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## ROLE OF WOMEN IN SCHOOLING AND CHILD LABOUR DECISION: THE CASE OF URBAN BOYS IN INDIA

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**ABSTRACT.** This paper uses household level data from National Sample Survey Organization (NSSO) of India, the 55th round (1999–2000), to show that for urban male children there exists significant wage incentive for schooling, though school dropout rate and child labour incidence are not so small. The parents' level of education plays an important role in reducing this tendency; thus establishing the linkage between social and human capital outcomes in the family. We also look at the incidence of harmful and manual occupations among the child labour. Mother's education now appears as a very important factor in curbing these incidences; supporting earlier findings that women's empowerment (one important indicator of which would be female educational level) is indeed instrumental in increasing parental awareness.

**KEY WORDS:** child labour, education, empowerment, NSSO India

### 1. INTRODUCTION

Childhood is a period of life that should be devoted not to work but to education and training. Because of its nature or the conditions in which it takes place, the work done by children often jeopardizes their chances of becoming productive adults who will be useful to their society. In many places, including India, Pakistan, Bangladesh, Ghana and other countries, incidence of child labour outside the family is either rising or is significant and decreasing very slowly. This reflects a shift in attitude towards child labour itself. Initially seen mainly as a tool enabling the child to become socialized and acquire skills that will be useful to him or her in the future, it is now increasingly often seen by families as a means of supplementing their income.<sup>1</sup>

Incidence of school dropout and child labour are major problems for the modern day society, particularly in the developing countries. Poverty forces many children to work full time for their own and their families' survival. But one can also have a situation where, in addition to the family's inability to pay for school, many children live in communities that do not have

adequate school facilities, so they work. Even when schools are available, the comparatively high cost to poor families of investment in the education of their children means that the return on such investment must also be high. In fact, many schools serving the poor are of such abysmal quality, or chances of improved upward mobility for graduates are so slim, that the expected return is not equal to the sacrifice made. The literature is replete with testimony of families that would like to educate their children, but either cannot do so, or do not feel that the inferior schools available to them merit the costs. While it is true that many children dropout of school because they have to work, it is equally true that many become so discouraged by school (because of the inferior quality of education provided) that they prefer to work (The Probe Team, 1999; Ray, 2000). These problems mean that only 68% of the world's children until age 11 complete primary education (International Labor Organization, 1996).

The striking fact that its not only poverty that drives children from school to the child labour market is also illustrated by the National Sample Survey (NSS) reports showing that among the school dropouts (Table I) roughly 25% were not in school because they were not interested. Among those employed in the child labour market, particularly for urban boys, a large proportion ( $\approx 10\%$ ) were working not because they had to, but to acquire skill or spend time (Table II).

TABLE I

Per 1000 distribution of children who were not currently attending school by reason for not attending school for each sex, all India, 1993-1994

Reason for not attending school	Rural		Urban	
	Boys	Girls	Boys	Girls
Too young to go to school	169	122	136	120
Unable to cope with studies	52	42	61	50
Schooling/higher level education facility not available	25	25	7	7
To participate in household economic activity	68	59	65	38
To work for wage/salary	23	13	32	18
To take care of siblings	11	29	7	22
To attend household chores:				
By preference	5	23	3	21
As other members engaged in work	5	15	6	12
Cannot afford	149	162	183	195
Not interested	275	297	210	215
Others	218	212	290	300
Total	1000	1000	1000	1000

Source: Table 90, National Sample Survey Organisation (1997).

TABLE II

Per 1000 distribution of working children by reason for working for each sex, all India, 1993–1994

Reason for working	Rural		Urban	
	Boys	Girls	Boys	Girls
Supplement household income	600	570	629	627
Labour shortage in household enterprise	203	176	65	77
Acquire skill	28	26	99	11
Meet personal expenses	13	14	34	12
Spend time	22	22	18	11
Repay loan	1	1	–	–
Others	132	191	154	262
Total	1000	1000	1000	1000

Source: Table 87, *ibid.*

The first task that we set ourselves here is to check whether human capital actually affects the labour market outcome, in terms of wage, both for the adult and the child. That is whether, at least in the economic sense, the return to education is significant or not.

Bourdieu (1986) introduced social capital and cultural capital to complement economic capital, which consists of financial, physical and natural capital. He describes social capital as the actual or potential resources residing in one as a result of the investment in social relations over the years, both conscious and unintended, of the individual and its family. Cultural capital on the other hand would encompass human capital (skill formation) and education, culture as well as early socialization. Both the social and cultural capital of a child's family is important, albeit often disguised determinants of the returns to investment in education. They shape a young child's cognitive and social development, and will influence the decisions of a child's parents regarding length and quality of its education (Janssens et al., 2004).

Loury (1977, 1981) was one of the pioneer authors to introduce social capital into the economics of education. He shows how differences in socioeconomic background (through social stratification, racial segregation in neighborhoods, differences in parental education and income) determine the eventual education that an individual will receive. Individuals with otherwise equal initial abilities but living in different social contexts can end up choosing entirely different educational careers. Coleman (1988) popularized the concept of social capital with its role in the creation of human

capital. He emphasizes the importance of relations (in the sense of regular interaction and a cordial relationship) between the parents and the child for child outcomes.

The second aim of this paper is to explore this linkage between parental human capital and children outcomes (in terms of extent of schooling, tendency to dropout and decision to work as child labour). In particular, we focus on urban male children as the labour market opportunities are more diverse and may require a wider set of skills from them than from the urban girls or the children in the rural sectors. Even though poverty is likely to be a major driving force towards school dropout and child labour, we want to check if parental education and occupation structure (kind of job, manual or skilled, or nature of job contract) has any significant role to play.

The rest of the paper is organized as follows. Section 2 provides a summary of empirical evidence of incomplete schooling in the face of low expected return to education and also that of interlinkage between social and human capital. This section also formulates the alternative hypotheses to be tested in our context. The data and methodology is described in Section 3 and the results are presented in Section 4. Finally, Section 5 concludes with a discussion of some policy issues.

## 2. EMPIRICAL EVIDENCE FROM OTHER STUDIES

### 2.1. *Evidence of Incomplete Schooling*

There are several empirical studies on this. Heady (2000) noted that participation in school increases from the age group 7–9 to the age group 10–14 and then decreases for aged 15–19 for a representative sample in Ghana and Pakistan.<sup>2</sup> This could be due to late entry into school by a large proportion of the children (entering school at the age of 10 or above rather than earlier). In Pakistan, conservative beliefs may have caused the Girls' attendance to decrease steadily with increasing age (Table III).

The test results of Reading and Mathematics, conducted among attending and non-attending students showed that attending students performed significantly better in some age groups (The study was done for children between 9 and 18 years of age. The age groups considered were 9 years, 10 years and so on upto 18 years.) but the difference was insignificant in most of the cases. Also, this is not controlled for other factors like hours of work, parents' schooling, school fees and local socio-economic characteristics (Table IV).

TABLE III  
Participation in school (percent) in Ghana

Age in years	7-9		10-14		15-19	
Sex	Girls	Boys	Girls	Boys	Girls	Boys
School attendance	62.4	78.0	74.4	81.4	39.9	55.1

Source: Heady (2000).

TABLE IV  
Participation in school (percent) in Pakistan

Age in years	5-9		10-14		15-19	
Sex	Girls	Boys	Girls	Boys	Girls	Boys
School attendance	31.0	53.3	30.6	72.9	11.5	41.5

Source: Heady (2000).

A quantitative survey for Bangladesh, focussing on the slum population of Dhaka city (Delap, 1998) covered over 700 households and was conducted from 1995 to 1997. The qualitative analysis was based on detailed interviews, conducted with 14 of the households that had taken part in the quantitative survey. The analysis used the International Labor Organization (ILO) definition of work and, in this urban setting, this typically involved working for people outside the household.

Table V presents the pattern of school attendance and work from the quantitative survey mentioned above. In the younger age group, 8-11, school attendance for boys and girls is very similar at just over 60% with boys being more likely to combine school with work. Girls and boys are also

TABLE V  
Work and school (percent) for slum children in Bangladesh

Age in years	8-11		12-16	
Sex	Girls	Boys	Girls	Boys
Only work	13.4	16.2	55.3	56.3
Work and school	1.8	6.6	1.4	6.4
Only school	61.2	54.8	20.0	24.7
Neither	23.6	22.4	23.3	12.6

Source: Delap (1998).

similar in the proportion that neither work nor go to school. However, boys are more likely to work than girls. Turning to the older age group, 12–16 years of age, both boys and girls are much less likely to attend school, but the reduction for girls is greater. This reduction in schooling is accompanied by an increase in work, with boys again more likely to work. The number of girls doing neither is the same as in the younger age group, but the proportion of idle boys is substantially lower.

Families were asked why their children were not attending school. The most common explanation was that the children were too busy with their works. However, it is worth noting that other commonly expressed reasons were “no suitable school facilities” (mostly meaning that available schools were too expensive), “busy with housework” (almost entirely applied to girls) and “child does not want to go” (mainly applied to boys). This revealed that parents did attach considerable value to education<sup>3</sup> but often found that school fees were too expensive or felt that work experience was more useful to future employment prospects than education. To some extent, these two factors were combined, with parents saying that education would help their child getting a good job if they stayed at school for many years, but they could not afford that. Thus, it was not a case of work reducing schooling, but poor schooling (bad infrastructure at schools, irregularity or poor quality of instruction etc.) encouraging work. Ray (2000, 2000a) found similar evidence for Ghana and Peru.

Grootaert and Patrinos (1998) report the patterns of child work and school attendance for Côte d’Ivoire, Colombia, urban Bolivia and Philippines. Children in urban areas are more likely to concentrate on schooling, and slightly more likely to combine work and schooling, with the consequence that many fewer concentrate on work. In urban Bolivia, full-time school attendance is over 90% until the age of 13 years. After that, child work becomes significant, with somewhat more children working full-time than combining work with school. Only about 3% neither work nor attend school, and this is more common for girls. There is little difference between girls and boys in their labour force participation.

## 2.2. *Linkage Between Social and Human Capital*

Heltberg and Johannesen (2002) found that education of the parents, especially that of the mother had a strong impact on human capital outcomes. Janssens et al. (2004) studied the Mahila Samakhya programme in rural Bihar of India, women’s empowerment programme that emphasized female education. The findings strongly suggested that the programme was

successful in increasing parental awareness on the value of preschool and primary education.

### 2.3. *The Statistical Hypotheses to be Tested*

Based on our above discussion, it is relevant to check whether parental level of education is important in determining the dropout or schooling decision for the child. Prior to this, we should also check whether formal education actually helps in the job market or not. So we start our empirical analysis by checking whether there exists wage premium in the labour market (both formal and informal) for the adults. So our first set of hypotheses is:

- H<sub>1A</sub>: there is no wage premium for education for the urban male population.  
H<sub>1B</sub>: there is no wage premium for education in the informal sector for the urban male.

The next question is whether similar incentives exist in the child labour market. This is verified by testing the following hypothesis.

- H<sub>1C</sub>: there is no wage premium for education in the urban male child labour market.

We now come to the primary question of the paper; that of the role of parental education in dropout or work decisions for the child. Here, the relevant hypotheses are:

- H<sub>2A</sub>: parental education levels do not influence dropout decision for the child.  
H<sub>2B</sub>: parental education levels do not influence the decision to employ the child in the labour market.

Finally, for the incidence of manual and harmful child labour, we formulate the following hypotheses:

- H<sub>3A</sub>: parental education levels do not influence the decision to employ the child in manual work.  
H<sub>2B</sub>: parental education levels do not influence the decision to employ the child in harmful work.

We formulate the relevant regression equations in Section 3 and the results are discussed in Section 4.

### 3. DATA AND METHODOLOGY

The present study focuses on urban male children, as the incentives for education would be stronger for the urban male in the recent years when the workforce is being progressively introduced to new products, skills and opportunities.

As mentioned earlier we use the household level data collected and made available by National Sample Survey Organization (NSSO) for the large sample round (55th) conducted during 1999–2000 on employment and unemployment situation in India. Some important concepts and definitions followed in this study are described below in the subsequent paragraphs.

#### 3.1. *The Sample*

One salient feature of the 1999–2000 survey was that the *rotation-sampling scheme* was adopted. The survey period was divided into four sub-rounds, each with a duration of 3 months. Under *rotation sampling scheme*, 50% of the sample first stage units (fsus) of each sub-round was revisited in the subsequent sub-round. fsu's are urban frame survey blocks for the urban sector. The ultimate stage units are households at the subsequent stage. A sample of 10,400 fsus (rural and urban combined) were surveyed at all-India level during the survey period. Out of 10,400 fsus, a total of 3900 fsus (1300 each from sub-rounds 1, 2 and 3) were revisited in the subsequent quarters. NSSO makes available both types of data file, one, including the fsus visited only once during the period and another type including the revisited fsus also. In the present analysis only first type of data files were used to avoid the repetition.

#### 3.2. *Activity Status*

In 1999–2000 survey, NSSO used three approaches for classification of the activity statuses of the person surveyed. These are:

- (i) number of persons usually employed – usually employed in the principal status and all workers taking into account the employed according to both the principal and subsidiary statuses,
- (ii) the average number of persons employed in a week based on the current weekly status and
- (iii) The average number of persons–days employed per day.

Of the three approaches, the usual principal status approach is best suited as a measure of the economic activity in an economy with seasonal fluctuations



in the employment. This is because, in this approach the criteria used is the pattern of activities followed by the person for a relatively long period of time (NSSO, 2001). In our present study, we considered only those urban male children *usually employed in the principal status* and termed them as labourers.

### 3.3. Household Size

According to NSS (NSSO, 2001) the number of normally resident members of a household is its size. It will include temporary stay-away but exclude temporary visitors and guests. In deciding the composition of a household, more emphasis is placed on "normally living together" than on "ordinarily taking food from a common kitchen".

### 3.4. Father's/Mother's Education

Adult education has been categorized as below:

- (a) not literate 0;
- (b) literate but below primary 1;
- (c) primary and middle 2;
- (d) secondary 3;
- (e) higher secondary 4;
- (f) graduate and above 5.

### 3.5. Informal Enterprises

All enterprises with type of ownership as either "proprietary" and "partnership" have been treated by NSS (NSSO, 2001) as informal enterprises in the present survey.

### 3.6. Father's Occupation

Only two categories of occupation have been considered. One category represents those who work in household enterprise (self employed) or own account worker, employer or work as regular salaried/wage employee. An own account enterprise is an undertaking run by household labour, usually without any hired worker employed on a "fairly regular basis". By "fairly regular basis" it is meant that the major part of the period of operation(s) of the enterprise during the last 365 days (NSSO, 2001). Another category is if other than these specified cases.

### 3.7. *Child Education*

Child education has been categorized as below,

- (a) not literate 0;
- (b) literate but below primary 1;
- (c) primary 2;
- (d) above primary 3.

### 3.8. *Dropout*

Dropout child has been defined as who ever attended but discontinued studies to supplement household income or other reasons; or dropped out for similar reasons.

### 3.9. *Child Labour Incidence*

In NSS data relationships between family members can only be identified using the information regarding "relation to head". Due to incomplete information child labour incidence for only following two cases could be considered: (1) head of the household is father with living spouse; and (2) head of the household is grand father with only one son or one daughter with his or her spouse alive. As a result only 435 (out of 617) observations having child labour incidence and 20,920 (out of 25,183) observations having no such incidence could be considered in the present analysis.

It is worth mentioning here that filtering through these conditions not only reduces the sample size but may bias our results also. The family composition may be related to child labour decision.

### 3.10. *Manual Work*

According to National Classification of Occupations 1968 (NSSO, 2001), manual work is a work which essentially involves physical operations. However, jobs essentially involving physical labour but also requiring a certain level of general, professional, scientific or technical education is not to be termed as manual work. On the other hand, jobs not involving much of manual labour but at the same time nor requiring much educational background either are to be treated as manual work. Thus, engineers, doctors, dentists, midwives etc. are not considered as manual workers even though their jobs involve some amount of physical labour. But peons,

chowkidars, watchmen etc. are considered as manual workers even though their work may not involve much physical labour.

### 3.11. *Harmful Work*

The identification of harmful work was due to the list of state prohibited occupations prepared by the New York State Department of Labour. Effort was to make a one to one matching of this listed occupations with those of 5-digit National Industrial Classifications 2004, prepared by the Central Statistical Organization of India,<sup>4</sup> though in few cases some subjective decisions were unavoidable.

### 3.12. *Other Variables*

Other variables used in our analysis are average monthly per capita expenditure as proxy for per capita income and dummies for caste (general and scheduled) and religion (Hindu and Islam).

### 3.13. *Model Specification*

To test the hypothesis  $H_{1A}$  as stated in Section 2.3, we fitted the regression equation of father's earning considering both formal and informal sectors together as,

$$(1a) \quad E_{f1} = \alpha + \beta_1 fgedu + \beta_2 fgedu^2 + \beta_3 fage + \beta_4 fage^2 + \varepsilon$$

Here,  $fage$  = father's age; and  $fgedu$  = father's education;  $\alpha$  and  $\beta$ 's are the parameters of the model and  $\varepsilon$  is the random noise term. The square terms were incorporated into the model to explore the quadratic effects, if any. So, in terms of Equation (1a), the hypothesis to be tested is  $H'_{1A} : \beta_1 = \beta_2 = 0$ .

For informal sector, testing the hypothesis  $H_{1B}$  (Section 2.3), following two types of father's earning functions were fitted:

$$(1b) \quad E_{f2} = \alpha + \beta_1 fgedu + \beta_2 fage + \varepsilon$$

$$(1c) \quad E_{f3} = \alpha + \beta_1 fgedu + \beta_2 fgedu^2 + \beta_3 fage + \beta_4 fage^2 + \varepsilon$$

Hypothesis now is  $H'_{1B} : \beta_1 = \beta_2 = 0$  in Equations (1b) or (1c).

Coming finally to the hypothesis  $H_{1C}$ , three types of regression equations fitted for child earning are as follows:

$$(2a) \quad E_{c1} = \alpha + \beta_1 \text{chedu} + \varepsilon$$

$$(2b) \quad E_{c2} = \alpha + \beta_1 \text{chedu} + \beta_2 \text{chedu}^2 + \varepsilon$$

$$(2c) \quad E_{c3} = \alpha + \beta_1 \text{chedu} + \beta_2 \text{chedu}^2 + \beta_3 \text{chage} + \varepsilon$$

where *chedu* = child's education; *chage* = child's age; again  $\alpha$  and  $\beta$ 's are the parameters of the models and  $\varepsilon$  is the random noise term. In child earning functions also, the square terms were incorporated to see the quadratic effects, if any. Analogously,  $H'_{1C} : \beta_1 = \beta_2 = 0$  is the relevant hypothesis in terms of Equations (2a), (2b) or (2c).

We now discuss the testing of hypotheses  $H_{2A}$  and  $H_{2B}$ . For the binary dependent variables, dropout and child labour incidence, we use the following probit model:

$$(3) \quad P(Y_i = 1) = \alpha + \beta_1 \text{hhsiz} + \beta_2 \text{MPCE} + \gamma_1 \text{GC} + \gamma_2 \text{SC} \\ + \gamma_3 \text{Hindu} + \gamma_4 \text{Islam} + \delta_1 \text{fgedu} + \delta_2 \text{mgedu} \\ + \delta_3 \text{focu} + \varepsilon$$

where *hhsiz* = household size; *MPCE* = average monthly per capita expenditure; *GC* = indicator or dummy variable for general caste; *SC* = indicator or dummy variable for schedule caste; *mgedu* = mother's education; *focu* = father's occupation;  $\alpha$ ,  $\beta$ 's,  $\gamma$ 's and  $\delta$ 's are the parameters of the model and  $\varepsilon$  is the random noise term.

$Y_1 = 1$ , in case of occurrence of school dropout incidence; 0 otherwise.

$Y_2 = 1$  in case of occurrence of child labour incidence; 0 otherwise.

All these models (1a–3) use observations including both child labour (435) and child non-labour (20,920). Hypotheses  $H_{2A}$  and  $H_{2B}$  now become  $H'_{2A}, H'_{2B} : \delta_1 = \delta_2 = 0$  for the relevant equations.

Regarding the hypotheses  $H_{3A}$  and  $H_{3B}$ , the manual and harmful child labour incidences are modelled as,

$$(4) \quad P(Y_i) = \alpha + \beta_1 \text{hhsiz} + \beta_2 \text{MPCE} + \gamma_1 \text{GC} + \gamma_2 \text{SC} + \gamma_3 \text{Hindu} \\ + \gamma_4 \text{Islam} + \delta_1 \text{fgedu} + \delta_2 \text{mgedu} + \delta_3 \text{focu} + \eta_1 \text{chwage} \\ + \eta_2 \text{chedu} + \varepsilon$$

where  $\eta$ 's are additional parameters for two additional explanatory variables, namely, child's wage and child's education.

$Y_3 = 1$ , if child occupation is manual; 0 otherwise

$Y_4 = 1$  if child occupation is harmful; 0 otherwise.

Now the observations are restricted to the 435 observations with child labour. Hypotheses  $H_{3A}$  and  $H_{3B}$  now become  $H'_{3A}, H'_{3B} : \delta_1 = \delta_2 = 0$  for the relevant equations.

#### 4. THE RESULTS

We start our empirical analysis by noting a few descriptive statistics as salient features of the urban male child labour market. An estimated 2.5% of the urban boys aged 5–14 works as labourers in different industries in urban India against wages. The estimated number for all India urban boys is about 6 Lac (Table VI).

Note that average education for the parents of children in the labour market are markedly lower than for those who are not working (See Table VII below).

We have found 369 cases of manual and only eight cases of harmful child labour incidence. The average education levels of parents and the children are reported separately in Table VIII. Though it is surprising to note that the average education of the mother and the child is higher in case he is in a

TABLE VI  
Number of male child in the age group of 5–14, all India urban, 1999–2000

Count	In the sample	Estimated total
Category		
Population	24,369	2,30,60,100
Usually employed in principal status	617	5,83,421
Percentage	2.53	2.53

TABLE VII  
Average education and MPCE of sample households

Category	Child worker (435) (2.04%)	Child not working (20,920) (97.96%)
Characteristics		
Average education of father	0.816 (1.008)	2.354 (1.645)
Average education of mother	0.299 (0.714)	1.661 (1.606)
MPCE	439.34 (175.780)	706.968 (469.435)

Standard deviation in parenthesis.

TABLE VIII  
Educational, economic and occupational background of sample households with child worker

Category	Manual (369) (84.83%)	Non-manual (66) (15.17%)	Harmful (8) (1.84%)	Harmless (427) (98.16%)	Total (435) (100%)
Characteristics					
Average education of father	0.772 (0.993)	1.061 (1.065)	0.625 (0.74)	0.820 (1.013)	0.816 (1.008)
Average education of mother	0.287 (0.687)	0.364 (0.853)	0.5 (0.76)	0.295 (0.713)	0.299 (0.714)
Average education of self	0.989 (0.984)	0.758 (0.915)	1.125 (1.03)	0.956 (0.974)	0.885 (0.975)
MPCE	439.92 (176.91)	441.66 (170.59)	459.88 (126.782)	438.96 (176.655)	439.34 (175.780)
Child wage	166.76 (108.91)	153.4 (70.515)	260.63 (98.00)	162.93 (103.41)	164.73 (104.041)

Standard deviation in parenthesis.

harmful occupation, we should keep in mind that this is based on eight observations only.

Table IX below presents the distribution of working boys in the urban sector. It is starkly evident that the dropout phenomenon is sharply increasing with schooling level.

This is a disturbing fact, more so because there exists substantial premium for education in the labour market. This is borne out by the result of fitting regression Equation (1a) for both formal and informal sectors taken together and (1b), (1c) for the informal sector separately. For the first case, even in the presence of age as a predictor variable, the wage premium for education is strictly increasing and convex (Table X). Thus higher education is rewarded more strongly. When we look at only informal sector (Tables XI and XII) the wage premium is again increasing if we consider linear effect only. The relationship is more interesting when we consider quadratic term. Now the linear term comes up with a negative coefficient, but the quadratic coefficient is positive. Thus, the wage premium is negative for low levels of

TABLE IX  
Level of education among male child labour

Education level	Frequency	Percentage
0	182	41.84
1	121	27.82
2	99	22.76
3	33	7.59
Total	435	100

TABLE X  
Regression results of father's earning for Equation (1a), 1999–2000

Variable name	Estimated coefficient	Standard error	T-value
fgedu	34.384	8.924	3.853
fage	73.768	2.652	27.82
fgedu2	45.693	1.609	28.41
fage2	-0.63872	0.3265E-01	-19.56
Constant	-1347.1	51.72	-26.05

$R$ -Square = 0.3738.  $R$ -Square adjusted = 0.3738. Variance of the estimate-sigma\*\*2 = 0.51295E + 06. Log of the likelihood function = -231616.  $F$  statistics from mean = 4324.597 with 4 and 28,973 d.f.

TABLE XI

Regression results of father's earning in informal sector for Equation (1b), 1999–2000

Variable name	Estimated coefficient	Standard error	T-value 11,414 DF
fgedu	55.552	1.333	41.68
fage	8.9845	0.4086	21.99
Constant	-92.014	17.92	-5.134

$R$ -square = 0.1514.  $R$ -square adjusted = 0.1513. Variance of the estimate-sigma\*\*2 = 0.20978E + 06. Log of the likelihood function = -86149.5.  $F$  statistics from mean = 1018.238 with 2 and 11,414 d.f.

TABLE XII

Regression results of father's earning in informal sector for Equation (1c), 1999–2000

Variable name	Estimated coefficient	Standard error	T-value 11,412 d.f.
fgedu	-16.922	3.875	-4.367
fage	37.303	2.414	15.45
fgedu2	5.6398	0.2863	19.70
fage2	-0.36782	0.3013E-01	-12.21
Constant	-417.21	47.45	-8.792

$R$ -square = 0.1907.  $R$ -square adjusted = 0.1904. Variance of the estimate-sigma\*\*2 = 0.20011E + 06. Log of the likelihood function = -85879.0.  $F$  statistics from mean = 672.164 with 4 and 11,412 d.f.

education but positive for higher levels. The break-even point being at the secondary level. Thus the incentives for staying in school for a substantial number of years is quite strong.

To check whether those incentives are reflected in the child labour market (the traditional wisdom is that child labour is just a sweatshop, when the work involves no skills whatsoever and is an endless sequence of manual assignments), we fitted the same models for child wage only (for the significant results, see regressions 2a, 2b, 2c). The linear model is insignificant (Table XIII), but interestingly, the quadratic model has both coefficients weakly significant ( $|t| > 1$ ) and of the same nature as for the adult wage model (Tables XIV and XV). The break-even point being at the completion of primary schooling. This is true even in the presence of age as a predictor variable, to take care of additional muscle power. So, in a weaker sense (may be for some of the activities) the education premium is present even in the child labour market. Thus, for children too, it is evident that staying in school pays.<sup>5</sup>



TABLE XIII

Regression results of child earning in informal sector for Equation (2a), 1999–2000

Variable name	Estimated coefficient	Standard error	T-value 369 d.f.
chedu	0.11302E-01	0.1616	0.6995E-01
Constant	3.0928	0.2226	13.89

*R*-square = 0.0000. *R*-square adjusted = -0.0027. Variance of the estimate-sigma\*\*2 = 9.1591. Log of the likelihood function = -936.259. *F* statistics from mean = 0.005 with 1 and 369 d.f.

TABLE XIV

Regression results of child earning in informal sector for Equation (2b), 1999–2000

Variable name	Estimated coefficient	Standard error	T-value 368 d.f.
chedu	-0.54440	0.4765	-1.142
chedu2	0.22124	0.1785	1.239
Constant	3.2152	0.2434	13.21

*R*-square = 0.0042. *R*-square adjusted = -0.0012. Variance of the estimate-sigma\*\*2 = 9.1458. Log of the likelihood function = -935.486. *F* statistics from mean = 0.771 with 3 and 368 d.f.

TABLE XV

Regression results of child earning in informal sector for Equation (2c), 1999–2000

Variable name	Estimated coefficient	Standard error	T-value 367 d.f.
chage	0.23647	0.1164	2.032
chedu	-0.55930	0.4746	-1.179
chedu2	0.18922	0.1784	1.060
Constant	0.28462	1.462	0.1947

*R*-square = 0.0153. *R*-square adjusted = 0.0072. Variance of the estimate-sigma\*\*2 = 9.0686. Log of the likelihood function = -933.410. *F* statistics from mean = 1.895 with 3 and 367 d.f.

In this paper, we would like to explore the role of women's education in exploring and improving the child's human capital scenario in the face of a changing social pattern and economic opportunities. It is traditionally believed that father's education level plays a major role in decision making at the household level. Thus, it is expected that in case of child schooling or labour decision, father's education will be a significant explanatory variable.

Also, stability of father's income should play a major role in deciding whether a child continues schooling or drops out and possibly joins the child labour market. So this is included in our set of explanatory variables. But, our primary focus is on whether the mother's education level (as a proxy for her voice in household decision making) plays any role in these decisions. So, a significant coefficient of mother's education in the presence of the other variables would indicate the significance of an educated mother's role in these decisions.

#### 4.1. Dropout and Child Labour Incidence

Regression output presented in Tables XVI and XVII show patterns similar to that observed in Table VII with respect to father and mother's education, both turning out to be significant with the intuitively expected sign. This establishes the hypothesis that mother's education, even in the presence of father's education as a predictor variable, has a significant contribution to the decisions in these respects. Father's occupation has a weakly significant effect on dropout which is again expected but does not have any significant effect on child labour incidence. May be once the dropout decision has been affected by the stability of the father's income, it does not matter any more in the child's work decision.

TABLE XVI  
Probit analysis of school dropout in urban India, 1999–2000

Variable name	Estimated coefficient	Standard error	T-value
hh	-0.89394E-02	0.93539E-02	-0.95568
MPCE	-0.27205E-03	0.77999E-04	-3.4878
GC	-0.21222E-01	0.41536E-01	-0.51093
SC	-0.68445E-01	0.53221E-01	-1.2860
Hindu	0.45452E-01	0.73565E-01	0.61785
Islam	0.21996	0.81814E-01	2.6885
fgedu	-0.79578E-01	0.16734E-01	-4.7554
focu	-0.68362E-01	0.43201E-01	-1.5824
mgedu	-0.10756	0.19363E-01	-5.5550
Constant	-1.3991	0.10985	-12.737

Log-likelihood function = -2713.1. Log-likelihood (0) = -2892.5. Likelihood ratio test = 358.857 with 9 d.f. Maddala R-square 0.1666E-01. Cragg-Uhler R-square 0.70221E-01. McFadden R-square 0.62032E-01. Adjusted for degrees of freedom 0.61636E-01. Approximately F-distributed 0.73482E-01 with 9 and 10 d.f. Chow R-square 0.17918E-01. Percentage of right predictions = 0.96980.

TABLE XVII

Probit analysis of child labour incidence in urban India, 1999–2000

Variable name	Estimated coefficient	Standard error	T-value
hh	-0.23138E-02	0.10948E-01	-0.21135
MPCE	-0.40719E-03	0.12014E-03	-3.3893
GC	-0.13617	0.51608E-01	-2.6385
SC	-0.99304E-01	0.61463E-01	-1.6157
Hindu	0.12091	0.10671	1.1331
Islam	0.36008	0.11415	3.1545
fgedu	-0.16774	0.21964E-01	-7.6372
focu	0.14290E-01	0.50482E-01	0.28308
mgedu	-0.21648	0.29618E-01	-7.3092
Constant	-1.4991	0.14848	-10.096

Log-likelihood function = -1835.4. Log-likelihood (0) = -2124.3. Likelihood ratio test = 577.778 with 9 d.f. Maddala *R*-square 0.2669E-01. Cragg-Uhler *R*-square 0.14796. McFadden *R*-square 0.13599. Adjusted for degrees of freedom 0.13563. Approximately *F*-distributed 0.17489 with 9 and 10 d.f. Chow *R*-square 0.27290E-01. Percentage of right predictions = 0.97963.

As expected, MPCE has a strong impact on dropout and child labour incidence. But what is encouraging is that the education variables also have influence on these, even in the presence of MPCE as an explanatory variable. Being a scheduled caste reduces the dropout and child labour incidence in a weakly significant sense. General caste is less involved in child labour. Among the Muslims, both school dropout and child labour incidence are significantly higher.

#### 4.2. Harmful and Manual Child Labour Incidence

For analysing both harmful and manual child labour incidence, child wage and child education are also used as explanatory variables. We have replaced the missing values (there are some non-reporting) for child wage by the industry specific average (according to the NIC industry code). In the regression analysis for manual and harmful child labour incidence some of the explanatory variables turned out to be non-significant in both the cases. Thus we have dropped these, namely SC, Hindu, FGEDU and FOCU, from the final model presented. The results are reported in Tables XVIII and XIX.

As mentioned earlier, we have found only eight cases of harmful child labour incidence. It is difficult to infer on only eight cases. Some of these are in the nature of following the family business or father's occupation

TABLE XVIII

Probit analysis of harmful child labour incidence in urban India, 1999–2000

Variable name	Estimated coefficient	Standard error	<i>T</i> -value
hh	0.74559E-01	0.72805E-01	1.0241
MPCE	0.15568E-02	0.13328E-02	1.1680
GC	0.35997	0.39052	0.92177
Islam	5.1670	173.80	0.29730E-01
mgedu	0.11796	0.26386	0.44705
chedu	0.98230E-01	0.20103	0.48862
chwage	0.15329E-02	0.88172E-03	1.7386
Constant	-8.7856	173.81	-0.50548E-01

Log-likelihood function = -29.090. Log-likelihood (0) = -39.893. Likelihood ratio test = 21.6061 with 7 d.f. Maddala *R*-square 0.4846E-01. Cragg-Uhler *R*-square 0.28915. McFadden *R*-square 0.27080. Adjusted for degrees of freedom 0.25885. Approximately *F*-distributed 0.42442 with 7 and 8 d.f. Chow *R*-square 0.44427E-01. Percentage of right predictions = 0.97931.

TABLE XIX

Probit analysis of manual child labour incidence in urban India, 1999–2000

Variable name	Estimated coefficient	Standard error	<i>T</i> -value
hh	0.40205E-03	0.35855E-01	0.11213E-01
MPCE	-0.85647E-04	0.46012E-03	-0.18614
GC	0.36184	0.17520	2.0653
Islam	-0.32557	0.17563	-1.8538
mgedu	-0.16596	0.10866	-1.5273
chedu	0.13703	0.85233E-01	1.6077
chwage	0.91432E-03	0.89554E-03	1.0210
Constant	0.86418	0.37296	2.3171

Log-likelihood function = -179.61. Log-likelihood (0) = -185.17. Likelihood ratio test = 11.1328 with 7 d.f. Maddala *R*-square 0.2527E-01. Cragg-Uhler *R*-square 0.44084E-01. McFadden *R*-square 0.30060E-01. Adjusted for degrees of freedom 0.14160E-01. Approximately *F*-distributed 0.35419E-01 with 7 and 8 d.f. Chow *R*-square 0.30631E-01. Percentage of right predictions = 0.84828.

(slaughtering) and in others, parents may not be aware of the harmful nature of the job (saw mill etc.). Also, none of the variable excepting household size, MPCE and child wage turns out to be statistically significant as predictor. Thus, a policy analysis is not feasible on the basis of this regression model.

For the manual case, the overall fit is not very good, but mother's education turns out to be weakly significant with the expected positive sign.

Thus, it seems that an educated mother has some influence on the avoidance of manual work of the child. Whereas, the father's role in the case of these finer details turns out to be relatively minor. It is interesting to note that child's education has a positive and weakly significant coefficient in the manual occupations. This positive sign may be due to a perception of better future prospect from the child's point of view. Though this work is manual, this sector may be more productive or has a larger supply of jobs. General castes show a higher tendency for manual work.

### 5. CONCLUDING REMARKS

This paper uses household level data from NSSO, 55th round (1999–2000) for urban male children, to show that there exists significant wage incentive for schooling. In spite of this, school dropout rate (3.02%) and child labour incidence (2.04%) is not too small.<sup>6</sup> The parents' level of education plays an important role in reducing this tendency; thus establishing the linkage between social and human capital outcomes in the family. We also look at the incidence of harmful and manual occupations among the child labour. Mother's education now appears as the more important factor in curbing these incidences; supporting earlier findings that women's empowerment (one important indicator of which would be the female's educational level) is indeed instrumental in increasing parental awareness.

Our study emphasizes the importance of government policy making towards enhancing the quality of schooling and enforcing school attendance. Importance of adult education programme (especially for females) is also not small.

### APPENDIX: DETAILED CLASSIFICATION OF MANUAL AND HARMFUL WORK

Manual work will cover one or more of the following occupational groups of the National Classification of Occupations 1968 (NSSO, 2001):

Division 5: Service workers:

Group 52: cooks, waiters, bartenders and related workers;

Group 53: maids and other housekeeping service workers;

Group 54: building caretakers, sweepers, cleaners and related workers;

Group 55: laundries, dry cleaners and pressers;

Group 56: hairdressers, barbers, beauticians and related workers;

Family 570: fire fighters;

Family 574: watchmen, gatekeepers;

Family 579: protective service workers not elsewhere classified;  
Division 6: Farmers, Fishermen, Hunters, Loggers and related workers:  
Group 63: agricultural labourers;  
Group 64: plantation labourers and related workers;  
Group 65: other farm workers;  
Group 66: forestry workers;  
Group 67: hunters and related workers;  
Group 68: fishermen and related workers;  
Divisions 7–9: Production & related workers, Transport equipment operators and Labourers:  
All groups excluding Group 85 (electrical fitters and related workers) and Group 86 (broadcasting station and sound equipment operators and cinema projectionists).

In some cases occupation codes were not reported and in those cases 5-digit industry codes of National Industrial Classification, 2004 prepared by Central Statistical Organisation were consulted to identify whether those children were actually manual or non-manual labourers.

The list of harmful works in Indian context are given below:

- 155 Manufacture of beverages;
- 261 Manufacture of glass and glass products;
- 269 Manufacture of non-metallic mineral products n.e.c.;
- 281 Manufacture of structural metal products, tanks, reservoirs and steam generators;
- 289 Manufacture of other fabricated metal products; metal working service activities;
- 291 Manufacture of general purpose machinery;
- 292 Manufacture of special purpose machinery;
- 293 Manufacture of domestic appliances, n.e.c.;
- 451 Site preparation in construction sector;
- 452 Building of complete construction or parts thereof, civil engineering;
- 453 Building installation;
- 454 Building completion;
- 455 Renting of construction or demolition equipment with operator;
- 602 Other land transport;
- 603 Transport via pipelines;
- 1511 Production, processing and preservation of meat, fish, fruit vegetables, oils and fats;
- 1512 Processing and preserving of fish and fish products;
- 1541 Manufacture of bakery products;

- 2011 Manufacture of veneer sheets; manufacture of plywood, laminated board, particle board and other panels and boards;  
 2022 Manufacture of builders' carpentry and joinery.

## NOTES

<sup>1</sup> This is discussed in more detail in the excellent survey on the determinants of child labour by Brown et al. (2002) and the references cited therein.

<sup>2</sup> See also Bhalotra and Heady (1999).

<sup>3</sup> The Probe Team (1999) also finds similar evidence in Rural India.

<sup>4</sup> For details on the classification of Manual and Harmful work, see the appendix.

<sup>5</sup> Smith and Welch (1989) documented a sharp positive relationship between years of schooling (even for incomplete schooling, like 0–4 years or 5–7 years of schooling) and wage for Black and White American Males during the period 1940–1980. The structure of the labour market for Black Americans would be similar to the informal markets in countries like India at the present time. This provides indirect evidence for wage premium for (partial) education in the developing countries at the present time.

<sup>6</sup> See discussion on child labour incidence in Section 3. The corresponding figures for Ghana (1991–1992, rural and urban combined) are 28% and 0.8% and for Pakistan (1991) are 44% and 14.5% (Heady, 2000).

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