

Child Labour and Child Schooling in South Asia: A Cross Country Study of their Determinants

by

Ranjan Ray*

School of Economics
University of Tasmania
GPO Box 252-85
Hobart Tasmania 7001

Email: Ranjan.Ray@utas.edu.au

Tel: (03) 6226 2275

Fax: (03) 6226 7587

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Abstract

This study uses Nepalese data to estimate the impact of individual, household and cluster/community level variables on child labour and child schooling. The principal estimates are, then, compared with those from Bangladesh and Pakistan. The exercise is designed to identify effective policy instruments that could influence child labour and child schooling in South Asia. The results show that the impact of a variable on a child's education/employment is, often, highly sensitive to the specification in the estimation and to the country considered. There are, however some results that are fairly robust. For example, in both Nepal and Pakistan, inequality has a strong U shaped impact on both child labour participation rates and child labour hours, thus, pointing to high inequality as a significant cause of child labour. In contrast, household poverty has only a weak link with child labour, though it seems to be more important in the context of child schooling. The current school attendance by a child has a large, negative impact on her labour hours, thus, pointing to compulsory schooling as an effective instrument in reducing child labour. Other potentially useful instruments include adult education levels, improvements in the schooling infrastructure, and the provision of amenities such as water and electricity in the villages.

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1. Introduction

There has been, in recent years, growing interest in the subject of child labour among academics, public officials and the media. There are few topics in the core of the development literature today that enjoy as much importance and evoke as much passion as that of child labour. The subject has moved from the national to the international arena. The prominence accorded to the subject of child labour at the WTO meeting in Seattle a couple of years ago is a reflection of its pivotal importance in the international policy arena. Basu (1999b) provides a lucid exposition of the policy implications of child labour for the setting of international labour standards in an era of rapid globalisation. Fallon and Tzannatos (1998) discuss ways in which the World Bank can assist member nations in reducing child labour.

Though the ILO (1996a)'s estimates on labour force participation rates for children aged 10 – 14 years show a declining trend, in absolute terms the size of the child labour force is and will continue to be large enough to be of serious concern. Kebebew Ashagrie was the first person to put together an international data set on child labour. His initial figure of 79 million children around the world who did regular work [see Ashagrie (1993, p.16)] has since been revised upwards to 120 million children between the age of 5 – 14 years doing full time paid work [ILO 1996b), Ashagrie (1998)]¹. Including part time workers as well pushes this estimate to 250 million children. The estimate of child labour would vary depending on how we define work, how we define a child, and how we collect the data, but few would disagree that this is a problem of gigantic proportions. Both Basu (1999a) and Lieten (2000) have drawn attention to the distinction that the ILO draws between 'child work' and 'child labour', the latter being used to describe the more harmful aspects of the former. However, given the data limitations, we follow Basu (1999a) in ignoring this distinction and adopt the ILO Convention No. 138 in classifying a child as a 'labourer' if she/he is aged less than 15 years and is involved in 'economic activity'. Such activities could be in wage employment or in household enterprises/family farms. While this limits our treatment of child labour by excluding child hours spent on domestic chores or household duties, it makes the present results comparable with those from previous investigations. However, we need to keep this in mind in assessing the results, especially the fact that, by overlooking domestic labour, we are underestimating the girl child's labour force participation and her labour hours.

Notwithstanding almost universal agreement that child labour is undesirable, there is wide disagreement on how to tackle this problem. The formulation of policies that are effective in curbing child labour requires an analysis of its key determinants, namely, identification of variables that have a significant effect on child employment. In view of the close interaction between child labour and child schooling, such an analysis needs to be extended to the latter. Moreover, evidence on the nature of interaction between child labour and child schooling is needed in formulating effective policies designed to improve the welfare of the child. The present study provides South Asian evidence on these issues. There has been, in recent years, a rapidly expanding literature on child labour that provides empirical evidence on its nature and determinants – see Grootaert and Kanbur (1995), Basu (1999a) and Jafarey and Lahiri (2000b) for surveys. While some of these studies [for example, Knight (1980), Horn (1995)] discussed mainly the qualitative features of child labour, the recent literature has focussed attention on the quantitative aspects taking advantage of the increasing availability of good quality data on child employment. Within the empirical literature on child labour, there has been a shift in emphasis from mere quantification to an econometric analysis of its determinants. The present study is in this latter tradition.

While the majority of the econometric studies on child labour have used Latin American data [see, for example, the volume edited by Grootaert and Patrinos (1991)], the corresponding literature on South Asian child labour is relatively limited. And, yet, as Table 1, reproduced from Basu (1999a) and based on Ashagrie (1993) shows, South Asia contains the largest concentration of child labour in the world. Nearly one in three child labourers is from South Asia. However, the child labour participation rate in South Asia lags behind that in Africa. The chief motivation of the present exercise is to extend the literature on estimating the determinants of child labour and child schooling to the South Asian context. The previous literature on South Asian child labour includes the classic monograph by Weiner (1991) on India, Chaudhuri and Wilson (2000), Ray (2000c), Cigno and Rosati (2000) on India, Ravallion and Wodon (2000) on Bangladesh, and Addison, et.al. (1997), Ray (2000a, 2000b) on Pakistan. However, there exists no comparative study of child labour or child schooling between the South Asian countries. That is one of the features of this exercise. The countries chosen for the present exercise are Bangladesh, Nepal and Pakistan. The corresponding data sets are fairly comparable. These country surveys provide

comparable information not only on the nature and magnitude of child labour and child schooling but, also, on the individual, household and community level attributes that provide their potential determinants.

[Table 1 here]

This study provides empirical evidence on the impact of poverty and inequality on child labour and child schooling. There is no consensus in the literature on the role of poverty in forcing households to put its children into employment. Bhatta (1998), Ahmed (1999) and Lieten (2000), among others, argue that poverty has only a limited role in explaining child labour. Bhatta (1998, p. 1734) cites a variety of studies on Indian child labour in support of the view that ‘income and related variables do not seem to have any direct significant effect on children’s work input ... children are often put to work as a deterrent to idling rather than as an economic necessity’. Lieten (2000, p. 2038) observes that ‘the correlation between regional poverty and child labour indeed is inconclusive’ and explains the lack of strong correlation by the fact that poor regions are characterised by high fertility rates and low labour opportunities. Lieten’s view is supported by the Pakistani evidence of Addison, et.al. (1997) who observe that ‘low incomes do not increase child labour’. Ray (1999a), also, provides evidence that shows that household poverty has an insignificant impact on the child’s labour market participation in Peru and Pakistan. Swaminathan (1998) explains the observed weak relation between incidence of child labour and incidence of poverty by suggesting that at ‘the micro-level, poverty ensures a supply of child labour ... it is the structure of demand, however, that determines the use of child labour’ (p. 1514). In contrast to these empirical findings, income and the poverty variables play a crucial role in the analytical results on child labour derived in Basu and Van (1998).ⁱⁱ Also, Ray (2000b) provides Pakistani evidence that suggests that there is a strong positive association between child labour hours (unlike labour force participation rates) and poverty, though this result does not extend to the Peruvian data. Ray (2000c) provides Indian evidence that shows that while household poverty is a significant determinant of wage based child employment, this is not so for more generally defined ‘economic activities’. Against this background of a lack of consensus on the link between poverty and child labour, the new evidence on this on Nepalese data, presented here, acquires some importance.

In examining the impact of poverty on child labour and child schooling, we depart from previous studies in distinguishing between ‘household poverty’ and ‘cluster poverty’. While the former is a household attribute and is based on the household’s income shortfall from the poverty lineⁱⁱⁱ used in the Foster, Greer and Thorbecke (1984) measure of poverty, the latter, which is a community level variable, uses the head count poverty rate to measure the economic affluence, or the lack of it, of the cluster of residence of the household. The income shortfall is measured by $P = \left(\frac{z - x}{z} \right)^\alpha$, where z is the cluster specific poverty line, x is the per capita expenditure of the household, and α is the ‘poverty aversion’ parameter. α was set at 2.0 in the present exercise. Note that this extends the treatment of the poverty variable in Ray (2000a, 2000b) which set $\alpha = 0$ and, consequently, ignored the income variation between the poor households. The distinction between household poverty and cluster poverty, that we draw here, is quite significant for it allows the possibility that the household is not ‘poor’ but resides in an economically depressed cluster with considerable poverty, or vice versa. The transmission mechanism from household poverty to child labour, if present, can be classified as a ‘supply side’ phenomenon, namely, economic necessities pushing a child from a poor household into employment. In contrast, cluster level poverty would control for poverty related variables from the ‘demand side’ since, as suggested by Addison, et.al. (1997) and Lieten (2000), among others, households living in poor clusters have only limited opportunities for employment. As our results show, the estimated coefficients do not always agree, thus, underlining the need to make this distinction.

This study, also, provides Nepalese evidence on the impact of inequality^{iv} and credit constraints on child labour and child schooling. There has been much discussion recently on these variables in the context of child labour but, relatively, little empirical evidence exists on their impact on child employment. Ahmed (1999) provides Indian evidence that suggests that it is inequality rather than poverty that explains the high incidence of child labour. Ray (2000c) reports on Indian NSS data a U shaped relationship between child labour force participation rate and inequality. Swinnerton and Rogers (1999) demonstrate analytically the importance of inequality in explaining child labour, and provide support to the view of Grootaert and Kanbur (1995, p. 198) that ‘general economic development, equally

distributed, is the best and most sustainable way of reducing child labour'. Ranjan (2001) derives analytically a positive relationship between inequality in the distribution of income and the incidence of child labour. Inequality of income leads to severe credit constraints. Ranjan (2001), Jafarey and Lahiri (2000a) highlight the pivotal role that increased credit availability can play in switching children from labour market to schooling. If, as some argue, households look to income from child labour to compensate from income shocks and lift them out of poverty, then improved credit provision can play a significant role in keeping children in schooling and out of employment. As Ranjan (2001) and Jafarey and Lahiri (2000a) both argue, the link between credit markets and child labour may result in trade sanctions, currently touted as a way of reducing child labour, making matters worse by driving the children from credit starved households onto the labour market. This calls for much needed empirical evidence, that this study provides, on the impact of credit availability on child labour, child schooling. Similar to the distinction made earlier in the context of poverty, we distinguish between cluster level credit, measured by credit received per household in the cluster, and household level credit recorded by the amount of net credit inflow into the household. Analogous to the poverty case, we allow for a credit starved household to live in a credit rich cluster and vice versa.

The rest of this paper is organised as follows. Section 2 discusses the methodology, describes the data sets and focuses on some of its summary features. The empirical results are presented and discussed in Section 3. We end on the concluding note of Section 4 which spells out the policy implications of the results of our study.

2. Methodology and Data

The empirical exercise is primarily conducted on Nepalese data in three stages. In stage 1, we estimate the child's participation in an economic activity (1 = yes, 0 = no) as a function of a set of individual, household and cluster/community attributes using the logit estimation procedure. A similar exercise is carried out with respect to a child's current school attendance (1 = yes, 0 = no). The logit estimates are compared between boys and girls to examine if there are any gender differences in the estimated logit coefficients. In stage 2, we estimate, using the Tobit model, the child labour hours and the

years of schooling received by the child as a function of the various determinants. In stage 3, we recognise the interdependent nature of decisions on child labour and child schooling, and jointly estimate the child's labour hours and her/his years of schooling using a three stage least squares procedure that recognises their joint endogeneity. A key feature of this last exercise is that we examine the impact of a child's current school attendance on her/ his labour hours. This last aspect of our empirical exercise is of considerable policy significance since many have argued that compulsory schooling or, alternatively, encouraging schooling via an enrolment subsidy is a useful vehicle for reducing child labour.^v

The focus of this study is on child labour and child schooling in Nepal. The substantive part of this study is devoted to the three stage estimation and discussion of the determinants of child labour and child schooling in Nepal. The Nepalese results are, then, compared with those from Bangladesh and Pakistan. The Nepalese data on child labour comes from the Nepal Living Standards Survey (NLSS) conducted in June 1995 by the Household Survey Unit of the Central Bureau of Statistics (CBS). The main objective of the NLSS is to collect data from Nepalese households and provide information to the government to monitor progress in national living standards and to evaluate the impact of various policies and programs on the living conditions of the population. The sample size for the NLSS is 3388 households. Further, this sample is divided into four strata based on the geographic regions of the country: mountains, urban hills, rural hills and terai. The Bangladeshi child labour data is contained in the Micronutrients/Gender Study in Bangladesh, phase 1 conducted in 1996 and 1997 by the Washington based International Food Policy Research Institute (IFPRI) in collaboration with the Bangladesh Institute of Development Studies, Dhaka and other Bangladeshi organisations. The present study is based on a sample of 955 households involving 5541 individuals living in 47 villages. The Pakistani child labour data came from the Pakistan Integrated Household Survey (PIHS) carried out in 1991 when PIHS teams visited 4800 households residing in 300 urban and rural communities between January and December, 1991. The Pakistani data yielded 5867 observations on children aged 10 – 17 years. Note, incidentally, that though, on ILO based definition, a working child aged 15 years or above does not constitute child labour, we follow conventional practice in extending the age limit to 17 years in order to capture better the interaction between child labour and child schooling.

The data on child labour force participation and on the child's labour hours were obtained by combining information from a number of sources. The information on wages, especially child wages, was often not readily available or, simply, not available at all. In the latter case, we used imputed wages based on the mean wage rates of the cluster of residence of the household. This introduced a high degree of arbitrariness in the constructed wage data which suggests that the wage coefficients should be interpreted with considerable care. In case of Bangladesh there was so little information available on the recorded wage rates that we decided to omit the wage variables altogether in the estimation.

[Tables 2, 3 here]

Tables 2, 3 present the age specific participation rates of children in the three countries in the labour market and in schooling, respectively. The following remarks apply. First, generally, in all three countries, the child participation rate in the labour market increases with child age. A significant exception is the Bangladeshi girl child's labour market participation which seems to decline somewhat in the higher age groups. Second, the sharp gender disparity in the child's labour market participation rate in Pakistan and Bangladesh contrasts sharply with a more even gender balance in case of Nepal. Third, the current school enrolment rate peaks around 11 years and declines thereafter in all the three countries. However, the gender disparity in favour of boys schooling is much less marked in Bangladesh compared to Pakistan and Nepal. In fact, unlike in the other two countries, Bangladeshi girls seem to enjoy superior current schooling enrolment rates to boys in nearly all the age groups. In contrast, Pakistani girls have the worst record in current school attendance. Fourth, the sharply lower labour force participation rates and schooling enrolment rates of Pakistani girls than their Bangladeshi and Nepalese counterparts, especially in the higher age groups, suggests that older girls in Pakistan are withdrawn from both schooling and employment in much larger numbers than in the other countries to help out with domestic duties.

3. Results

3.1 The Nepalese Evidence on Child Labour and Child Schooling

Tables 4, 5 present the logit estimates of the child's labour force participation rate and of her current school enrolment rate. The tables present the estimates separately for boys and girls and for the

pooled sample. The estimated coefficients in the two tables measure the impact on the log odds ratio of the child's labour force participation and schooling enrolment, respectively, if the corresponding variable increases by one unit. In this paper, we report and discuss the Nepalese regression results in detail and, then, compare some of its principal features with those from the regressions on Bangladeshi and Pakistani data.

[Tables 4, 5 here]

The Nepalese child labour logit estimates, reported in Table 4, reveal the following:

- i) Neither household level nor cluster level poverty has a significant impact on the child's labour force participation, regardless of the gender of the child. This is, also, true of credit availability both at household and cluster levels. Note, however, that on the pooled sample involving boys and girls, cluster level poverty and household level credit do have a weakly significant impact on child labour. Note, also, that cluster poverty has a stronger impact on the labour force participation rate of boys than girls.
- ii) In contrast to the poverty variable, inequality does have a strong impact on the child's labour force participation, especially for boys. Consistent with the Indian evidence presented in Ray (2000c), inequality has a U shaped effect on child labour. In other words, an increase in inequality reduces child labour force participation at low levels of inequality but increases it at higher levels. The inequality level at which the impact of inequality on child labour participation changes direction is given by $-\frac{\alpha_1}{2\alpha_2}$, where α_1 , α_2 are, respectively, the estimated coefficients of the (inequality), (inequality)² terms. The pooled logit estimates show that the turning point is achieved at 0.3146 which is somewhat higher than the mean inequality value of 0.281 for the whole sample. It is worth noting that the gender disaggregated estimates show that the turning point is achieved earlier for girls (at an inequality value of 0.3021) than for boys (0.3148). Since a significant number of clusters lie on either side of these turning points, the Nepalese results suggest that no unambiguous statement can be made on the direction of impact of inequality changes on child labour. What is clear, however, is that high inequality gives rise to child labour.
- iii) Consistent with previous evidence, rising education levels in the household have a significant role to play in reducing child labour. The community infrastructure variables, especially the presence of electricity, also have a useful role to play in reducing child labour, especially of girls.
- iv) The qualitative picture on child labour force participation seems quite robust to child gender, though there are some differences in the estimated magnitudes. The impact of child age on child labour is much stronger for boys than for girls. Rising adult female education level has a stronger impact in reducing girls' child labour than boys' labour. In contrast, highly educated Nepalese men have a significant impact in reducing boys labour, not so for girls.
- v) An increase in adult female wages leads to a rise in the girl child's labour force participation. An identical result was observed for Pakistan [Ray (2000a)] suggesting a close, complementary nexus between the female and the girl labour markets in these two countries. Note, however, that, unlike in Pakistan, this complementarity does not extend to the labour hours.

The logit estimates of Nepalese school enrolment, presented in Table 5, contain the following principal features:

- i) Poverty, at both household and cluster level, especially the former, have a much stronger impact on the child's schooling enrolment than on her/his labour market participation. The negative impact of poverty on boys schooling is particularly evident from these results. A combination of household poverty and cluster level poverty, therefore, sharply diminishes the chance of a child's schooling enrolment.
- ii) Inequality, also, has a strong impact on child schooling in Nepal. It is interesting to note that, in an exact reversal of its relationship with child labour, inequality has an inverted U shaped impact on child schooling, with enrolment initially increasing but later decreasing with rising inequality. The pooled estimates show that the turning point is reached at an inequality value of 0.3179, which is quite close to the corresponding turning point for child labour (0.3146).
- iii) Rising education levels of the adults in the household have strong beneficial effects on the child's school enrolment. It is interesting to note that, while the impact of rising female education levels on girls' school enrolment is much stronger than on boys' school enrolment, the corresponding impact of male education on boys' schooling is stronger than on girls' schooling attendance.
- iv) The availability of credit at the cluster level does not have much of an impact on child schooling. However, an increase in household credit discourages the child's school attendance, especially of the girl child. The child gender coefficients in Tables 4 and 5 show that, other things remaining the same, a girl child is more likely than a boy to be involved in an economic activity, and less likely to be currently attending a school. The former result is particularly significant since it distinguishes Nepal from Peru and Pakistan [Ray (2000a, Table 3)].

[Table 6 here]

Let us now turn to the Tobit estimates of child labour hours and child schooling experience in Nepal presented in Table 6. While the former refers to the annual labour hours worked by the child, the latter is measured by the years of schooling received by the child, regardless of whether she/he is currently attending a school or not. The following features are worth noting from this table.

- i) While household poverty has a small and insignificant effect on child labour, cluster level poverty does have a large and highly significant negative impact on the child's labour hours. The latter clearly reflects demand side factors in the labour market, since a child living in a particularly poor cluster is unlikely to have much of an opportunity to work long hours in economically gainful activities^{vi}. If one contrasts this result with the positive, though weakly significant, impact of cluster poverty on child labour participation, reported in Table 4, it suggests that, ceteris paribus, while more children work in the poorer clusters, they work lesser hours than children in the more affluent clusters. As we report later, the latter result reverses itself once we control for the child's school attendance.
- ii) Unlike the child's annual labour hours, her/his schooling experience is strongly and adversely affected by household poverty. In contrast, a child belonging to a household from a poor cluster will stay enrolled in schooling for a somewhat longer period than one from an equally affluent household but living in a less poverty prone cluster.
- iii) Similar to the case of child labour participation and current school enrolment, cluster inequality has a U shaped impact on annual labour hours, and an inverted U relationship with the years of schooling experience of children residing in the cluster. In other words, at high inequality levels, any further worsening of inequality leads to a sharp increase in the child's labour hours and a reduction in her/his schooling experience. The turning point for the non monotonic relationships arrives at a much lower level of inequality (0.2803) for child labour than for child schooling

- (0.3208). Hence, over the inequality range (0.2803, 0.3208), as inequality worsens, child labour hours and years of schooling experience both increase. Note from our earlier discussion that the turning point in case of child labour participation is reached at the inequality magnitude of 0.3146. In other words, over the wide stretch of inequality between 0.2803 and 0.3146, as inequality increases, the child labour participation rate falls but the child labour hours increase – ie., less children work but those who do endure longer working hours. In contrast, the turning point for current school enrolments (0.3179) is much closer to that for schooling experience (0.3208) of the child. There is, incidentally, a gender disparity in the latter case, ie., schooling experience, with the turning point reached earlier for boys (0.3213) than for girls (0.3484).
- iv) Of the other variables, the adult's educational level has the maximum impact on the child's labour hours and schooling experience, negative (ie., labour reducing) in case of the former, positive (ie., schooling increasing) in case of the latter. The separate Tobit regression estimates for boys and girls schooling experience, not reported here, confirm the finding previously seen in case of school enrolment that the adult's education level has a stronger impact on a child of the same gender than of the other.
 - v) The adult female wage variable has a strongly negative impact on the child's annual labour hours, thus, pointing to adult female labour and child labour as substitutes in Nepal. This contrasts with the strong complementarity between the two in Pakistan [see Ray (2000b)]. The statistical significance of the adult wage coefficients is evidence of the strong linkage that exists between the adult and child labour markets in Nepal. Rising wage of the adult female helps to keep the child in schooling for a longer period. The high statistical significance of the female wage coefficient points to female wages and female wage income as useful policy instruments for increasing child schooling.
 - vi) Household credit has a strong negative influence on the child's schooling experience, though it does not impact on her/his annual labour hours significantly. One possible interpretation of this result is that the adults in severely indebted households are forced to work longer hours in employment to pay off their debt and, consequently, they pull their children, especially the girls, out of schooling to help out with domestic duties. Consistent with this is the fact that, as noted earlier, a *ceteris paribus* increase in household indebtedness leads to a statistically significant decline in the current school attendance rate of girls.
 - vii) *Ceteris paribus*, boys in Nepal work for longer hours and stay in schooling for longer periods than the girls. The former result contrasts with the higher labour market participation rates of girls than boys. The number of children in the household has a weakly significant impact on child labour hours and the child's schooling experience, negative for the former and positive for the latter. In contrast, the number of adults in the household has a strong positive impact on child labour hours and a strong negative impact on the child's schooling experience. Another variable that has a strong impact is the employment status of the adult in the household. Children from households where one or more adults work will enjoy greater schooling experience but, also, work more hours than other children. In other words, children from such households are more likely to combine schooling with employment.
 - viii) The community variables, namely, water and electricity do not appear to have much of an impact on the child's labour hours nor on her schooling experience.

The above discussion and the results presented so far have not directly addressed the issue of interaction between child labour and child schooling. This is an important issue from the policy viewpoint since compulsory schooling is often viewed as an effective way of reducing child labour – see Weiner (1991)'s comprehensive discussion of this issue^{vii} in the Indian context. To provide empirical evidence on

this interaction, we jointly estimate on the Nepalese data the child's labour hours and her/his years of schooling. The exercise recognises the joint endogeneity by estimating the two equations, simultaneous equations system using a 3SLS estimation procedure. In addition to the list of exogenous determinants used before, we control for the child's current school attendance status by introducing a 0/1 dummy in the child labour hours equation. We, also, introduce in this equation some schooling infrastructural variables at the cluster level in order to examine whether the authorities could reduce the child labour hours by improving schooling infrastructure. The results, presented in Table 7, contain the following principal features.

- i) The child's current school attendance does have a large negative impact on her labour hours. *Ceteris paribus*, a child, who is currently attending school, works annually 511 hours less^{viii} than a child not attending school. This large trade off between child schooling and child labour underlines the importance of compulsory schooling, also stressed by Weiner (1991), in reducing child labour. The present evidence from Nepal appears to contradict Ravallion and Wodon (2000)'s evidence from Bangladesh which points to a very limited substitution between the two. Note, however, that this inconsistency is more apparent than real since, while Ravallion and Wodon (2000)'s study is based on data on child labour participation, the present evidence is based on child labour hours. The results provide a positive outlook for the policy maker by suggesting that, while compulsory schooling may have only a limited role to play in removing children completely from the labour market, it nevertheless effectively reduces, quite drastically, the child's labour hours, often spent in quite enduring conditions. It may even be argued that, while complete withdrawal of a working child from the labour market is neither feasible nor desirable in view of the household's dependence on child earnings, a sharp reduction in the child's labour hours in favour of school attendance will be immensely beneficial for her welfare.
- ii) Cluster level poverty has a much greater impact on the child's education/employment outcomes than household level poverty. Children in poor clusters work longer hours and, also, stay in schooling longer than those from less affluent clusters. While the latter is consistent with the single equation based evidence presented earlier in Table 6, the former is not. The reason lies in the introduction of the current school attendance variable in the present regression along with the treatment of schooling and employment outcomes as jointly dependent variables unlike before. The latest evidence reinforces a point made earlier – it is not so much the poverty level of the household, rather the poverty of the cluster of residence or, more generally of the environment that the child lives in, that is conducive to long child labour hours. A combination of the logit coefficient estimates of the cluster poverty variable in the current school attendance equation presented earlier in Table 5 and that presented in the 3SLS estimates of Table 7 suggest that, while a poorer cluster witnesses a drop in the school attendance rate (Table 5), on controlling for this drop, one finds a sharp rise in the child labour hours.
- iii) Consistent with the previous evidence, inequality has a U shaped impact on child labour hours and an inverted U shaped impact on schooling experience. The turning point in each case is much earlier than reported before i.e., at a much lower level of inequality, namely, 0.2605 for child labour hours and 0.2525 for school experience.
- iv) An increase in household credit, i.e., rising indebtedness, encourages the household to withdraw its children from schooling. However, an increase in overall credit availability in the cluster leads to an increase in both the child's schooling experience and in her labour hours. This last result is of considerable policy significance since it shows that untargeted or untied supply of credit to a

cluster may make matters worse for the child by inducing or expanding economic activities that actually increase the child labour hours.

- v) The results confirm our earlier observation that rising education levels of the adult have a highly significant, positive impact on the educational experience of children in the household. Note, however, that the presence of the child's schooling enrolment status variable renders the adult education coefficients insignificant in the child labour hours equation. The message from this is as follows. Rising adult education levels reduce the child labour hours, mainly, by increasing the child school attendance rate and via the consequent trade off between school attendance and child labour hours. Once we control for the former, the extra impact of adult education on child labour hours is insignificant.
- vi) In another result with policy significance, we find that the school infrastructural variables have a significant impact on child labour hours – in other words, improvements in the schooling infrastructure can play an effective role in reducing child labour hours. The abolition of school entry fee and the availability of classroom in the school lead to a reduction in child labour hours. An improvement in the quality of schooling available in the cluster, as measured by the costs that parents are willing to pay to send the child to school, significantly reduces the labour hours of the children in the cluster.

[Table 7 here]

3.2 Comparison of Evidence from Nepal, Bangladesh and Pakistan

Before concluding this section, we compare the evidence on some of the principal determinants of child labour and child schooling in Nepal with that from Bangladesh and Pakistan. Time and space constraints prevent us from a comparison of all the evidence from Nepal presented above with that from the other two South Asian countries. In this paper, we restrict ourselves to only the coefficients of the principal variables in the logit estimates of the child labour participation and the school enrolment equations.

[Table 8 here]

Table 8 compares the principal logit coefficient estimates of child labour participation in the three countries. While child age has a positive impact on labour market participation by children in all the three countries, the impact of child gender varies between Nepal on one hand, and Bangladesh, Pakistan on the other. *Ceteris paribus*, a girl has a higher probability than a boy in engaging in child labour in Nepal, but the reverse is the case in the other two countries. Household composition has much more of an impact on child labour market participation in Bangladesh than in the other two countries. An increase in the number of adults in the household significantly reduces child labour participation in Bangladesh unlike in the other countries. An increase in the number of children in the household sharply reduces child labour

participation in Bangladesh, unlike in the other two countries. Children from female headed households in Bangladesh are less likely to be in employment than other children. The gender of the household head does not, however, matter in the other two countries. The result that seems to hold universally is the strong and positive role that rising adult education plays in reducing child labour.

In both Nepal and Pakistan, for which the data is available, inequality has an inverted U effect on child labour participation, with the impact of inequality somewhat stronger in Nepal than in Pakistan. In neither country does household poverty have a significant impact on child labour participation. In both countries, children from poorer clusters tend to have higher labour participation rates than those from more affluent clusters, though the impact is statistically significant in Pakistan, not in Nepal. In both countries, the presence of electricity in a cluster tends to discourage child labour market participation. This points to the useful role that the provision of modern amenities in villages can play in reducing child labour.

[Table 9 here]

Table 9 compares the principal household determinants of the school enrolment rates in the three countries. Bangladesh stands out as an exception in being the only country where, *ceteris paribus*, girls are more likely than boys to be currently attending school. Note, however, that this gender effect in Bangladesh is weak and insignificant and, possibly, reflects the small size of the sample. The nature of the impact of household composition on child school enrolment is quite similar between the three countries. Once again, the effects on which all the three countries agree are those of adult education on school attendance. All the countries in South Asia, including India [see Ray (2000a)], agree that rising adult education levels play a strong, positive role in increasing child schooling, the impact being somewhat weaker in Bangladesh. The Tobit estimates of Bangladesh and Pakistan on the child's schooling experience, not presented here, tell a similar story. A comparison of the Tobit estimates of the years of child schooling between the three countries shows that, unlike in Pakistan or Nepal, in Bangladesh, girls stay enrolled in school for a longer period than boys. However, *ceteris paribus*, a girl child spends less hours than boys in non domestic child labour in all the three countries of the sub continent considered in this study.

Table 9 shows that household poverty discourages child schooling in both Nepal and Pakistan. Cluster poverty, also, has a negative impact on child schooling in both countries, though the effect is insignificant in Nepal. The presence of water supply has a positive impact on child schooling in both Nepal and Pakistan. Table 10 presents the 3SLS estimates of annual child labour hours in Pakistan. These estimates are comparable to those for Nepal presented in Table 7. Note that, in both countries, the current school attendance sharply reduces a working child's labour hours, namely, by 644 hours (annually) in Pakistan compared to 511 hours in Nepal. Note, also, that in both countries, inequality has an inverted U shaped impact on child labour hours, though this relationship is stronger in Nepal than in Pakistan. Pakistan, also, agrees with Nepal that, on controlling for a child's current school attendance status, the impact of adult education on child labour loses its statistical significance, though the significance is retained in case of child schooling in both Countries.

[Table 10 here]

4. Conclusions

While there is universal agreement about the harmful effects of child labour, there is not much consensus on effective ways of dealing this phenomenon. Proposed action plans range from legislative measures that ban child labour to concerted international trade sanctions by the developed countries against the import of products made by under aged children in developing countries. The linkage of child labour, under the guise of 'labour standards', with trade has led to the hijacking of this issue by the WTO from child welfare agencies such as the UNICEF and the ILO. The recent international outcry over child labour has provoked talk of measures designed to satisfy several lobby groups, not all of whom are directly interested in the welfare of the working children in Third World countries. There has not been much attempt, until recently, to examine systematically the causes of child labour with a view to identifying factors that could lead to its reduction and eventual elimination. That is now changing with a proliferation of empirical studies on child labour. These have either taken the form of case studies of a particular region inside a country with high incidence of child labour or they involve econometric investigations based on sample survey data containing information on child labour and child schooling.

The present study, which belongs to the latter tradition, focuses on Nepalese data but, then, compares briefly some of the estimates with those from Bangladesh and Pakistan.

This study has some special features which distinguish it from previous investigations. First, we consider both child labour participation rates and child labour hours. Second, we distinguish between household level and cluster level poverty in examining the importance of poverty as a determinant of child labour. The significance of this distinction is evident from the fact that the two poverty variables do not always agree on the nature of their impact on child labour or child schooling. Third, this study provides evidence on the impact of inequality on child labour and child schooling, and examines the relative importance of inequality vis-à-vis poverty as a determinant. Fourth, the study examines the impact of borrowings, both at household and cluster levels, on child labour and child schooling. While there has been much analytical work and related discussion of the inequality and credit variables in the context of child labour, there has not been much empirical evidence to guide policy action in this regard. Finally, and quite crucially, we report the results of simultaneous estimation of child labour hours and years of child schooling that recognises the joint endogeneity of the child's employment and education decisions.

One of the principal results of this study is the U shaped relationship between inequality and child labour on one hand and an inverted U relationship between inequality and child schooling on the other. The former relationship, which holds for both child labour participation rate and child labour hours, implies that child labour increases at high levels of inequality. This may explain the significant incidence of child labour in many middle income countries with high levels of inequality. It, also, provides a possible explanation for the lower incidence of child labour in poorer states in India, such as Kerala, in relation to that in the more affluent states such as Gujarat or Punjab [see Ray (2000c)]. In relation to inequality, poverty, at both the household and cluster levels, plays a much less important role in explaining child labour participation rate. This result is consistent with most previous evidence which finds little or no correlation between child labour and poverty, and denies the view expressed in the World Development Report (1995, p.72) that 'a high prevalence of child labour is linked to poverty'. It would, however, be wrong to deny the link altogether. In its joint estimation of child labour hours and years of

schooling experience, this study departs from most previous investigations in finding a highly significant causal link between cluster level poverty and the child's labour hours in Nepal. In other words, children living in poor clusters are, *ceteris paribus*, prone to work longer hours than other children, even though such clusters may not register particularly high child labour participation rates. Since longer hours are more harmful to a child's development than simple labour market participation, it suggests that the policy maker should identify particularly poor clusters, rather than the households, for intervention to prevent long labour hours of the working children. The role of declining inequality in reducing child labour should also, be kept in mind in devising effective policies. It is significant that, in its discussion of child labour, the World Development Report (1995) makes no mention of inequality in this context. In contrast to child labour, the schooling of children is significantly deterred by household poverty, apart from rising inequality.

Another important finding of this paper, arising out of the joint estimation of the child labour and child schooling equations, is the significant role that a child's current school attendance plays in sharply diminishing her labour hours, even though the evidence of its impact on her labour participation rate is weak and insignificant. Notwithstanding the rhetoric in public statements, the record on primary schooling in the South Asian countries is quite disappointing, leaving the children prone to long labour hours. Rising education levels of the adult members in the household and increased public awareness have a highly significant, positive impact on child schooling and, consequently, can play an important part in reducing the child's long labour hours. Improvements in the schooling infrastructure, by making them more relevant to the child's needs as viewed by the parent, and locating them near places of child employment will be conducive to shorter working hours and encourage combination of child labour with child schooling to a greater extent than has happened in countries such as Pakistan in relation to Latin American countries such as Peru [see Ray (2000a)].

The District Primary Education Projects and the Integrated Children Development Schemes (ICDS) in India [see Fallon and Tzannatos (1998, p.15)] can, also, play a useful role in this regard. The role of household credit, that is tied to its use in keeping the child in school and to compensate the household from its consequent loss of child earnings, can also be very useful in this regard. The results,

obtained in this study, warn that untied lending to the household may be misused and can make matters worse by increasing child labour.

Table 1: Child Labour: Aggregate and Distribution^a

	Number of Children (below 15 years) Working (in thousands)		
	1980	1985	1990
World	87,867 (19.91)	80,611 (n.a.)	78,516 (11.32)
Africa	14,950 (30.97)	14,536 (n.a.)	16,763 (24.92)
Latin America & Caribbean	4,122 (12.64)	4,536 (n.a.)	4,723 (8.21)
Asia:	68,324 (23.42)	61,210 (n.a.)	56,784 (10.18)
East Asia	39,725 (n.a.)	33,463 (n.a.)	22,448 (n.a.)
Southeast Asia	6,518 (n.a.)	6,079 (n.a.)	5,587 (n.a.)
South Asia	20,192 (n.a.)	19,834 (n.a.)	27,639 (n.a.)

Source: Basu (1999a, Table 1) based on Ashagrie (1993).

^a Figures in bracket denotes the child labour participation rate

Table 2: Participation Rates (in percentages) of Children in Employment

Age	Nepal		Bangladesh		Pakistan	
	Boys	Girls	Boys	Girls	Boys	Girls
10	17.60	27.80	25.60	9.20	14.90	18.70
11	22.33	28.40	37.70	14.50	16.10	19.60
12	33.30	42.20	42.60	23.10	25.40	22.80
13	36.40	42.70	61.80	24.20	30.30	21.30
14	41.30	45.40	59.70	19.50	36.30	28.30
15	48.70	55.60	64.10	18.80	39.80	29.80
16	53.50	55.40	65.00	21.90	51.20	26.70
17	52.60	53.30	81.70	14.90	48.40	25.80

Table 3: Participation Rates (in percentages) of Children in Current School Attendance

Age	Nepal		Bangladesh		Pakistan	
	Boys	Girls	Boys	Girls	Boys	Girls
10	78.16	57.37	86.70	90.80	77.30	51.10
11	79.46	65.16	91.30	94.50	82.20	54.80
12	75.18	50.60	71.30	85.90	73.50	49.00
13	77.30	57.71	55.90	83.90	72.10	45.30
14	67.69	48.09	74.00	79.20	66.80	39.00
15	61.10	43.03	50.00	66.70	56.90	33.40
16	44.60	40.50	46.30	35.60	50.70	28.10
17	46.90	38.00	36.70	40.40	48.80	28.20

Table 4: Logit Estimates^a of Child Labour Participation^b Equation in Nepal

Variable	Coefficient Estimates		
	Boys	Girls	All
Constant	-10.38 ^d (4.00)	-5.45 (4.32)	-10.22 ^d (3.01)
<i>Child Characteristics</i>			
Age of Child	1.10 (0.6)	0.23 (0.68)	0.77 (0.44)
(Age of Child) ²	-0.03 (0.02)	0.01 (0.03)	-0.02 (0.02)
Child Gender (0 = boy, 1 = girl)	-	-	0.44 ^d (0.09)
<i>Family Characteristics</i>			
Household Poverty ^c	0.80 (1.20)	0.16 (1.42)	0.75 (0.89)
Region of Residence (1 = urban, 2 = rural)	1.00 ^c (0.42)	1.49 ^d (0.55)	1.25 ^d (0.33)
No. of Children	0.04 (0.03)	0.02 (0.04)	0.03 (0.02)
No. of Adults	-0.06 (0.04)	0.02 (0.04)	-0.02 (0.03)
Gender of Household Head (0 = male, 1 = female)	-0.08 (0.23)	0.28 (0.27)	-0.02 (0.17)
Age of Household Head	-0.001 (0.01)	-0.003 (0.01)	-0.002 (0.004)
Years of Education of most Educated Female Member	-0.054 ^c (0.02)	-0.250 ^d (0.03)	-0.139 ^d (0.016)
Years of Education of most Educated Male Member	-0.072 ^d (0.021)	-0.016 (0.020)	-0.046 ^d (0.014)
At least one Adult Works (0 = no, 1 = yes)	2.34 ^c (1.07)	-	2.54 ^c (1.04)

Table 4: Continued

Variable	Coefficient Estimates		
	Boys	Girls	All
Maximum Wage Earned by the Male Members	0.0076 ^c (0.0036)	0.0004 (0.0036)	0.0042 (0.0024)
(Maximum Wage Earned by the Male Members) ²	-0.00 (1.32 e-5)	-7.41 e-6 (0.00)	-0.00 (8.01 e-6)
Maximum Waged Earned by the Female Members	0.002 (0.002)	0.025 ^d (0.003)	0.01 ^d (0.002)
Credit Received by the Household	3.80 e-7 (4.31 e-7)	8.25 e-7 (8.66 e-7)	6.25 e-7 (4.07 e-7)
<i>Cluster/Community Characteristics</i>			
Atkinson Inequality ^f	-23.43 ^d (6.48)	-14.61 (6.11)	-19.92 ^d (4.93)
(Atkinson Inequality) ²	37.21 ^d (10.83)	24.17 (13.73)	31.66 ^d (8.28)
Cluster Poverty ^g	0.95 (0.76)	0.19 (0.94)	0.98 (10.57)
Cluster Credit Availability	-2.92 e-6 (4.37 e-6)	-4.16 e-6 (5.39 e-6)	-1.20 e-6 (3.34 e-6)
Water Supply (1 = yes, 0 = no)	-0.21 (0.15)	-0.12 (0.17)	-0.15 (0.11)
Electricity Supply (1 = yes, 0 = no)	-0.15 (0.22)	-0.71 ^d (0.25)	-0.39 ^c (0.16)

^a Standard Errors in brackets.

^b The dependent variable takes the value 0 if the child does not work, 1 if she/he works.

^c Significant at 5% level.

^d Significant at 1% level.

^e The household poverty estimate is based on the Foster, et.al. (1984) measure with $\alpha = 2$

^f The Atkinson measure is computed at 'inequality aversion', ϵ , of 2.0.

^g Head count poverty rate.

Table 5: Logit Estimates^a of Child School Enrolment^b Equation in Nepal

Variable	Coefficient Estimates		
	Boys	Girls	All
Constant	-8.53 (4.35)	-7.71 (5.27)	-4.67 (3.15)
<i>Child Characteristics</i>			
Age of Child	0.87 (0.67)	0.86 (0.82)	0.58 (0.49)
(Age of Child) ²	-0.05 (0.03)	-0.05 (0.03)	-0.04 (0.02)
Child Gender (0 = boy, 1 = girl)	-	-	-1.69 ^d (0.12)
<i>Family Characteristics</i>			
Household Poverty ^e	-4.45 ^d (1.43)	-3.66 (2.31)	-4.85 ^d (1.15)
Region of Residence (1 = urban, 2 = rural)	0.77 (0.44)	-0.06 (0.69)	0.33 (0.33)
No. of Children	0.06 (0.04)	0.01 (0.04)	0.04 (0.03)
No. of Adults	-0.10 ^c (0.04)	-0.07 (0.05)	-0.09 ^d (0.03)
Gender of Household Head (0 = male, 1 = female)	-0.07 (0.25)	-0.26 (0.31)	0.03 (0.18)
Age of Household Head	-0.004 (0.006)	-0.005 (0.008)	-0.003 (0.004)
Years of Education of most Educated Female Member	.067 ^c (0.027)	0.651 ^d (0.040)	0.347 ^d (0.022)
Years of Education of most Educated Male Member	0.316 ^d (0.026)	0.023 (0.024)	0.161 ^d (0.016)
At least one Adult Works (0 = no, 1 = yes)	-0.115 (0.552)	(0.243) (0.802)	0.005 (0.446)

Table 5: Continued

Variable	Coefficient Estimates		
	Boys	Girls	All
Maximum Wage Earned by the Male Members	0.002 (0.004)	0.003 (0.004)	0.004 (0.003)
(Maximum Wage Earned by the Male Members) ²	-0.00 (0.00)	0.00 (0.00)	-7.88 e-6 (8.51 e-6)
Maximum Waged Earned by the Female Members	0.013 ^d (0.003)	0.002 (0.003)	0.005 ^d (0.002)
Credit Received by the Household	-9.97 e-7 (1.21 e-6)	-2.52 e-6 ^d (9.03 e-7)	-1.87 e-6 ^d (7.05 e-7)
<i>Cluster/Community Characteristics</i>			
Atkinson Inequality ^f	20.56 ^d (7.06)	24.71 ^d (9.27)	25.92 ^d (5.21)
(Atkinson Inequality) ²	-32.33 ^d (11.64)	-36.58 ^c (15.25)	-40.77 ^d (8.62)
Cluster Poverty ^g	-1.58 (0.88)	-1.15 (1.05)	-0.99 (0.63)
Cluster Credit Availability	7.02 e-6 (4.76 e-6)	-7.45 e-6 (6.23 e-6)	1.86 e-6 (3.44 e-6)
Water Supply (1 = yes, 0 = no)	0.31 (0.18)	0.16 (0.20)	0.27 ^c (0.13)
Electricity Supply (1 = yes, 0 = no)	-0.10 (0.27)	0.02 (0.29)	0.06 (0.19)

^a Standard Errors in brackets.

^b The dependent variable takes the value 0 if the child is not currently attending school, 1 if she/he is.

^c Significant at 5% level.

^d Significant at 1% level.

^e The household poverty estimate is based on the Foster, et.al. (1984) measure with $\alpha = 2$

^f The Atkinson measure is computed at 'inequality aversion', ϵ , of 2.0.

^g Head count poverty rate.

Table 6: Tobit Regression Estimates^a of Child Labour Supply, Child Schooling Equations^b in Nepal

Variable	Coefficient Estimates	
	Child Labour Hours	Child Schooling Years
Constant	-2328.60 (1666.36)	-12.99 ^d (3.36)
<i>Child Characteristics</i>		
Child Wage	42.29 ^d (1.39)	-0.023 ^d (0.003)
Age of Child	217.81 (246.19)	0.99 (0.52)
(Age of Child) ²	-4.88 (9.77)	-0.02 (0.02)
Child Gender (0 = boy, 1 = girl)	-150.40 ^d (53.77)	-1.61 ^d (0.11)
<i>Family Characteristics</i>		
Household Poverty ^c	-61.85 (454.88)	-9.04 ^d (1.46)
Region of Residence (1 = urban, 2 = rural)	225.72 (189.30)	-0.09 (0.35)
No. of Children	-22.29 (13.71)	0.05 (0.03)
No. of Adults	46.63 ^d (15.15)	-0.22 ^d (0.03)
Gender of Household Head (0 = male, 1 = female)	-139.68 (97.95)	0.39 ^c (0.20)
Age of Household Head	-5.28 ^c (2.21)	-0.000 (0.00)
Years of Education of most Educated Female Member	-31.53 ^d (7.96)	0.32 ^d (0.02)
Years of Education of most Educated Male Member	-62.97 ^d (9.60)	0.34 ^d (0.02)
At least one Adult Works (0 = no, 1 = yes)	1340.50 ^d (454.00)	1.29 ^d (0.47)

Table 6: Continued

Variable	Coefficient Estimates	
	Child Labour Hours	Child Schooling Years
Maximum Wage Earned by the Male Members	-3.19 ^c (1.33)	0.00 (0.00)
(Maximum Wage Earned by the Male Members) ²	0.007 ^c (0.004)	-0.00 (0.00)
Maximum Waged Earned by the Female Members	-9.88 ^d (1.13)	0.006 ^d (0.002)
Credit Received by the Household	-0.00 (0.00)	-2.04 e-6 (7.57 e-7)
<i>Cluster/Community Characteristics</i>		
Atkinson Inequality ^f	-6699.28 ^c (2717.30)	35.10 ^d (5.94)
(Atkinson Inequality) ²	11948.29 ^d (4602.03)	-54.71 ^d (9.66)
Cluster Poverty ^g	-1003.75 ^d (336.67)	-1.21 (0.71)
Cluster Credit Availability	-0.00 (0.00)	-0.00 (0.00)
Water Supply (1 = yes, 0 = no)	-100.30 (63.52)	0.14 (0.13)
Electricity Supply (1 = yes, 0 = no)	-176.54 (97.94)	0.01 (0.18)

^a Standard Errors in brackets.

^b Child labour supply is measured as annual hours worked, while child schooling is measured as years of schooling attended by the child.

^c Significant at 5% level.

^d Significant at 1% level.

^e The household poverty estimate is based on the Foster, et.al. (1984) measure with $\alpha = 2$

^f The Atkinson measure is computed at 'inequality aversion', ϵ , of 2.0.

^g Head count poverty rate.

Table 7: 3SLS Estimates^a of Child Labour Hours and Child Schooling Years in Nepal

Child Labour Hours		Child Schooling Years	
Variable	Coefficient Estimate	Variable	Coefficient Estimate
<i>Child Characteristics</i>		<i>Child Characteristics</i>	
Currently Attending School (0 = no, 1 = yes)	-510.92 ^c (27.57)	Annual Child Labour Hours	-0.006 ^c (0.0004)
Age of Child	-26.17 (110.27)	Age of Child	0.32 (0.70)
(Age of Child) ²	1.65 (4.42)	(Age of Child) ²	.01 (.03)
Child Gender (0 = boy, 1 = girl)	-110.75 ^c (24.77)	Child Gender (0 = boy, 1 = girl)	-1.24 ^c (.15)
Child Wage	13.86 ^c (0.54)	Child Wage	0.08 ^c (0.01)
<i>Family Characteristics</i>		<i>Family Characteristics</i>	
Household Poverty	-122.96 (223.29)	Household Poverty	-1.51 (1.42)
Region of Residence (1 = urban, 2 = rural)	606.53 (405.21)	Region of Residence (1 = urban, 2 = rural)	0.99 (2.45)
No. of Children	-10.78 (6.51)	No. of Children	-0.05 (0.04)
No. of Adults	11.72 (7.00)	No. of Adults	-0.04 (0.05)
Gender of Household Head (0 = male, 1 = female)	-45.18 (43.87)	Gender of Household Head (0 = male, 1 = female)	-0.17 (0.28)
Age of Household Head	-1.14 (1.00)	Age of Household Head	-0.01 (0.01)
Years of Education of Most Educated Male Member	-0.59 (3.78)	Years of Education of Most Educated Male Member	0.16 ^c (0.02)
Years of Education of Most Educated Female Member	0.07 (4.34)	Years of Education of Most Educated Female Member	0.20 ^c (0.03)

Table 7: (continued)

Child Labour Hours		Child Schooling Years	
Variable	Coefficient Estimate	Variable	Coefficient Estimate
At Least One Adult Works (0 = no, 1 = yes)	446.40 ^c (129.47)	At Least One Adult Works (0 = no, 1 = yes)	3.68 ^c (0.84)
Maximum Wage Earned by the Male Members	-0.60 (0.61)	Maximum Wage Earned by the Male Members	-0.00 (0.00)
(Maximum Wage Earned by the Male Members) ²	0.00 (0.00)	(Maximum Wage Earned by the Male Members) ²	0.00 (0.00)
Maximum Wage Earned by the Female Members	-2.29 ^d (0.55)	Maximum Wage Earned by the Female Members	-0.014 ^c (0.004)
Credit Received by the Household	-0.00 (0.00)	Credit Received by the Household	-.00 (.00)
<i>Cluster/Community Characteristics</i>		<i>Cluster/Community Characteristics</i>	
Atkinson Inequality	-10399.51 ^c (2773.3)	Atkinson Inequality	-50.07 ^c (17.57)
(Atkinson Inequality) ²	19963.95 ^c (5219.72)	(Atkinson Inequality) ²	99.15 ^c (32.84)
Cluster Poverty	509.86 ^c (185.23)	Cluster Poverty	3.47 ^c (1.07)
Cluster Credit Availability	0.03 ^c (0.01)	Cluster Credit Availability	0.00 ^c (0.00)
Water Supply (1 = yes, 0 = no)	25.83 (28.79)	Water Supply (1 = yes, 0 = no)	0.17 (0.18)
Electricity Supply (1 = yes, 0 = no)	-49.43 (40.48)	Electricity Supply (1 = yes, 0 = no)	-0.36 (0.26)
Cost of Schooling	-3.18 ^b (1.31)		
Entry Fee for School (1 = yes, 0 = no)	-179.39 ^b (80.60)		
Presence of Classroom (1 = yes, 0 = no)	463.21 ^b (187.60)		
No. of Students in School	-0.08 (0.20)		

^a Standard Errors in brackets.

^b Significant at 5% level.

^c Significant at 1% level.

Table 8: Cross Country Comparison of Logit Estimates^a of Child Labour Participation^b

Variable	Coefficient Estimates		
	Nepal	Bangladesh	Pakistan
<i>Child Characteristics</i>			
Age of Child	0.77 (0.44)	0.31 ^d (0.05)	0.51 ^d (0.20)
(Age of Child) ²	-0.02 (0.02)	n.a.	-0.01 (0.01)
Child Gender (0 = boy, 1 = girl)	0.44 ^d (0.09)	-1.62 ^d (0.17)	-0.40 ^d (0.07)
<i>Family Characteristics</i>			
No. of Children	0.03 (0.02)	-0.22 ^d (0.06)	-0.01 (0.01)
No. of Adults	-0.02 (0.03)	-0.11 ^c (0.06)	-0.03 (0.02)
Gender of Household Head (0 = male, 1 = female)	-0.02 (0.17)	-0.80 ^c (0.42)	-0.09 (0.24)
Age of Household Head	-0.002 (0.004)	0.01 (0.01)	.00 (0.53)
Years of Education of Most Educated Male Member	-0.046 ^d (0.014)	-0.05 ^d (0.02)	-0.066 ^d (0.008)
Years of Education of Most Educated Female Member	-0.139 ^d (0.016)	-0.06 ^c (0.03)	-0.08 ^d (0.01)
Region of Residence (0 = urban, 1 = rural)	1.25 ^d (0.33)	n.a.	0.898 ^d (0.078)

Table 8: Continued

Variable	Coefficient Estimates		
	Nepal	Bangladesh	Pakistan
Maximum Wage Earned by the Male Members	0.0042 (0.0024)	n.a.	-0.005 (0.006)
(Maximum Wage Earned by the Male Members) ²	-0.00 (8.01 e-6)	n.a.	0.00 (0.00)
Maximum Wage Earned by the Female Members	0.01 ^d (0.002)	n.a.	0.036 ^d (0.004)
Credit Received by the Household	6.25 e-7 (4.07 e-7)	n.a.	-3.64 e-6 (1.34 e-6)
Household Poverty	0.75 (0.89)	n.a.	-0.23 (0.54)
<i>Cluster/Community Characteristics</i>			
Atkinson Inequality	-19.92 ^d (4.93)	n.a.	-1.69 ^d (0.76)
(Atkinson Inequality) ²	31.66 ^d (8.28)	n.a.	1.91 ^c (0.95)
Cluster Poverty	0.98 (10.57)	n.a.	1.06 ^d (0.24)
Cluster Credit Availability	-1.20 e-6 (3.34 e-6)	n.a.	8.79 e-7 (2.95 e-6)
Water Supply (1 = yes, 0 = no)	-0.15 (0.11)	n.a.	.08 (0.14)
Electricity Supply (1 = yes, 0 = no)	-0.39 ^c (0.16)	n.a.	-0.08 ^d (0.02)

^a Standard Errors in brackets.

^b The dependent variable takes the value 0 if the child does not work, 1 if she/he works.

^c Statistically significant at 5% level.

^d Statistically significant at 1% level.

Table 9: Cross Country Comparison of Logit Estimates^a of Child School Enrolments^b

Variable	Coefficient Estimates		
	Nepal	Bangladesh	Pakistan
<i>Child Characteristics</i>			
Age of Child	0.58 (0.49)	-0.71 ^d (0.10)	0.35 (0.20)
(Age of Child) ²	-0.04 (0.02)	n.a.	-0.02 ^c (0.01)
Child Gender (0 = boy, 1 = girl)	-1.69 ^d (0.12)	0.51 ^c (0.27)	-1.74 ^d (0.07)
<i>Family Characteristics</i>			
No. of Children	0.04 (0.03)	0.14 (0.10)	0.03 ^c (0.01)
No. of Adults	-0.09 ^d (0.03)	0.02 (0.09)	-0.17 ^d (0.02)
Gender of Household Head (0 = male, 1 = female)	0.03 (0.18)	1.56 (1.05)	1.05 ^d (0.28)
Age of Household Head	-0.003 (0.004)	-0.01 (0.01)	0.004 (0.003)
Years of Education of Most Educated Male Member	0.347 ^d (0.022)	0.05 (0.03)	0.157 ^d (0.009)
Years of Education of Most Educated Female Member	0.161 ^d (0.016)	0.08 (0.05)	0.266 ^d (0.019)
Region of Residence (0 = urban, 1 = rural)	0.33 (0.33)	n.a.	-0.099 (0.08)

Table 9: Continued

Variable	Coefficient Estimates		
	Nepal	Bangladesh	Pakistan
Maximum Wage Earned by the Male Members	0.004 (0.003)	n.a.	0.24 (0.006)
(Maximum Wage Earned by the Male Members) ²	-7.88 e-6 (8.51 e-6)	n.a.	-0.0003 ^d (0.0001)
Maximum Wage Earned by the Female Members	0.005 ^d (0.002)	n.a.	-0.023 ^d (0.005)
Credit Received by the Household	-1.87 e-6 ^d (7.05 e-7)	n.a.	1.53 e-6 (1.26 e-6)
Household Poverty	-4.85 ^d (1.15)	n.a.	-2.53 ^d (0.61)
<i>Cluster/Community Characteristics</i>			
Atkinson Inequality	25.92 ^d (5.21)	n.a.	0.35 (0.82)
(Atkinson Inequality) ²	-40.77 ^d (8.62)	n.a.	0.15 (1.04)
Cluster Poverty	-0.99 (0.63)	n.a.	-1.68 ^d (0.26)
Cluster Credit Availability	1.86 e-6 (3.44 e-6)	n.a.	-8.71 e-6 ^d (3.22 e-6)
Water Supply (1 = yes, 0 = no)	0.27 ^c (0.13)	n.a.	0.08 ^d (0.02)
Electricity Supply (1 = yes, 0 = no)	0.06 (0.19)	n.a.	-0.11 (0.15)

^a Standard Errors in brackets.

^b The dependent variable takes the value 0 if the child is not currently attending school, 1 if she/he is.

^c Statistically significant at 5% level.

^d Statistically significant at 1% level.

Table 10: 3SLS Estimates^a of Child Labour Hours in Pakistan

Variable	Coefficient Estimate
<i>Child Characteristics</i>	
Currently Attending School (0 = no, 1 = yes)	-643.78 ^c (25.28)
Age of Child	10.72 (63.97)
(Age of Child) ²	1.15 (2.39)
Child Gender (0 = boy, 1 = girl)	-370.52 (22.46)
<i>Family Characteristics</i>	
Household Poverty	-171.19 (200.32)
Region of Residence (1 = urban, 2 = rural)	64.50 ^b (25.14)
No. of Children	-1.127 (4.20)
No. of Adults	-19.20 ^c (5.97)
Gender of Household Head (0 = male, 1 = female)	25.89 (79.62)
Age of Household Head	1.59 (0.97)
Years of Education of Most Educated Male Member	-2.56 (2.55)
Years of Education of Most Educated Female Member	5.60 (3.24)

Table 10: Continued

Variable	Coefficient Estimate
Maximum Wage Earned by the Male Members	0.43 (1.90)
(Maximum Wage Earned by the Male Members) ²	-0.00 (0.03)
Maximum Wage Earned by the Female Members	-0.13 (1.44)
Credit Received by the Household	-0.00 (.00)
<i>Cluster/Community Characteristics</i>	
Atkinson Inequality	-581.53 ^b (250.38)
(Atkinson Inequality) ²	772.86 ^b (312.60)
Cluster Poverty	50.10 (87.32)
Cluster Credit Availability	-0.00 (0.00)
Water Supply (1 = yes, 0 = no)	-6.49 (6.37)
Electricity Supply (1 = yes, 0 = no)	43.04 (52.46)

^a Standard Errors in brackets.

^b Significant at 5% level.

^c Significant at 1% level.

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Endnotes:

- ⁱ According to the World Bank [World Development Report (1995, p. 72)], ‘perhaps 100 million or more children in the world below the age of fifteen participate in substantial economic activity at some point during the year’.
- ⁱⁱ The World Bank lists poverty as one of the main causes of child labour [World Development Report (1995, p. 72)].
- ⁱⁱⁱ Following conventional practice based on the ‘relative’ view of poverty, the poverty line was defined as half the sample median of the per capita household expenditure distribution in the cluster.
- ^{iv} The inequality variable used in the regressions is based on the Atkinson inequality measure with the ‘inequality aversion’ parameter set at 2.0.
- ^v See Ravallion and Wodon (2000) for evidence on Bangladesh. The results of their study show, however, that an increase in School enrolment does not lead to a large reduction in child labour.
- ^{vi} See Addison, et.al. (1997, p.15) for a similar observation and explanation in the context of Pakistani and Ghanian child labour
- ^{vii} See Dreze and Sen (1995) for a discussion of the wider issue of the benefits of primary schooling for economic development and for evidence of India’s poor performance in this regard.
- ^{viii} This reduction is almost half the mean of 1033 hours worked annually by a child in the Nepalese sample.