

**Labouring Children and Loving Parents:
Differential Care Intensities and Abusive Child Labour***

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Abstract:

Empirically we find children employed in different types of jobs with varying degrees of abusiveness. There are models that explain the operation of abusive child labour. However little is known about the families attitudes towards abusive jobs for their children. The paper tries to tackle this question theoretically and empirically. Theoretically, we construct a model of varying care intensities where the hapless families sent their more cared child to the abusive jobs. Empirically, the phenomenon is examined by utilising an Indian data set, through an ordered probit model where children are ranked according to the family preferences.

Keywords:

Child labour, abusive labour, fragmented labour market, social issues, poverty.

JEL Classification:

J7, J42, I3, D11, D12.

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1. Introduction:

The plight of a child labouring hard may bring forth a lot of pathos and sympathy to a person residing in the modern day First world countries. Historically though, child labour was not the preserve of Africa, Latin America, and Asia. Some of the worst excesses occurred in Europe in the late eighteenth and early nineteenth centuries and especially in Britain during the Industrial Revolution.

As it is noted in the development literature, the definition of child labour is crucial for any meaningful analysis. According to NSSO, if a child worked as a paid or unpaid labour within or outside the family in the childhood age (6-14) then he/she is called child labour. Alternatively child labour means children who are economically active in virtually all economic sectors: in industry, agriculture, and the informal sector and in the household as well as uneconomic sector also. The term 'economic activity' refers to the broad nature of children's work. It includes all productive activities, household or market- oriented, undertaken by a child in a paid or unpaid capacity. But in this paper we have included some *uneconomic activities* such as begging, prostitution etc. and the children who engaged with such activity we have also treated them as child labour¹.

The problem of child labour is a multifaceted hydra. There are many aspects of this problem that requires sophisticated analysis. There are several reasons for the existence of child labour. There is an important literature branching out of the human capital framework (Becker and Tomes 1973, Becker and Lewis 1976, Becker 1982, Baland and Robinson 2000, Emerson and Souza 2001, 2002a and 2002b). In this type of models, the family chooses between sending children to school (for purpose of human capital formation) or to the market as an unskilled labourer. While this consideration is important, it essentially hinges on the long-run expectation from a child's return. In a poor country with the high risk of mortality, this return may be exceedingly low to justify such an investment (Lanyi and Kahlen 2000)².

In addition, families may prefer children for their "intrinsic values". As the Indian examples suggest, even when it is not possible for the family to send their children to school for a number of reasons, it is not always necessary that they should send them to the labour market or even indulge them in household chores (Banerji 2000)³. It may

¹ In fact, they may be referred to as "**distress child labour**". Obviously, they are the worst form of child labour.

² Again there are a lot of evidences from India where we find existence of such "no labour" and "no school goer" children (Skinner 1998, PROBE 1999, Banerji 2000, Ramchandran 2000, Ramchandran et.al. 2003, Swaminathan and Rawal 2000). Basically, the argument is that children are not sent to school mostly because of the non-availability of quality schooling facilities in the neighbourhood. "Children are not at work but they are not in school" (Banerji 2000). Out-of-school children living in the poorest locality tend to lead very independent lives. The fun they get there outstrips the "boring" experience of teaching imparted at the free public schools (much like Mark Twain's Huckleberry Finn).

³ See the literature cited above.

simply allow the child to “range in delight”⁴. A family may have an inherent feeling of “tenderness” towards a child. In this sense, a family is not “selfish”. Basu-Van (1998) captures this with the so-called “luxury axiom”. We try to extend this “warm glow” approach of child labour. We argue simply that families differ in their intensity of tenderness and hence in their care. To clear away any misconception, we are not disrespecting the human capital approach that is indeed important for the child labour framework. Our aim is modest. The effort is to separate out the “warm glow” approach and see its implications for the existence of abusive child labour.

Any economic job has two dimensions- the nature of the duties prescribed and the labourer’s perception about the job (Sen 1975). In the case of child labour the perception aspect is determined by the parents. These are in term condition by the socio cultural parameters. Thus any task that may be deemed “non abusive” for the adult workers, may become “abusive” when the children are considered. For example when an adult woman acts as a domestic help she is much less vulnerable than if the same task is conducted by a girl child (in the sense of the impending threat of physical violence and sexual harassment). Even among the child labourers, differentiation may be made between types of children (a male or a female, an older and a younger child).

There are some models that deal separately with the “abusive” activities (Rogers and Swinnerton 2008, Dessy and Pallage 2005). In their models, a child has three options: schooling (that adds directly to human capital), “non-abusive” jobs that enhances human capital through the process of “learning by doing” (through less than that of direct human capital formation) and “abusive” jobs that does not add to human capital. In a sense then all child labour is abusive since it hinders her human capital formation. However the employment of tender child and child in risky and exploitative jobs (begging, prostitution etc.) are the worst.

Thus “abusiveness” does not depend on the nature of duties but on the risk attached to such duties. The fears may be real or imagined-constructed from a few unrepresentative samples. However they infringe upon the household’s decision making process. For example a female child does more household work than a male child but less market related activities. Girls are assumed to be “safer” at home than outside⁵. A child of relatively tender age is less prone to enter the child labour market

⁴ The term is borrowed from the Robert Kanigel’s famous biography of the Indian mathematical genius Ramanujam whose family allowed him to remain for his own even when there was almost no prospect of gathering gainful skills that can fetch him future returns. The fact that the family had no idea about his almost superhuman skill in mathematics makes this decision appearing almost “irrational” from the human capital perspective. However if we impute Basu-Van’s notion of lavishness that captures family’s inherent tenderness to him, the situation becomes perfectly rationalizable.

⁵ According to “ Crime in India-2008, Crime Records Bureau, Ministry of Home Affairs” among the rape cases reported in the Indian Police Stations, where the offenders are identified by the women victims, about 2% were parents or close family members, about 5% were relatives and 34 % were neighbours. It turns out that together 41% of the identified crime-doers had access to the household premises of the victims. The same document stressed that it was only the reported figure; actual figure is likely to be more than this. According to this document, the underreporting might be due to the feeling of shame, fear of social boycott or other stigma.

than her elder siblings. Parents may be less willing to send their sons and daughters to what they perceive “more exploitative” jobs (jobs that may indulge harassment and stringent mental and/or physical strain etc). Thus the idea of “child labour” now becomes a complex sociological construct depending upon the type of child and the nature of work that she does.

In our model, the emphasis is on the supply of child labour within a Basu-Van framework⁶ where jobs for children are associated with varying degrees of abusiveness. We simply assume that though the family may treat the child leisure as a luxury good, it may differentiate among them as to the degree of “*caring intensity*”. A major cause of this “greater care” is the feeling that these types of child labour are ought to be fraught with lot of physical and mental abuse that lowers their earnings below the real wage earnings⁷.

For simplicity, we consider two types of child labour⁸- one with a lower degree of care (termed as LC (Less Cared) child) and another with a greater degree of care (termed as MC (More Cared) child)⁹. As with the original model of Basu and Van (1998), the family will not send any child to labour market unless the wage earning is sufficiently low. However once the earnings fall below the critical level, the family then decides about sending its children to the labour market. The family finds two types of job for the children- a “safe” job and a relatively “abusive” job. Once the family income falls below the critical level, the family will send one of its children (the LC child) to “safe” jobs first. If the family income falls below a still lower (critical) level, it will be ready to release its next child (MC child) to the “abusive” job market.

In the present paper we are trying to extend the basic model of Basu and Van (1998) by varying the caring intensity. The plan of the paper is as follows. Section 2 presents the basic model and introduces a diagrammatic technique for depicting equilibrium. In section 3 we have given an empirical support to our model and we have concluded in section 4.

⁶ The idea could have been easily modelled in an overlapping generation framework. Our preference of the BV model is its appeal in bringing out the essential features of caring intensity without considering the problem of time preference that a dynamic model confronts us. As argued in the next footnote, there is a danger of unnecessary entanglement of these two issues.

⁷ This fear must be differentiated from the standard idea of “son-preference”. In fact, a poor man has little to expect from future return from a son, given that there is a low probability of his survival in the long-run (Lanyi and Kahlen 2000).

⁸ The model can be easily extended to a more general case.

⁹ We are speaking of prospective types of child labour and not of child-types as such. When a family decides on sending any one of its children to work, it takes into considerations two points-the child type and the nature of the work. In some cases, the nature of the job is abusive enough to dominate other considerations. However others are not so simple. A job may be non-abusive for certain child-types while abusive for other child-type. It is the complex interplay of two that determine the care intensity. Other factors also play their part. For example, some types of child labour may be designated as abusive by a female head but not so by a male head. The sex of the head, his/her past experiences as child labour, cultural-societal values are among the long list of factors that determines the care intensity.

2. The basic model:

2.1 Facts and evidences

There are some evidences of discrimination among children within the family. An attempt to quantify the relation between child labour and schooling is done by Behrman and Knowles (1999). They have concluded that the elasticities of schooling expenditures and incomes are greater for boys than for girls (in Vietnam). As a result education for females may be considered a luxury rather than a necessity.

A more direct testing of the relationship is done by Horowitz and Wang (2004). They have compared families with identical twins with other such families and argue that in actuality, households with identical twins are the exception, and that inherent heterogeneity implies different returns for children. They have constructed a theoretical model that allows child heterogeneity and bilateral altruism. Their model illuminates potential inefficiencies in the time allocation of children across labor market obligations and education opportunities in poor households. When intrahousehold talent differentials across children are great, an inefficient “reverse specialization” may arise and partial bans on child labor will increase efficiency.

In an empirical work on Nepal, Eric V. Edmonds (2006) shows that the difference in hours worked between older and younger children is greater for girls than boys. As household sizes increase, the extra work associated with an older girl increases significantly. Most of this additional work for girls comes from spending additional time in domestic activities such as child minding, cooking, and cleaning. He has also observed that differences in the type and the amount of work performed by older siblings are correlated with the gender of younger siblings. For both boys and girls, adding a younger boy to a household (while keeping the total number of siblings constant) is associated with more time spent in market work such as agriculture or wage employment. However, he does not find that adding a younger girl is associated with a change in the time allocation of boys, but increases in the time spent in domestic work by girls. Since the variation in child labor attributable to sibling composition appears to be associated with time in domestic work, this study emphasizes the role household production plays in child labor.

Using an extensive survey data set of Brazilian households Emerson and Souza (2007) have tested whether intrahousehold gender bias affects the decisions of mothers and fathers to send their sons and daughters to work and to school. An intra-household allocation model is examined in which fathers and mothers may affect the education investment and the child labor participation of their sons and daughters differently, because of differences in parental preferences or differences in how additional schooling affects sons’ and daughters’ acquisition of human capital. Brazilian household survey data for 1998 are used to estimate the impact of each parent’s education on the labor market participation and school attendance of their sons and daughters. For labor market participation, the father’s education has a greater negative impact than the mother’s education on the labor status of sons. The father’s

education also has a greater impact on sons' labor status than on daughters'. For schooling decisions, the mother's education has a greater positive impact than the father's education on daughters' school attendance, but fathers have a greater positive impact on sons' school attendance than on daughters'.

Dammert (2010) has empirically shown that within-household gender and sibling differences exist in child labor, domestic work, and schooling of Guatemalan and Nicaraguan children. His main results show that older boys spend more time engaged in market and domestic work, whereas older girls spend more time in domestic work than their younger siblings. These results are independent of whether the younger sibling is a boy or a girl, which suggests that there is no substitution within the household of younger for older siblings in market and domestic work.

A similar study for India was done by Basu et al. (2010). They have found that on average older children and females work more. This implies that the likelihood of being enrolled in school decreases with age and being female.

The above evidences on child discrimination are more or less symbolic. But child discrimination is present in almost all the families. In this paper our emphasis is on the extension of Basu-Van model, if child discrimination exists within the family.

Our model differs in emphasis from the important contribution of Edmonds (2006). There the stress was on the economic explanation of differential preferences. This has been clearly stated by him - "My purpose is not to argue against a role for parental preferences in child labour. Rather, I am interested in whether there is an economic explanation for the patterns of sibling differences in child labour that are often ascribed to parental preferences." In our case, however, the focus is not on explaining family preferences but on the effect of such discrimination that is manifested in the working of child labour market.

2.2 The Model

In our model we consider a family with three types of labour- adult labour, LC child labour and MC child labour. To extend the Basu-Van model, we extend the *Luxury Axiom* made by Basu and Van (1998), as follows:

The extended Luxury Axiom: A family will send the LC child to the labour market only if the family's income from non-child-labour sources drops to a very low (a critical level) and send the MC child to the labour market if the family's total incomes from non-child labour sources and from LC child labour sources lowers further.

In this paper we retain the *substitution axiom* of Basu and Van (1998):

The Substitution Axiom: From a firm's point of view, adult labor and child labor are substitutes. More specifically, child labor can be substituted by adult labor.

We however derive an implication of this axiom that alluded Basu and Van (1998) though noted by Basu (2000). We simply assume that the marginal product of child labour is a positive fraction of adult marginal product (though no difference exists between LC and MC child). For example if w is the wage per hour of adult equivalent scale, an adult member working for one hour will earn w , a child (either MC or LC) working for one hour will earn $\frac{w}{x}$ with $x > 1$ where the denominator represent the equivalence factor (to adult effective labour).

Let us assume that there are N families (or households) in the economy each having one adult and two children one of each type. Further it is assumed that the consumption expenditures of the children and the adult are same. It is also assumed that the child's work effort is either provided in zero or unity. Also the adult always works¹⁰. Thus the family preference is defined on the set:

$$\{(c, e_m, e_f) | c \geq 0, e_m, e_f \in \{0,1\}\} \quad (1)$$

where c is per capita consumption and e_m and e_f are the efforts of LC and MC type of child labour respectively.

We now specify two critical levels of subsistence s_m and s_f such that with some $\delta_1, \delta_2 > 0$ and $(s_m > s_f)$, we have the following preference relation:

$$\begin{aligned} & (c, 0, 0) \succ (c + \delta_1, 1, 0) \quad \text{if} \quad c \geq s_m \\ \text{and} \quad & (c, 0, 0) \prec (c + \delta_1, 1, 0) \quad \text{if} \quad c < s_m \\ \text{and} \quad & (c, 1, 0) \succ (c + \delta_2, 1, 1) \quad \text{if} \quad c \geq s_f \\ \text{and} \quad & (c, 1, 0) \prec (c + \delta_2, 1, 1) \quad \text{if} \quad c < s_f \end{aligned} \quad (2)$$

However the families differ in their reservation consumption levels (s_m and s_f). This difference may be due to the socio-economic or demographic features of the families. For example, a family with a larger proportion of aged person unable to put much effort will likely to have a higher level of reservation consumption compared to another family having a much larger portion of adult members with full working capacity.

¹⁰ We assume that the families do not have any asset.

The household's aim is to choose most preferred bundle from the choice set (1), given its preferences and the following budget constraint:

$$3c \leq w(1 + \frac{e_f + e_m}{x}) \quad (3)$$

The solution to this problem is:

$$e_m = \begin{cases} 0 & \text{if } c \geq s_m \\ 1 & \text{if } c < s_m \end{cases} \quad (4a)$$

$$e_f = \begin{cases} 0 & \text{if } c \geq s_f \\ 1 & \text{if } c < s_f \end{cases} \quad (4b)$$

And hence the equilibrium consumption schedule is:

$$\begin{aligned} c(w) &= w/3 & \text{if } & w \geq s_m \\ c(w) &= w(1+x)/3x & \text{if } & s_f \leq w < s_m \\ c(w) &= w(2+x)/3x & \text{if } & w < s_f \end{aligned} \quad (4c)$$

Now the family supply of labour from adult labourer is

$$S^A(w) = 1 \quad (5a)$$

The i^{th} ($i=1\dots N$) family's supply of labour from the LC children is:

$$\begin{aligned} S^1(w) &= 0 & \text{if } & w \geq s_m^i \\ &= \left(\frac{1}{x}\right) & \text{if } & w < s_m^i \end{aligned} \quad (5b)$$

The supply of labour from the MC children in the i^{th} family is:

$$\begin{aligned} S^2(w) &= 0 & \text{if } & w \geq s_f^i \\ &= \left(\frac{1}{x}\right) & \text{if } & w < s_f^i \end{aligned} \quad (5c)$$

Since the employer makes no difference as to type of labour, there will exist an aggregate supply curve of labour. The aggregate curve is then a continuous curve

between s_m^* and s_f^{**} where $s_m^* = \max\{s_m^i\}$, $s_m^{**} = \min\{s_m^i\}$, $s_f^* = \max\{s_f^i\}$ and $s_f^{**} = \min\{s_f^i\}$ with s_m^i and s_f^i are the i th family's reservation consumption¹¹.

At wage rate higher than s_m^* , no family will supply child labour. As the wage rate falls below s_m^* , some families whose reservation consumption is in the lower neighbourhood of s_m^* will supply LC type of child labour. As the wage rate falls such families increase and as s_m^{**} is reached all LC types of child labour is released. A very similar thing happens for the supply of MC type of child labour.

Technically, now the labour supply curve depends on the relation between s_m^{**} and s_f^{**} . By virtue of our assumption, $s_m^* > s_f^*$ and $s_m^{**} > s_f^{**}$. Hence there can be two possibilities:

$$(a) s_m^{**} > s_f^*$$

$$(b) s_m^{**} \leq s_f^*$$

Possibility I: $s_m^{**} > s_f^*$

Here we get a continuous labour supply curve of the type shown in figure I.

The aggregate supply of labour, therefore, is as follows:

$$S^L(w) = S^A(w) + S^1(w) + S^2(w)$$

$$S^L(w) = N \quad \text{if} \quad w \geq s_m^*$$

$$= N + N'(1/x) \quad \text{if} \quad s_m^{**} \leq w < s_m^* \quad \text{and} \quad N' \in \{1, 2, \dots, N\}$$

$$= N + N(1/x) \quad \text{if} \quad s_f^* \leq w \leq s_m^{**}$$

$$= N \left(1 + \frac{1}{x} \right) + N'' \left(\frac{1}{x} \right) \quad \text{if} \quad s_f^{**} \leq w < s_f^* \quad \text{and} \quad N'' \in \{1, 2, \dots, N\}$$

$$= N \left(1 + \frac{2}{x} \right) \quad \text{if} \quad w < s_f^{**} \quad (5)$$

Our next step is to derive the market demand for labour. So assume there are “n” identical firms, each producing a single consumption good. Each firm i's production function is given by:

¹¹ Our analysis is in the line of the derivation of the aggregate money demand curve of Tobin's regressive expectation model.

$$x_i = f(L_i); f' > 0 \text{ and } f'' < 0, \quad (6)$$

where x_i is firm i 's output of the consumption good, and L_i is the amount of labour required per hour on an average by the firm i . The firm is a wage taker. The state of “ f ” is defined by the technology and any improvement of technology indicates higher output from the same amount of labour. Now, firm i 's problem is as follows:

$$\max \Pi = f(L_i) - wL_i \quad (7)$$

The solution of (7) is that

$$f'(L_i) = w \quad (8)$$

$f'(L_i)$ is the marginal productivity of labour, which is influenced by the level of technology.

The aggregate demand for labour is derived by multiplying each firm's demand by n . Let $D^L = D^L(w)$ be the implicit form of the demand function.

A labour-market equilibrium condition, in this simple model, is:

$$D^L = D^L(w) = S^L(w) \quad (9)$$

Equation (9) is labour market equilibrium condition; from this equation the equilibrium wage rate is determined.

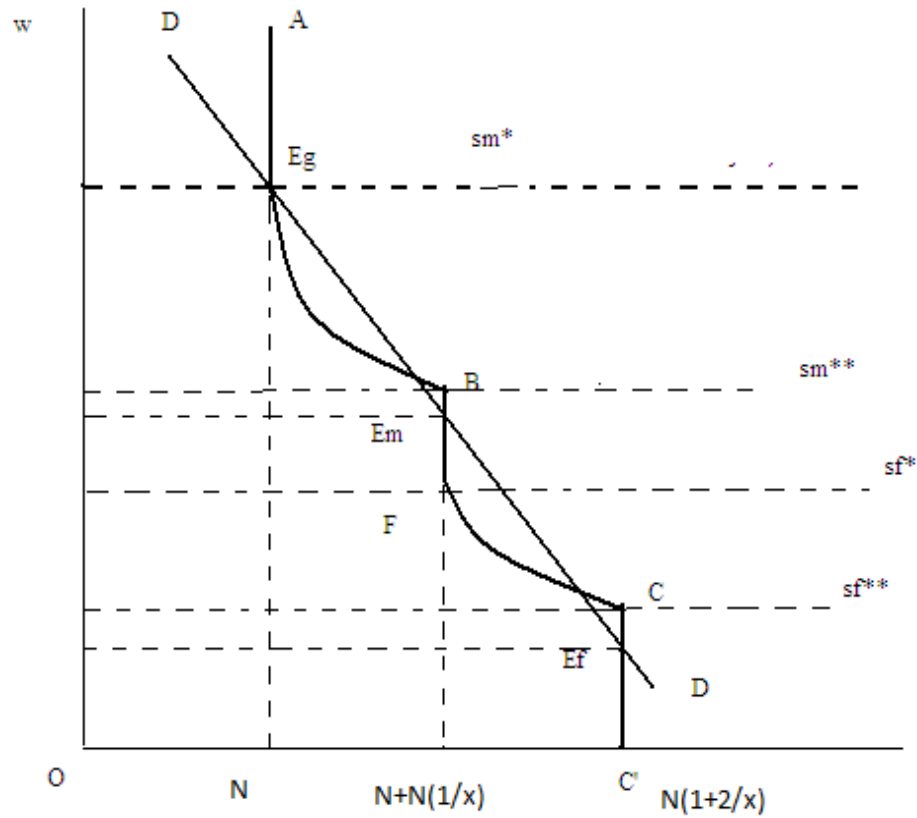


Figure 1: Labour supplied and demanded in an adult equivalent scale

Labour market equilibrium of our model is shown in figure I. Labour supply curve, $AEgBFCC'$, of figure I has three vertical parts and two downward sloping parts. If the state of technology is such that the labour demand curve is DD then in the labour market we have five equilibrium points. Out of these five equilibrium points two equilibriums are unstable and remaining three are stable - they are Eg , Em and Ef . At the equilibrium point Eg , wage rate is high enough so that only the adult labour is sufficient to meet the subsistence level of consumption. Therefore at the point Eg only adult works and no child labour. But at the equilibrium point Em wage rate is so low such that only adult labour cannot meet the subsistence level of consumption. So the household send their LC child to the labour market to cover the gap. At the equilibrium point Ef , wage rate is so low that adult labour and LC child labour together cannot cover the subsistence level of consumption. So the household send their MC child to the labour market to cover the gap. Therefore at the equilibrium point Eg only adult works, at the equilibrium point Em adult and LC child work and at the equilibrium point Ef adult as well as LC and MC child work. This type of extension can easily accommodate child labourers of different degrees of lavishness (such as male and female child labour, exploitative and non exploitative child labour, child labour aged 6-below 10 years and child labour aged 10-14 years).

However as in the original Basu-Van (1998) model, the existence of three equilibria is a mere possibility and not an actuality. We may term these equilibria as good-where only adult labourers work (E_g), bad - where both adult and LC child works (E_m) and worst- where adult as well as both LC and MC child works (E_f)¹². In fact we may have six different cases. In the first case where the labour demand curve is so high that only the good equilibrium will exist. The second case is a Basu-Van case (BV) where both the good and the bad equilibria may exist. A third case is where only the bad equilibrium exists. The fourth case is the three equilibria case as depicted above. The fifth case is where both the bad and worst equilibria prevail. Finally in the sixth case, only the worst equilibrium exists.

Possibility II: $s_m^{**} \leq s_f^*$

In this case the labour supply curve is given in figure-II. This figure will look much like the Basu -Van figure indicating the existence of a two tier labour market. However the implication is different. In this case we have only adult labour market equilibrium and “abusive” child labour market equilibrium.

In this case the aggregate supply of labour, therefore, is as follows:

$$\begin{aligned}
 S^L(w) &= S^A(w) + S^1(w) + S^2(w) \\
 S^L(w) &= N \quad \text{if} \quad w \geq s_m^* \\
 &= N + N'(1/x) \quad \text{if} \quad s_f^* \leq w < s_m^* \quad \text{and} \quad N' \in \{1, 2, \dots, N\} \\
 &= N + N'(1/x) + N''(1/x) \\
 &\quad \text{if} \quad s_m^{**} \leq w < s_f^* \quad \text{where} \quad N' \in \{1, 2, \dots, N\} \quad \text{and} \quad N'' \in \{1, 2, \dots, N\} \\
 &= N \left(1 + \frac{1}{x} \right) + N'' \left(\frac{1}{x} \right) \quad \text{if} \quad s_f^{**} \leq w < s_m^{**} \quad \text{and} \quad N'' \in \{1, 2, \dots, N\} \\
 &= N \left(1 + \frac{2}{x} \right) \quad \text{if} \quad w < s_f^{**}
 \end{aligned} \tag{10}$$

¹² A family detests child labour but it detests more “abusive” child labour. Yet its resource constraint forces it to such “equilibrium”.

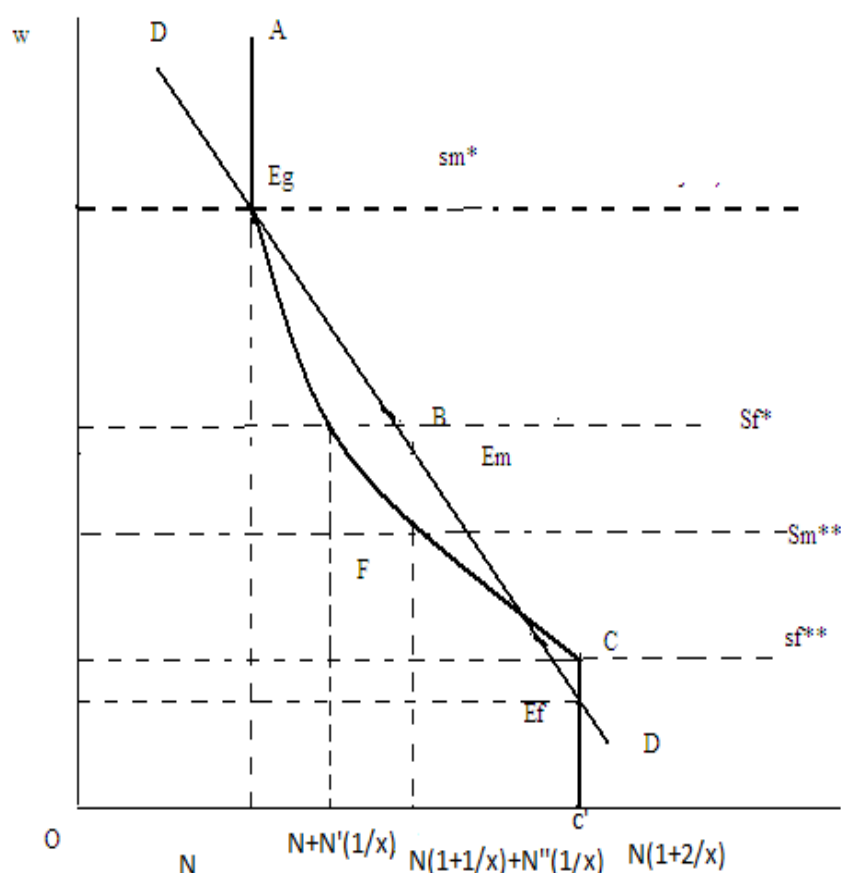


Figure 2: Labour supplied and demanded in an adult equivalent scale

As for banning, we may extend the arguments of Basu-Van. Again complete banning is successful only if the BV case or the three equilibria case operates. However the viability of the ban will depend on the possible rise in wage created by a shortage of labour in the labour market. If wage rises above s_m^* , then only it is feasible. Otherwise there will be a clear distinction between firms that are easily monitored by the government (red headed firms) and firms that cannot be monitored (green headed firms). A ban that does not sufficiently raise wage rate to eliminate the labour services of the child labour will increase the labour supply in the green firms lowering the wage there, while a fall in labour in the red firms raise the wage there. In our model the result is peculiar. Suppose we assume an extreme case-where all children are withdrawn from the red firms as a result of ban. Also assume that the lure of high wage due to ban have prompted entire adult labourers to withdraw from the green firms. Adult labourers now provide labour at a higher wage rate while the children are providing labour at a low wage rate. The remuneration of labour now depends on the person who supplies it though it is perfectly homogeneous. The ill-directed government intervention has not only been unsuccessful, it has worsened the situation. Thus we may echo what Basu and Van (1998) have voiced. Only good intention is not sufficient to guarantee a successful Government intervention-understanding the ground reality is more than essential.

However, in our model there is scope of partial ban under Possibility I. Suppose the more cared child category be tender children or the children for exploitative jobs (prostitution, begging etc.). Such types of child labour are released only if wage is very low (below s_f^*). In such cases ban may be exercised on such types of jobs. A rise in wage above this low level may not remove child labour but may remove its worst forms. Thus partial ban exists in only the fourth and fifth cases where there is at least one other equilibrium with the “abusive equilibrium”. Since the societal ethics is generally against these types of child labour, it might be easy to eradicate it once there are some stringent laws in this regard.

However a major cause of child labour appears to be the lowness of income. In fact if the income of the family rises sufficiently, there is ample scope for reducing child labour. This is better said than done. The lowness of income is ultimately related to the possession of physical and human assets. These are dynamic considerations outside the scope of the present paper.

In the short-run a feasible policy might be the provision of subsidies to the family so as to raise their income above the minimum required level. There are very innovative ways in which this may be provided. One way may be to make primary education free for these families. However such a policy in itself might not be enough since they are hardly aware of the long-run benefits of education. A better incentive would be to provide free meals to the school going children. In fact such a policy of free mid-day meal is being pursued in India following the suggestion of Sen (2002). To quote Sen (2002), “**There is a strong case making the so-called ‘mid-day meals’ real mid-day meals**”¹³. Also, the incentive effects of the provision of actual mid-day meals can be quite important for the attendance of children.” We next provide an empirical illustration to demonstrate the working of our model.

We next provide an empirical illustration to understand this problem. We must stress at the very beginning that the empirical part is not an illustration of the theoretical model, but is of an exploratory nature that validates the data structure required for the theoretical model.

3. Empirical Illustration:

Our empirical case is West Bengal- a state in India. Like many other underdeveloped countries, in India child labour supply is highly segmented. The first distinction is between male and female child. Female child are generally not allowed to go *outside* (though they are often overburdened with familial duties). Especially if a family has both male and female child, it is male child who is first sent for *jobs outside the home*.

¹³ Here Sen (2002) is arguing against the then prevalent procedure that meant transfer of a certain amount of food grains to the children who attend the school regularly (80% being the cut-off). He insisted “cooking” and serving meal to the children attending the school that day.

Their female siblings are given heavy familial duties and jobs that can be done within the family premise (such as bidi binding). Only if a family's income falls very low, the female child is opted for outside work. Similarly, a family normally does not wish its members (specially females) to be engaged in uneconomic activities (such as begging, prostitution etc.). A similar distinction is made between tender aged child (6-9 years age) and older child (10-14 years age).

These are some of the features of child labour market that are covered by the National Sample Survey Organization (NSSO) 62nd (2005-2006) round Unit Level data on Employment and Unemployment Situation in India. It is a detailed all India data covering all the major states and union territories of India. However, for this paper, we have selected only one eastern state- West Bengal for our study. The choice of the states is purposive. There are several reasons for selecting the state. This state shows wide socio-economic, cultural and religious variations within the state. However in the recent decades, West Bengal has made some progress in agrarian growth and rural development. It is to be seen how far such changes are reflected in the use and allocation of child labour.

For our analysis, we have considered three pairs of child labour that might differ among them in the caring intensities, they are: (i) female and male child (ii) child engaged in uneconomic (begging, prostitution etc.) and economic activities (iii) tender (6-9 years age) child and older child (10-14 years age).

For empirical illustration, we have to first posit an estimable functional form. Suppose l^{LC} and l^{MC} are the two different types of child labour with the first type enjoying a higher caring intensity. We define total child labour $l = l^{LC} + l^{MC}$. Now we suppose there is a continuum of households each having their own s_f and s_m with the assumption that for all i , $s_{fi} < s_{mi}$. Also assume that $s_{fi} \in (\delta_f, s_f)$ and $s_{mi} \in (\delta_m, s_m)$ with $\delta_f < \delta_m$. Now if we move to a very low consumption level (say at the close proximity of δ_f), there will be both LC and MC child labour. If consumption level is relatively higher (say at close proximity of δ_m), there will be only LC child labour. Again if consumption level is above or equal to s_m , then there will be no child labour.

Our focus is not on to **incidence** of child labour rather the types of child a family is sending to the labour market that reflects differential caring intensities. Therefore our estimable equation is

$$l^* = Z'\beta + u \quad (11)$$

where l^* is the exact but unobserved caring intensity for child, Z is vectors of family level features, β is the vector of regression coefficients which we wish to estimate and u is random error term. While we cannot observe l^* , we instead can only observe the categories of response:

$$l^* = \begin{cases} 0 & \text{if } l = 0 \\ 1 & \text{if } 0 < l \leq l^{LC} \\ 2 & \text{if } l^{LC} < l \leq l^{MC} \end{cases} \quad (12)$$

Where $l = l^{LC} + l^{MC}$, the aggregate child labour that is sum of two types of child labour- Less Cared (LC) and More Cared (MC).

A way to capture this empirically is to consider the ordered probit model. This type of model allows us to consider different categories of child labour vis-a-vis the independent variables.

Before going to regression results and descriptive statistics, we have given a brief description of sample in Table 1. Initially our sample has 5479 households; however there are some households that have no child in the labouring age, 6-14 years as well as there are some household which have not both the types of child. We first exclude them, as variables of interest do not exist for them. After exclusion of such families our sample size reduces to 2640. This is to accommodate our theoretical model that is limited only to the families having at least one of both the types of child/ child labourer. It is not possible to check intra-family discrimination across child types, when these types do not exist!

In table 1 we have given some socio economic features of the sample households under three headings for each of three different classifications. This table supports our theoretical derivation. In the theory we have found that as per capita consumption (proxy of income) falls from very high level to very low level we have three different equilibriums- “good”, “bad” and “worst”. In the good equilibrium there will be no child labour, in the bad equilibrium there will be only less cared type of child labour and lastly in the worst equilibrium we will find both less and more cared child labour. To maintain the parity with the theory we have shown family level features under three headings for each of three classifications.

From the first part of the table it is clear that average per capita consumption is highest for the families which have no child labour and lowest for the families who have more cared child labour. Same trend is found for other two classifications. This type of trend is also found for average per capita land holdings in all cases.

Table 1: Summery statistics of the sampled families

	Families with no child labour			Families with male child labour only			Families with female child labour		
Socio economic factors	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.
Per capita consumption(Rs.)	947	12000	302	705	3750	147	667	4000	138
Per capita land (hectare)	0.0405	2.25	0	0.0403	0.88	0.0002	0.04	0.7	0.0002
No. of adult male per family*	1.66	10	0	1.49	7	0	1.45	9	0
No. of adult female per family*	1.65	7	0	1.51	6	0	1.46	7	0
Avg. Years of education by adult male	8	17	0	6	17	0	6	17	0
Avg. Years of education by adult female	6	17	0	4	17	0	4	17	0
Years of education by family head	6	17	0	5	17	0	5	17	0
	Families with no child labour			Families with older child labour only			Families with tender child labour		
Per capita consumption(Rs.)	947	12000	302	718	4000	138	646	3825	147
Per capita land (hectare)	0.0405	2.25	0	0.035	0.87	0.0002	0.034	0.7	0.0002
No. of adult male per family	1.66	10	0	1.59	7	0	1.55	9	0
No. of adult female per family	1.65	7	0	1.55	6	0	1.43	7	0
Avg. Years of education by adult male	8	17	0	6	17	0	6	17	0
Avg. Years of education by adult female	6	17	0	5	17	0	4	17	0
Years of education by family head	6	17	0	5	17	0	5	17	0
	Families with no child labour			Families with economic child labour only			Families with uneconomic child labour		
Per capita consumption(Rs.)	947	12000	302	680	4000	138	618	3333	193
Per capita land (hectare)	0.0405	2.25	0	0.035	0.88	0.0002	0.029	0.3	0.0002
No. of adult male per family	1.66	10	0	1.57	9	0	1.54	4	0
No. of adult female per family	1.65	7	0	1.59	7	0	1.47	4	0
Avg. Years of education by adult male	8	17	0	6	17	0	6	17	0
Avg. Years of education by adult female	6	17	0	5	17	0	4	17	0
Years of education by family head	6	17	0	5	17	0	5	17	0

Source: Authors' estimate from NSSO 62nd (2005-2006) round Unit Level data on Employment and Unemployment Situation in India. * We have considered adult male and adult female for the age group (18-60)¹⁴ years only.

¹⁴ In India sixty years is the officially maximum productive or working age for male and female.

If we consider the number of adult male and adult female per family, we also have same picture. Number of adult male and adult female per family is lowest for the families which have more cared child labour and smallest for the families which have no child labour. The same trend is found for other two classifications. We have considered these variables as number of adult male and adult female (at least adult male) are the main source of wage income of the family. To assess the level of human capital we have used three different variables- average years of education by adult male, adult female and family head. For all the three variables we have found similar trend as in the case of per capita consumption.

Now, apart from the descriptive statistics, to check intra-family discrimination across child types we have done three ordered probit regressions for each of above mentioned three classifications. In the ordered probit our dependent variable takes the value “0” for the family which have no child labour of either type, takes the value “1” for the families which have only less cared child labour and “2” for the families which have at least one more cared child labour.

Table 2 shows our regression results. In table 2 the three different regressions are shown simultaneously. The results are roughly similar. Our first two explanatory variables are per capita consumption and per capita consumption square. The coefficient of per capita consumption is significant for all the three regressions. Sign of the coefficient is negative for all the cases imply that as per capita consumption falls ML child of the family comes to the labour market. However per capita consumption square is significant only for the first case and the positive sign of the coefficient implies that as per capita consumption falls continuously more and more ML types of child come to the labour market.

Table 2: Ordered Probit regression results

Dependent variable	Male-female	Tender-older	Economic-uneconomic
Independent variables	Coefficient(standard error)		
Per-capita consumption	-0.651(0.148)***	-0.544(0.148) ***	-0.163(0.015)***
Per-capita consumption square	0.844(0.43)**	-0.111(0.302)	0.603(0.610)
Per capita land	0.235(0.301)	0.550(0.307) *	0.049(0.314)
Dummy for official poverty	0.488(0.061)***	0.265(0.061) ***	0.826(0.226)***
Dummy for not holding ration card	-0.131(0.085)	0.149(0.085)	-0.092(0.087)
Years of education of the family head	-0.370(0.006)***	-0.419(0.116) ***	-0.015(0.006)*
Dummy for male family head	0.540(0.596)	0.172(0.095) *	0.163(0.098)*
Rural Dummy	0.321(0.059)***	0.548(0.059) ***	-0.250(0.061)***
No of adult male	-0.471(0.029)***	-0.723(0.290) **	-0.066(0.031)**
No of adult female	0.091(0.233)	0.252(0.347)	-0.012(0.034)
Akaiki info crterion	7.834899	7.837679	6.454744
Schwarz criterion	7.861619	7.864400	6.481464
Log-Likelihood	-2410.066	-2413.736	-1908.262
Pseudo-R ²	0.6424	0.5945	0.5101
No. of observations	2640	2640	2640

* Significance at 10% level, **Significance at 5% level, ***Significance at 1 % level.

Source: Authors' estimate from NSSO 62nd (2005-2006) round Unit Level data on Employment and Unemployment Situation in India.

Our third factor is per capita land is a proxy measure of family's asset structure. However our regression result shows that it has no significant impact on the dependent variables (except in the second case where this variable is weakly significant). That implies that per capita land has no bias towards either more lavish or less lavish child. A reason for this may be the inclusion of urban households where land may not be an important asset. Unfortunately, the data provides no other proxy for asset.

Table 2 shows our regression results. In table 2 the three different regressions are shown simultaneously. The results are roughly the similar. Our first two explanatory variables are per capita consumption and per capita consumption square. The coefficient of per capita consumption is significant for all the three regressions. Sign of the coefficient is negative for all the cases imply that as per capita consumption falls MC children of the family comes to the labour market. However per capita consumption square is significant only for the first case and sign of the coefficient is positive and this implies that as per capita consumption falls continuously the more and more MC type of children come to the labour market.

Our third factor is per capita land is a proxy measure family's asset structure. However our regression result shows that it has no significant impact on the dependent variables (except in the second case where this variable is weakly significant). That implies per capita land has no bias towards either more cared or less cared child. A reason for this may be the inclusion of urban households where land may not be an important asset. Unfortunately, the data provides no other proxy for asset.

Our fourth factor is a dummy for official poverty¹⁵. This variable is highly significant for all the cases and sign of the coefficient is positive. That implies the families which are officially declared as poor have a tendency to move towards the worst equilibrium situation.

Our fifth factor is also a dummy for not holding a ration card, which is a proxy measure of illegal migration. In all the regressions this variable is insignificant. That implies this variable has no bias towards either of the child types.

Our sixth factor measures educational status of the family head. This variable is very important as the family head is the decision taker of the family. This variable is

¹⁵ In the official BPL census about 12 indicators are identified: ownership of land, housing conditions, clothing, food security, consumer durables, education status, earning capability status, livelihood, child education, indebtedness, migration nature and special vulnerability. For each indicator, five points are designated. Higher the points scored by a family, lesser the degree of deprivation it is deemed to suffer. A family getting less than or equal to 33 points are deemed to Below Poverty Line (BPL) families. Others are Above Poverty Line (APL) families. There are frequent reports of irregularity in the official estimate.

negatively significant in all the cases. This implies that as educational level of the family head increases the incidence of child labour, at least MC types, falls.

Our seventh factor is again a dummy variable, dummy for male family head. In our regression result this variable has a significantly positive impact on our dependent variables for the second and third case. In general, female headed families are economically weaker than the male headed families. Still, in general, the female heads are found to be a lot more caring than their male counterparts.

Our eighth factor is also a dummy variable for region/sector. It signifies whether a family resides in the rural or urban areas. This variable has a significantly positive impact on our dependent variable for the first two cases. That implies in the rural areas incidence of female (MC in the first case) and tender (MC in the second case) child labour is higher compared to urban areas. However this variable has a significantly negative impact on our dependent variable in the third regression. That implies incidence of uneconomic child labour (MC types in the third case) is higher in the urban areas. The result is quite possible as uneconomic child labour (child engaged with begging and prostitution) found more in the urban areas.

Our ninth and tenth factors are the number of adult males and adult females in the family. Now the number of adult males signifies the number of earning members of the families. To a lesser degree the numbers of adult females also signify this. However in our regressions result number of adult male has a significantly negative impact on the dependent variable of each case. That implies as number of adult males in the family increases probability of MC child goes to labour market decreases. However we do not find any significant impact of 'number of adult female' on the dependent variables.

4. Conclusion:

The traditional models of child labour treat all types of child labouring activity as more or less homogeneous. However societies opine some type of child labour as "abusive". The Basu-Van (1998) model is extended here to consider these cases. The existence of an "abusive" equilibrium is then evident at a very low wage rate. However as wage rate rises, the proportion of abusive child labour tends to fall. The extension suggests a two-part policy whereby partial ban of child labour (banning "abusive" child labour) may coexist with incentives to reduce child labour in general. We next provide an empirical illustration from India. Our data reveals considerable intra-family discriminations among the various types of child regarding their entry to the labour market.

References:

- Baland, J.-M., Robinson, J., (2000). Is child labor inefficient? *Journal of Political Economy*, 108, 663– 679.
- Banerji, R., March 4, (2000). Poverty and primary Schooling: Field Studies from Mumbai and Delhi. *Economic and political weekly*.
- Basu, K., (2000). The intriguing relation between adult minimum wage and child labor. *Economic Journal* 110, C50– C61.
- Basu, K., Van, P.H., (1998). The economics of child labor. *American Economic Review* 88, 412– 427.
- Basu, Kaushik, Das, Sanghamitra, Dutta, Bhaskar, (2010). Child Labour and Household Wealth: Theory and Empirical Evidence of an Inverted-U, *Journal of development economics* vol. 91, issue 1, pp 8-14.
- Becker G, Tomes N (1976) Child endowment and the quantity and quality of children. *J Polit Econ* 87:1153–1189.
- Becker GS, Lewis GH (1973), On the interaction between the quantity and quality of children. *J Polit Econ* 81(2):S279–S288.
- Becker, Gary. (1982), *Treatise on the Family*. (Cambridge, MA: Harvard University Press).
- Behrman J.R., and Knowles, J.C. (1999), Household income and child schooling in Vietnam, *The World Bank Economic Review* 13, 211-256.
- Cigno and Furio C. Rosati, (2005), *The Economics of Child Labour*, Oxford University Press.
- Crime in India-(2008), National Crime Records Bureau, Ministry of Home Affairs.
- Dammert. C. A., (2010), Siblings, child labor, and schooling in Nicaragua and Guatemala; *Journal of Population Economics*, vol 23, pp 199-224.
- Dessy. E. S and Pallage. S (2005), A Theory of the Worst Forms of Child Labour, *The Economic Journal*, 115(500) pp. 68-87.
- Dre`ze, J., Gandhi-Kingdon, G., (2001). School participation in rural India, *Review of Development Economics* 5, 1 –24.
- Edmonds V. E. (2006)“Understanding Sibling Differences in Child Labor” *Journal of Population Economics*, 19(4) 795-821.
- Emerson, P.M., Souza, A.P., (2002), Birth Order, Child Labor and School Attendance in Brazil. Vanderbilt University Working Paper No. 02-W12.

- Emerson, Patrick and André Portela Souza. (2000) "Is There a Child Labor Trap? Inter-Generational Persistence of Child labor in Brazil," *Cornell University Department of Economics Working Paper no. 471*.
- Emerson, Patrick and André Portela Souza. (2001) "Bargaining Over Sons and Daughters: Child Labor, School Attendance and Intra-household Gender Bias in Brazil," *Vanderbilt University Department of Economics Working Paper*.
- Horowitz W. A. and Wang J (2004); Favorite son? Specialized child laborers and students in poor LDC households; *Journal of Development Economics*, Vol 73, pp 631-642.
- International Labour Organization, (1996). *Child Labour Surveys: Results of Methodological Experiments in Four Countries, 1992–93*. International Programme on the Elimination of Child Labour, IPEC.. ILO, Geneva.
- Lanyi, A. and S. Kahlen. (eds) (2000), *Institutional Incentive and Economic Reforms in India*, Delhi, Sage Publication.
- Mazumdar M., (2001): "Child Labour as a Human Security Problem: Evidence from India", *Oxford Development Studies*, Vol. 29, No. 3, 2001.
- Mondal Kumar Subrata Counting of Child Labour:- Some Concepts and Practice-mimeo.
- Patrick M. Emerson and Andre' Portela Souza (2007), *Child Labor, School Attendance, and Intrahousehold Gender Bias in Brazil*; The world Bank Economic Review, vol 21 No. 2 pp 301-316
- Ranjan, P., (1999). An economic analysis of child labor, *Economic Letters* 64, 99–105.
- Ranjan, P., (2001). Credit constraints and the phenomenon of child labour, *Journal of Development Economics*, 64, 81– 102.
- Ravallion, M., Wodon, Q (2000), Does cheaper schooling means less child labor? Evidence from behavioural responses to an enrollment subsidy, *Economic Journal* 110, C158–C175.
- Ray, R. (2000). Poverty, Household Size and Child Welfare in India, *Economic and Political Weekly*, September 23.
- Ray, R., (1999). Poverty, household size and child welfare in India, mimeo, University of Tasmania.
- Ray, R., (2000). The determinants of child labour and child schooling in Ghana, mimeo, University of Tasmania.
- Rogers A.C. and K.A. Swinnerton, (2008), *A Theory of Exploitative Child Labor*, *Oxford Economic Papers*, 60(1).

Sen, A.K., (1975). *Employment, Technology and Development*, The Oxford University Press.

Sen A.K.,(2002). *The Pratichi Education Report* , Pratichi Trust (India), (pg. 9)

Sen, A.K., (1990). "Gender and Cooperative Conflict," in Irene Tinker, ed., *Persistent inequalities: Women and world development*. New York: Oxford University Press, 1990, pp. 123-49.

Tobin, James (1958b), "Liquidity Preference as Behaviour Towards Risk", *Review of Economic Studies*, 25, No. 67, pp. 65-86.

Uttal L. (1999), Using Kin for Child Care: Embedment in the Socioeconomic Networks of Extended Families, *Journal of Marriage and Family*, Vol. 61, No. 4 , pp. 845-857 .