Social and economic obstacles of girl's education in Parakou in the Northern Eastern part of Bénin: A critical analysis

Soulé El-Hadj Imorou

University of Parakou, Bénin Republic.

E-mail: imorousoule@yahoo.fr.

Abstract. The question of under-schooling of children, in particular girls in Africa is the object of a particular attention for a few years. It appears that the familial, economic, demographic reasons of that under-schooling are not always well studied because of the lack of adequate empirical data. The objective pursued through this work is to find with the help of recent surveys, the socio-economic determinants of girls' schooling so as to find the strategies for the improvement of the rate of girls' schooling. The objective is to look for; with the help of the results, the variables which play a crucial role in parents' decision to send their daughters to school and to maintain them there. This study mainly lean on the exploitation of the data related to recent surveys realized in May 2012 in 120 households in the Commune of Parakou. By using a model of binary logistic regression of logit type, we have shown that the level of the household income (economic factor), the type of activity, the parents' educational level (cultural factor) and the parents' status (social factor) are the crucial factors which determine girls' schooling. These results can be used for the improvement of social policies especially in the domain of women's education in general but also to provide paths which will be used for futures researches and thus contribute if possible to the search of strategies for the improvement of the rate of girls' schooling.

Keywords: Girl, schooling, logit, Northern Bénin.

Abbreviation: EDSB, Bénin Demographic and Health Survey; **MPSE,** Ministry of Primary and Secondary Education; **INSAE,** National Institute for Statistics and Economic Analysis.

INTRODUCTION

The big international debates take girls' schooling to heart as far as the question of durable and equitable development is concerned (Quenum, 2011).

An analysis of the statistics of education in western, central and northern Africa reveals that there is a weak disparity between the sexes in the access to pre-schooling. On the contrary, we cannot say so for primary education where the parity between sexes is not a reality. We should note that in most of the countries, the raw Gross Schooling Rate (GSR) go down progressively while moving from the primary to secondary education, and then to higher education (for example, in Bénin, in 2009, the GSR in the primary education was 111.90%,

40% in the secondary education, and 5% in higher education (MPSE, 2010) and the disparities between sexes increase more and more.

In Bénin, 66% of children whose schooling is compulsory (5 to 14 years old) are working. This proportion is more important for girls (70%). The percentage of girls aged between 5 and 17 who do household chores is 62.1% against 37% of boys (EDSB, 2006). On a sociologic basis, this situation can be explained by the fact that in our traditional societies, the young girl is perceived as labor force in the service of her mother. Thus, she is solicited from her tender age (schooling age) to help her mother to cook meals, to buy

condiments and to stay with her in the kitchen to do the washing up. The young girl learns at the same time how to assume conveniently her role in the household. This phenomenon inherited from African traditions condemns millions of young girls to non-schooling. When she has the chance to be registered in a school, the household chores that she should do don't always allow her to focus on her academic duties.

As consequence, her academic performance becomes weak and the girl ends up abandoning or being excluded from school. In 2006, the Gross Schooling Rate in Bénin was estimated at 100% for boys whereas girls' was 86%. As far as the finishing rate is concerned, the imbalance is still not in favor of girls (66% against 54% for girls) (Bénin-OMD-Report, 2008). Depending on the residential area, we also observe a difference in school frequenting. As a matter of fact, in urban areas, 73% of children go to primary school whereas in rural areas, that rate is 60% (EDSB, 2006).

In Bénin the results of EDSB (2006) show that 58% of women have no level of education, against 37% for men. According the world follow-up on education for all report (2010), there exists a disparity between sexes, be it at the national and international level. The maintenance of students at school, girls in particular, still remains a problematic to solve (Civil Society, 2012).

Faced with all those situations, there is a fundamental question: what are the specific factors which affect more girls' schooling? This study tries to bring solutions to that interrogation with the objective of studying the socio-economic determinants of girls' schooling in the commune of Parakou in the North East of Bénin.

MATERIALS AND METHODS

Estimation of the model of schooling

In order to apprehend the factors determining the probability for a household to send all its children of schooling age to school or not to send any girls in particular, the study has opted for the use of a multivariate method of analysis based on the use of the binary logistic regression. For Sylvester (2002), the modeling of decisional behaviors can be done through logit models. This type of model is mainly developed for the analysis of the choice of the households in function of a certain number of characteristics. Many authors have already used that methodology (Quenum, 2011).

It consisted in studying the influence of the socio-economic characteristics (marital status, the religious belief, the level of education, the ethnic group and the income) on girls' schooling per household that shelter them.

In logistic regression, we estimate the probability of occurrence of an event whether it occurs or not. It presents the advantage of providing the effect of each of the independent variables in the presence of the others.

The basic theoretical model of the equations which will allow us to do the analysis of regression is the following:

If p = probability that the household sends a school-age child to school and
1-p = probability that the household doesn't send a school-age child to school.

The model of regression permits to set the following equation:

$$Z = Ln [p/(1-p)]$$

In a linear form

$$Z = \beta_o + \beta_1 * X_1 + \beta_2 * X_2 + \ldots + \beta_n * X_n$$

Or in a multiplicative form

$$e^z = p/(1-p) <=> p = e^z/(1-e^z)$$

Let's note that $e^z = p/(1-p)$ is equal to the odd ratio which is the chance for a household to send a school-age child to school.

With regard to the basic model and to the specialized literature which analyses the determinants of schooling, we are going to proceed at the estimation of an econometric model related to the explicative factors of girls' schooling.

The empirical model shows the explicative factors of girls' schooling and is presented as follows:

$$Sf = a_0 + a_1 ETHNIC1 + a_2 ETHNIC2 + a_3 ETHNIC3 + a_4 RELIG1 + a_5 RELIG1 + a_5 RELIG2 + a_6 RELIG3 + a_7 STATU1 + a_8 STATU2 + a_9 STATU3 + a_{10} EDU1 + a_{11} EDU2 + a_{12} EDU3 + a_{13} ACTIVITY1 + a_{14} ACTIVITY2 + a_{15} ACTIVITY3 + a_{16} INC1 + a_{17} INC2 + a_{18} INC + \varepsilon$$

Where a_o is the constant term, a_i the coefficients of regression to be estimated and E the constant term.

Zone of study and data

Parakou, town of approximately 254.254 inhabitants (INSAE, 2013), is situated in the north of Bénin, at 415 km of Cotonou. The capital city of the Borgou-Alibori Department, it is the biggest town of this northern region and the third town with a particular status of Bénin after Cotonou and Porto-novo. It is situated at 9°25' of north latitude, at 2°36' of East longitude, at an average altitude of 350 m and presents a quite modest relief. The commune of Parakou is particularly interesting as a study place, for despite all the opportunities in the domain of education, such as the existence of projects, programs or support institutions to educational sector, one keeps

Table 1. Description of explicative variables.

Variable dependent	Codes	Unit	Sign
Secularization of girls	SCOLA	1 if yes, 0 if no	
Explicative variables			
Dendi and related	ETHNIC1	1 if yes, 0 if no	+/-
Bariba and related	ETHNIC2	1 if yes, 0 if no	+/-
Yoruba and related	ETHNIC3	1 if yes, 0 if no	+/-
Fon and related	ETHNIC4	1 if yes, 0 if no	Not in the model
No religion	RELIG1	1 if yes, 0 if no	+/-
Christian	RELIG2	1 if yes, 0 if no	+/-
Muslim	RELIG3	1 if yes, 0 if no	+/-
Traditional	RELIG4	1 if yes, 0 if no	Not in the model
Married	STATUS1	1 if yes, 0 if no	+
Bachelor	STATUS2		+/-
Divorced	STATUS3	1 if yes, 0 if no	-
Widower	STATUS4	1 if yes, 0 if no	Not in the model
Primary Education	EDU1	1 if yes, 0 if no	+
Secondary Education	EDU2	1 if yes, 0 if no	+
Professional Education	EDU3	1 if yes, 0 if no	+
Superior Education	EDU4	1 if yes, 0 if no	Not in the model
Artisan/Laborer	ACTIVITY1	1 if yes, 0 if no	+
Commencing	ACTIVITY2	1 if yes, 0 if no	+
Public sector	ACTIVITY3	1 if yes, 0 if no	+
Private sector	ACTIVITY4	1 if yes, 0 if no	Not in the model
Income inferior to 30,000	INC1	1 if yes, 0 if no	-
Income between 30,000 - 60,000	INC2	1 if yes, 0 if no	+
Income between 60,000 - 90,000	INC3	1 if yes, 0 if no	+
Income superior to 90,000	INC4	1 if yes, 0 if no	

+/-: The sign cannot be planned
ε: error term; the a_i, coefficients to be determined by estimation model
Note: bases are not in the model

registering low rates of people that can read and write. What is relevant is the problem of girls schooling: the global rate of 2009 to 2010 students' promotion is about 76.93% of which 75.78 of girls; at the end of the year 7.13 of girls have lefts school versus 5.82% of boys (DDEMP Parakou, 2012).

The data collection is provided by two methods: the documentary study and an inquiry led by administration of questionnaire in 120 household where they are children in age of being educated with at least a girl. The enquiry (investigation) has covered all the town of Parakou which is composed of three districts. In each district, 40 families have been retrieved randomly and simply then investigated.

The individual questionnaire has enabled to obtain in 2012 quantitative and qualitative data. The description of

the used variables is used in Table 1.

RESULTS

In order to identify and to analyze the main factors determining girls' schooling, we have carried out the estimation, by using the variables which according to literature, could explain girls 'schooling.

At the end of the estimation, we can retain, in addition to the reasons pointed out by parents during the survey and exposed in the previous sections, that some socio-economic variables can also explain girls 'schooling.

They are the ethnic group, the matrimonial situation, the status, the religion, the level of education, the sector of activity and the level of income.

Table 2. Logit estimation of the determinants of girls' schooling.

Variable	Coefficient	Standard error	Probability of signification
CONSTANT	18.1965	2440.569	0.994
ETHNIC1	-18.683	2440.569	0.994
ETHNIC2	-18.775	2440.569	0.993
ETHNIC3	-19.814	2255.589	0.994
ETHNIC4[1]	-	-	-
RELIG1	-23.876	2440.571	0.992
RELIG2	0.519	1.481	0.726
RELIG3	0.457	2.254	0.568
RELIG4[1]	-	-	-
STATUS1	0.0539**	1.334	0.038
STATUS2	-0.2781	1.382	0.841
STATUS3	-588	1.875	0.161
STATUS4[1]	-	-	-
EDU1	3.3438**	1.311	0.001
EDU2	-0.2781	1.382	0.841
EDU3	6.380**	2.620	0.016
EDU4[1]	-	-	-
ACTIVITY1	-2.8162**	1.4147	0.047
ACTIVITY2	-4.5266**	2.1601	0.036
ACTIVITY3	-0.1983	1.0738	0.853
ACTIVITY4[1]	-	-	-
INC1	2.6820**	1.2641	0.034
INC2	0.273	1.750	0.16
INC3	3.589***	2.458	0.006
INC4[1]	-	-	-

R^2 adjust = 0.352

Prob > chi^2; ***P = 0.006

Chi^2 = 24.28

Ddl = 15

Remarks number = 120

Source: 2012 survey. ***, **,* = respectively significant at the level of 1%; 5% and 10%. [1]: Bases: Not in the model.

The results of the estimation of the logit model are presented in Table 2.

The reading of that table shows that the model is globally significant at the limit of 1%. We can thus conclude that the model taken as a whole permits to explain the factors which influence girls' schooling. The adjusted R^2 value equal to 0.352 shows that girls' schooling is explained at 35% by the explicative variables introduced in the model. There exist thus other variables (such as household chores, the type of school, etc) not taken into account in the model which could explain girls' schooling. As a matter of fact, the estimation has given significant coefficients at the limit of 1% for parents who have a primary education level (EDU1) and an income between 60,000 and 90,000 (INC3).The coefficients of the variables STATU1 (married parent), EDU3 (Parent having a primary education level), ACTIVITY 1 (Artisan or laborer), ACTIVITY 2 (Parent trader) and REV1 (Parent having an income inferior to 30,000) are significant at the limit of 5%. The fact that the parents are married has a positive and significant effect on girls' schooling. Our results also show that the fact that the parents have a primary as well as a professional education level also has a positive and significant effect on girls' schooling. This

means that the more the parents are educated, the more girls are sent to school.

In the households where the parents have an income inferior to 30,000 FCFA and those having an income between 60,000 and 90,000 FCFA, we notice positive and significant effects on girls' schooling. But the coefficient of those having an income between 30,000 and 90,000 FCFA are highly more significant (1%) than the coefficient of those having an income inferior to 30,000 FCFA (5%).This means that the level of income influences girls' schooling; and the more parents income is low the greater is the risk of the non-schooling of girls.

The parents' belonging to a sector of activity (artisan/laborer and trader), has a negative and significant effect on girls' schooling.

The variables relative to ethnic group not being significant mean that girls' schooling does not depend on them. And this could be easily understood because the fact of speaking one language or another has no effect on the decision to send girls to school.

DISCUSSION

In this study, three factors have been identified as determining girls' schooling. They are the level of education, the income, the marital status and the activity.

In general, many authors have pointed out the positive effect of the living condition level on the children schooling and their school performance (Lloyd et al., 1996; Yaro 1995; Piamale et al., 2004), the households which have a superior socio-economic status have financial means which allow them to bypass the labor force that children represent in the carrying out of some tasks. Furthermore, they are capable of supporting the financial charges of education which have considerably increased in Africa since the 1980s, with the economic restructuration programs (Montgomery et al., 1995) cited by Piamale et al. (2004).

According to Table 2, the life standard of the household is positively associated with girls' schooling. Moreover, on the whole, the inequalities are all in disfavor of girls at the primary school. Considering the levels of education of the father and the mother constitutes another way of evaluating the respective roles of man and woman in children's schooling (Pilon, 1996).

The positive influence of the level of education of the head of the household on the children's education is already put in the evidence in existing studies.

On the other hand, we know little on the specific effect of the level of education of each of the parents, and mainly the one of the mother: is it less important, identical or more important than the one of the father? Is it differentiated according to the child's sex?

We will find the answer to those preoccupations in a study carried out in Africa by Pilon (1996). It stands out from this study that the capital role played by the parents' level of education in the children schooling; appears in a very net way in Senegal. In that country, the relative possibility (or rather the chance!) to be sent to school is 5,8times superior for girls whose parents have both been educated as compared to those whose parents have not both been educated at all. In rural areas, this report is even from 1 to 8.9. It shows through the configuration "uneducated father and educated mother" that it procures in most of the cases schooling chances a bit higher than in the inverted situation "educated father uneducated mother". This is verified in all the six countries of this study for boys and in three of the six countries for girls (in Kenya, Madagascar and Malawi).

CONCLUSION

This article has evaluated the factors determining girls' schooling in the North East of Bénin. The use of the logistic regression has permitted to identify those determinants. The results of the estimation of the model show that the income of the household (economic factor), the type of activity, the parents' level of education (cultural factor) and the parents' marital status (social factor) are the main factors which determine girls' schooling. The results presented in this research can surely have implications as far as politics and intervention in the sector of elementary education is concerned.

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