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Determinants of Women's Access to Education in the DRC The case of North Kivu

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Abstract

This article identifies the factors that influence women's access to education in a context dominated by customs and practices that work against them, considering the case of North Kivu Province in the Democratic Republic of Congo. Following a qualitative approach based on interviews, a discriminant analysis and a multinomial logistic regression were carried out to analyse the variables that discriminate against and/or explain women's access to education. The results show that the level of education of the parents, the type of union between the parents, the income of the parents, and the head of the family's religious affiliation are all factors that significantly explain the level of education attained by women.

Keywords: *Determining factors – Access to education – Women – North Kivu – DRC*

1. Introduction

It is widely recognized that low levels of literacy and education hinder the development of individuals in a rapidly changing world dominated by technological progress (Banque Mondiale, 1987). Indeed, education is a fundamental right, essential to the development of individuals and society, without which no country can claim to sustainably improve its economy and the quality of life of its population (Unicef, 2007). From this perspective, the education of girls and women, through its impact on fertility control, improved health, and access to skilled employment, is seen as one of the keys to development (Litte–Ngounde, 2004).

However, several international statistics confirm that sub-Saharan Africa and South Asia are the regions of the world with the lowest levels of schooling (Lange, 2007). According to some studies (Assane, 2019; Lange 2006), in sub-Saharan Africa, the illiteracy rate averaged 52% of the population until the end of the 1990s. There is also great inequality in terms of schooling within countries. Overall, Unesco (2009) shows that illiteracy affects an average of 59% of girls compared to 45% of boys in sub-Saharan Africa. This study is supported by that of Chingtham and Guite (2017), which shows that in Africa, 84% of parents in rural areas

and 22.92% of parents in urban areas prefer to use girls for household chores rather than sending them to school.

Although there has been some improvement in girls' enrolment in school, inequalities are more pronounced in rural areas, where problems of access to school for girls are linked to traditional and socio-cultural constraints (Lange and Pilon, 2000). However, it is difficult to compare the extent of these inequalities between African countries or even within the same country.

What explains women's limited access to education in the DRC? As Pilon (1995) and de Vreyer (1993) have pointed out, the lack of infrastructure, which is widely discussed in the literature, cannot alone explain the difficulties in accessing education. As Muderhwa (2022) points out, the determinants of girls' schooling are numerous, complex and cumulative. They lie both in the supply of education (school infrastructure) and in demand (sociocultural stereotypes and social norms) and are both material and immaterial (Unesco, 2015, Muderhwa, op.cit.).

To identify the factors explaining women's access to education in the DRC, we conducted a survey of women in the city of Goma, the town of Sake and the Nyiragongo territory in North Kivu province in eastern DRC. The data collected was analysed using discriminant analysis and multinomial logistic regression to identify the factors explaining women's access to education.

Structured in three main parts, the first part reviews the literature on the determinants of women's access to education, the second presents the methodological approach used, and the third part presents and discusses the results obtained.

2. Literature review

There is consensus across all human societies on the decisive role of education in the development process. As a key factor in human productivity, education stimulates economic growth, strengthens social cohesion and is one of the most powerful tools for combating poverty and social and gender inequality (Becker,1993). The term education should be understood in the broadest possible sense, ranging from primary school to higher and university education.

It must be noted that, beyond the issue of schooling for all children in sub-Saharan Africa, girls' access to education is lower than that of boys. Gaussel (2016) believes that these disparities are due to the different socialisation of girls and boys, which gives rise to stereotypes about children's education. According to Gresy and Georges (2012), these stereotypes are widely shared by those involved in children's education, such as parents, family and the environment around them. International statistics confirm that in sub-Saharan Africa, girls are less likely to attend school than boys (Banque Mondiale, 1987). Although the gap is narrowing over time, there are significant disparities between African regions and even between countries within the same region (Lange, 2007).

It is undeniable that, in most African countries, gender inequality in access to education is much more pronounced in rural areas than in urban centres. Indeed, in rural societies where custom plays a predominant role, a woman's place is in the home and the kitchen. Instead of sending them to school, most families focus on preparing girls to work at home and help their mothers with housework, thus predestining them for early marriage (Pilon, 2006). This situation is found in almost all sub-Saharan African countries, but it is more pronounced in rural areas.

Lututala et al. (1996) and Moumi (2010) found that in the DRC, 76% of boys have access to primary school, compared to only about 34% of girls, particularly in rural areas affected by poverty (Unesco, 2024). In Niger, on the other hand, Assane (2018) reports that 70% of girls attend primary school. Once children enter secondary school, there is a substantial drop in the enrolment rate for girls. In Burkina Faso, Meba (2006) reports that in 2004-2005, the gross enrolment rate in primary school was 52%. This low overall level of enrolment masks two realities: on the one hand, enormous disparities between provinces (with the most urbanised provinces having the highest enrolment rates) and, on the other hand, significant gender inequalities, with the gross enrolment rate for boys at the same date standing at 58% compared to 46% for girls.

However, there is no need to demonstrate that a simple reduction in female illiteracy necessarily leads to a significant improvement in women's socio-economic situation. Ahovey and Vodounou (2004) and Mbangala and Kakule (2023) even find that educated women contribute more to the socio-economic situation of their households.

What, then, are the factors that hinder women's access to education in sub-Saharan Africa? Among the determinants of demand that may explain access to education, Alcaraz (2018) highlights the level of education of parents. In this regard, he points out that the level of education of parents has different effects on the education of their children, particularly girls. Several studies point in the same direction and argue that the level of education of parents is probably the most important factor determining a girl's chances of continuing her education (Anger and Heineck 2009; Björklund et al. 2010). The results obtained by Blau and Duncan (1966), Haller and Portes (1973) establish a positive link between the father's level of education and girls' schooling.

LeVine (1987) shows that educated mothers have better social and psychological dispositions that they can use for the education and well-being of their children, particularly girls. This study is confirmed by Al-Thumali (1984), who found that in Saudi Arabia, the more educated women are, the more they influence their daughters' education. Thomas (1994) concurs, demonstrating that more educated mothers have greater bargaining power and generate a better allocation of resources in favour of their children's human capital, which further increases the chances of girls attending school.

For several authors, socio-economic and cultural factors, particularly poverty, play an important role in the choice of which children to send to school. Families prefer to educate boys rather than girls, particularly in patriarchal African societies. They have a cultural belief that boys are more intelligent than girls and more physically resilient than girls, especially when schooling is demanding (long distances to walk and sometimes without food) (Davison and Kanyuka, 1992). Other socio-cultural arguments put forward are that some parents prevent their daughters from attending primary school because they fear that schooling will expose girls to morally reprehensible practices such as early sexuality, early pregnancy, violence, harassment, etc. (Akpan, 1996).

To justify women's access to education, some researchers have highlighted the number of children in a family (Unesco. 2013). Duman (2010) found that in some developing countries, family size tends to be negatively correlated with children's participation

in education, probably because available resources must be shared among several children. This reveals that an increase in household size increases the number of tasks that girls must perform within their families (Anderson, 1988). This situation is even more serious for girls when there are young children in the household who need to be cared for.

Religion is another factor that hinders girls' access to education in Africa, as it is deeply rooted in people's experiences and influences the socio-economic and political orientations of societies (Union Africaine, 2015; Siordia, 2016). From this perspective, religion plays an important role in perpetuating norms that continue to promote gender inequality. Girls face discrimination based on the religions they practise or were born into. Family and/or religious ideologies can influence households' attitudes and behaviours towards girls' education, among other things (Klingorová and Havlíček, 2015).

The link between the type of union and children's schooling, particularly that of girls, has been the subject of several studies. According to Cardwell and Cardwell (1990), sub-Saharan Africa is the main region in the world where polygamy remains widespread. According to this author, approximately 20 to 50% of marriages in this region are polygamous, and this type of union has a negative impact on children's schooling. In Kenya, Hussein (1983) found that polygamy has a negative effect on children's schooling, particularly for girls, due to low parental income and the trade-off between educating boys and girls. This is consistent with the idea that a larger number of half-siblings would serve to 'dilute' the resources available to invest in the schooling of a given child (Laiglesia and Morrisson, 2008). In Ghana, research findings by Koissy-Kpein (2008) and Amoateng et al (2017) show that in polygamous families, men are more likely than women to have a higher level of education. This shows that polygamy has a negative effect on girls' education.

Some researchers (Marcoux 1994; Pilon 1993; Odi 1995), on the other hand, have established a positive link between polygamy and children's schooling, particularly that of girls (Pilon, 1993; Odi, 1995; Marcoux, 1995). The argument put forward is that polygamy often allows for forms of family production organisation that reduce the demand for child labour in favour of schooling and therefore increase a girl's chances of being educated. These results are contradicted by the study by Elbedour et al. (2007), who found that family cohesion and domestic violence were correlated with more mental health variables among adolescents from polygamous families than monogamous families, thus not promoting children's schooling, particularly that of girls.

Household income is also considered to be one of the factors influencing school enrolment for all children, particularly girls. The costs associated with children's schooling can be difficult to estimate, even if they seem easy to define (Bustreel and Nishimura, 2004). As a result, low school enrolment rates are more prevalent in poor households where child labour, particularly that of girls, is essential for survival, and school attendance represents a loss of income. According to Seydou Loua (2018), in sub-Saharan Africa, children in rural areas spend more time working in the household than those in urban areas, which limits their opportunities to study. There are numerous studies on the link between household economic status and female school enrolment. According to Chepchieng and Kiboss (2004), poor families struggle to pay the direct costs of educating girls and even to afford basic items such as sanitary towels, clothing, etc. Thus, for Mbow (1993), it is the poverty of women and mothers that constitutes a real obstacle to girls' education in sub-Saharan Africa. Research shows a positive link between household economic status and children's education (Marcoux, 1994; Lloyd and Blanc 1996; Clevenot and Pilon, 1996). Studies conducted by Kobiané (2002) conclude that female under-enrolment tends to decrease as living standards rise.

In Benin, Akapi (2001) found that it is the high cost of education in urban areas that automatically leads households to choose to educate boys at the expense of girls. These findings are confirmed by a study conducted by Lusamba (2001) in the Democratic Republic of Congo, which attributes inequalities in school enrolment between girls and boys to the socio-economic difficulties faced by families. In his view, parents direct their daughters towards lucrative activities for the survival of their household, while they educate their sons in the hope that they will take care of them later when they grow old. The EPSP yearbook (2015) confirms this and reports that in poor households, when faced with the choice of which children to send to school when resources are limited, parents prefer to send their boys.

3. Methodological approaches

This literature review identified several variables that may explain women's access to education. According to Aziza (1996), factors such as parental education, type of parental union, child labour, early marriage, the husband's level of education, religious and socio-economic factors, household size and family economic status can be considered determinants of women's access to education in sub-Saharan Africa (Figure 1).

Figure 1. Study variables
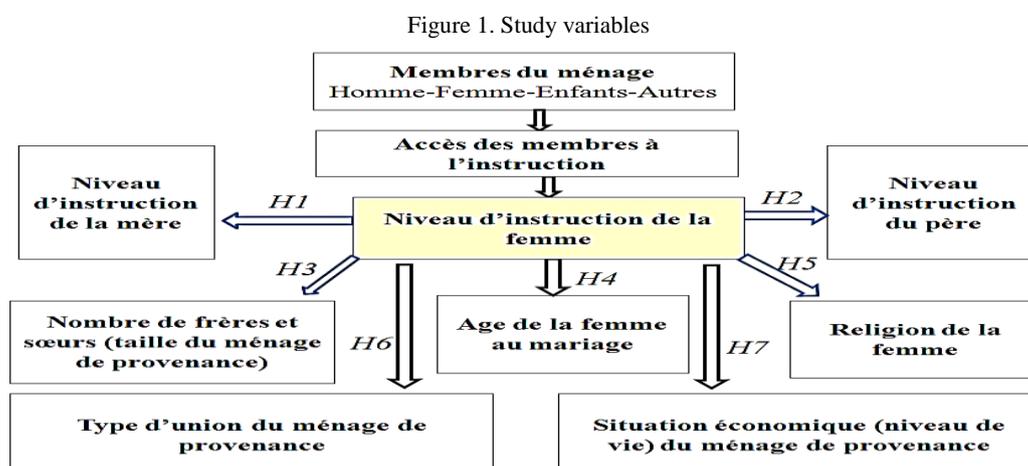
Source: Inspired by, among others, LeVine (1987) and Klingorová and Havlíček (2015).

To confirm or refute the link between these variables and women's access to education in North Kivu, a qualitative method based on a survey questionnaire was administered to a sample of 1,002 women in North Kivu province about their experiences. These are adult daughters who still live with their parents or married women. The survey was distributed as follows: 809 in the city of Goma, 150 in the Nyiragongo territory and 43 in the city of Sake. The questionnaires were completed on site by the surveyors in cases where the respondents could not read. Otherwise, the respondents had to be assisted in completing the questionnaire properly without influencing their answers. To achieve a maximum response rate (1002/1002, or 100%), based on the strategies recommended by Kumar, Aaker and Day (2002) and Bugandwa (2008), we used monetary incentives (particularly in poor areas, such as the Bujovu, Kahembe, Mapendo, Kasika, Majengo, Ndosho, Katoyi, as well as in the city of Sake and the chiefdom of Bukumu) to encourage respondents to agree to answer our questionnaire.

Two types of analysis were carried out on the data collected. A discriminant analysis aimed to describe, explain and predict the variables that discriminate against women in their access to education. The objective was to validate the classification of women according to their level of education based on a series of predictive variables.

As discriminant analysis does not allow us to test cause-and-effect relationships, we used multinomial logistic regression to characterise the relationships between a qualitative dependent variable (binomial or multinomial) (women's access to education) and several explanatory variables. To do this, we chose the Logit model, which is easier to interpret than the Probit model. An odds ratio (OR) was used to assess the strength and direction of associations between multiple explanatory variables and the outcome variable. The principle of this model is to understand or predict the effect of the variables shown in Figure 1 on the level of education attained by women. All calculations are made relative to a reference modality selected by the user; in our case, this reference modality is the fact that a woman has not studied (no level of education). This makes it possible to understand the impact of the choice of a modality based on the explanatory variables relating to a fixed modality.

The model parameters are estimated using the maximum likelihood method (Bourbonnais, 2018). Thus, for logistic regression, the dependent variable follows a Bernoulli distribution with parameter p (p is the average probability of the event occurring) when the experiment is repeated once, or a binomial distribution (n, p) if the experiment is repeated n times. The probability parameter p is here the function of a linear combination of explanatory variables (Bourbonnais, 2018; Kheith, 2019; Hurlin and Mignon, 2005). To do this, we used the adjacent Logits model. This model allows for a local interpretation, i.e. the probability of the response variable changing from one level to another, but this information depends on the modality of the response variable. To overcome this, the cumulative Logit model allows us to capture the order relationship between modalities, while providing overall information on the probability of occurrence of the response variable modalities and on the role of the explanatory variables. In our case, this cumulative probability was calculated using STATA 10.0 software. The cumulative probability is defined as follows:

$$p_k = P[Y \leq y_k \mid X] = P[Y=y_1 \mid X] + P[Y=y_2 \mid X] + ... + P[Y=y_k \mid X]$$

For k ranging from 1 to k−1, the regression equations are written as follows:

$$LOGIT_1 = \ln \left[\frac{P[Y \leq y1 \mid X]}{P[Y > y1 \mid X]} \right] = a_{01} + a_1 X_1 + a_2 X_2 + a_3 X_3 + ... + a_p X_p$$

$$LOGIT_1 = \ln \left[\frac{P[Y \leq y2 \mid X]}{P[Y > y2 \mid X]} \right] = a_{01} + a_1 X_1 + a_2 X_2 + a_3 X_3 + ... + a_p X_p$$

$$LOGIT_1 = \ln \left[\frac{P[Y \leq yk-1 \mid X]}{P[Y > yk-1 \mid X]} \right] = a_{01} + a_1 X_1 + a_2 X_2 + a_3 X_3 + ... + a_p X_p$$

Where yk are successive modalities (yk < yk+1) of the response variable Y and K ranging from 1 to k−1.

To validate our results, we conducted hypothesis tests on the parameters and a model prediction test. Certain criteria were met to assess its optimality. Finally, each variable is associated with a beta, which is the parameter where the coefficient is estimated by the maximum likelihood method. The Wald statistic follows a Chi2 distribution with one degree of freedom and allows us to test the significance of each ratio. The values of the Wald statistics must be less than 3.841, the Chi2 value of the table at the 0.05 threshold. In addition, the Significance (Sig.) values must be less than 0.05, our significance threshold.

4. Presentation of results.

Discriminant analysis is used to determine the factors that discriminate against women's access to education, and Logit regression establishes the cause-and-effect relationship between women's access to education and the explanatory variables selected.

4.1. Factors that discriminate against women's access to education

This approach seeks to confirm how women are classified to identify factors affecting their educational access. To verify the

existence of differences between groups, we used tests of equality of group means (F test, Wilks' lambda and significance) (Table 1).

Table 1. Tests of equality of group means

	Wilks' Lambda	F	df1	df2	Sig.
Woman's age at marriage	,890	35,467	3	861	,000
Type of union of woman's family	,942	17,596	3	861	,000
Husband's study level	,583	205,529	3	861	,000
Father's study level	,928	22,367	3	861	,000
Mother's study level	,936	19,510	3	861	,000
Size of the Household	,965	10,536	3	861	,000
Income of the women's family household	,943	17,376	3	861	,000

Source: Analysis of our survey data using SPSS 25.0.

Given that the values of the significance levels are below the threshold of 0.05 and that the univariate F values for each descriptor must be greater than the Fishers in the table with 1 degree of freedom in the numerator and 862 in the denominator, we rejected the null hypothesis of equality of means for 7 variables. These are the seven variables that discriminate against women in their access to education. They are the age of the girl at marriage, the type of union between the girl's parents, the husband's level of education, the girl's father's level of education, the girl's mother's level of education, the size of the girl's household, and the girl's family income.

To verify the validity of the model, we conducted three tests. The first is the box test, the second is the eigenvalue test, and the third is Wilks' Lambda (Table 2).

Table 2. Box test for equality of covariance matrices

Box's M		532,775
F	Approx.	6,208
	df1	84
	df2	346751,436
	Sig.	,000

Source: Analysis of our survey data using SPSS 25.0.

The results in Table 2 show a Box's M of 532.775 (the only criterion being that it should be as large as possible) and the approximate Fisher's value is equal to 6.208, which is greater than approximately 3. the Fisher's value in the table at 84 degrees of freedom in the numerator and 346,751.436 (∞) in the denominator. The probability of observing this value with the sample data if the null hypothesis is true is 0.000. This allows us to assert that the discriminant function will guarantee the lowest probability of misclassification of individuals (Giannelloni and Vernette, 2015) and thus demonstrate, at this level, the validity of our model.

Table 3 of eigenvalues shows a value of 0.866, which is close to 1, indicating that the model is good. The percentage of variance is 91.5%, meaning that 100% of the discriminant power of the explanatory variables is attributable to the discriminant function, which is normal since there is only one variable. The canonical correlation coefficient is 0.681. This strong correlation clearly demonstrates the usefulness of the discriminant function.

Table 3. Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	,866[a]	91,5	91,5	,681
2	,068[a]	7,1	98,6	,252
3	,013[a]	1,4	100,0	,113

Source: Analysis of our survey data using SPSS 25.0.

Furthermore, Wilks' lambda table (Table 4) shows that the discriminant function is significant at a 5% level; the Chi-square value is 602.750 at 21 degrees of freedom. These results highlight the usefulness of the discriminant function in explaining the differences observed between the groups, since the associated probability is below the 5% threshold. In other words, it can be said that, overall, the model is robust.

Table 4. Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1 through 3	,496	602,750	21	,000
2 through 3	,925	67,136	12	,000
3	,987	11,000	5	,051

Source: Analysis of our survey data using SPSS 25.0.

The results in Table 5 enable 56.3% of women to be correctly classified in terms of their level of education. The percentage of assets classified for girls who have not studied is 66% (64*100/97), those with primary education represent 57.0% (230*100/403), those with secondary or vocational education represent 45.3% (120*100/265), while the percentage of assets classified for those with higher or university education is 72% (72x100/100).

However, the error rate (incorrectly classified respondents) is equal to (0+49+71+1)/865=14%. The error of the first type, that of considering women who have not attained higher education by using the score function among those who have attained higher education, is equal to (27+5+1)/97= 0.34 for women who have completed primary school, (80+71+22)/403=0.429 for those who attended secondary school, and (17+49+79)/265=0.547 for those who attended higher or university education.

Table 5. Classification of Results

		Woman's study level	Any	Primary	Secondary-professional	Higher education	Total
					Predicted Group Membership		
Original	Count	Any	64	27	5	1	97
		Primary	80	230	71	22	403
		Secondary-professional	17	49	120	79	265
		Higher education	0	3	25	72	100
	%	Any	66,0	27,8	5,2	1,0	100,0
		Primary	19,9	57,0	17,6	5,5	100,0
		Secondary-professional	6,4	18,5	45,3	29,8	100,0
		Higher education	0,0	3,0	25,0	72,0	100,0
Cross-validated[b]	Count	Any	62	28	6	1	97
		Primary	81	227	73	22	403
		Secondary-professional	17	52	113	83	265
		Higher education	0	4	28	68	100
	%	Any	63,9	28,9	6,2	1,0	100,0
		Primary	20,1	56,3	18,1	5,5	100,0
		Secondary-professional	6,4	19,6	42,6	31,3	100,0
		Higher education	0,0	4,0	28,0	68,0	100,0

a. 56,3% of original grouped cases correctly classified.

b. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

c. 54,3% of cross-validated grouped cases correctly classified.

Source: Analysis of our survey data using SPSS 25.0.

The second type of error, i.e., classifying women who have not reached the highest level according to the model, is (80+71+22)/403=0.429 for women who have reached primary education level, (17+49+79)/265=0.509 for those who have attained secondary education, and (0+3+25)/100=0.28.

As the percentage of individuals correctly reclassified should not be analysed in absolute terms, it must be compared to the percentage that would be obtained if individuals were reclassified at random. To do this, the Q test is used to test the hypothesis H0: the number of correctly classified women is due to chance and not to the discriminant function. This statistic is calculated as follows:

$$Qpresse = \frac{(n - (nc * p))^2}{n * (p - 1)} = \frac{(865 - (486 * 4))^2}{865 * (4 - 1)} = 448,65$$

n is the number of women surveyed (865 in our case); nc is the number of women surveyed who were classified correctly

(64+230+120+72=486); p is the number of groups (in our case, it is equal to 4).

The critical value of the chi-square at 1 degree of freedom for a threshold of 0.05 is equal to 3.84, which allows us to reject the null hypothesis. The discriminant function is therefore significantly more effective than chance in correctly reclassifying women in terms of their access to higher education.

4.2. Determinants of women's access to education

In contrast to the discriminant analysis discussed in the previous section, this section seeks to identify the variables that most effectively predict the probability of a woman accessing higher education. To do this, we examine the effect of the father's level of education, the mother's level of education, the parents' religion, the type of union between the parents, the family's income, the husband's religion, the husband's level of education, the marital status of the household and the woman's level of education.

In order to facilitate the reading and interpretation of the results, the following text presents summary formulations relating to all the categorical variables introduced into the model, specifying for each one the reference modality used and the meaning of the coefficients estimated in relation to this basic category.

1. Religion variable (1b. Religion of reference)

The Religion variable, coded in five categories (1 = Catholic, 2 = Protestant, 3 = Muslim, 4 = Revivalist Church, 5 = Other), was introduced as a categorical variable in the model. The Catholic category (code 1) was chosen as the reference category (1b), so that the coefficients estimated for the other denominations express their relative deviation from it.

2. Union variable: (0b. Union reference)

The Union variable, introduced as a categorical variable in the model, was coded dichotomously. The modality '0' was retained as the reference category (0b), corresponding to the basic union situation. The coefficients estimated for the modality '1' thus express the relative difference in the woman's level of education compared to this reference situation.

3. Variable Relationship with husband: (1b. Relationship with husband (reference)

The variable Relationship with husband, coded in several ordinal categories, was introduced as a categorical variable in the model. Category 1, corresponding to the most favourable marital relationship, was chosen as the reference category (1b). The coefficients associated with categories 2 to 5 therefore reflect the relative difference in the woman's level of education compared to this reference relationship situation.

4. Variable: Husband's level of education: (1b. Husband's level of education (reference)

The husband's level of education, measured according to several ordinal categories, was introduced as a categorical variable in the model. Modality 1, corresponding to the lowest level of education, was retained as the reference category (1b). The coefficients estimated for the higher modalities thus express the relative increase in the woman's level of education compared to this base category.

5. Marital status variable: (1b. Marital status (ref.))

The marital status variable, coded in several distinct categories, was introduced as a categorical variable in the model. Category 1 was chosen as the reference category (1b), representing the basic marital status. The coefficients associated with the other categories reflect the relative difference in the woman's level of education compared to this reference marital status.

In short, the categorical variables (Religion, Union, Relationship with husband, Husband's level of education and Marital status) were introduced into the model using indicator variables. For each of them, a reference modality (noted 0b or 1b) was selected, serving as a basis for comparison for the interpretation of the estimated coefficients of the other modalities, which express relative differences in relation to this reference category. The model incorporates categorical variables introduced using reference modalities (noted 0b or 1b). The estimated coefficients for the categorical variables thus express relative differences from the reference categories, all other things being equal.

Table 6. Ordered logistic regression

Women Study	Coef.	Standard Error	t-value	p-value	95 % conf. interval	Sig.
Father study	0,351	0,107	3,29	0,001	[0,142 ; 0,560]	***
Mather study	0,316	0,132	2,40	0,017	[0,057 ; 0,574]	**
Household size	-0,032	0,030	-1,08	0,282	[-0,091 ; 0,027]	
1b. Religion variable (ref.)	*0,000*	.	.	.	.	
2. Religion	-0,334	0,254	-1,32	0,188	[-0,831 ; 0,163]	
3. Religion	-0,061	0,656	-0,09	0,926	[-1,346 ; 1,224]	
4. Religion	-0,688	0,469	-1,47	0,142	[-1,607 ; 0,231]	
5. Religion	1,043	0,574	1,82	0,069	[-0,082 ; 2,168]	*
0b. Union variable	*0,000*	.	.	.	.	
1. Union	-0,441	0,259	-1,70	0,088	[-0,947 ; 0,066]	*
Household income	0,000	0,000	1,96	0,050	[0,000 ; 0,000]	*
1b. Husband relationship	*0,000*	.	.	.	.	

2. Husband relation	0,393	0,262	1,50	0,134	[-0,121 ; 0,907]	
3. Husband relation	-0,033	0,608	-0,05	0,957	[-1,225 ; 1,159]	
4. Husband relation	0,663	0,464	1,43	0,153	[-0,246 ; 1,572]	
5. Husband relation	-1,863	0,540	-3,45	0,001	[-2,921 ; -0,804]	***
1b. Husband's level study	*0,000*	.	.	.	.	
2. Husband study	1,671	0,358	4,66	0,000	[0,968 ; 2,373]	***
3. Husband study	3,518	0,381	9,23	0,000	[2,771 ; 4,265]	***
4. Husband study	5,465	0,417	13,11	0,000	[4,648 ; 6,282]	***
Absolu gap	0,004	0,018	0,25	0,802	[-0,030 ; 0,039]	
1b. Marital status (ref.)	*0,000*	.	.	.	.	
2. Marital status	0,127	0,345	0,37	0,713	[-0,550 ; 0,804]	
3. Marital status	0,571	0,349	1,64	0,102	[-0,113 ; 1,256]	
4. Marital status	0,673	0,286	2,35	0,019	[0,112 ; 1,235]	**
5. Marital status	-0,239	0,348	-0,69	0,493	[-0,920 ; 0,443]	
Constant 1	1,191	0,594	.b	.b	[0,026 ; 2,355]	
Constant 2	4,741	0,620	.b	.b	[3,526 ; 5,957]	
Constant 3	7,444	0,647	.b	.b	[6,176 ; 8,711]	

Mean dependent var	2.426	SD dependent var	0.837
Pseudo r-squared	0.257	Number of observations	864.000
Chi-square	538.328	Prob > chi2	0.000
Akaike crit. (AIC)	1606.737	Bayesian crit. (BIC)	1721.015

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Based on values below the significance threshold of 0.05, the results in this table indicate that the educational level of the father, that of the mother, the type of union between the parents, household income, the husband's membership of other religions, the husband's educational level and marital status significantly explain the educational level attained by the woman.

The results indicate that the father's level of education has a positive and significant influence on the level of education attained by the daughter. In other words, the higher the father's level of education, the more likely his daughter is to increase her level of education as well. Similarly, the results suggest that the mother's level of education has a positive and significant influence on her daughter's education. In other words, the more the mother has studied, the more likely her daughter is to increase her level of education.

The results show that religion has no significant effect on the level of education attained by the daughter, except that belonging to other religions or not belonging to any religion has a negative and significant effect on the daughter's level of education. In other words, when the daughter is part of a household in which the head of the household has no religious affiliation or belongs to a 'minority religion,' the daughter is more likely not to study (significant link at the 10% threshold). Similarly, the results indicate a positive and significant link between the type of union and the level of education attained by the girl (again, this link is only significant at the 10% threshold). In other words, monogamous households are more likely to send their daughters to school than polygamous households.

The results indicate a significant positive relationship between household income and women's education levels. In other words, it is the wealthiest households that send their daughters to school the most.

These results indicate a positive and significant link between the husband's level of education and the level of education attained by the wife. In other words, as the husband's level of education increases, so does that of the wife.

Finally, the results do not indicate a significant link between the marital status of households and the level of education attained by the woman, except in cases where the woman is married both religiously and civilly. In other words, there is a positive and significant relationship between the woman's marital status and her level of education only when she is married both civilly and religiously.

5. Discussion of results

The results of the logistic regression and the discriminant analysis show that the mother's level of education explains the level of education attained by the daughter. These results are consistent

with those obtained by Levine (1987) and Thomas (1994), according to whom an educated woman is more likely to send her children to school regardless of gender, since, having benefited from the advantages of education, she better understands the importance of her daughter's education. A causal link has also been established between the father's level of education and the level of education attained by his daughter. An educated father will have a different view of society and of the customs and traditions that may harm his children's future. In addition, the level of education is likely to give men the necessary perspective to analyse not only the changes taking place in society but also to appreciate the contribution girls make to the development of their families once they have a job because of their studies (Alcaraz, op.cit.).

The results indicate that household size only allows for significant discrimination between households according to the level of education attained by girls, without demonstrating a causal link. On the other hand, the causality analysis shows that it is in large households that there are more girls who have not studied, thus confirming the work of Laiglesia and Morrisson (2008), Koissy-Kpein (2008) and Amoateng et al (2017).

The results also establish a significant link between the type of union of the woman's family and her level of education. The positive effect of belonging to a monogamous household on the schooling of children in general and women in particular is also noted by Olvera et al (2010), who argue that a polygamous man is likely to have school-age children in several households, which limits his ability to send them all to school. These results confirm our sixth hypothesis.

The results also showed a positive and significant link between household income and the level of education attained by girls. Thus, the poorest households were unable to cover their children's school fees. This led to a considerable increase in the number of school dropouts and those who left school early. These results are consistent with those of Marcoux (1994), Pilon (1993), Odi (1995) and Chepchieng and Kiboss (2004), who argue that poverty is the most important cause of low school enrolment among children. Furthermore, the higher the level of education, the higher the cost of schooling for children. This is why it is wealthy families who can afford to send their children to school and, even more so, to university. Thus, families living in extreme poverty who cannot afford their children's school fees, or who can only do so to a limited extent, prefer to send boys to school rather than girls because, in their view, girls are meant to 'work the land'.

The results indicate a positive correlation between the husband's level of education and his wife's level of education. Indeed, it can be observed that the more educated the husband is, the more educated his wife is. This relationship can be interpreted in two ways. If a man marries a woman with limited education, he may encourage her to pursue further studies for higher qualifications. This can be seen in the city of Goma, where several married women are enrolling in local higher education and university institutions, particularly those offering evening classes. Secondly, this can be explained by the fact that men who have studied prefer to marry educated women, which argues in favour of women's education.

Regarding the husband's religion, the results show only a negative and significant effect in cases where he has no religion or is a follower of other religions. The negative effect can be explained by the fact that a man who has no religion can be presumed to be traditionalist. In this case, the woman would not have the opportunity to continue her studies in her household. Furthermore, it is reasonable to assume that such a man would only seek to marry an uneducated woman to satisfy his expectations.

Finally, about the marital status of 'civilly and religiously married', it should be noted that women who have both types of marriage have achieved the highest levels of education. It can be deduced that when a woman has not studied enough, it is by marrying civilly and religiously that she is likely to continue her studies because her husband invests in her in a context where women's efforts are becoming increasingly necessary in the fight against poverty in their households and unemployment among most men.

Conclusion

The objective of this research was to identify variables that could explain women's access to education. The results of the discriminant analysis show that, at a threshold of 0.05, the age of the girl at marriage, the type of union between the girl's parents, the husband's level of education, the girl's father's level of education, the girl's mother's level of education, the size of the girl's household and the girl's family income are the variables that discriminate the level of education attained by the girl.

Furthermore, the results of the multinomial logistic regression indicate that the educational attainment of the father, that of the mother, the type of union between the parents, household income, the husband's membership of other religions, the husband's educational attainment and marital status significantly explain the educational attainment of the woman. These results also show a positive and significant link between the father's level of education and the woman's access to education. A positive and significant effect was also noted between belonging to a monogamous household and the woman's access to education. The results show that when the head of the household has no religious affiliation or belongs to a 'minority religion,' the girl is more likely not to study (at the 10% threshold). Similarly, there is a positive and significant link between the type of union and the level of education attained by the girl (at the 10% threshold). A positive and significant link was found between the income of the girl's family and her level of education. The results indicate a positive and significant link between the husband's level of education and the wife's level of education. In other words, as the husband's level of education increases, so does that of the wife. Finally, the results show a positive and significant link between the woman's level of education and her entering a civil and religious marriage.

However, despite the efforts made in exploring this subject, there are certain limitations, although these do not compromise the validity of the main results. Firstly, the sample size is small, given the scope of the research. We would have preferred to conduct this research on a larger sample, including a more representative sample of the rural population, in order to make a proper comparison between urban and rural women. Secondly, although we have thoroughly reviewed the literature, certain determinants could not be considered due to memory issues or because of potential biases. For this reason, further research could follow in our footsteps to improve this study by including omitted variables that may influence women's access to education.

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