

## The Effect of School Quality on Child Labour: Empirical Evidence from Côte d'Ivoire

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### Abstract

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This study highlights the effect of the school quality on child labour in Côte d'Ivoire. Primary data from the 2010 Local Child Labour Survey and Education Policies are used. This survey interviewed a sample of 750 households of 1,338 children aged 6-14 with the support of the Strategic Support Program for Scientific Research. Theoretically, maximizing a household decision function shows that when the school has infrastructure, the head of the household shares the child's time between work and school. Empirically, Heckman's selection model indicated that the availability of canteens and electricity in schools reduces the number of hours and the likelihood of child labour regardless of sex. Moreover, the luxury axiom is confirmed. Putting children to work is a survival strategy for poor households. Thus, policy makers for an effective fight against child labour need to focus on improving the learning environment for children by focusing on the construction of school canteens and the electrification of schools from disadvantaged backgrounds. This policy can be implemented by involving local elected representatives and development partners.

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**Keywords:** Child labour, school quality, Heckman selection model, Côte d'Ivoire

### 1. Introduction

Child labour is still debated in both academic and political circles. The reality is that in most developing countries, especially in sub-Saharan Africa, child labour remains a concern. In fact, 19.6% of children work in this region (ILO, 2017). In Côte d'Ivoire, 20.1% of children are in the child labour category (IPEC, 2015).

Generally, households' decision to send their children to the labour market is influenced by income, uncertainty and relative labour and educational returns (Dammerta, et al., 2018). For example, measures to combat child labour focused on the development of laws prohibiting child labour. Increasingly, given the difficulties of enforcing laws in the fight against child labour, the implementation of public policies is becoming urgent. That's why in different countries, several social programs (Food for Education in Bangladesh, Burkinabe Response to Improve Girls Chances to Succeed I and II, progress program in Mexico, etc.) have been highlighted to promote schooling of children and keeping them in the education system. These programs have been studied and have shown a positive effect on the reduction of child labour (Ambreen, 2017; De Brauw, et al., 2015; Fabre & Pallage, 2015; Jacobus & Furio, 2014; Carvalho, 2012). Some of these studies have shown mixed results (Ximena, et al., 2016).

In Côte d'Ivoire, these forms of targeted policies are rare. Nevertheless, since the 2000s, governments have stepped up campaigns aimed at reducing child labour by increasing school infrastructure in schools. In addition, most studies of child labour consider the household environment and ignore that of the school (Abou, 2019; Nkamleu, 2006). However, there is evidence that improving the learning environment for children promotes their well-being at school (Gibbons & Olmo, 2011). This improvement of the school environment presupposes the presence of certain infrastructure (canteen, latrines, library, electricity, drinking water point, absence of multilevel class, etc.) that improves the school quality.

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Moreover, at a macroeconomic level, because of the low quality of the school, education has a negligible effect on economic growth in sub-Saharan Africa (Glewwe et al., 2014). This low quality of school can be detrimental to the emergence so much desired by the rulers of this region particularly those of Côte d'Ivoire.

The quality of the school therefore becomes a challenge in explaining child labour. Thus, it appears important to know whether the school quality is a fundamental determinant in putting children to work in Côte d'Ivoire. The general objective of this study is to show the role of the school quality in the fight against child labour. Indeed, in developing countries, the quality of the school is problematic if one refers to basic infrastructure in schools. Decision-makers in achieving education for all seek to send as many children as possible to school. The goal is to prevent them from being in the labour market. But increasingly, it is important to focus on the qualitative dimension of offering public education service. In the rest of this study, we will present in section 2 the quality of the school in the analysis of child labour. Section 3 will focus on empirical analysis; Section 4 will present the results of this study and a final section will conclude and develop economic policy recommendations.

**2. The school quality in the analysis of child labour**

**2.1. Child labour: what definitions?**

The definition of the term "child labour" is controversial (Biswajit & Runa, 2019 ; Ali et al., 2017; Pallage & Zimmerman, 2007; Basu & Van, 1998, etc.). When we use this term throughout this study, we refer to child labour to be abolished and hazardous work. In other words, a work that cannot be performed by children given their age. In the literature, several definitions exist. For example, studies consider child labour as a labour force (Pallage & Zimmerman, 2007; Basu & Tzannatos, 2003). This notion can also be assessed from the specificity of the activity. In the Basu and Van (1998) model, for example, child labour is an economic activity. In addition, the definition of child labour can be specific to each country, each culture. Otherwise, the definition is not universal. On analysis, the definition of child labour is not precise. Indeed, some economic activities outside of school hours or during school holidays can be beneficial for children (Ali et al., 2017). Similarly, non-economic activities (eg housework) can be performed by children for long hours and have a negative effect on their health and cognitive development. It then becomes harmful. Therefore, the definition of child labour must take into account the number of hours worked (Chiwaula, 2010; Dumas, 2012). In Côte d'Ivoire, from the law we can retain the concept of child labour abolition and dangerous to define child labour (Table 1). Thus, the term "child labour to be abolished" refers to the exercise by a child of prohibited work, and more generally, of types of work that should be eliminated as deemed undesirable both socially and morally according to national legislation. In addition, "hazardous work" is any activity that, by its nature or type, directly or indirectly results in harmful effects for the safety, health (physical or mental) and moral development of the child. The danger can also be caused by excessive workload, the physical rigors associated with the task, or the number of hours, even when the activity is not dangerous. In addition, in the definition of child labour, age is important. It lets you know who is considered a child. As shown in Table 1, compared to children aged 14-17, those 5-13 years old are prohibited from all forms of activity. Indeed, the entry of official age in the first year of primary school is 6 years. In addition, the minimum age for admission to employment is 14 years. Thus, in this study, the age range considered for children is 6-13 years.

**Table 1. Definition of forms of child labour from the laws in force in Côte d'Ivoire**

Forms of work	Worst forms of work		Child labour other than the worst forms of work	Regular / light work
Criteria according to national laws and conventions of the ILO	Worst form other than dangerous work (force labour, child trafficking...)	Dangerous work	<b>Decree No. 96-204 of March 07, 1996</b> Article 2: In apprenticeship more than 16 consecutive hours and during the night of 05 pm to 8 am Labour Code Article 23-8 (Minimum Age)	< or = at 8 h/day Article. 23-8 of the Labour Code (Minimum age)
	Convention 182 of ILO	Order No. 009 of 19 January 2012 revising the list of works Dangerous and Convention n° 182of OIT		
5-13 years				
14-17 years				

Source: the author from International Program for the Elimination of Child Labor

Unacceptable work according to ILO Conventions and the laws of Côte d'Ivoire

Acceptable work according to the conventions of the ILO and the laws of Côte d'Ivoire

## 2.2. School quality: the difficulty of its measurement

The definition of quality is open to debate. In most studies, school quality is measured by class size, teacher characteristics, or per capita education expenditures (Dynarski et al. 2013; Chetty et al. 2011; Futoshi, 2011). These studies highlight the quality of school on student achievement considering some variables (class size, characteristic of teachers) as explanatory variables in the production function. But for Pedro, et al., (2016), these variables do not reflect the quality of the school. Indeed, these variables are directly related to students' achievement. Nevertheless, these authors assume that once the class size, teacher characteristics of a school contributes to better student achievement, then this school is quality. In other words, this measure of the school gives an idea of its definition. In other words, the school quality is one that, thanks to some of these characteristics, enables children to improve their performance at school. However, some of the highlighted variables being debated are not included in the analysis of child labour. This is certainly due to the fact that child labour surveys do not take into account the characteristics of schools. Another explanation may be that it is difficult to establish a causal link between these indicators and student performance.

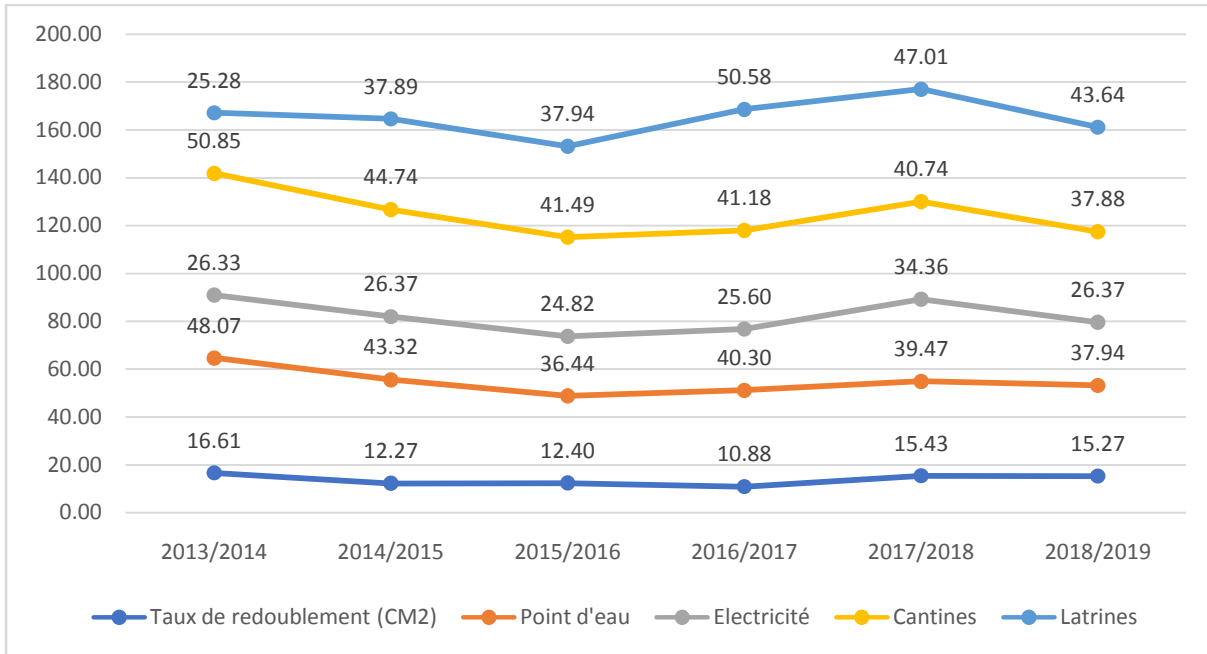
The class size sometimes influences student achievement (Giambona & Mariano, 2018). Indeed, small classes can improve children's academic performance (Krueger, 2003). However, this result is not always obvious. Hanushek (2003) shows, for example, that there is no significant effect of class size. In the analysis, there are contradictions that can be explained by other factors. Abou (2016) taking into account this variable to explain child labour found that parents tend to send their children to overcrowded classrooms as they have no other choice. Anything that reduces the child's employment. However, these children usually have poor results. Thus, they will be likely to end up on the job market. In other words, if parents had a choice, they would send their children to schools where classes are small. These schools are not only more expensive but also distant from poor households. As a result, children in poor households are sometimes excluded from these schools if there is no state subsidy (Futoshi, 2011).

To take into account other ways of measuring school quality, some authors consider school infrastructure (Jacobus & Furio, 2014, Bacolod & Ranjan, 2008). These act synergistically and indirectly on student performance. Thus, parents are encouraged to educate children rather than put them on the labour market. In the Philippines for example, Bacolod and Ranjan (2008) use two commodity groups to calculate two types of index: a physical installation index and a resource index for teachers. From a multinomial logit, the results showed that children attend schools that have electricity. However, the results do not statistically influence the choice of children's activity. This study identifies the quality of the school from some infrastructure in the school. It therefore considers the physical resources available in schools (latrines, electricity, concrete building material, drinking water supply, etc.). It also takes into account the resources to the teachers (room for teachers, file lockers, computer, etc.).

In Burkina Faso, Jacobus and Furio (2014) evaluated the "BRIGHT" program focusing on quantitative (construction of 132 schools) and qualitative indicators (construction of latrines, boreholes, playgrounds, provision of daily meals), etc.). The results from a discontinuity regression showed an increase in girls' enrolment rate. However, the authors' results indicate that the program did not reduce child labour. In disadvantaged areas, parents do not sometimes have the choice of the type of school for their children. In addition, parents may not understand the importance of some infrastructure on the academic performance of their children. Nevertheless, improving the school environment by installing facilities in schools can encourage parents to send their children to school.

Addressing SDGs no.4 is to consider the qualitative dimension of the school. This consists of increasing the establishment of infrastructure in schools (drinking water points, school canteens, latrines, electricity, etc.). For example, in Côte d'Ivoire, the latrine school coverage rate increased from 25.28% to 50.58% in 2014-2019 (Figure 1). Indeed, their presence in schools can encourage the retention of students in the education system and the improvement of their school results. About Figure 1, it seems that this infrastructure can influence school results. In 2017, for example, the repetition rate at the end of the primary cycle has increased (on average 15%). From this same year, the rate of coverage of schools in infrastructure decreased. This would mean that the increase in the number of schools and classrooms is at the expense of infrastructure. However, these play an important role in the maintenance and performance of children in school (Aturupane, et al. 2013). Therefore, some authors use them as indicators of school quality (Bacolod and Ranjan, 2008). This becomes a challenge in explaining child labour.

**Figure 1. Repetition rate (CM2) and school coverage in infrastructure**



Source: Direction of Planning, Evaluation and Statistics (DPES)

### 3. Methodology strategy

#### 3.1. Theoretical framework

This theoretical framework highlights a model that provides basic information about school quality and child labour. Unlike Jacobus and Furio (2014), our approach takes into account the quality of the school attended by the child. Thus, consider a unitary model of household decision in which parents maximize a utility function defined by household consumption  $C$ , leisure  $l$  and the school quality  $q$  attended by the child. Here, the household consumes from the parents' income  $w_p$ , at the wage from the child's working time  $h, hw_e$ . Note  $q$ , a function that takes the value 1 if the child attends a quality school and 0 if not. To this indicator  $q$  is associated a cost  $e$  related to the quality of the school,  $eq$ . Let consider

$$C = hw_e + w_p - eq \quad (1)$$

In addition, the total time of the child normalized to 1 is divided between the working time  $h$  and the time  $\theta$  devoted to the attendance of a school of quality or not. Leisure is considered as a given. Let consider

$$h + \theta q = 1 \quad (2)$$

Formally, the head of household maximizes the following function:

$$\max_{C,q} U(C, q)$$

$$s/t \quad C = hw_e + w_p - eq \quad (3)$$

$$\begin{aligned} h + \theta q &= 1 \\ q &= 0,1 \end{aligned}$$

This model assumes that the household consists of only one child. In addition, there is imperfection in the capital market. Equation 3 allows us to understand the behaviour of the head of the household when the school is good or not. Let consider

$$\max_q U_1^*(hw_e + w_p - e, 1 - \theta, 1) \text{ if } q = 1 \quad (4)$$

$$\max_q U_2^*(hw_e + w_p, 1 = h, 0) \text{ if } q = 0 \quad (5)$$

Equation 4 shows that when the school is good, the head of the household shares the child's time between work and school. Indeed, the quality school has a cost, but the household does not have access to the capital market.

In Equation 5, the school is not quality so all the time the child is devoted to work. This simple theoretical framework highlighted shows that parents make the decision about whether or not children participate in work, considering the infrastructure available in schools.

### 3.2. Empirical model

There are several empirical methods to highlight the above-mentioned theoretical framework (Zapata et al., 2011; Goulart & Arjun, 2008). In this study, we take into account the number of children work. Thus, for a given child, we observe a positive number of hours if the work is harmful and normalized to 0 if not. So we have a problem of truncation that comes from the fact that the number of hours of harmful work is only observed if the child is working.

Let consider

$$z_i^* = \alpha X_i + \mu_i \quad (6)$$

where  $z^*$  is a latent unobserved variable which determines the choice of child work,  $X$  the vector of the explanatory variables that determine the choice of the head of household to let his/her child work, and  $\mu$  the random term with mean 0 and variance 1. The observed binary variable is written as follows:

$$z = 1 \text{ if } z^* > 0 \text{ (forchoosingforthechildtowork)} \quad (7)$$

$$z = 0 \text{ if } z^* \leq 0 \text{ (forchoosingforthechildnottowork)}$$

Using a probit model, the inverse Mills ratio ( $\lambda$ ) can be estimated, a ratio which reflects the probability to belong to the selected sample. It is obtained from the following formula:

$$\hat{\lambda}_i = \frac{\phi(X_i \hat{\alpha})}{\Phi(X_i \hat{\alpha})}$$

While  $\phi$  is the density function of the reduced centred normal distribution,  $\Phi$  the distribution function of the reduced centred normal distribution, and  $\lambda$  the Mills ratio.

As a second step,  $\lambda$  is included as an additional variable in the estimation of the ordinary least squares in the equation of the number of working hours for the child. This approach is attractive because it eliminates the potential selection bias. However,  $\lambda$  may not be statistically significant, in which case the selection bias is not an issue (Heckman, 1979). So, the regression equation for the number of hours of child labour is expressed as follows:

$$y_i = \beta_0 + \beta_1 q_i + \beta_2 W_i + \beta_3 \hat{\lambda}_i + \xi_i \quad (8)$$

Where  $y$  is the number of hours of child labour, the number of hours allocated to children by considering the quality of the school (canteens, drinking water point, libraries, electricity, etc.)  $\beta_j$  (1, 2, 3), the parameters to be estimated,  $q$ , the school quality,  $W$ , the vector of the explanatory variables affecting the intensity of child labour.  $\xi$  is the new random term, as a property  $E(\xi) = 0$ .

### Data

The data in this study come from the 2010 Local Survey on Child Labour and Educational Policies. This survey received financial support from the Strategic Support Program for Scientific Research (PASRES) in the framework of the project "Education and Child Labour in Côte d'Ivoire". It is one of the few surveys on child labour that takes into account school quality indicators (canteens, toilets, libraries, no multilevel class, electricity, drinking water points, etc.). This survey made it possible to collect data in two localities with different socio-economic realities of Côte d'Ivoire: Soubré in forest zone and Bouaké in savannah zone. This survey resulted in a sample of 750 households with 1,338 children aged 6-14. Through this database, several variables are highlighted. As Table 2 shows, 17.49% of children are forced to work with more boys (19.55%) than girls (15.19%).

**Table 2. Proportion of working children**

	Girls		Boys		Whole	
	Number	%	Number	%	Number	%
Non-work	568	84.81	536	80.45	1,104	82.51
<b>Child labour</b>	<b>138</b>	<b>15.19</b>	<b>96</b>	<b>19.55</b>	<b>234</b>	<b>17.49</b>
Whole	706	100.00	632	100.00	1,338	100.00

Source: our calculation, 2019

On the other hand, on average, children spend 25 hours in economic activities, about 4 hours per day (Table 3).

**Table 3. Estimation of the number of work per week**

	Mean	Std. Err	[95% Conf. Interval]	
Number of week per week	25.17053	0.7389641	23.71848	26.62258

Source: our calculation, 2019

According to Table 4, on average, children live in areas where the pupil / teacher ratio is 46, while national standards are 41 pupils per class. In fact, given the low income, parents are schooling their closest children. Their low income does not allow them to enrol children in schools with small numbers (private schools for example). In the survey areas, parents spend on average FCFA 234,545 (USD 470) per capita per year below the poverty line (INS, 2015). In addition, the average expenditure on education is FCFA 1,225 (USD 2.45) per schooled child per year. Thus, given the size of the household, it becomes difficult for some parents to educate all their children. It should also be noted that schools have very little infrastructure. For example, Table 4 shows that less than 40% of schools do not have canteens, drinking water points and libraries. This lack of infrastructure can be a barrier to schooling for children.

**Table 4. Descriptive statistics on explanatory variables**

Variables	Measure	Obs.	Mean	Std. Dev.	Min	Max
Household expenditure	Household expenditure per capita and per year	1,338	234,545	192,237	65,625	3,189,168
Sex of the head of household	Male= 1 if the head is male Female= 2 if the head is male female	1,338	79.52	0.403694	0	1
Education level of the head of household	No formal education = 0 Primary school level =1 Secondary school level =2 Tertiary education level =3	1,338	43.20	0.495538	0	1
Age	Number of years	1,338	10	2.751522	5	14
The child's sex	female =1 male= 2	1,338	52.77	0.4994214	0	1
Cost of schooling	Average expenditure on education by cluster	1,338	42,882	39399.38	1,225	332,700
School size	ratio pupil / teacher	1,338	46	15.01302	25	107
Electricity	School with electricity = 1	1,338	0.7167	0.4507	0	1
Latrine	School with latrine = 1	1,338	0.4746	0.4995	0	1
Multilevel class	School with multilevel class = 1	1,338	0.4589	0.4985	0	1
Canteen	School with canteen = 1	1,338	0.3625	0.4809	0	1
Library	School with library = 1	1,338	0.3608	0.4828	0	1
Drinking water point	School with drinking water point = 1	1,338	0.3124	0.4636	0	1

Source: our calculation, 2019

Note also that Heckman's selection model is an adjustment for selection in child labour. Which is also a form of endogeneity. This therefore requires an exclusion restriction in the second step that is to say in the substantial equation. In other words, it is necessary to find a variable that explains child labour but not the number of child labour hours.

In other words, the idea is that some variables that explain the choice of work decision or not (selection model) could have ambiguous effects on the number of hours worked by children (substantial equation). With the estimation of child labour intensity, the following variables are excluded from the substantial equation.

-School size

The decision to put one's child to work or not can be influenced by class sizes in the household's environment, and the link between class size and the number of hours of work is ambiguous.

-Schooling

While the decision to send a child to the labour market may be influenced by the cost of schooling, this is not the case for the number of hours worked. Indeed, working children are not paid by the hour. Their remuneration, when it is the case, is negotiated with the guardian. He can work for hours and receive a pittance.

#### 4. Empirical Results

The estimation of Heckman's selection model show that (Table A1) the Wald statistic is significant. The model is therefore well specified. On the other hand, the null hypothesis that all the coefficients are equal to zero is rejected. In addition, the sample is made up of 1,338 children as expected. In other words, the estimation of the selection model is done with all the observations; whether the children have worked or not. In the second step, only uncensored observations, ie children who have worked hours greater than zero, are taken into account in the estimation. In addition, the decisions of the choice of work and the number of working hours are taken jointly. So there is a problem of selection. We thus interpret the coefficients of the Heckman selection model (Table A1) taking into account the gender.

The quality of the school measured by a set of indicators (electricity, latrine, canteen, multilevel class, library, drinking water point) plays a fundamental role in the analysis of child labour. In general, the presence of canteen in a school reduces the number of hours worked by children (0.734). The presence of canteens decreases the hours worked by girls (0.872) compared to boys (0.367). In addition, when the school is provided with electricity, the number of hours of work and working probability decreased on average by 0.5. The gender analysis abounds in the same direction with more effect on reducing the number of girls working hour. For example, classroom lighting could improve student performance as the learning pleasure increases. These results could indicate that parents prefer to send their children to schools that have facilities such as school canteens, electricity, etc. Parents therefore integrate the learning environment into their children's school choice. Generally, parents choose schools based on performance of test scores. The concerns about the development of children are largely ignored. However, the well-being of children in school and the enjoyment of the learning environment are closely linked to children's learning outcomes and their subsequent success in the labour market (Aturupane, et al. 2013 ; Gibbons& Olmo, 2011).

In this study, the estimate of parental income gives the expected results and allows for further analysis. Indeed, an increase in expenditures increases the number of hours worked by children, especially boys (0.0947) compared to girls (0.0493). One explanation is that, insufficient income in the household pushes parents to increase the number of child labour hours. As a result, the substantial equation in Heckman's selection model confirms the luxury axiom of Basu and Van (1998). This increase in working time is a strategy that allows parents to increase household income for their survival. The poverty of the parents is reflected in the fact that, as a result of an increase in school fees, the number of hours worked by children increases particularly that of boys. This supposes that the children work to contribute to the financing of their schooling. One could then wonder if sometimes child labour is not necessary. Thus, if this cost of schooling constraint is lifted, households will send their children to school (Lincove, 2012).

#### Conclusion

The fight against child labour remains a major challenge in policies to reduce inequalities in several African countries south of the Sahara. Therefore, appropriate policies are needed. Education seems so be an effective means of reducing child labour. Unfortunately, an essential aspect like the quality of the school is not always taken into account because of its measurement. Therefore, to participate in this debate and look for other ways to fight against child labour, this study aims to show the effect of the quality of school on the work and schooling of children in Côte d'Ivoire.

Thus, using primary data collected through the local child labour survey and educational policies, Heckman's selection model yielded several results. The most important is related to the quality of the school. Indeed, the improvement of the quality of the school pushes heads of household to educate their children regardless of gender. In other words, schools of poor quality are a negative signal for households especially since they do not have the choice of school for their children. Therefore, the unavailability of some basic infrastructure (canteens, latrines, electricity, drinking water points, etc.) in schools sometimes pushes children out of the education system. Thus, this result shows the importance of the quality of the school in the explanation of the decision of the choice of the activity of the children. From this basic infrastructure, the availability of canteen and electricity in schools significantly favours the schooling of children. Otherwise, these basic infrastructures can serve as an incentive mechanism for the schooling of children for poor households.

The contribution of this research to the analysis of child labour is taking into account the quality of the school. This is measured by a set of infrastructure. Their presence in the school can influence children's choice of activity. On analysis, policy makers need to focus on the school environment to significantly reduce child labour. The focus is on providing basic services such as canteens, toilets, drinking water points, etc. Specifically, the focus should be on the construction of canteens in schools in disadvantaged areas. This would be a way for governments to encourage poor parents to educate their children. In addition, given its importance in children's learning, national decision-makers must provide electricity to schools in poor communities. This could start with the use of solar energy that can support education in remote areas. These provisions will achieve the goal of quality education for all throughout life in 2030.

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## Appendices

**Table A1. Heckman Selection Model Estimation Results**

Variable	Whole		Girls		Boys	
	Number of working hours	Work 1=yes	Number of working hours	Work 1=yes	Number of working hours	Work 1=yes
Gender of the household head	-0.0303 (-0.43)	0.0587 (0.53)	0.0406 (0.60)	0.147 (0.96)	0.0469 (0.37)	-0.0811 (-0.45)
age	0.0304 (1.80)	0.680*** (8.12)	0.150*** (4.08)	0.822*** (6.03)	0.0151 (0.59)	0.814*** (5.59)
age_2		-2.128*** (-5.48)		-2.636*** (-4.21)		-2.880*** (-4.26)
Expenditure per capita	0.0727*** (3.74)	-0.0862** (-2.91)	0.0493* (2.20)	-0.0461 (-1.07)	0.0947** (2.96)	-0.111* (-2.45)
Primary		-0.117 (-1.92)		-0.167* (-2.33)		0.207 (1.41)
Secondary		-0.0700 (-1.02)		-0.0454 (-0.56)		-0.213 (-1.26)
higher level		-0.312*** (-3.96)		-0.351*** (-3.84)		-0.135 (-0.70)
Electricity	-0.577*** (-5.37)	-0.555*** (-5.43)	-0.509*** (-3.39)	-0.436** (-3.15)	-0.0170 (-0.13)	-0.796*** (-4.83)
Latrine	0.168 (1.58)	-0.106 (-1.09)	0.180 (1.23)	-0.0779 (-0.60)	0.0974 (0.80)	-0.0737 (-0.46)
Multilevel class	-0.161 (-1.93)	0.115 (1.48)	-0.0483 (-0.42)	0.0713 (0.69)	-0.121 (-1.36)	0.168 (1.32)
Canteen	-0.734***	-0.192*	-0.872***	-0.215*	-0.367***	-0.218

	(-9.10)	(-2.50)	(-7.71)	(-2.07)	(-4.10)	(-1.79)
Library	0.00948	-0.0215	0.132	-0.120	-0.0437	0.129
	(0.11)	(-0.26)	(1.10)	(-1.10)	(-0.51)	(0.98)
Drinking water point	0.127	-0.0858	0.00472	-0.484**	0.0307	0.0322
	(1.20)	(-0.92)	(0.03)	(-2.94)	(0.18)	(0.27)
Schooling cost		0.156		0.117		0.294*
		(1.80)		(0.68)		(2.34)
Class size		0.120		-0.0551		-0.0102
		(0.92)		(-0.24)		(-0.05)
_cons	3.039***	0.685	3.888***	-0.396	2.937***	2.183*
	(5.13)	(1.22)	(4.72)	(-0.53)	(4.42)	(2.40)
Observation	1,338		706		632	
Selected	475		284		191	
non selected	863		422		441	
Wald chi2(9)	195.22		102.45		17.50	
Prob>chi2	0.0000		0.0000			
Log pseudo likelihood	-1238.455		-719.4324		-467.7805	
LR test of indep. eqns. (rho = 0)						
Chi2(1)	42.28		36.46		1.67	
Prob>chi2	0.0000		0.0000		0.1959	

Source: our calculation, 2019

t statistics in parentheses

\*p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001