896	-10441	-15126	-8521	-6570
LR test vs. logistic regression												
chi2	4052	2182	1874	4069	2191	1882	3997.06	2154.79	1845.37	1018.7	580.41	438.33
Pvalue												
ICC	0.184	0.189	0.185	0.185	0.190	0.186	0.184	0.187	0.186	0.082	0.089	0.084

Note 1: Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: Standard errors are reported below the related coefficient; Note 3: The tables for each country are available upon request.

Source: Author calculations.

Table A5: Multilevel estimation for school dropout: Entire pooled sample

	Without cluster level variable						**With cluster level variable**					
	No quadratic form for age at first marriage			**quadratic form for age at first marriage**			**All the countries**			**Countries with FGM module**		
VARIABLES	children	boys	girls	children	boys	girls	children	boys	girls	children	boys	girls
Age	-0.341***	-0.342***	-0.351***	-0.344***	-0.345***	-0.353***	-0.344***	-0.345***	-0.353***	-0.054	-0.028	-0.094
	-0.042	-0.058	-0.06	-0.042	-0.058	-0.06	-0.042	-0.058	-0.06	-0.057	-0.078	-0.083
Age²	2.767***	2.710***	2.879***	2.778***	2.721***	2.890***	2.779***	2.721***	2.892***	1.772***	1.627***	1.984***
	-0.166	-0.23	-0.24	-0.166	-0.23	-0.24	-0.166	-0.23	-0.24	-0.224	-0.307	-0.328
Girls	0.217***			0.217***			0.217***			0.168***		
	-0.032			-0.032			-0.032			-0.041		
Siblings	-0.016**	-0.011	-0.021**	-0.015**	-0.01	-0.020**	-0.016**	-0.01	-0.020**	-0.011	-0.006	-0.014
	-0.006	-0.009	-0.009	-0.006	-0.009	-0.009	-0.006	-0.009	-0.009	-0.007	-0.01	-0.011
Proportion girls	-0.047	-0.074	-0.016	-0.045	-0.067	-0.018	-0.045	-0.067	-0.016	0.071	0.008	0.119
	-0.067	-0.096	-0.099	-0.067	-0.096	-0.099	-0.067	-0.096	-0.099	-0.086	-0.122	-0.128
Other HH members	-0.008	-0.007	-0.01	-0.009	-0.008	-0.01	-0.009	-0.008	-0.01	-0.025**	-0.024	-0.026
	-0.008	-0.011	-0.011	-0.008	-0.011	-0.011	-0.008	-0.011	-0.011	-0.011	-0.015	-0.017
Middle income HH	-0.258***	-0.296***	-0.219***	-0.257***	-0.296***	-0.216***	-0.257***	-0.296***	-0.217***	-0.325***	-0.400***	-0.241***
	-0.036	-0.05	-0.051	-0.036	-0.05	-0.051	-0.036	-0.05	-0.051	-0.046	-0.063	-0.067
Rich income HH	-0.504***	-0.526***	-0.488***	-0.502***	-0.524***	-0.485***	-0.503***	-0.524***	-0.487***	-0.651***	-0.678***	-0.630***
	-0.039	-0.055	-0.056	-0.039	-0.055	-0.056	-0.039	-0.055	-0.056	-0.049	-0.068	-0.072
Richest income HH	-0.986***	-0.947***	-1.026***	-0.984***	-0.945***	-1.024***	-0.984***	-0.946***	-1.026***	-1.151***	-1.122***	-1.186***
	-0.054	-0.076	-0.077	-0.054	-0.076	-0.077	-0.054	-0.076	-0.077	-0.067	-0.093	-0.097
Father's education	-0.061***	-0.062***	-0.062***	-0.061***	-0.061***	-0.062***	-0.061***	-0.061***	-0.062***	-0.040***	-0.047***	-0.035***
	-0.004	-0.006	-0.006	-0.004	-0.006	-0.006	-0.004	-0.006	-0.006	-0.005	-0.007	-0.007
Mother's education	-0.058***	-0.058***	-0.059***	-0.057***	-0.057***	-0.058***	-0.057***	-0.057***	-0.057***	-0.045***	-0.048***	-0.041***
	-0.006	-0.008	-0.008	-0.006	-0.008	-0.008	-0.006	-0.008	-0.008	-0.007	-0.01	-0.01
Land owned	0.081**	0.082	0.074	0.080**	0.081	0.072	0.080**	0.081	0.071	0.029	0.038	0.013
	-0.039	-0.054	-0.056	-0.039	-0.054	-0.056	-0.039	-0.054	-0.056	-0.049	-0.067	-0.073
House owned	-0.143***	-0.143**	-0.139**	-0.141***	-0.143**	-0.136**	-0.141***	-0.143**	-0.135**	-0.102**	-0.084	-0.111
	-0.04	-0.056	-0.058	-0.04	-0.056	-0.058	-0.04	-0.056	-0.058	-0.049	-0.066	-0.072
Age first marriage	-0.014***	-0.018***	-0.009*	-0.086***	-0.096***	-0.074**	-0.086***	-0.096***	-0.075**	-0.056*	-0.054	-0.06
	-0.004	-0.005	-0.006	-0.019	-0.026	-0.027	-0.019	-0.026	-0.027	-0.03	-0.041	-0.043
Age first marriage²				0.002***	0.002**	0.002**	0.002***	0.002**	0.002**	0.001	0.001	0.001
				0	-0.001	-0.001	0	-0.001	-0.001	-0.001	-0.001	-0.001
Monogamous union	-0.101**	-0.062	-0.145**	-0.100**	-0.06	-0.144**	-0.100**	-0.06	-0.143**	-0.118**	-0.048	-0.194**
	-0.032	-0.045	-0.046	-0.032	-0.045	-0.046	-0.032	-0.045	-0.046	-0.041	-0.057	-0.06
Opinion IPV	0.059*	0.015	0.105**	0.060*	0.016	0.105**	0.059*	0.016	0.103**	0.044	-0.047	0.156**
	-0.031	-0.043	-0.045	-0.031	-0.043	-0.045	-0.031	-0.043	-0.045	-0.04	-0.055	-0.059
Median age first marriage							-0.063	-0.01	-0.119	0.514	0.674*	0.34
							-0.075	-0.086	-0.074	-0.351	-0.39	-0.326

Prevalence FGM/C										0.715	1.108	0.271
										-0.713	-0.793	-0.661
Constant	-2.026***	-1.837***	-1.966***	-1.347***	-1.115**	-1.348**	-0.229	-0.93	0.759	-12.659**	-15.689**	-9.176
	-0.285	-0.386	-0.402	-0.333	-0.454	-0.473	-1.378	-1.606	-1.396	-6.418	-7.149	-5.983
Random-effects Parameters												
Cluster: var(_cons)	0.173	0.216	0.163	0.179	0.221	0.168	0.173	0.221	0.148	0.125	0.153	0.103
	0.060	0.077	0.060	0.062	0.079	0.061	0.060	0.079	0.054	0.064	0.079	0.055
Observations	108,605	57,518	51,087	108,605	57,518	51,087	108,605	57,518	51,087	62,001	33,467	28,534
Number of countries	18	18	18	18	18	18	18	18	18	8	8	8
-2LL	-19759	-10252	-9471	-19752	-10247	-9469	-19752	-10247	-9467	-11776	-6276	-5476
LR test vs. logistic regression												
chi2	634.65	422.84	252.13	646.38	430.51	255.66	644.91	429.43	248	299.2	191.85	98.72
Pvalue	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ICC	0.050	0.062	0.047	0.052	0.063	0.049	0.050	0.063	0.043	0.037	0.044	0.030

Note 1: Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: Standard errors are reported below the related coefficient; Note 3: The tables for each country are available upon request

Source: Author calculations.

Table A6: Additional multilevel estimations for the probability to attend school

	Benin		Burkina		Côte d'Ivoire		Guinea	Mali		Nigeria		Sierra Leone		Tanzania	
VARIABLES	**boys**	**girls**	**boys**	**girls**	**boys**	**girls**	**girls**	**boys**	**girls**	**boys**	**girls**	**boys**	**girls**	**boys**	**girls**
Circumcised/Excised	-0.433	-2.463***	-0.214	-0.942***	-0.026	-1.259***	-0.264	-0.153	-0.311	0.947	0.005	-0.591	-0.584***	0.518*	-0.869**
	-0.47	-0.482	-0.235	-0.106	-0.438	-0.169	-0.298	-0.804	-0.235	-0.632	-0.128	-0.834	-0.108	-0.299	-0.279
Age	-0.095	-0.345***	-0.251***	-0.447***	-0.380***	-0.337***	-0.372***	-0.344**	-0.350***	-0.565***	-0.816***	-0.408***	-0.487***	-0.287**	-0.506***
	-0.094	-0.059	-0.07	-0.047	-0.089	-0.065	-0.053	-0.105	-0.06	-0.049	-0.05	-0.068	-0.038	-0.11	-0.064
HH Size	-0.024	-0.005	-0.004	0.062***	-0.028	-0.001	0.035**	0.067**	0.085***	0	0.056***	0.001	0.009	-0.075**	0.031
	-0.03	-0.018	-0.018	-0.012	-0.024	-0.017	-0.013	-0.029	-0.017	-0.014	-0.014	-0.022	-0.013	-0.036	-0.02
Middle income HH	0.680**	0.783***	0.657**	0.088	0.155	-0.307	0.872***	0.756**	0.820***	1.523***	1.367***	0.557**	0.345**	0.690**	0.662**
	-0.27	-0.17	-0.216	-0.169	-0.329	-0.307	-0.192	-0.346	-0.249	-0.161	-0.167	-0.223	-0.132	-0.34	-0.209
Rich income HH	0.808**	1.496***	0.834***	0.702***	-0.287	0.209	1.194***	1.298***	1.516***	1.647***	1.701***	1.077***	0.657***	1.055**	1.077***
	-0.308	-0.2	-0.233	-0.159	-0.387	-0.314	-0.221	-0.353	-0.247	-0.184	-0.192	-0.253	-0.145	-0.356	-0.209
Richest income HH	1.524**	1.927***	1.253***	1.034***	0.522	0.275	1.552***	2.204***	2.039***	1.249***	1.504***	1.649***	0.887***	1.073**	1.476***
	-0.515	-0.255	-0.291	-0.194	-0.455	-0.347	-0.282	-0.462	-0.289	-0.227	-0.227	-0.331	-0.195	-0.504	-0.257
Head education	0.117***	0.033**	0.165***	-0.008	0.111***	0.033**	0.071***	0.062**	0.024*	0.085***	0.031**	0.065***	0.039***	0.015	0.002
	-0.033	-0.016	-0.033	-0.014	-0.023	-0.014	-0.012	-0.031	-0.014	-0.012	-0.011	-0.018	-0.01	-0.036	-0.019
Urban	-0.308	-0.315*	1.115***	1.108***	1.500***	1.847***	0.589**	1.095**	0.245	0.466**	1.273***	0.291	0.822***	0.515	-0.156
	-0.293	-0.175	-0.242	-0.163	-0.356	-0.288	-0.221	-0.385	-0.226	-0.169	-0.198	-0.26	-0.166	-0.441	-0.229
Constant	2	5.239***	2.592**	5.431***	5.225***	3.664***	4.163***	3.317*	3.124**	7.798***	11.670***	7.317***	8.097***	4.544**	7.483***
	-1.594	-0.978	-1.153	-0.764	-1.516	-1.087	-0.936	-1.85	-1.031	-0.999	-0.822	-1.398	-0.638	-1.869	-1.054
Random-effects Parameters															
Cluster:															
var(_cons)	2.087	1.051	1.149	0.560	0.913	0.435	0.442	1.315	0.598	1.581	3.243	0.832	0.684	1.768	1.093
	0.677	0.250	0.329	0.142	0.378	0.148	0.135	0.549	0.192	0.268	0.408	0.276	0.118	0.782	0.248
Observations	833	1,708	1,219	2,712	700	1,380	1,659	661	1,546	3,018	3,756	1,250	3,292	534	1,400
Number of groups	447	634	477	560	267	324	297	299	392	821	835	383	429	307	419
-2LL	-475	-1017	-682.9	-1396	-396.7	-694.9	-909.5	-345	-794.6	-1503	-1799	-639.2	-1798	-333	-861.7
LR test vs. logistic regression															
chi2	32.01	46.27	32.95	32.42	13.66	19.49	24.06	14.54	21.68	122.32	423.45	21.67	112.03	15.36	58.14
Pvalue	0.000	0.000	0.000	0.000	0.0001		0.000	0.0001		0.000	0.000	0.000	0.000	0.000	0.000
ICC	0.388	0.242	0.259	0.145	0.217	0.117	0.119	0.285	0.154	0.325	0.496	0.202	0.172	0.349	0.249

Note 1 Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: Standard errors are reported below the related coefficient.

Source: Author calculations.

Table A7: Additional multilevel estimations for the probability to complete primary level education

VARIABLES	Benin		Burkina		Côte d'Ivoire		Guinea	Mali		Nigeria		Sierra Leone		Tanzania	
	boys	girls	boys	girls	boys	girls	girls	boys	girls	boys	girls	boys	girls	boys	girls
Circumcised/Excised	-0.076	-2.248***	-0.273	-0.894***	0.122	-1.296***	-0.457	-1.022	-0.222	0.235	-0.03	-0.133	-0.209*	0.539*	-0.4
	-0.42	-0.455	-0.24	-0.108	-0.498	-0.157	-0.295	-0.769	-0.232	-0.72	-0.156	-0.812	-0.107	-0.288	-0.272
Age	0.182**	-0.079	0.139**	-0.069	0.15	0.03	0.122**	0.044	-0.072	0.247***	0.091*	0.046	0.042	0.593***	0.391***
	-0.089	-0.058	-0.07	-0.046	-0.095	-0.061	-0.053	-0.104	-0.058	-0.052	-0.052	-0.069	-0.038	-0.116	-0.073
HH Size	-0.026	-0.043**	-0.007	0.051***	-0.009	0.015	0.004	0.054*	0.072***	-0.011	0.023	0.004	0.044**	-0.049	-0.026
	-0.029	-0.018	-0.019	-0.012	-0.026	-0.016	-0.014	-0.032	-0.017	-0.015	-0.016	-0.024	-0.014	-0.033	-0.022
Middle income HH	0.771**	0.773***	0.779***	0.082	-0.414	-0.294	1.202***	0.514	0.769**	1.492***	1.689***	0.446**	0.439***	0.762**	0.562**
	-0.253	-0.168	-0.226	-0.179	-0.362	-0.268	-0.206	-0.335	-0.234	-0.168	-0.17	-0.226	-0.131	-0.326	-0.203
Rich income HH	1.007***	1.696***	0.965***	0.866***	0.085	0.195	1.630***	1.124**	1.571***	2.112***	2.600***	1.230***	0.624***	1.203***	1.353***
	-0.29	-0.202	-0.237	-0.164	-0.415	-0.279	-0.234	-0.353	-0.235	-0.222	-0.226	-0.265	-0.145	-0.343	-0.224
Richest income HH	1.669***	1.863***	1.747***	1.431***	0.648	0.179	2.168***	1.869***	2.122***	2.552***	3.577***	1.896***	0.923***	2.702***	1.400***
	-0.475	-0.255	-0.296	-0.198	-0.505	-0.315	-0.29	-0.474	-0.282	-0.337	-0.345	-0.354	-0.2	-0.599	-0.29
Head education	0.105***	0.065***	0.145***	0.003	0.154***	0.051***	0.058***	0.059*	0.032**	0.159***	0.117***	0.053**	0.091***	0.035	0.074***
	-0.031	-0.016	-0.032	-0.013	-0.028	-0.014	-0.012	-0.033	-0.014	-0.016	-0.014	-0.019	-0.012	-0.036	-0.022
Urban	-0.411	-0.169	0.886***	1.072***	1.829***	1.810***	0.413*	1.546***	0.284	0.587**	1.403***	0.444	0.690***	-0.089	0.575**
	-0.271	-0.175	-0.244	-0.168	-0.4	-0.256	-0.221	-0.43	-0.229	-0.195	-0.237	-0.282	-0.169	-0.442	-0.274
Constant	-2.612*	1.081	-3.972***	-0.929	-3.842**	-2.042**	-4.008***	-1.703	-1.21	-4.555***	-2.722**	-0.671	-1.009	-10.091***	-6.017***
	-1.496	-0.98	-1.178	-0.767	-1.671	-1.041	-0.965	-1.879	-1.013	-1.118	-0.88	-1.378	-0.629	-1.984	-1.208
Random-effects Parameters															
Cluster:															
var(_cons)	1.548	1.002	1.118	0.665	1.565	0.374	0.411	1.674	0.720	1.407	3.468	1.233	0.685	1.111	0.606
	0.559	0.247	0.332	0.155	0.559	0.141	0.135	0.661	0.201	0.285	0.492	0.359	0.122	0.557	0.261
Observations	832	1,705	1,219	2,712	700	1,380	1,659	660	1,546	3,017	3,756	1,249	3,292	534	1,400
Number of groups	447	634	477	560	267	324	297	299	392	821	835	383	429	307	419
-2LL	-484.3	-978.3	-652.1	-1380	-366.5	-745.5	-872.4	-347.8	-844.5	-1133	-1324	-629.3	-1765	-293.5	-631
LR test vs. logistic regression															
chi2	21.26	41.8	28.83	42.71	23.86	14.51	18.98	19.7	31.4	77.82	334.74	33.76	103.42	9.2	9.8
Pvalue	0.000	0.000	0.000	0.000	0.000	0.0001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0012	0.0009
ICC	0.320	0.233	0.254	0.168	0.322	0.102	0.111	0.337	0.180	0.299	0.513	0.273	0.172	0.253	0.156

Note 4: Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: Standard errors are reported below the related coefficient.

Source: Author calculations.

Table A8: Additional multilevel estimations for the probability of school dropout

	Benin		Burkina		Côte d'Ivoire		Guinea	Mali		Nigeria		Sierra Leone		Tanzania	
VARIABLES	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**
Circumcised/Excised	0.992	2.170***	0.219	0.482***	-0.152	0.453**	0.117	-0.5	0.576*	-0.705	-0.018	0.558	0.452***	-0.399	0.824**
	-0.682	-0.562	-0.327	-0.134	-0.474	-0.211	-0.363	-0.775	-0.312	-0.675	-0.123	-1.136	-0.13	-0.316	-0.29
Age	0.138	0.317***	0.300**	0.505***	0.430***	0.451***	0.407***	0.491***	0.445***	0.678***	0.831***	0.417***	0.568***	0.301**	0.479***
	-0.111	-0.074	-0.097	-0.061	-0.101	-0.079	-0.069	-0.126	-0.078	-0.054	-0.052	-0.084	-0.048	-0.116	-0.066
HH Size	-0.067	-0.029	-0.027	-0.071***	0.039	0.007	-0.056**	-0.052	-0.063**	-0.007	-0.053***	-0.015	0.009	0.071*	-0.050**
	-0.041	-0.025	-0.025	-0.017	-0.026	-0.021	-0.019	-0.034	-0.021	-0.015	-0.015	-0.028	-0.016	-0.038	-0.023
Middle income HH	-0.413	-0.204	-0.317	0.214	-0.645*	0.041	-0.323	-0.586	-0.552*	-0.847***	-0.731***	0.026	-0.215	-0.636*	-0.614**
	-0.32	-0.218	-0.31	-0.226	-0.379	-0.354	-0.242	-0.398	-0.307	-0.168	-0.166	-0.27	-0.16	-0.357	-0.219
Rich income HH	-0.36	-0.813**	-0.135	-0.035	0.245	-0.326	-0.402	-0.787**	-1.155***	-0.799***	-0.915***	-0.529*	-0.598***	-0.934**	-0.939***
	-0.348	-0.25	-0.317	-0.206	-0.433	-0.365	-0.267	-0.391	-0.304	-0.18	-0.178	-0.311	-0.178	-0.369	-0.216
Richest income HH	-0.742	-1.350***	-0.601	-0.318	-0.701	-0.64	-1.025**	-1.746***	-1.646***	-0.521**	-0.753***	-0.855**	-0.847***	-0.886*	-1.342***
	-0.556	-0.313	-0.391	-0.24	-0.507	-0.405	-0.339	-0.514	-0.351	-0.218	-0.205	-0.391	-0.234	-0.525	-0.262
Head education	-0.100**	0.004	-0.146***	0.008	-0.047*	-0.002	-0.047**	-0.031	-0.02	-0.033**	0.020*	-0.054**	0.006	-0.009	0.009
	-0.037	-0.019	-0.04	-0.016	-0.025	-0.017	-0.015	-0.033	-0.017	-0.012	-0.011	-0.022	-0.012	-0.037	-0.02
Urban	0.266	0.353*	-0.459	-0.506**	-1.204**	-1.530***	-0.433*	-0.433	0.131	-0.169	-0.447**	-0.244	-0.753***	-0.612	0.179
	-0.321	-0.211	-0.307	-0.185	-0.4	-0.331	-0.248	-0.395	-0.259	-0.152	-0.151	-0.297	-0.193	-0.467	-0.232
Constant	-4.217**	-6.122***	-5.073**	-8.215***	-6.908***	-6.427***	-6.144***	-6.972**	-6.850***	-11.255***	-13.839***	-8.572***	-10.423***	-5.092**	-7.164***
	-1.934	-1.249	-1.603	-1.016	-1.736	-1.33	-1.214	-2.136	-1.331	-1.115	-0.871	-1.793	-0.807	-1.987	-1.082
Random-Effects Parameters															
Cluster: Var (_Cons)	0.980	0.904	1.617	0.257	0.495	0.447	0.335	0.263	0.233	0.690	1.133	0.401	0.660	1.914	1.140
	0.632	0.324	0.625	0.162	0.381	0.191	0.161	0.492	0.185	0.198	0.216	0.295	0.147	0.891	0.265
Observations	676	1,271	719	1,320	535	822	956	418	780	2,546	2,843	1,059	2,715	506	1,328
Number Of Groups	387	525	353	424	229	262	250	214	274	750	722	347	415	295	411
-2LL	-288.4	-634.6	-411.9	-778	-294.3	-482.1	-554.8	-214.1	-460.6	-1154	-1430	-403.2	-1240	-313.3	-823.4
LR Test Vs. Logistic Regression															
Chi2	4.68	16.63	18.77	3.61	2.77	12.21	7.74	0.34	2.27	24.07	80.94	2.68	53.89	13.91	56.28
Pvalue	0.0153	0.000	0.000	0.0287	0.0479	0.0002	0.0027	0.2813¥	0.066	0.000	0.000	0.0507	0.000	0.0001	0.000
ICC	0.229	0.216	0.330	0.073	0.131	0.120	0.093	0.074	0.066	0.173	0.256	0.109	0.167	0.368	0.257

Note 5 Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: Standard errors are reported below the related coefficient; Note 3: No significant effect of the variable of interest appears when the single Logit model is considered.

Source: Author calculations.

Table A9: Additional estimations for schooling outcomes: Entire pooled sample

	School Attendance		Primary School Completion		School Dropout	
VARIABLES	Boys	Girls	Boys	Girls	Boys	Girls
Circumcised/excised	-0.006	-0.452***	-0.074	-0.357***	-0.109	0.278***
	-0.11	-0.043	-0.115	-0.045	-0.132	-0.054
Age	-0.293***	-0.419***	0.158***	0.022	0.405***	0.491***
	-0.022	-0.015	-0.024	-0.016	-0.028	-0.019
Household size	-0.007	0.028***	-0.013**	0.017***	-0.008	-0.031***
	-0.006	-0.004	-0.007	-0.004	-0.008	-0.006
Middle income HH	0.821***	0.764***	0.811***	0.876***	-0.516***	-0.377***
	-0.069	-0.051	-0.071	-0.051	-0.088	-0.064
Rich income HH	0.946***	1.161***	1.211***	1.385***	-0.487***	-0.654***
	-0.074	-0.053	-0.079	-0.055	-0.091	-0.065
Richest income HH	1.216***	1.310***	1.809***	1.655***	-0.718***	-0.876***
	-0.098	-0.065	-0.111	-0.069	-0.116	-0.077
Father education	0.086***	0.037***	0.116***	0.069***	-0.042***	0.001
	-0.006	-0.004	-0.007	-0.004	-0.007	-0.005
Urban residence	0.472***	0.500***	0.423***	0.489***	-0.295***	-0.318***
	-0.067	-0.045	-0.072	-0.048	-0.08	-0.054
Constant	4.111***	5.575***	-3.260***	-1.598***	-6.933***	-8.042***
	-0.422	-0.326	-0.458	-0.391	-0.509	-0.358
Random-effects Parameters						
Cluster: var(_cons)	0.238	0.326	0.322	0.655	0.224	0.198
	0.130	0.165	0.175	0.330	0.125	0.101
Observations	8,215	17,453	8,211	17,450	6,459	12,035
Number of countries	7	8	7	8	7	8
-2LL	-4635	-9920	-4147	-9219	-3201	-6667
LR test vs. logistic regression						
chi2	291.73	1120.65	449	1860.45	148.37	401.6
Pvalue	*0.000*	0.000	0.000	0.000	0.000	0.000
ICC	0.067	0.090	0.089	0.166	0.064	0.057

Note 6 Significant at *** 1, ** 5, * 10 per cent levels respectively; Note 2: Standard errors are reported below the related coefficient; Note 3: In the case of male circumcision, no record for Guinea, which leads to seven countries instead of eight.

Source: Author calculations.