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Education vs Labour: the Case of the Children of Extremely Poor Char Dwellers in Bangladesh

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Abstract:

With a quasi-experimental design, this paper investigates what happens to a child's education when a child of extremely poor household in Char area of Bangladesh is engaged in managing the asset transferred to them to improve their livelihood under an asset transfer or microcredit programme. Investigating the relationship among child labour, a child's school attendance and school dropout, the assumption was found to be accurate. A child of the treated group relative to the comparison group worked 1.62 hours more and attended to school 8.18 days less. The percentage changes of school dropout for both groups were 260% and 37.50% respectively. Each additional daily average working hour of a child reduced school attendance by 1.24 days. One extra hour of a child's daily average work was accountable to a 0.15 increase in the log-odds of school dropout. Hence it may well be said that a child's engagement in asset management had a negative bearing on a child's education. The treated group was more likely to suffer from this harmful effect than the comparison group. Although child labour is an unavoidable reality, awareness building and the stipend for promoting child education could be brought as integral elements in the programme design to minimize the negative effect on child education.

Keywords: Child labour, child education, asset transfer, extremely poor, Char dwellers

1. Introduction

The study concentrates on the fact that the education of the children of extremely poor households is hampered when they become involved in asset management such as cattle rearing. Asset based approach to livelihood improvement considers short-term asset transfer particularly land and cow as a vehicle for persistent livelihoods improvement for households (Sabates-Wheeler and Devereux, 2011). In Bangladesh, many national, international NGOs worked in the past, and have been working following this approach. An asset such as cow is seemed to generate wellbeing for beneficiary households. However, it may also affect the household in a negative way. For example, it can increase intra household disparity in sharing food, work and other material wellbeing and can also restrict the opportunity of having education and recreation of the members of beneficiary households. When an asset is transferred to an extremely poor household, the household cannot but engage the child in asset management, which may affect a child's education. The study explores what happens to the education of children of extremely poor Char dwellers as a result of children's engagement in asset management. Before proceeding further, an understanding of cow rearing in the Char context seems to be crucial so as to be familiar with the field scenario of the study.

1.1. The Char Context

Chars are best understood as low lying flood and erosion prone areas in or adjacent to major rivers in Bangladesh. Char lands are home to about one million people. Due to the remote location and difficult environment, many services are limited, absent or lacking. The poverty that characterizes Char households is not just a lack of income or assets; they also experience limited access to healthcare, education services, markets and other government institutions, and inadequate infrastructure. Labour markets are also constricted. For survival, Char households rely on daily wage employment in farm and off-farm activities and temporary migration to urban areas. Char dwellers, particularly the extreme poor, regard cow rearing as their main livelihood option. Every year, small and big floods hit Char land, which causes great suffering to Char dwellers. If river erosion takes place in large scale, they, having lost land and property, usually resettle in other Char areas in a very miserable condition.

1.2. Review of Literature

The inability to accumulate human capital is a determinant factor of chronic poverty in Bangladesh (Sen, 2003). That poverty is a determinant of child labour in developing countries like Bangladesh is a fact. Wasserman (2000) worked on the notion that "the greater the extent of poverty, the greater the amount of child labour" and this relationship was found to be true in her findings. A poor family cannot afford a child's non-engagement in work and poverty affects the probability of a child being involved in work (Amin et al., 2004). Another study reached the same conclusion working on the hypothesis that children were the last economic resource of the

household. If the full potential of income generation of a household is low and has already been used up, children are more likely to work. To explain in a bit nuanced way, children are more likely to work when all the adults of a poor household including the mother are already employed (Salmon, 2005). Using data about the time used by the children in rural Ethiopia, Cockburn and Dostie (2007) found that a very poor household whose main occupation was labour intensive and domestic in nature (such as cow rearing) would definitely engage children in nurturing asset. The extra hours which other adult members of the household had because of a child's engagement in asset management were spent on other types of income generating works. It happened as the overall income of the households was still considered to be inadequate for them.

The explanations for child labour are many and interlinked. A child's being labourer depends on various interacting causes at different levels. At household level, child labour could be a survival strategy for the poorest of the poor. "Poverty and social exclusion, labour mobility, discrimination and lack of adequate social protection and educational opportunity all come into play in influencing child labour outcomes" (International Labour Organization, 2015). The study thus links child labour to child education. "Child labour is often identified as the most important link in this poverty-education nexus" (Sulaiman, 2010). Two different trends are found between a child's education and household's income or well-being. First, household's dependence on a child's labour decreases when household's income increases. Second, a household with very poor income tends to depend on a child's labour. However, the trends are not as straightforward as they may seem to be. Ravallion and Wodon (2000) found child labour and school enrolment to be weakly correlated in Bangladesh. Bhalotra and Tzannatos (2003) reached a conclusion that there was very small correlation between household welfare and child labour. However, the finding of studies varies depending on the context. Households behave differently in urban and rural areas and in terms of household's main occupation and income status (Sulaiman, 2010). A common behaviour of most urban and rural households in Bangladesh is that if the income increases above a certain level, the demand for education or reduction of child labour also increases. Conversely, if the household concentrates in asset accumulation or generating additional income, the demand for child labour increases.

In line of the study findings stated above, it is logical to assume that the asset transfer in an extreme poor household may cause a child's engagement in that asset management and eventually child education may be hampered. None of the previous studies focus on child labour versus child education considering the above-mentioned context and the case of extreme poor households. Thus, this unexplored aspect deserves research investigation particularly in a country where child labour is an old age phenomenon and severely linked to poverty.

1.3. Research Question

The study deals with a single research questions. Does a child's engagement in asset management affect a child's education? In answering this question, the study concentrates on what happens to a child's school attendance and school dropout.

1.4. Justification of the Study

Many solid evaluation studies were performed in the arena of asset transfer programme. The evaluation studies have helped the implementing agencies to share the feedback and the lessons learned. Asset based approach has emerged with limits, opportunities and challenges in different contexts. Thus, there is a constant need of feedback that can offer room for amendment, addition and innovation in making the programme more pro poor and effective. This paper could identify such aspects as will show analytical gaps and may help to add new insights into the programme.

2. Conceptual Framework and Methodology

The study is based on the notion that the children of beneficiary households will be engaged in asset management as the households cannot but allow children to work because of extreme poverty. When it happens, child labour at the household level will have an effect on child education. Thus, children's school attendance rate will decrease and school dropout will increase. The interrelationship among the variables has been shown in the following figure.

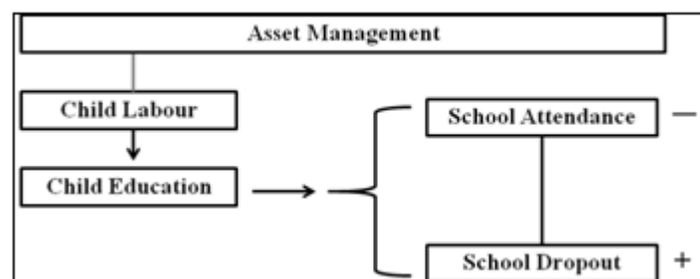


Figure 1: Basic Concept of the Study

The figure shows that a child's engagement in asset management hampers a child's education. As a result, a child's school attendance reduces and school dropout increases. School attendance means how many days a child attends the school in a month. If a child does not attend the school on a continuous basis, this continuous absenteeism in most cases results in school dropout. Thus, school dropout means the child is no longer a student and has left the school.

The other concepts applied in the studies include household, extreme poor, child labourer and child education. A household refers to the people living together under one roof, eating out of one kitchen and sharing one common budget" (Bangladesh Bureau of Statistics, 2000). A household is considered to be extreme poor if the monthly income ranges from 80-100 \$. The study lends the definition of child labourer given by Bangladesh Bureau of Statistics. According to them, child workers are defined as children in the age group of 5–14 years who were found to be working during the survey reference period (Bangladesh Bureau of Statistics, 2000). Child education refers to the formal primary and secondary education (10-year education together) in Bangladesh education system.

2.1. Study Design

The study pursued a quasi-experimental design. The unit of analysis was household. A household for being considered for the study must be extremely poor by definition, must have at least one school going child and must be rearing a cow which the household got under an asset transfer programme or a micro credit programme from any NGO. For a given treatment group, it created a comparison group based on base line survey.

2.2. Study Area and Data Collection

The study was conducted in Char area of Kurigram district in Bangladesh. A list of 1300 extremely poor households was made on the basis of baseline data provided by local NGOs. The list was narrowed down to 800 by eliminating 500 households having no school going children. Out of 800 households, 350 households reared cow under asset transfer or micro credit programme. The rest 450 households participated in such kind of asset transfer or micro credit programme linked to cow rearing. The treated group consisted of 150 out of 350 households and the comparison group consisted of 150 out of 450 households through randomization. A second track survey was conducted to collect data for both treated and comparison groups. As a result, it had been possible to have data on the outcome variables (child labour, school attendance and dropout rates.) of treated and comparison groups before and after the intervention. Pre and post intervention data were collected in 2007 and 2009 respectively.

2.3. Data Analysis

To conclude about whether children's engagement in asset management (cow rearing) has an effect on child education, the study analyzed the following:

- i) The effect of asset management by children on child labour and a child's school attendance by applying Difference-in-Difference (DiD) method.
- ii) The association between child labour and a child's school attendance by applying ordinary linear regression;
- iii) The association between child labour and a child's school dropout by applying logit regression (since the school dropout is a dummy variable) and
- iv) The percentage change of child labour, a child's school attendance and school dropout through descriptive statistics.

The DiD method, simple linear regression and logit regression applied by the study are as follows.

DiD method compute the difference of the mean outcomes of treated and comparison after the treatment and subtract the outcome difference that had been there already before the treatment had any effect. The equation of DiD under regression framework is the following.

DiD Equation= $Y_{it} = \beta_0 + \beta_1 (\text{treat}_i) + \beta_2 (\text{time}_t) + \rho (\text{treat}_i \cdot \text{time}_t) + \epsilon_{it}$

Where, Y = outcome or dependent variable, i=observation, t = time or period, β_0 = constant (the average value of observations which do not change over time), β_1 = coefficient of treatment dummy (1=treated, 0=untreated), β_2 = coefficient of time dummy (1= after, 0=before), ρ = coefficient of the product of treatment and time (result of multiplication), ϵ_{it} = error of the regression. It should also be noted here that treat_i represents all observations under the treatment variable (1=treated, 0=untreated) and time_t represents all observations under the time variable (1=after, 0=before).

Simple linear regression equation= $Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon_i$ (for $i = 1, 2 \dots n$)

Where y = dependent variable, i=observation, β_0 = constant, $\beta_1 X_1$ = coefficient of independent variable, $\beta_2 X_2$ = coefficient of independent variable (treatment variable in the study, 1= treated, 0= untreated), $\beta_3 X_3$ = coefficient of independent variable (time variable in the study, 1= after, 0= before) and ϵ = residual or deviations of the observed values y from their means.

$$P = \frac{e^{\alpha + \beta x}}{1 + e^{\alpha + \beta x}}$$

Logit model, a statistical method, is used to predict a binary response variable as a function of predictor variables. The probability of assignment to the treatment is estimated as:

Where P is the probability of the occurrence of outcome of interest as a function of predictor variable x, α (intercept) and β (slope) are the parameters of the model. β is the regression coefficient multiplied by some value of the predictor x. It adjusts how the probability changes with each one-unit change in predictor variable x. e is the base of the natural logarithm (Hyeoun-Ae, 2013).

2.4. Variables

To conduct those analyses using the data set, the variables the study dealt with were as follows. Child labour, a child's school attendance and school dropout were treated as outcome or dependent variables (Y). Size of household, number of school going child in a household, number of elderly and sick person in a household, number of children under 5 year of age in a household, father's education, mother's education, temporary migration of household head, time and treatment were treated as independent variables (X). Of all the variables, a child's school dropout (1 = dropout and 0 otherwise), time variable (1 = after and 0 = before), temporary migration of household head (1 = migrated and 0 otherwise) treatment variable (1 = treated and 0 = untreated) were binary variables. Father's education, mother's education, child labour and a child's school attendance were continuous variables and the rest were discrete variables.

3. Results and Discussion

The research question of the study could be answered by examining the relationship among three output variables: child labour (daily average working hour), a child's school attendance and school dropout. The DiD estimation shows that a child's engagement in household daily work for the treated group was 1.62 hours more than that of comparison group (Table 1). The result was statistically significant (p value = 0.001).

Outcome Variable	Base Line			Follow Up			DIFF-IN-DIFF
	Comparison	Treated	Diff(BL)	Comparison	Treated	Diff (FU)	
Child Labour	1.32	1.39	0.07	1.33	3.02	1.69	1.62
Std. Error	0.05	0.05	0.07	0.05	0.05	0.07	0.11
t	23.51	24.85	0.94	23.78	53.79	21.22	14.34
P > t	0.001	0.000	0.34	0.000	0.001	0.000	0.000

Table 1: DiD Estimation of Child Labour

In the case of a child's monthly average school attendance, the comparison group exceeded the treatment group with a negligible difference of 0.03 days before the intervention (Table 2). However, the treated group exceeded the comparison group with a considerable difference of 8.21 days after the intervention. A child's monthly average school attendance for the treatment group dropped to 8.18 days than that of comparison group (Table 2). The result was statistically significant (p value = 0.001).

Outcome Variable	Base Line			Follow Up			DIFF-IN-DIFF
	Comparison	Treated	Diff(BL)	Comparison	Treated	Diff (FU)	
Attendance	16.28	16.25	-0.03	15.97	7.76	-8.21	-8.18
Std. Error	0.09	0.09	0.13	0.09	0.09	0.13	0.19
t	170.58	170.26	-0.22	167.33	81.31	-60.83	-42.85
P > t	0.000	0.000	0.82	0.000	0.000	0.000	0.000

Table 2: DiD Estimation of a Child's School Attendance

Compared to the comparison group, a child's daily working hour of the treatment group increased but a child's monthly average school attendance decreased. Thus, the analysis established the assumed relationship among the variables. The findings reflect the assumption that the treatment group engaged their children in asset management, which had a direct bearing on the reduction of a child's monthly average school attendance.

In the second part of investigation, the study concentrated on finding out whether child labour affected a child's school attendance and child's school dropout. The table below shows that each additional daily average working hour of a child reduced school attendance by 1.24 days and a child from a family that reared a cow attended 2.23 days a month fewer than that of a child from a family who did not rear a cow. The time variable in the table

S_Attendance	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Child Labour	-1.24	.10	-11.52	0.000	-1.46	-1.03
Treatment	-2.23	.21	-10.57	0.000	-2.65	-1.82
Time	-2.84	.21	-13.23	0.000	-3.26	-2.41
_Cons	18.24	.19	94.02	0.000	17.85	18.62

Table 3: Association between a Child's School Attendance and Child Labour

shows that a child's school attendance dropped to 2.84 days in the post-intervention period relative to the pre-intervention period. The regression analysis of a child's school dropout and child labour variables in the table below shows that one extra hour of a child's daily average work was accountable to a .15 increase in the log-odds of school dropout.

S_Dropout	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Child Labour	.15	.01	11.79	0.000	.12	.17
_Cons	-.09	.02	-3.93	0.000	-.13	-.04

Table 4: Association between a Child's School Dropout and Child Labour

Finally, an analysis of percentage change was made to understand the difference between the treated and comparison groups in terms of child labour, a child's school attendance and school dropout. The table below shows percentage change of child labour, a child's school attendance and school dropout. The estimation was based on the data of pre and post intervention periods.

	Child Labour	School Attendance	School Dropout
Treated	126%	-26.80%	260%
Comparison	5.70%	2.24%	37.50%

Table 5: Percentage Change of Child Labour, School Attendance and Dropout

In the case of child labour, both groups had a rise in percentage change (Table 5). The treatment group prevailed over the comparison group in child labour by an increase in percentage change of 120.3%. As to a child's school attendance, the treated group had a decline whereas the comparison group had an increase in percentage change. The children of treated and comparison households had a 260% and 37.50% rise in percentage change respectively regarding school dropout. The difference of percentage change between the groups was considerably high in this regard. The overall analysis of percentage change is quite consistent with DiD estimation, ordinary regression and logit regression estimation. The analysis leads us to conclude that extremely poor Char-dwellers cannot help engaging their children in cow rearing or asset management, which reduces a child's school attendance and in the long run causes school dropout for many of them.

5. Concluding Remarks and Policy Suggestion

There is ample empirical evidence that extremely poor households cannot but engage their children in managing the asset (such as cow, goat, poultry or land) transferred to them. Thus, the children may not attend the school regularly and may leave the school as a consequence of their growing involvement in asset management. The study advanced with the notion that a child's daily work might contribute to the decrease of school attendance and the increase of school dropout. Investigating the relationship among child labour, a child's school attendance and school dropout, the assumption was found to be accurate. A child of the treated group relative to the comparison group worked 1.62 hours more and attended to school 8.18 days less. The percentage changes of school dropout for both groups were 260% and 37.50% respectively. Each additional daily average working hour of a child reduced school attendance by 1.24 days. One extra hour of a child's daily average work was accountable to a 0.15 increase in the log-odds of school dropout.

By logical extension, it may well be said that a child's engagement in asset management had a negative bearing on a child's education. The treatment group was more likely to suffer from this harmful effect than the comparison group. To address its harmful effect on the children's education, asset based programme should be designed in a way that could minimize the negative effect. Although child labour is an unavoidable reality, awareness building and the stipend for promoting child education could be brought as integral elements in the programme design to minimize the negative effect on child education.

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