TRADE LIBERALIZATION AND ITS IMPACT ON THE INCIDENCE OF CHILD LABOUR

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DECLARATION

I declare that the thesis entitled "TRADE LIBERALIZATION AND ITS IMPACT ON THE INCIDENCE OF CHILD LABOUR" submitted by me for the award of the degree of **Master of Philosophy** of Jawaharlal Nehru University is my own work. The thesis has not been submitted for any other degree of this University or any other university.

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CERTIFICATE

We recommend that this thesis be placed before the examiners for evaluation.

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1 INTRODUCTION

Child labour is an important issue at present times. With increasing globalization, information about child labourers, particularly those working under hazardous conditions, is coming to knowledge of academicians and activists. The rising concern and awareness about child workers is quite evident in the substantial and growing literature available on this issue. However, considering the magnitude of the problem, there is always scope for further analysis regarding child labour and its associated aspects. This paper tries to relate the problem of child labour, which is mainly a third world phenomenon, with other socio-economic problems of these poor nations as well as with globalization, to see if these tendencies explain the prevalence of child labour in any significant way. There is a lot of debate concerning the right policy to curb child labour; whether a legislative ban on employment of child labour or compulsory schooling or other social security safety measures are the right way to give their childhood back to these child labourers. This study may be useful in identifying other problems like malnutrition among children, absence from school, low economic growth etc. which are coexisting with child labour in poor countries. It is entirely possible that the key to removing child labour is to take preventive action against all these problems simultaneously.

The plan of this dissertation is as follows. Chapter 2 provides a general overview of the problem of child labour including the definitions of child labour and the prevalence of child labour. In this chapter we have also tried to pinpoint some demand and supply side factors, which contribute to child labour. Chapter 3 gives a review of the earlier theoretical works done in this issue and the main findings of these studies. Then we take up the issue of child labour and globalization. In this contemporary times, when almost every country have taken up the path of opening up their economies to the world, it is important to check whether this will have any effect on the incidence of child labour and what will be the nature of that effect. The next chapter presents the empirical exercise done in this analysis and tries to find out the relationships between incidence of child labour and other socio-economic factors of countries over a particular time period. Finally, in chapter 6, we summarize our findings and try to discuss some policy questions.

2 OVERVIEW OF CHILD LABOUR ISSUE

What is Child Labour?

Child labour is still prevalent to an alarming rate. To curb the evil of child labour proper estimation is very important. But any accurate measure if the extent of child labour is difficult to get since there is no single and clear-cut definition of child labour. Following the lead given by the International Labour Organization **(ILO convention no.138)**, a person of age less than 15 years is taken to be a "child". And this child is considered a "labourer" if she is "economically active" **(Ashagrie 1993)** regardless of her occupational status, i.e. wage earner, own account worker, unpaid family worker etc. Governments and international organizations usually treat a person gainfully employed if the person works on a regular basis for which she is remunerated or that results in an output destined for the market. This definition does not include household work performed in parental homes as child labour. But this is a faulty practice. Because studies show that if these invisible child workers whose unpaid labour finds no market outlet are counted, the actual number of child labour can shoot up drastically. Calculations for the state of Tamilnadu, India, show that while under the conventional and restrictive definition, 13% of all children were labourers, when household unpaid child labourers were included, 33% of all children were labourers **(D. Jayraj and S. Subramanian's (1997))**.

Apart from this definitional problem there are problems of underreporting which makes estimation of child labour difficult. In most of the countries there are various restrictive legislations ranging from outright ban for very small children and for all children in hazardous industries to limitations on the number of hours they can work. This gives an incentive to the employers and guardians to underreport or hide the information about child labour.

In spite of these caveats about the estimation of child labour, there have always been attempts to try to get a better picture of the child labour situation in the world. **Ashagrie (1993)** found that nearly 79 million children were economically active in 1990. The Majority of these children, 57 million, were in Asia. However in his data, this was a fall from 1980 in the absolute number of child labour in Asia. But the number of child labourers increased in the 1980s in the Americas and Africa, especially in the latter. Another early attempt was by **Grootaert and Kanbur (1995)**.

Table 1

Child labour aggregate and distribution

Number of children (below 15 years) working

(In thousands)

	1980	1,985	1,990
World	87,867	80,611	78,516
Africa	14,950	14,536	16,763
Americas	4,122	4,536	4,723
Asia	68,324	61,210	56,784
East Asia	39,725	33,463	22,448
Southeast Asia	6,518	6,079	5,587
South Asia	20,192	19,834	27,639

Source: Ashagrie (1993)

More recent and fairly reliable estimates **(Ashagrie 1998, ILO 1996)** show an upward revision of these figures. According to these studies, there are about 120 million children in the world who work full time and the number goes up to 250 million if part time child workers are included. Looking at the distribution of child labour, one can see that about three quarters of the world's child labourers live in Asia and about one-fifth in Africa. But the high figure of child labourers may be a reflection of the huge population of Asia. Thus to get a better idea of the magnitude of the problem the concept of 'participation rate' is used. Participation rate is the percentage of children of the relevant age group who work as labourers. In terms of participation rate, in 1990, for the 10-14 age group, the problem was most serious in Africa. Almost 27.87% children were working, while for Asia the participation rate for this age group was 15.19%.

Table 2

Participation rates for children, 10-14 years

	1950	1960	1970	1980	1990	1995	2000	2010
world	27.57	24.81	22.3	19.91	14.65	13.02	11.32	8.44
africa	38.42	35.88	33.05	30.97	27.87	26.23	24.92	22.52
LA and caribbean	19.36	16.53	14.6	12.64	11.23	9.77	8.21	5.47
asia	36.06	32.26	28.35	23.42	15.19	12.77	10.18	5.6
europe	6.49	3.52	1.62	0.42	0.1	0.06	0.04	0.02
ethiopia	52.95	50.75	48.51	46.32	43.47	42.3	41.1	38.79
brazil	23.53	22.19	20.33	19.02	17.78	16.09	14.39	10.94
china	47.85	43.17	39.03	30.48	15.24	11.55	7.86	0
india	35.43	30.07	25.46	21.44	16.68	14.37	12.07	7.46
italy	29.11	10.91	4.12	1.55	0.43	0.38	0.33	0.27

Source: ILO (1996a)

The above data is presented in a chart below.
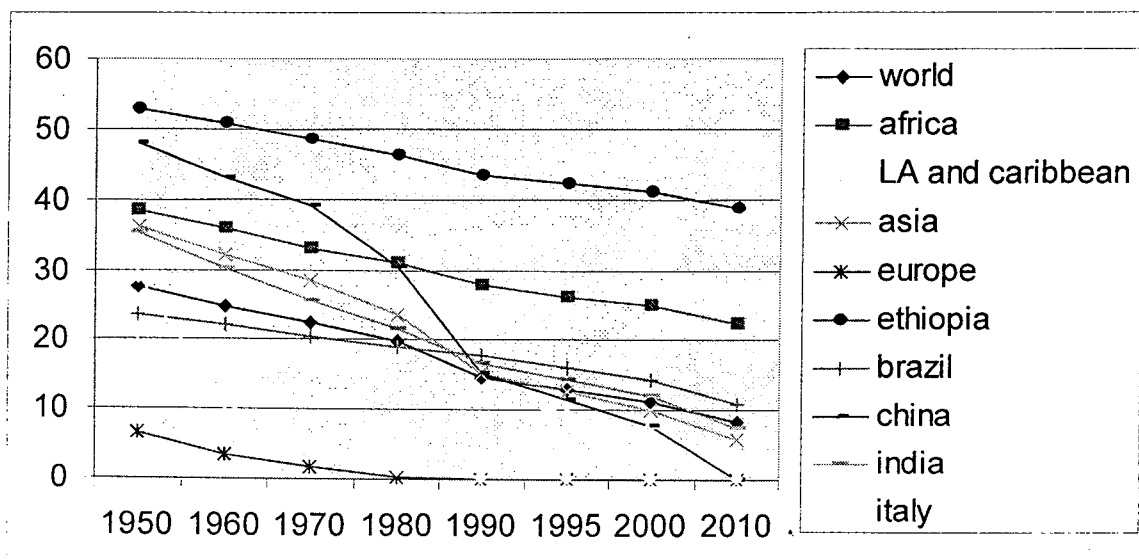
Though shows the magnitude of the problem is enormous, the trend is in a positive direction (table 2). The figures for child labour have been falling over the last fifty years (figure 1). In 1950, the corresponding figures were 36% for Asia and 38.5% for Africa. The decline has been slower in Africa than in Asia.

The ILO's Statistical Information and Monitoring Programme on Child Labour (SIMPOC) most recently estimated that 211 million children or 18% of children of 5-14 age group are economically active (ILO, 2002). 60% of these child labourers are in Asia, and 52% are boys. 23% of working children are in Sub-Saharan Africa. Participation rates are highest here with an estimated 30% of 5-14 age group children working. SIMPOC estimates that 4% of children of this age group are working in transition economies and 2% work in 'developed' economies. The child labour problem is particularly severe in the Asia-Pacific region and Sub-Saharan Africa, where on an average, 19 and 29 percent of the children aged 5-14, respectively, are economically active. In some countries like Burundi and Mali, approximately half of the total child population (10-14) is at work. In poorer countries, child labour amounts to a significant proportion of the total work force. Estimates suggest that child workers account for more than 7 percent of the total labour force in developing countries,

Employers of Children

Contrary to popular perception, most working children are employed by their parent rather than in manufacturing establishments or other forms of wage employment. The following table shows participation rates in market work and domestic work for 124 million children from 36 low-income countries.

Table 3

Participation rates in various activities for 124 million children 5-14 from 36 countries in 2000.

	5-14	5-9	10-14	Male	Female	Urban	rural
Market Work (MAR)	25.0	15.3	35.2	26.6	23.3	18.9	30.5

Paid	2.4	1.0	4.0	2.8	2.0	2.2	2.5
Unpaid	5.8	4.4	7.3	5.6	5.9	4.0	7.3
Family	20.8	12.4	29.7	22.4	19.1	14.8	26.2
Domestic Work (DOM)	64.6	50.8	79.2	59.3	69.9	60.7	67.4
Any work (MAR+DOM)	68.4	53.5	84.3	64.8	72.1	64.1	71.7
20 or more hours per week	20.7	10.3	31.8	19.4	22.1	14.1	26.4
40 or more hours per week	6.4	2.7	10.3	6.1	6.7	3.6	8.8

This household data is collected by UNICEF as a part of their End of Decade Assessment conducted in 2000 and 2001.

Source: Edmond and pavcnik's (2004) calculations from UNICEF Multiple Indicator Cluster Survey End of Decade Assessment microdata: http://www.childinfo.org/MICS2/MICSDataset.htrn.

Almost 65% of children age 5-14 report working in domestic work (Table 3). The participation rates are especially high among older children age 10-14, girls and children in rural areas. 32% of children 10-14 years work 20 or more hours per week, over 10% work more than 40 hours per week. Girls are more likely to work long hours than are boys (largely because of the additional household work performed by girls in most cultures) and the prevalence of all types of work including over 40 hours, is higher in rural areas than in urban areas.

Most child workers in low-income countries work in agriculture (FAO, 2004). In 1999, 85% of economically active children were engaged in agricultural work; in Cambodia, 73% of total child labourers were in agriculture in 2001, in Ethiopia, 89% in 2001, Guatemala, 63% in 2000,

Kenya, 77% in 1998, Morocco, 84% in 2000, Pakistan, 67% in 1996, Vietnam, 92% in 1998, and Yemen, 92% in 1998.

Hazardous Forms of Child Labour

The magnitude of the tragedy and suffering is not truly measured by numerical estimates of child labour alone. Conditions of child labour at work vary significantly. Some of them are at very high danger, as they work in hazardous conditions. It has been estimated that almost 180 million adolescents, one child in every eight in the world, are subject to the "worst forms" of child labour (ILO, 2002). Generally most forms of child labour can be identified from large-scale household surveys. But there are some relatively rare forms of child labour, which are very difficult to identify in household surveys. Thus to monitor these forms of child labour, ILO and other organizations survey particular industries and individuals engaged in these industries. This kind of survey informs us about some of the most hazardous forms of child labour.

ILO's SIMPOC estimates that a total of 8.4 million children are involved in child trafficking, in forced or bonded labour, are soldiers, are prostitutes or involved in pornography, or participate in illicit activities (ILO, 2002). But children can also face hazards in most common forms of child labour. As they grow older, they are exposed to various hazardous works in agricultural and manufacturing works. The self reported injury rate of children is 12% in agriculture and 9% in manufacturing (Ashagrie, 1997). Exposure to farm machinery, dangerous chemicals such as pesticides and herbicides, extreme heat or weather, repetitive work injuries and threats posed by animals, reptiles, insects, parasites and poisonous plants can harm children engaged in agricultural work.

History of Child Labour

While interest in the issue of child labour has been rising in recent times, it has a long history. In the very early phases of civilization, child labour was used as an important source of labour in agricultural and various other productive works including household work. Later it started being used extensively in industrial productions. In that period, the incidence of child labour was not the preserve of the poor countries of the third world, such as Africa, Latin America and Asia, as

it is now. Various committee reports (such as Select committee report 1831-32, British census data) reveal that some of the worst experiences of child labour existed in Europe in the late 18th and 19th century and especially in Britain during the industrial revolution. The participation rate in Britain during industrial revolution was very high, higher than the contemporary rates in all regions of the world with the sole exception of middle Africa. The 1851 census shows that in England and Wales 36.6% of boys aged 10-14 and 19.9% of girls in the same age group were working. These high participation rates existed in 1851 in spite of the implementation of Main Factories Act (1833 and 1844), which curbed child labour. The experience of other industrialized countries during this period in this regard, e.g. Belgium, U.S. and Japan was not very different.

By the late 19th century, child labour in the industrialized countries was declining. Some opine that colonization might have enabled those industrialized nations to 'export' the institution of child labour to their colonies. Nevertheless, these countries became successful in curbing child labour domestically. This happened mainly as a result of two complementary sets of legislative acts. One set declared child labour unconditionally illegal while the other set of laws made education compulsory, which made it difficult for children to work full time. In addition, economic prosperity of Europe, USA and Japan enabled the parents to stop their children from working without plunging the family into poverty.

Moehling (1999), in her analysis of the historical role of law in the decline of child labour, found that minimum age restrictions had little impact behind the rapid drop in child labour in U.S. from 1880 to 1910. But this does not prove that legislative restrictions are of no use in curbing child labour. Factors like economic growth, compulsory education for children, ban on using child labour are complimentary and all have contributed to reduce child labour. But there have been remarkable regional and sectoral differences in there effectiveness. A country at a point of time may be able to eradicate child labour with the help of a law, which might have failed to have any impact in some other country in some other period

Determinants of Child Labour

The first step of understanding the problem of child labour is to look into the determinants of child labour. Dearth of direct data on child labour has led many researchers to focus on the determinants of school attendance. But school attendance is not an inverse of child labour. There

are the 'nowhere' children who do not work and do not get education also. But school attendance can be taken as the proxy of child labour because one can argue that whatever promotes school attendance is likely to deter child labour. Empirical studies also show a negative correlation between child labour and hours dedicated to schooling.

Supply Side Determinants of Child Labour

There are various supply side factors, which influence the presence of child labour. The size and income of the family, the intra-household bargaining power system, fertility decision, importance of mother in the family, the family's attitude towards risk, even the gender of the first born child play an important role in supplying the children in labour market. We discuss the significance of these factors separately in the following section.

1. Poverty

In the diverse literature on the issue of child labour, it is a very commonly held view that abject poverty is the fundamental cause behind child labour. In a seminal paper **Basu and Van (1998)** showed that adult labour market imperfections are the main reasons behind existence of child labour in third world countries. They do not support the non-altruistic parents theory and shows increasing adult labour wage can decrease child labour. **Krueger (1996)** found a steep cross-country negative correlation between GDP per capita and the employment rate of 10-14 year olds in 1995. This view strongly suggests that policy should focus on economic development and increasing income **(Nardinelli, 1990).**

But some empirical evidence suggests, surprisingly, that in some cases parental wealth may lead to more child labour. **Bhalotra and Heady (2000)** has called this phenomenon the 'wealth paradox'. They have observed that children of land-rich households are often more likely to be in work than the children of land-poor households. Unequal distribution of land, which is the most important store of wealth in agrarian societies, and the failures of the markets for labour and land in such economies generate this apparent paradox. Similar cases take place when household incomes arise from running small enterprises such as cottage industries or family firms. For example, **Cockburn (2000)** has found that in rural Ethiopia, asset ownership by the household can be positively associated with child labour. Children from families with some assets tend to

work more than children from families with no assets. **Cain (1977)** reported similar findings in his study of Bangladesh.

2. Fertility, Household Size and Time Allocation

Since the number of child decides the potential supply of child labour, fertility decision-making has important implications for child labour. In a utility maximizing household, regardless of the maximization process of intra-household decision-making, there exist competing demands on members' time. Mainly a child's non-leisure time can be allocated to schooling, home production or income earning work in the market. How a household will allocate the child's time depends on the following things.

- Household size and structure

- Productive potential of the child

- Productive potential of the parents (specially the mother).

- Degree of substitution possible between the child and its parents (mainly mother).

In most of the households, time allocation decision and fertility decision is a joint decision. But children's income potential in turn determines desired household size. Children's income potential stems both from their work as children and their income transfer to the parents when they are old. Larger household sizes increase the probabilities that a child will work. It has two fold reasons. One, in larger households, children's educational participation reduces and also progress in schools slows down. Secondly, with larger households, parents' investment in schooling reduces. **Lloyd (1994)** opines that magnitude of this positive effect of larger households on amount of child labour is determined by at least four factors.

- Level of socio economic development: effect of household size is larger in urban or more developed areas.

- The level of social expenditure by the state: effect of household size becomes smaller if state expenditure is high.

- Family culture: effect of household size becomes smaller when the system of extended family exists in the society. Relatives share the cost of child rearing.

- The phase of demographic transition: effect of household size is larger when population is passing through later stages of demographic transition.

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Relationship between household size and child work varies for market and domestic work and sex and birth order. Children with more siblings work longer hours on an average. Specially, older ones and girls, have to work more. First borns are more likely to work if there are many children. The kind of work also differs according to the sex of the child. Boys are generally engaged in market work and girls are engaged in household work. The extent to which boys or girls will be affected by household size is very much a cultural factor.

Interestingly, in rural areas the relationship between fertility, household size and child labour depends also on the amount of land holding. Children in landless and marginal farm households generally engage in wage labor while those in households with larger farms engage in agricultural work. The size of the farm and the mode of operation will also influence the effect of fertility and household size on child labour.

School enrolment can be a good measure of child labour since it is much easier to monitor. The literature on school enrolment has talked about two effects. Firstly, there is a substitution effect between schooling of girls and labour force participation of mothers. As mothers go out to work, girls stay at home to do household work. In this sense, the opportunity cost of the girls' education is their mothers' wages. Secondly, the most important determinant of school enrolment is parents' education. In this regard the mother's education is more important. Household income also plays a significant role. In poor households, when mothers need to enter the labor force, child labour will increase because especially girls will either be pulled out of school to do domestic work or their entry into school will be delayed. As income increases, the income effect of the mother's work will outweigh the substitution effect and child labour will decrease. Most case studies identify poverty of households and low level of parental education as the main determinants of amount of child labour supplied from the household.

The nature of parents' employment also matters in determining child labour. If the parents have irregular employment, it creates the need for additional or more stable income sources that has to be provided by children. Often it is seen that the parents work in the same occupation as the children.

Apart from the factors discussed so far, which relate directly to the household's behavior, the supply of child labour is also determined by the characteristics of the community in which the household lives, especially the social infrastructure available. It is seen that presence of a day care center in the locality reduces the incidence of child labour. Mothers can leave their children

in those centers and can go to work. Otherwise they are compelled to take their children to work as well.

The overall condition of the education system can be a powerful factor on the supply of child labour. In an economic environment where survival depends on work in the informal sector, many parents conclude that taking children out of school and putting them to work is the most sensible solution for survival, particularly if the education method seems irrelevant. At this point the role of government becomes important. Many of the factors discussed above that influence household's behavior with respect to child labour are themselves affected by government policies, especially the level of social expenditure, the social infrastructure, and the overall level of economic development. The UNICEF report of 1986 suggests low economic development along with poverty and inequity is likely to increase the incidence of child labour, and then the nature of child labour is more probable to be exploitative.

Two general policies that can affect the extent of child labour are

- Structural adjustments
- Population policies

Structural adjustment usually includes a reduction and restructuring of government expenditure. The effect of this on the level and allocation of social expenditure can have profound effects on child labour. There can be a restructuring of government expenditure favoring primary education and towards imparting a pro-poor orientation of subsidies and service provision. Such policy orientations are likely to reduce the supply of child labour. In addition these policies will have other benefits. But the usual experience is that the process of structural adjustment heads to a reduction in social expenditures, at least initially.

Regarding population policy, our earlier discussion on the role of fertility and household size as a determinant of child labour indicates that rapid population growth and a large and growing share of less than 15 years old in the population are detrimental to school enrolment and are likely to increase child labour. So to eradicate the problem of child labour policies of family planning and other population policies will help.

The final supply determinant of child labour is the labor market itself. The wage level in the market, both the wages of children and those of adults, determines the supply of child labour. Evidence from Egypt and India suggests that the own-wage elasticity of child labour is positive and higher for younger children. The higher the market wage is for children the larger the

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incidence of child labour. The cross-wage elasticity with the labor supply of the mother was found to be negative, i.e. an increase in wages for women is likely to reduce the supply of child labour, especially of female children.

3. Household Attitude towards Risk

Household attitude towards risk is also an important determinant of the supply of child labour. Child labour is part of a strategy to maximize the risk of interruption of the income stream and hence to reduce the potential impact of job loss, failed harvest etc. The risk argument also explains why child labour is more prevalent among poor families whose level of income is so low that any interruption can be life threatening. This problem is more severe to them, since they have no savings and no liquid assets. With imperfect capital markets in most developing countries, where child labour exists in greater proportions, these poor households are not able to borrow also or borrow at very high rates of interest, and so to survive the loan children may have to work. So for poor households child labour is rational behaviour as part of a diversification strategy of their portfolio of income sources. Evidence from rural India confirms that child labour plays a significant role in the self-insurance strategy of poor households. When the variability of household income increased, children's school attendance declined.

Clearly, in settings where household risk management is an important reason behind child labour, attempts at forced abolition of child labour or child labour ban legislation or compulsory school attendance laws are likely to fail since all these will threaten a household's survival.

Demand Side Determinants of Child Labour:

1. The Structure of the Labour Market

In discussing the demand side determinants of the child labour, structure of the labour market is a very important. It determines the level of wages, which in turn determines the contribution of children to household income. A key factor in this regard is the flexibility of wages. In competitive markets, where wages are flexible, children can substitute adults in the workplace. Where wages are at the minimum level, whatever may be the reason, legislation, collective action or due to the fact that they have reached the minimum subsistence level, employer would prefer an adult worker, considering the fact that adult productivity is higher than children. Thus

effective minimum wages can in principle deter child labour. But there may be a question of enforceability of this minimum wage legislation, whether it is easier to enforce the legislation of banning child labour.

Various forms of market segmentation, ironically, may reduce child labour. Exploitation and wage discrimination against children will reduce the returns to child labour and hence the supply. Monopsonistic demand conditions in the market will also depress children's wages. Monopsonistic conditions occur often in developing country labor markets and can be due to concentrated ownership of land, credit and product monopolies, share cropping arrangements, imposed or natural restrictions on labor mobility, or, simply because of lack of alternative employment possibilities.

The relative importance of the formal sector in the economy and the degree of segmentation with the informal sector also determines the demand for child labour. Evidence suggests the extent of child labour is limited in formal sectors, the plantation sector being an important exception. However, in many countries there is a tendency towards "informalization" of production methods. Formal enterprises either break up in smaller units or engage in sub-contracting with households or informal enterprises (mainly to try to escape social legislation which adds to the cost of labor). In such conditions the demand for child labour may well increase.

2. The Role of Technology

A major factor determining the demand for child labour is the technology of production. This factor becomes increasingly important the less children are substitutable for adults. Examples are the use of boys in mines, because the tunnels are too small for adults to crawl through; the use of boys as chimney sweeps; the use of girls to weed and pick cotton; the use of children to weave carpets because children supposedly have more nimble fingers and can tie smaller knots than adults.

Changes in technology can have a profound impact on the incidence of child labour. The green revolution in India led to reduced child labour due to more use of machines. Similarly, the mechanization of Egyptian agriculture, especially the growing use of tractors and irrigation pumps, reduced the demand for child labour in tasks such as driving animals to power waterwheels, picking cotton, and hauling freight borne by donkeys. Technological change has also played a crucial role in eliminating child labour in Europe following the industrial

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revolution. In the textile industry e.g. the mechanization of spinning and weaving stopped the family mode of textile production and increased the specialization of work in the factories. This reduced the demand for child labour and increased the demand for skilled labor.

Today's technology can have ambiguous effects on the demand for child labour. The advent of miniaturization and assembly line of production once again pumped up the demand for nimble fingers in the workplace. In garment production, the introduction of fairly cheap multi-function sewing machines has once again made possible home production, and sub-contracting arrangements are often leading to girls' work at home. Though empirical assessment of the implications of technological change is in lacking and we need more evidence to judge the relative importance of this factor.

Lastly, it needs to be mentioned that the relationship between child labour and technological change also works the reverse way. If there is effective enforcement of child labour prevention laws, it will force entrepreneurs to adopt techniques that are less reliant on use of children.

Social Norms

It is equally important to know what society actually thinks about child labour besides knowing the technical definition of child labour. **Albert Hirschman (1958)** has rightly argued that the decision to send a child to work is partly a social norm. In most cases, the concepts of morality or immorality are acquired. Certain practices in ancient societies or in societies far away may look very immoral to us but perfectly normal to them. Similarly, it is no wonder that some of our common practices will seem to be flagrant to our descendants. In this way, the acquired moralities influence our behaviour and preference. Corporal punishment for children is a good example of moral relativism. In some societies child labour is a good example of this kind of moral relativism. Generally from today's perspective child labour is normally associated with child abuse. But in some societies child labour is considered to be perfectly normal. And there has been evidence that child labour was not at all considered evil at all in some stages of history and in some societies. It may be the fact that child labour was unpleasant to the child, but adults almost treated it as an education, which no child seems to enjoy but which is absolutely necessary for their development. This type of attitude was very evident in writings of some 18th century writers. Such an unknown writer observes, "Parents, whose childhood was spent in

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idleness, have constructed every absurd prejudice against the employment of children as unnatural, cruel and unprofitable." Quoted in **Cunninghum (1990). Hutchins and Harrison (1903)** have recounted similar type of attitude in a 1770 document. It has been argued that "being constantly employed at least 12 hours a day,.........we hope the rising generation will be so habituated to constant employment, that it would at length prove agreeable and entertaining to them...........(from) children thus trained up to constant labour we may venture to hope the lowering of its price."

The following example will elaborate even further that the decision to send a child to work is mainly dependent on existing social practices. Suppose, by sending their child to work, the parents incur a social stigma cost c. The more children work, i.e. the more usual the practice of child labour is, the smaller is c. We can say, making a child work is socially looked down upon but the ferocity of the opposition is greater if one lives in a society where no one but one family sends its child to work. If all parents send their children to work, it is worthwhile for each parent to send his child to work, and if no one sends their child to work, each parent will find it not worthwhile to send his child to work because the social stigma cost c would be too high.

This observation can provide us one way to eliminate child labour. If our aversion to child labour is an acquired morality, then one way to remove child labour is to try to make it customary for children not to work or to make it customary for them to attend school.

The Welfare Economics of Child Labour

The framework of conventional welfare economics can help us to determine systematically how much of child labour is 'too much' or 'too little'. Such an analysis may also provide insights into appropriate policy intervention to reduce child labour. To discuss this issue we will mainly use the basic household decision making framework in the allocation of children's time between labour activities and non-labour activities together with an assessment of private and social activity. Each household will allocate the time of its children to wherever the perceived private return is highest, until the marginal return is equalized across all uses of child time. The crucial question is whether the marginal social return is also equalized.

There are mainly three issues. First, issues with pure efficiency where no distributional questions are raised. Then there are issues involving intra-household distributional considerations. Finally there are issues regarding inter-household distributional question.

a) Issues Involving with Pure Efficiency

Let us start with a state of affairs where all households are identical, so that there are no inter-household distributional issues at all. Let us also assume that there are no intra-household allocation issues -- households give the same weight to the welfare of children as the social welfare function. In such a situation, the only remaining issue for welfare economics is that of efficiency of the allocation of children's time, emerging out of some sort of market failure either in the market for child labour or in other markets.

Suppose there is a failure in the market for education. Social returns to primary education are higher than private education. Thus in the social optimum, more children would be at school rather than at work. In this situation the first best policy is to attack the market where failure occurs, second best is to attack the related markets. So taxing or banning of child labour is a second best policy intervention. Policy should rather focus on raising the private returns to education to bring them closer to the social returns. Similarly, if incomplete markets for risk spreading lead to use of child labour the first best solution would be to encourage the development of credit and risk insurance markets. Here also, banning would be far from the proper policy intervention. A ban will also not be appropriate for the cases of market failure. Suppose the market for child labour is monopolistic, so that the wages for child labour are depressed below the efficient competitive level. Minimum wages in such a market will of course raise wages and increase the employment of children. Interestingly, in this case the efficient direction of movement is to increase child labour though this also increases the wages of children, which raises distributional issues.

b) Issues with Intra-Household Distributional Questions

In this segment we still assume that all households are identical, but within each household there is discrimination against children. The household objective function gives a lower weight to the utility of children than the social welfare function. Then, even if there is no market failure of the conventional type, and there are no inter-household distributional issues, there may nevertheless be "too much" child labour. Since the policy interventions will differ accordingly, it is very important to model this intra-household allocation process. In case of a unitary model, the head of the household gives greater weight to the cash income and less weight to loss of leisure and

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schooling of children than the social welfare function does. In this situation the issue is how to rearrange incentives for the head of the household so that the socially optimal decision is made. Here taxing or banning child labour may help. Now we think of a bargaining model, where the two parties are the father and the mother-child nexus. Then the policy intervention may be directly altering the bargaining power of the mother. To do this, increasing the wages of the mother or the child may be the appropriate policy. Once more resources are available to mother, she can spend it in increasing the welfare of her child, that is sending the child to school.

c) Issues regarding Inter-Household Distribution

In this case there are no market failures and there are no intra-household issues, but households differ in their wealth and capabilities, thereby leading to a distribution of outcomes in welfare. Here child labour is correlated with low-income households, and a reduction in household poverty leads to a reduction in the problem. In this situation child labour is not an independent object of concern, it is simply a manifestation of low household income. Therefore, rather than banning child labour interventions should be planned under which transfer resources (nutrition, for example) to children occur, since this is also the way to transfer resources to poor households. This policy will alleviate poverty and will reduce child labour in the long run.

The Policy Perspective

There are two cases to consider, one where the ban is enforced and one where is not. If the ban is enforced, children will no longer be found in the labour market, but are likely to be shifted to family labour or to schooling. Now if previously there were inefficiencies in the education market, so there were too few children in the schools, this move may take us closer to the social optimum, but following the rule of the first best policies, it would have been a better decision to intervene in the education market.

But if there was no inefficiency in the education market then what would be the result? From the viewpoint of pure intra-household distribution, suppose it was the case that putting children into the labour market gave them a lower level of welfare than putting them in school, but still they did that because the household put them to work to get the cash incomes.

Then forcing the ban on child labour is good if the social welfare function gives a higher weight to the child's welfare than the head of household does (unitary model). But if child welfare depends on the cash income of the child because this is what strengthens the bargaining power of mother child nexus (Bargaining model), banning child labour may make the child worse off after the intra-household bargain is completed.

Now we take the case where the problem is one of inter-household distribution, where poorer households send their children out to work, but wealthier households send their children to school -- the two decisions being rational given the wealth levels of the two households. A ban on child labour makes the poor household worse off since it is a restriction of its opportunity set . Even if the ban is not enforced in real life, it creates rents in the system. If employers have to pay the fines, bribe the policemen etc. to continue, this is an extra cost to them. This will reduce the demand for child labour and, in a competitive setting, will reduce the wages of children and reduce the extent of child labour. The consequences can once again be thought through for efficiency, intra-household equity and inter-household equity.

a) Efficiency aspect: more children will go to school now. So the system would move closer to efficiency if the failure were in the education market. But again the first best policy would have been intervention in the education market itself.

b) Intra-household distributional aspect: in case of unitary models, as long as head of household was sending the child to work against its better interest, lower wages will force a reallocation to schooling that will increase the welfare of child labour. But in case of bargaining models, reduction in wages will reduce the bargaining power of mother child nexus, so the child will be worse off.

c) Inter-household distributional aspect: since the poorer households send their children to work based on rational decisions regarding to their wealth (this does not entail intra-household inequality), lower wages of child labour will adversely affect them.

The welfare economics of child labour thus leads to a complex analysis that does not suggest a single, or even a dominant, way of approaching the issue. An array of policy instruments is likely to be required, addressing different aspects of failures arising from efficiency or distributional considerations. In particular, it seems clear that legislation, even if it could be enforced, is at best only one instrument in an array that has to be used.

Non-Welfarist Framework

Our discussion till now has revealed that legislative policy interventions against child labour, such as banning child labour, is surely not the only way to handle this problem, and in some cases, as shown in our multiple equilibria model, it can have adverse results. But now we should discuss another viewpoint that justifies use of bans regarding child labour unconditionally. This is the viewpoint of the non-welfarist economists. Their argument is based upon the concept of fundamental rights. We can understand this argument by considering a theoretical question concerning violence and sexual harassment in the case of adult labour, and then shifting the analysis to the domain of child labour. The main question is if these harassments occur as a consequence of voluntary contracting, is there any case for banning violence or not. The root of this argument traces back to the philosophical debate concerning the states' right to ban voluntary transactions between two individuals, such as the signing of self-enslavement contract of trade in human organs or a child's decision to sell his labour.

Generally, economists take the view that if a voluntary contract between two parties has no negative impact on any uninvolved third party, then it should not be banned. This is the principle of free contract. Now we take the example of a certain kind of sexual harassment that is ex ante voluntary. The entrepreneur advertises that he will employ some workers who he will pay a wage higher than the market wage rate, but he has the right to harass them sexually. Now it is clearly a case of principle of free contract. It is difficult to justify a ban on this type of voluntary contract.

But this is a harassment lemma **(Kaushik Basu, 1999)**. If we can prove this lemma, there will be justified case for ban. Under normal assumptions, if harassment is allowed, then the workers who are strongly averse to harassment will be worse off because the market wage they will get will be lower than what it would be under no harassment situation.

To formalize it, suppose we have a market with two kinds of workers. Type 1 workers are those who have a stronger aversion to sexual harassment than type 2 workers. To make it algebraically amenable, suppose type 1's distaste towards sexual harassment is infinity while type 2's is zero. So, rather than being sexually harassed, type 1 will prefer to sit unemployed. In a situation where there is no harassment and market wage rate is w, the aggregate supply of labour by type 1 workers is $f_i(w)$. As usual, $f_i'(w) > 0$.

This is a competitive model, so workers and employers are wage takers. For simplicity we assume that there is only one employer and he gets a satisfaction of θ (>0) from harassing each

worker. The production function of the employer is given by $x = x(n)$, where $x' > 0, x'' < 0$, and n is the number of workers and x is the total output.

Let W_H be the wage for those who sigh the with-harassment contract and W_N for those who sign the no-harassment contract. If the employer hires n_H workers under the H contract and n_N workers under the N contract, his total profit is $x(n_H + n_N) - n_H W_H - n_N W_N + \theta_{nH}$. The first order conditions from maximizing this can be rearranged and written as follows:

$x'(n_H + n_H) = W_N$

$W_H = W_N + \theta$

Clearly, type 1 workers will sign N contracts and type 2 workers will sign H contracts. Hence, the total supply of workers for N contracts will be $f_1(W_N)$ and the total supply for H contracts will be $f_2(W_H)$. Therefore, using the first order equations we can say that W_N^* is and equilibrium if $x'(f_1(W_N^*) + f_2(W_N^* + \theta)) = W_N^*$.

Now we consider a legal regime where harassment is never allowed. Hence, there is only one wage in the market, W. The employer maximizes $x(n) - nW$. The total supply of labour is given by $f_1(W) + f_2(W)$. W^* is an equilibrium wage if $x'(f_1(W^*) + f_2(W^*)) = W^*$.

Since $f_2' > 0$ and $x'' < 0$, it follows that $W_N^* < W^*$. This completes the proof.

The harassment lemma proves that if we adhere to the principle of free contract, then even though there may be no reason for stopping a finite pair of individuals from getting into a contract, there may be good reasons to adopt the rule that no harassment contracts should be allowed in the workplace. This harassment lemma also shoes that allowing harassment has a negative impact on uninvolved individuals. But a negative impact cannot be a sufficient reason for disallowing any action.

Thus to get a sufficient condition for disallowing any action, we need to look beyond economic theory and identify human preferences which are fundamental. These preferences are fundamental in the sense that nobody should pay a price for having those preferences. In most societies, the preference not to be enslaved certainly counts as fundamental preference. No one should have to pay a penalty (or receive a lower wage, as in our example) for having such a preference. It is this harassment lemma coupled with the recognition that the preference not to be sexually harassed is fundamental that supports the case for an outright ban on sexual harassment.

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It is clear that if we assume that households have different degrees of aversion to sending their children to work, the harassment lemma, as an abstract idea can be carried over to the domain of child labour. Different households have different degrees of aversion towards the malice of child labour. As we discussed earlier, if there is a crucial market wage rate for adults w_i and if the market wage rate drops below it, households will send its child to work. Now it may well be the case, that for household type 1, this $w_1 = -\infty$, that is, they never their child to work, and for household type 2 this $w_2 = \infty$, that is, they always send their child to work. Now from our earlier work, we saw that imposing a ban on child labour will increase the market adult wage rate. Conversely we can say, removing a ban from child labour will lower the adult wage rate that will make the type 1 household suffer. That means, not having a ban on child labour penalizes the household with a stronger aversion towards child labour. Now if we consider a household's preference not to send its child to work as fundamental, this certainly leads to a case for banning child labour. This is the basic argument of the non-welfarist economists. But from our earlier discussion, we saw imposing a ban on child labour may make the situation of the household worse. The fact that the attempts to enforce legislation may hurt the very group whose right is being protected does not become an important consideration for the non-welfarist economists.

Even if legislation is necessary, question of enforceability is important. Most developing countries simply do not have the administrative capacity to enforce the legislation since there exists an overwhelming amount of incentives for the existence of child labour

The presence of legislation makes it more difficult to put in place other interventions since, in that situation it is not supposed to exist in the first place. So even if it is certainly appropriate for the nations to accede to international conventions as a statement of overall objective, specific legislation on child labour should be tailored to their enforcement capacity and also according to their social structure to some extent.

3 REVIEW OF LITERATURE

There is a growing theoretical and empirical literature concerning the causes and consequences of child labour. Many factors like household characteristics, market failure, poverty, economic crisis have been considered as statistically significant determinant of child labour. In this chapter, we first discuss some of the contributions of this literature before going to our study specific literature review.

Early Theoretical Ideas

The increased flow of information might have resulted in an upsurge of child labour issues in contemporary economics literature, but it can also be traced in the writings of earlier economists such as Karl Marx, Alfred marshal and Arthur Pigou. During Marx's period, participation of child labour in factory production was at the peak. Marx noticed that with the spread of the new technology, mainly machinery, entrepreneurs would need more labourers "whose bodily development is incomplete, but whose limbs are all the more supple." **(Marx 1867, page 372).** Therefore it was expected that the demand for women and child labour would rise. **Alfred Marshall (1920)** brought the issue of dynamic implication of child labour into light. He did not fail to notice that "the most valuable of all capital is that invested in human beings" and so could measure the grave impact of child labour on the future adult productivity and social welfare in turn. As policy intervention, most of them supported banning of child labour or other forms of restrictive legislation on quantity and quality of child labour. Pigou suggested that there should be some form of government support for the neediest families, because he could sense that the banning policy may push the families below minimum subsistence level. John Stuart mill emphasized the non-altruistic nature of parents and employers, who take the child employment decisions to fulfill only their self-interest.

Household Decision-Making: Bargaining Models

Early theoretical modelings of child labour were closely related to the modeling of household behaviours. The earliest models of household decision making tried to explain the decision-making regarding consumption and child labour. These models are generally derivative models of **Becker (1964).** These models occasionally also talked about issues like child schooling and fertility.

- Intra-household bargaining models generally follow the traditional unitary model of household. The household is considered a single unit of decision-making. In such a household a person's bargaining power depends on the resources one brings to the household.

- Extra-household bargaining models are those where children have no bargaining power. They are mostly instrumental in parental utility maximization effort. A survey work done by **Gupta (2000)** in rural areas of West Bengal, India, shows that children have negligible bargaining power for themselves. **Rosenzweig and Evansen (1977), Portner (2001), Cignati and Rosato (2000)** and **Schultz (1997)** have used these types of household decision models.

Children as Household Assets

In this context, children are viewed strictly in terms of their value as assets. **Becker and Lewis (1973)** argue that in the quality-quantity tradeoff, parents who choose a large number of children are less likely to invest in quality schooling. One of the reasons behind parents choosing a large number of children may be that they want to diversify risk, formally educating some and putting the others to work.

Children as Insurance

Parents are also motivated to have children as a form of insurance in economic environments where insurance cannot be purchased at a fair price. If the return to education is low and the return to land is high, then family wealth is maximized by having a large number of child-farmers. . **DeVany and Sanchez (1977)** found that land reform in Mexico, which made it impossible for land to be bought, sold, leased or

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mortgaged, resulted in large family size. **Ejrnæs and Portner (2002)** show that children are often used as a savings vehicle. **Portner (2001)** explored several consequences of the use of children as insurance. Families would be larger and resources for human capital investment would be fewer. This will be translated into early entry into the labour force. **Jacoby and Skoufias (1997)** also found that parents make significant use of child labour to self-insure.

The Poverty Hypothesis

In the diverse literature on the issue of child labour, abject poverty has been emphasized as the single most important factor leading to incidence of child labour. It is a very commonly held view that child labour is fundamentally a by-product of poverty. This view strongly suggests that policy should focus on economic development and increasing income **(Nardinelli, 1990). Krueger (1996)** finds a steep cross-country negative correlation between GDP per capita and the employment rate of 10-14 year olds in 1995. But there are differences in identifying the precise fashion in which poverty influences child labour.

Although there is an obvious causal relationship between poverty and child labour, in some cases, surprisingly it has been seen that parental wealth may lead to more child labour. **Bhalotra and Heady (2000)** has called this phenomenon the 'wealth paradox'. They have observed that children of land-rich households are often more likely to be in work than the children of land-poor households. Unequal distribution of land, which is the most important store of wealth in agrarian societies, and the failures of the markets for labour and land in such economies generate this apparent paradox. Similar cases take place when household incomes arise from running small enterprises such as cottage industries or family firms. For example, **Cockburn (2000)** has found that in rural Ethiopia, asset ownership by the household can be positively associated with child labour. Children from families with some assets tend to work more than children from families with no assets. **Cain (1977)** reported similar findings in his study of Bangladesh.

Labour Market Failure and Multiple Equilibria

One strand of the literature has focused on the interactions between the adult and child labour markets. **Basu and Van (1998)** show that the link between child labour and parental poverty can be mutually reinforcing. The main assumptions of this seminal work is that child leisure is a luxury good (luxury axiom) and child labourers can substitute for adult workers in the labour market, even though each child may be only fractionally as productive as an adult. This substitutability implies that children's entry into the workforce leads to a fall in wages for adults. The authors showed possibility of multiple equilibria in labour market outcomes and discussed interesting policy questions. In the 'good' equilibrium, children do not work and this allows adult wages to be high enough to prevent child labour. In the 'bad' equilibrium, all households send children to work and adult wage remains low. They show that the policy of banning child labour in this situation may be a 'benign intervention'. After its initial impact, the policy can be removed costlessly. And in an economy where there is on one equilibrium and that is the bad one, if the ban on child labour is imposed, it will have adverse impacts. It will reduce the welfare of the workers including the children. A policy aimed at restoring wage flexibility and improving labour market function might lower child labour. Similarly, a subsidy to the household during a period of unemployment may help.

Distribution and Unemployment

Basu and Van (1998) generated a lot of interest at both the theoretical and empirical level. **Swinnerton and Rogers (1999)** opined that their analysis ignores the distributional issues, which certainly have strong impacts on child labour. The authors show that if a sizable fraction of the worker household own the productive forces and get share of profit, then in an economy where good equilibrium exists, bad equilibrium can never come into existence. Therefore distributing profits among workers may be a remedy to the problem of child labour. The problem with their analysis is that it is difficult to enforce such a profit sharing policy among workers due to obvious political reasons. One of the assumptions of the paper is that some workers share all the profits generated in the economy, so in other words they are denying the existence of capitalists who do not work. Clearly this assumption is not realistic.

The Unemployment Aspect

The relationship between adult unemployment and child labour is also important for policy perspective. Intuitively, a rise in adult unemployment will increase the incidence of child labour. Empirical evidence also supports this view. So increasing adult wage may seem to be a right policy to fight child labour. But this will be successful only when the markets are not competitive. In these markets increasing adult wage will result in more adult employment and less child labour. But in competitive markets a rise in the legal minimum wage can cause adult unemployment, which may deteriorate the situation for child labour.

An empirically testable hypothesis of **Basu and Van's (1998)** model is that child labour arises if adult household income falls below some benchmark level. A test of this hypothesis attempted by **Ray (2000)** for Peru and Pakistan shows, in Pakistan there is statistically compelling evidence that when a Pakistani household falls in poverty it substantially increases its children's involvement in paid employment. This hypothesis was also proved in case of Peru, though in a weaker way. Similar findings have been reported by **Addison et al (1997)** for Ghana and Pakistan, **Bhalotra (1999)** for Pakistan, and **Ray (1999)** for India.

The implications of labour-market failure for child labour are significant. In the presence of labour and land-market failure, a family with large land holdings may use the children to work in the land rather than invest in human capital. The Wealth Paradox **(Bhalotra and Heady (2000)** phenomenon was an outcome of such failures in land and labour market. **Skoufias (1995)** finds in empirical analysis of six villages in a semi-arid region of India for the period 1975-1984, which the larger the number of adult males and children in the household, the smaller the amount of land leased out and the greater the amount of land leased in by the family.

Labour market failure can also contribute to child labour when it is accompanied by adult unemployment, as analyzed by **Basu (2000).** Basu considers the impact of an adult minimum wage on the incidence of child labour. If the legislative specifies a wage that is above the equilibrium level, then adult unemployment may emerge. Parents may bridge the gap in earnings by putting their children to work.

Child Labour and Credit Markets

Problems with inefficient child labour arise when families are credit-constrained, as noted by **Laitner (1997), Parsons and Goldin (1989), and Jacoby and Skoufias (1997)** and **Baland and Robinson (2000).** If parents expect family income to be rising overtime, they may find it optimal to borrow against the future so as to smooth consumption across time. That is, it is optimal for savings to be negative when children are young. However, if parents do not have access to credit markets, then they have to rely on internal assets. In the child-labour scenario, parents borrow from the future by putting their children to work rather than investing in human capital that will make their children more productive in the future. Such a strategy, while optimal for the family in this constrained situation, is not efficient. **Dehejia and Gatti (2002)** find that a one standard deviation increase in the share of credit in GDP is associated with a 10 percent standard deviation decrease in child labour. They conclude that families with access to credit are considerably less likely to put children to work during a period of economic volatility than parents without access to credit.

The dynamic implications of capital market failure have been studied by **Ranjan (2001)**, with similar conclusions reached by **Basu (1999).** Ranjan considers that very poor families produce poor, uneducated children who repeat the cycle for the next generation due to capital market failure. **Jafarey and Lahiri (2000a)** point out the role played by the interest rate in the child labour decision. With access to a credit market, the present discounted value of future increase in wages simply equals the interest rate on borrowing. The lower the interest rate, the lower the discount rate and the lower is the tendency to choose labour over schooling. In the absence of any credit, the discount rate depends on factors such as household wealth and parental income and also on subjective attitudes towards the future. Low levels of household wealth and low parental incomes can then both conspire to raise the discount rate and discourage school attendance. **Baland and Robinson (2000)** argue that in the absence of mutual altruism, the provision of credit might not be helpful to rectify the occurrence of excessive levels of child labour.

Prevailing attitudes and laws in most societies do not allow parents to undertake debts, which can then be passed on by them as the responsibility of their children.

Non-Altruistic Parents

Some studies on child labour also analyze the possibility that parents are willing to have children only if they receive an adequate return on their investment. **Cigno and Rosati (2000)**, in their model of non-altruistic parents show that the families abide by some set of rules requiring each child to pay an amount T to their parents when an adult. T is a function of human capital formation activity and childhood consumption. Parents have an incentive to maximize the value of their offspring once they grow to adulthood because it also maximizes the value of their income in old age. There is considerable statistical evidence of non-altruistic parents, such as **Burra (1995), Gupta (2000)**, and **Parsons and Goldin (1989). Ray (2000)** finds mixed evidence that the altruistic feeling that parents have for their children increases with household income.

The Mother's Stature in the Household

The household decision about the allocation of child's time is the result of a family maximization problem. But the result of the maximization problem may be different depending on the bargaining power of the mother. In the households in which the mother has more bargaining power the spending on children's clothes and food is more and less on tobacco and alcohol **(Kanbur and Haddad, 1994). Basu and Ray (2001)** find a balance of power between parents is more likely to reduce child labour than a family in which all decision-making power is concentrated in the hands of a single parent. Analyzing household data from the Nepal Living Standards Survey (June, 1995), Basu and Ray find that child labour is highest when the father is dominant in the household and lowest when there is a balance of educational attainment in the household.

Children's Stature in the Household

The willingness of children to work may also play some role in determining the level of child labour. An increase in the share of household income earned by children may enhance their role in decision making in the family. **Moehling (1995)**, in her empirical

analysis of early 20th century urban America, finds that working children received a larger share of household resources than nonworking children.

Economic Crisis

Economic crisis at the national level can also influence child labour via affecting the household decision-making and other channels. On one hand, a decline in economic activity that reduces current employment opportunities relative to the future may lower the opportunity cost of an education relative to its future payoff. Thus, families may decide to increase educational attainment. However, for families without access to credit or employment insurance, the impact may be the opposite. Children are withdrawn from school and put to work in order to span the economic downturn.

There is considerable evidence that families in the developing countries adjust labour market activities of the children in response to shocks. **Jacoby and Skoufias (1997)** find that parents in rural India withdraw their children from school during an unanticipated decline in crop income. **Behrman, Duryea, and Szekely (1999),** find that for 18 Latin American and Caribbean countries, macroeconomic instability, as measured by volatility of international terms of trade and GDP, has played a dominant role in the fall in educational attainment since the early 1980s. Similarly, **Flug, Spilimbergo, and Wachtemheim (1998),** analyzing cross-country panel data, find a significant negative correlation between schooling and macroeconomic activity.

Skofias and Parker (2002) study the impact of economic shock variables on time allocation using Mexican 12-17 year olds using the National Mexican Urban Employment Survey during the economic crisis of 1995 and the recovery period of 1998-99. They find that Mexican families largely turn to older adult males and females to augment household income and there is some measurable effect on the schooling of children. Shocks have a significant effect on whether children continue in school in the next school year. The effect is more notable for female children, suggesting that these girls are replacing the mother's work in home production. This study also showed that the "safety net" programmes taken up by the national government had a significant effect on the effect of macroeconomic shocks on investment in human capital. **Cameron's (2002)** study on the effect of the economic crisis in Indonesia during the late 1990s on education,

labour force participation and health shows that school attendance dropped slightly at the onset of the crisis but is on the way of recovery. **Manning (2000)** documents a dramatic increase in the number of street children in Indonesia during the economic crisis. Children have become a common sight, selling food, drinks, and newspapers at most intersections, particularly in Jakarta. The Department of Social Affairs estimates that children working in this capacity have risen from 10,000-15,000 before the crisis to around 50,000 in 1999. **Lim (2000)** found similar results for the Philippines. Enrolment rates for primary school fell from 99.2% in 1997-98 to 98.1% in 1998-99. The enrolment rate for secondary students fell by 7.2% and the enrolment rate for high school students dropped from 76% to 70%. Labour force participation rates also rose for children aged 10-14 from 9.6% to 10.6%. For males, the rate rose from 11.7% to 13.4%.

Others

There may be some other types of unanticipated adverse events, which have important impact on the families' response. **Pitt and Rosenzweig (1990)** based on analysis of the 1980 National Socioeconomic Survey of Indonesia, show that a high rate of child morbidity increases the time of teenage daughters spent in home production and reduces their formal labour force participation and educational attainment.

To see if the socio economic variables of countries have any effect on incidence of child labour, we have selected four such variables such as proportion of labour intensive exports in total export, primary school enrolment ratio, GNP per capita and prevalence of malnutrition among children below 5 years as the explanatory variables. Here we have tried to find out the results in previous literature regarding the interrelationship of these variables with child labour.

Trade and Child Labour

The correlation between child labour and trade performance of any country is important because in most of the poor countries, child labourers are engaged in labour intensive export industries. The impact of trade liberalization in many countries of the world on the extent of prevalence of child labour has generated great interest among academicians.

Some analyses have shown that Child labour is negatively correlated with trade openness as conventionally measured (imports plus exports, divided by GDP) **(Cigno, Rosati and Guarcelo (2002))**. Countries with little international exposure differ more widely with regard to child labour than countries well integrated into the global economy. Those with trade up to 20% of GDP, for example, have labour participation rates for 10-14 year olds ranging from little over zero to more than 55% and primary school nonattendance rates ranging between 0% and 80%. By contrast, countries with trade equal to more than 40% of GDP have child labour in the range between little over zero and little over a quarter of the relevant age group. They argue, other things being equal, international competition is associated with lower or at worst, the same level of child labour. Exposure to international trade may or may not increase child labour.

The cross-country evidence also **(Cigno, 2003)** leads to the conclusion that trade exposure tends to increase the skill premium in countries that have invested sufficiently in the education of their workforce, and to reduce it in countries where this has not happened. A rise in the skill premium may tend to increase consumption inequalities but raises the incentive for parents to send their children to school. Thus, the author suggests, that there is no theoretical or empirical basis for arguing that trade liberalization per se is either good or bad for child labour. The outcome of trade liberalization depends on initial conditions, and on accompanying domestic policies. In countries with comparatively large endowments of educated workers, opening up or pulling down trade barriers raises the incentive for parents to send their children to school. With appropriate distributional, educational and health policies, this will lead to higher school enrolment and lower child labour. But for a country with a comparatively large endowment of uneducated workers, opening up may be a bad decision. In such a country, to increase the incentive for parents to send their children to school, education has to be made profitable, rather than affordable. To do so, policies that reduce the private cost of education, health and sanitation policies that increase life expectancy have to be implemented.

The interaction of trade and child labour has received considerable theoretical attention, but empirical evidence on the topic is scarce. The main problem that limits the empirical evidence is the endogenous nature of trade. The resource endowments and policies that determine trade flows also influence child labour supply. **Edmond and Pavcnik (2004)** examined the link between trade and child labour in a cross-country framework that addresses the problem that trade flows can be endogenous to child labour. Cross-country studies find a negative association

between openness and child labour (**Shelburn (2001) and Cigno, Rosatti, and Guarcello (2002)**). These studies interpret this evidence as a casual link from trade to child labour. But **Busse (2002)** considers the effect of child labour on trade and finds that child labour is associated with higher exports of unskilled labour intensive goods. **Frankel and Romer (1999)** addressed the endogeneity problem in their literature on trade and income. **Edmond and Pavcnik (2004)** deal with the endogeneity problem between child labour and trade and examine the relationship between child labour and variation in trade based on a country's geography. **Rodriquez and Rodrik (2000)** suggest that a country's geographic characteristics could affect country outcomes such as child labour by being correlated with the quality of institutions or public health (due to exposure to various diseases). According to trade theory expansion of trade can affect child labour through two main channels. First, trade can reduce child labour by raising income. The link between trade and income is well established in a cross-country setting (**Frankel and Romer (1999), Irwin and Tervio (2002)**) and there are both theoretical reasons (**Basu and Van (1998)**) and empirical evidence (**Edmonds (2005)**) that suggests that child labour declines with improvements in income. Trade can also affect child labour by altering the relative return to unskilled labourers. The relationship between trade and child labour will vary with country attributes. In a cross-country study with data for 113 countries in the year 1995, there is a significant, negative correlation between child labour and openness. Higher income is associated with less child labour, but less so in richer countries. After correcting for endogeneity, a 10% increase in openness is associated with a 7% decline in child labour. For the average non-OECD countries, trade with OECD countries is especially beneficial in terms of child labour. A 10% increase in the ratio of trade with OECD countries to GDP is associated with a 9% decline in child labour. However, this decline in child labour with openness appears to stem entirely from the association between trade and income. This study claims not to find any support for the view that when a country's trade expands, product demand changes instigated by trade are associated with increases in child labour. The data also do not support the idea that heterogeneity across countries in their skill endowments, capital to labour ratios, or signing of anti-child labour agreements interacts with trade to affect child labour. But the authors maintain that the absence of evidence of an effect of trade on child labour on average does not imply that there may not be any circumstances or some types of trade that stimulate child labour.

A simple two-sector general equilibrium analysis on the impact of trade liberalization on the incidence of child labour (Chaudhuri and Gupta, 2004) reveals that the effect depends crucially on the relative factor intensities of the concerned sectors and the parameters of the economy like world market prices, factor endowments etc. this study takes trade liberalization as equivalent to tariff reduction. The analysis shows, if the tariff-protected import-competing sector is capital intensive, a reduction of import tariff may lower the supply of child labour in the given setup. On the other hand, if the import-competing sector is more labour intensive than the export sector, removal of the protectionist policy, i.e. opening up may increase the incidence of child labour.

Lieten (2003) puts forth an interesting observation that openness to the world may or may not be an important factor in affecting child labour. First of all, he argues that this opening to the world may be just a relocation of economic activities within already developed world and marginalization of many regions of third world. In that case the probability that international capital is looking for more and more sources of cheap labour including child labour is less. According to data collected by Kuznets, the share contributed to world trade by Asia, Africa and Latin America was fairly constant at 20% upto the First World War, increased by 6 percentage points up to 1953 and then again decreased to about 20%. Hoogvelt (1997) has even argued that most parts of the third world, particularly Africa, have come redundant. Nearly two-thirds of the world is virtually written off the map. The importance of oil producing countries definitely has grown and many export based industries have flourished in different parts of the world, for example, industries in the coastal areas of China, the Mexican maquilladores (in-bond manufacturing industries supplying to its northern neighbour), the chip industry in Bangalore, the flower plantations in Kenya, and other export zones in various countries. Various commodities and services, ranging from carpets and garments to diamonds and cutlery, food and drugs, illegal migrants and sex workers are finding their way onto the western markets, but overall the western world has become more internalized.

On the other hand, whereas the Third World is not important for the world market, the world market has become very important for the Third World. A higher percentage of their GNP is accounted for by exports and imports. Bangladesh, in the 80s had an 'openness' (exports plus imports as a percentage of GDP) at 24%, and then increased to 37% in the period 1994-98 (Kunal Sen, 2003; Paratian and Tores, 2001). In India, this ópenness as a percentage of GDP,

which was 14% in 1980-81, and 14.4% in 1990-91, by 2000-01 had risen to 22.8% (Annual Economic Survey of the Government of India). The increasing import penetration and the dependence on export opportunities increase a country's vulnerability. Developing countries are situated in an asymmetric position in the world power structure. The countries are extremely sensitive to the vagaries of world markets, the financial crunches, and the debt overhang. The growing vulnerability of developing countries is often accompanied with loss of sovereignty, which leads to breakdown of social protection instruments. In crisis, survival of families is at stake, children are more likely to be forced to earn a living unprotected by the government. In addition, the 'Structural Adjustments', as demanded by IMF, invariably hurts workers and poor people in general through any of the multiple effects, and consequently the children of the poor may be directly hit. All these are the various indicators, which serve as circumstantial evidence for the argument that globalization increases child labour.

Trade and Poverty

How globalization, and if we consider it as a catchall word, which also means trade liberalization, will affect child labour incidence of any country, is very much dependent upon the nature of relationship between trade liberalization and poverty. Therefore it is important to know how these two factors actually affect each other to do a study on child labour. In most of the studies, poverty is identified as the single most important factor behind the existence of child labour and in most cases trade liberalization is expected to reduce child labour via reducing poverty.

Most economists accept the fact that open economies perform better in aggregate in the long run than do closed ones and relatively open policies contribute significantly to development. However, in the shorter run, trade liberalization may actually harm the poorer population of the economy and in the long run even may leave some people in poverty. **Winters, McCulloch and McCay (2003)** examine the evidence about whether developing countries' own trade liberalizations have reduced or increased poverty. Their study show, no unambiguous generalization can be made either in theory or empirically. First of all, the concept of poverty is very heterogeneous. Secondly, outcomes will also depend on the specific trade reform measures being undertaken, and the economic environment in which they take place. So there are no

general comparative static results about whether trade liberalization will increase or reduce poverty. In most countries the major portion of poor rely on labour markets for the bulk of their income. Thus the effects of trade reform on wages and employment are important, especially for unskilled workers. If reform boosts the demand for labour intensive products, it boosts the demand for labour and either or both of wages or employment will increase. However, if the poor are mostly in completely unskilled families, poverty will be unaffected, or possibly be worsened. Simple Hechscher-Ohlin trade theory suggests that in relatively unskilled labour abundant countries, trade liberalization will relieve poverty. But in practice, some other factors may need to be considered. For example, trade liberalization may be accompanied by skill-biased technical change, which means that skilled labour may benefit relative to unskilled labour. Again, developing countries, which are not abundant in unskilled labour, for example, many Latin American and some African countries have very strong endowments of mineral and agricultural resources and so liberalization will stimulate these sectors rather than labour intensive sectors. Similarly, if the unskilled labourers are primarily employed in non-traded sectors, while exports draw mainly on semi-skilled, a liberalization accompanied by real exchange rate depreciation could have adverse effects. Even if increases in the prices of unskilled-labour-intensive goods raise unskilled wages, poverty will be alleviated only if poor households rely largely on unskilled wage earners. **Lloyd (2000)** characterizes the effect of a trade shock on a given household in terms of the latter's endowments of factors, its consumption pattern and the matrix mapping changes in commodity prices into changes in factor reward. He shows that each household gains from at least one price increase and loses from at least one other. Alternative polar view of labour markets in developing countries is that labour is available in perfectly elastic supply. In this case, wage is fixed exogenously and adjustment will take place in terms of employment. If the wage is fixed by the existence of a subsistence sector, moving workers to a formal sector will alleviate poverty only if the loss of labour in subsistence agriculture is so large that the workers remaining in that sector increase their wage. But to achieve this, only trade liberalization is not enough. Similarly poverty will be potentially affected by a trade shock if the labour markets are segmented between formal and informal sectors. The poverty impact depends not only on employment but also on where the different wage levels lie relative to the poverty line.

Therefore, the critical issues are the effects of trade liberalization on the demand for labour, the shock to the labour market and the elasticity of labour supply. If there are several classes of labour, these factors are likely to vary across classes. There are some other considerations to be made for successful discussion on this regard; the adjustments take time, so the short-run effects may differ from the long-run ones **(Edwards, 1988 and Milner and Wright, 1998)**; to allow for non-traded good and their prices in the analysis and distinguish between formal and informal labour markets. Structure of good and factor markets and the substitutability between imports, exports and locally produced varieties are also important **(Falvey, 1999).**

The most common feature of the studies of the labour market effects of trade reform is the smallness of the wage and employment effects. But they offer a variety of explanations for this phenomenon. An early discussion of trade and employment was **Krueger (1983),** who argued that developing-country trade liberalization should boost labour-intensive output and increase employment. Her case studies show that developing countries' manufactured exports were labour-intensive, but the employment effects of liberal trade policies were generally muted. She pointed out the reason behind this are distortions in the factor markets.

More recent exercises also have shown that generally trade liberalization has small effects on wages and employment. **Rama (1994),** applied a model of monopolistic competition to a panel of 39 sectors in Uruguay over 1979-86, found a significant positive relationship between protection and employment in manufacturing, but no significant effects on real wages. **Currie and Harrison (1997)** find that employment responses in Morocco depended heavily on firm characteristics (especially public vs. private ownership). Where profit margins were slim initially, the liberalization of manufacturing led to job loss, but in most firms it led to lower margins and almost no change in output or employment. **Revenga (1997),** on the other hand, attributed the low employment effects of Mexican trade reforms to factor–market imperfections. She did, however, find real wages falling in manufacturing (3-4% on average; 10-14% in some sectors), which she attributed to the erosion of rents: with high rates of unionization, formal labour had been able to appropriate some of the rents created by trade barriers. Again, there are likely to have been overall poverty benefits from this element of trade liberalization, for few formal sector workers are likely to have been pushed into poverty by such wage cuts, while the erosion of rents will presumably have benefited consumers. Similarly small employment effects elsewhere in Latin America are reported by, for example, **Marquez and Pagés-Serra (1998)** for

Latin America and the Caribbean in general, **Levinsohn (1999)** for Chile and **Moreira and Najberg (2000)** for Brazil.

Milner and Wright (1998) explore industry level data on Mauritius and find a slightly more positive response to liberalisation. After an initially adverse wage effect they find fairly strong long-run growth in wages and employment in the exportable sector (mainly of female labour producing clothes).[1] But they also find, surprisingly, growth in the import-competing sector, which they attribute to Mauritius' overall strong economic performance.

Lal (1986) applies a modified Stolper-Samuelson Theorem directly to the Philippines. Distinguishing only tradable and non-tradable goods, but allowing for flows of factors between sectors, he explains the periodic declines in real wages in terms of real exchange rate changes. As the relative price of non-tradables (the labour-intensive sector) falls, real wages decline.

Winters (2000) suggest similarly that the real exchange rate depreciation could explain the simultaneous increase in formal and decrease in informal manufacturing employment in India in the 1990s, the non-traded sector being "informal intensive". From a poverty perspective, an important question is what happened to those who lost their informal manufacturing jobs. If they could move back into agriculture or other informal services at approximately the same wage, the answer would be not much, and the increase in observed formal employment at higher wages would be poverty alleviating. If, on the other hand, the loss of an informal manufacturing job signals a descent (deeper) into poverty, the net effects of these changes would be negative for poverty alleviation.

Poverty and Child Labour

The relationship between poverty and child time use decisions is complex and controversial. It is generally assumed that as household wealth increases children will be progressively withdrawn from labour activities in favour of schooling. To the extent that schooling and leisure are normal consumer goods, demand for them will increase – and child labour supply will fall – as income rises. To the extent that schooling is a profitable investment, i.e. the net expected returns to schooling are greater than to child labour activities, increased wealth may encourage schooling by relaxing household credit constraints. Empirical work has consistently failed to demonstrate a strong relationship

between child labour and income, although the link between schooling and income is well established.

One possible explanation for the weak empirical link between child labour decisions and income is that income variables are proxying omitted asset variables. Household wealth is generally associated with greater access to productive assets. As most child labour is performed within the household and smoothly functioning child labour markets are rare, household access to productive assets increases the productivity of, and demand for, child labour. Indeed, land and livestock ownership and having a family enterprise have all been shown to increase child labour participation (Bhalotra and Heady, 2000). In this very important work, the authors showed that labour market imperfections create a positive effect of farm size on child labour. The model was estimated for rural Ghana and Pakistan. A striking finding of the paper is that the effect of farm size at given levels of household income is significantly positive for girls in both countries, but not for boys. But this result is consistent with the findings in other studies that females exhibit larger substitution effects in labour supply. Increases in household income have a negative impact on work for boys in Pakistan and for girls in Ghana. Thus while household income draws children out of work and into school, the productivity effect of greater asset holdings does the contrary.

This issue is of crucial policy importance where the reduction of poverty and child labour and increased schooling are policy objectives. Recent research on poverty suggests that the most effective manner to combat poverty is to increase the access of the poor to productive assets. To the extent that assets contribute to household income and that poverty constrains child time-use decisions, the best policy would be simultaneously reducing poverty, reducing child labour and increasing schooling. However, if increased access to assets raises the returns to child labour sufficiently, it may instead encourage child labour at the expense of schooling by creating profitable income opportunities. To the extent that reduced schooling prevents the accumulation of human capital, long-term poverty alleviation may even be compromised, creating a lose-lose situation. As the point of asset-based poverty alleviation policies is to increase access to all assets, conflict between physical asset and human capital accumulation must be closely monitored. Efforts should be made to identify the optimal human capital-physical asset combination taking into account their intimate relationship via child labour and schooling decisions. In most cases, the types of activities performed by children are often quite different

from those performed by adults. It therefore seems likely that the effects on child labour will vary considerably depending on the types of physical assets targeted in poverty alleviation policies. In particular, targeting assets used in activities commonly performed only by adults may make it possible to avoid increased child labour and reduced schooling. Furthermore, labour-saving assets such as a nearby well or a wheelbarrow can be expected to directly reduce child labour and poverty.

Cockburn (2000) suggest that when a smoothly functioning labour market is present, increased access to physical assets will unambiguously increase income and reduce child labour. However, in the absence of a labour market, he shows that we cannot predict the effects on child labour, schooling and leisure time. Asset-based poverty alleviation policies may increase child labour at the cost of reduced schooling and/or leisure time. In contrast, a lump-sum income transfer will unambiguously increase income, schooling and leisure time while reducing child labour regardless of the presence or absence of a labour market. Another important result from this study is the effects on child labour, schooling and leisure will depend crucially on the type of assets owned by the household. Asset ownership policies aimed at poverty alleviation may target specific types of assets in order to minimize child labour and maximize child schooling and leisure. Along with the type of asset the specific characteristics of children and the types of activities they participate will determine the time allocation effects of increased ownership of different types of assets. Empirical analysis is required to determine which physical assets are child labour-increasing and –decreasing and the extent of their respective impacts.

Studies show household income and the productivity of children (and adults) both tend to increase as access to productive assets increases. While the income effect will tend to reduce child labour in favour of school and leisure activities, the productivity effect will tend to increase child labour. The importance of the income effect will depend on the income contribution of the asset itself and on the income elasticity of child time use decisions. The productivity effect, for its part, will depend on the degree of complementarity, or substitutability, between child labour and the specific asset. Assets used in activities traditionally performed by children, such as herding, are expected to have a stronger productivity effect on child labour than assets used in adult labour-intensive activities, such as farming. Land ownership appears to increase the likelihood of a child working, principally among older girls and young children, although these results are not significant. On the other hand, land quality, which increases with land fertility and

falls with land slope, reduces child labour. As high quality, fertile and flat land is conducive to farming, which primarily draws on adult labour, rather than herding, it is reasonable to expect its positive income effect to dominate.

Household assets and other household production variables also play an important role in child time use decisions. These results show that poverty alleviation efforts should aim to improve access to physical assets - such as bulls, oxen, ploughs, nearby sources of water and land fertility - that increase household income without encouraging child labour. There is also a tight relationship between child labour and school participation with respect to physical assets. For practically all of the explanatory variables, the sign of the labour and schooling effects are opposite and often of similar magnitude. Thus, it appears that policies aimed at combating child labour will simultaneously encourage schooling and vice versa.

Child time use decisions are driven by both poverty constraints (income effects) and income opportunities (substitution effects). If a policy objective is to reduce child labour and increase child-schooling, care should be taken to encourage the accumulation of those physical assets that both increase household income and encourage substitution away from child labour.

Deb and Rosati (2004) center their study on India and Ghana. The authors suggest that being poor increases the probability of working and decreases the probability of attending school. The variable proxying for pure wealth effects, appliances, has the expected effect on the decisions concerning child labor and schooling, i.e., children in wealthier households are more likely to attend school and less likely to work. They support the view that land and livestock ownership have negative effects on the probability of attending school, but according to them these effects are only statistically significant in the case of India. The lack of significance in the case of Ghana may be due to the fact that these variables are likely to have income and substitution effects. On one hand, ownership of land or livestock is likely to be associated with higher incomes; on the other hand they also proxy the marginal value of children's time in working activities.

If we broaden our definition of poverty to economic underdevelopment, there are many studies, which try to correlate it with child labour. Using an overlapping generations model, **Cuoralet (2000)** shows that economic growth can be associated with the persistence of child labour and possibly with an increase in the number of child labourers. Because, rich can accumulate indefinitely physical and human capital while the poor are caught in a poverty trap and have to make their children working to ensure the household's survival.

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There are recent studies using micro data sets, for example, **Jensen and Nielsen 1997, Nielsen 1998, Patrinos and Psacharopoulos 1997, Grootaert 1998 and Canagarajah and Coulombe 1997 and Ray 1999,** who examine the effect of household poverty and get mixed results. **Ray (1999)** tests the luxury axiom of Basu and van on Peru and Pakistan by examining the relationship between child labour hours and household poverty. He finds a positive significant relationship between household poverty and child labour in the case of Pakistan but not in the case of Peru. **Nielson (1998)** finds that in case of Zambia, poverty and low income have very small effect on the probability of child labour. **Jensen and Nielsen (1997),** on the other hand find some support that poverty forces households to keep their children away from school. **Canagarajah and Coulombe (1997)** similarly convincingly show that poverty is the main culprit of child labour. However, poverty is significantly correlated with decision to school.

Wahba (2001) concentrates on another aspect of poverty, which can influence child labour. The author discusses about the transmission of poverty through child labour. The main findings of this paper are that parents who were child labourers themselves are more likely to send their children out to work. Children are twice as likely to work if their parents were child labourers. Thus this paper suggests that child labour perpetuates inter-generational poverty.

Child Labour and Schooling

The number of children attending school in that country in a particular time period often measures Child labour in a country in that time. This is a convenient method in the sense that the number of children in school is easier to monitor than finding number of children working. This indicates the importance of schooling in any discussion of child labour. In the literature of child labour, many works have been done regarding the impact of schooling on child labourers. Compulsory schooling has often been suggested as an important policy prescription to curb child labour.

The literature on child labour and the schooling decision has touched many aspects of the issue. Most studies have attempted to find the household and community factors, which affect the schooling decision of a child and therefore becomes important in deciding whether the child will become a labourer. The empirical studies have tried to find out the

significance of these factors in deciding the future of a child. We discuss some of the important contributions in this area.

In a MIMAP research paper (no. 46, 2000) **Aniceto C. Orbeta,** estimates the joint decision of schooling and labour force participation of children 10-24 years old. The estimation confirms that there exists high correlation of the two decisions. The author suggests that in the decision-making process various factors play significant role, such as wage, cost of education, unemployment rates and incomes. Individual an household characteristics like the age and gender of the head of the household, his or her educational attainment are also found to play significant roles validating results of this analysis. This paper attempts to simulate the impact of the tariff programme between 1990-2000 on the schooling and labor force participation of children 10-24 years old. The program is shown to result in the decline of the proportion of this cohort that are attending school and increase of proportion that are in the labor force. In addition, the program is also expected to increase the proportion of working students and reduce the proportion of idle children. Finally, the program causes a decline in the proportion of pure students. It appears that the net effect of the 1990-2000 tariff reform program on children 10-24 years old was to make labor force participation relatively more attractive not only to those who are idle but also to those who are currently attending school. In terms of the differential impact by income class, larger responses appear to come from the upper middle quantiles.

In his study of child labour and education in Cote d'Ivoire, **Couloumbe (1997),** estimated the correlation between the probability of participating in the labour market and the probability of attending school. This study also uses a bivariate probit regression model to test the hypothesis that labour force and schooling participation are interdependent choices for the age group 7-14 years. Author finds a negative correlation, which confirms that schooling definitely competes with the labour force for the children's time. Labour force participation clearly hinders school attendance.

In a FCND discussion paper (no. 145) **Ersado (2002)** tries to examine the relationship between child labour participation and schooling decisions in Nepal, Peru and Zimbabwe. The author focuses on the similarities and differences between the results of urban and rural areas from these

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countries. In the data obtained from every country, child employment rates go in an opposite direction to enrolment, suggesting that dropping out of school is at least partly driven by employment decisions. This paper also uses the bivariate probit model for estimation. A significantly negative correlation implies that some unobserved factors that increase the probability of attending school decrease the likelihood of working in both Nepal and Zimbabwe. But in Peru, schooling and working decisions appear noncompetitive. Though there is no evidence that these decisions are complementary in Peru. The lack of significantly negative association between child schooling and work decisions in Peru is contrary to the common perception that child schooling is an inverse of child labor decisions. While the argument that anything that promotes school attendance is likely to dent child labor is quite sensible, the Peruvian case provides counterevidence that the two activities are not necessarily competitive. The descriptive statistics showed that the proportion of those children who work and go to school at the same time is highest in Peru.

Asaad, Levison and Zibani (2001) try to find out to what extent does work reduce the school attendance of children in Egypt. Their work also shows that the decisions regarding school and work participation are jointly determined and that work significantly reduces school attendance for girls. Although similar socio-economic factors affect school attendance and work for boys, work does not seem to have a direct impact on schooling for them. For boys the unobservables that affect work and schooling are inversely correlated. Therefore, factors that lead to dropping out of school, also lead to higher probability of working. In the case of girls, a positive indicates that unobservables that raise the probability of work also raise the probability of schooling. These results strongly suggest that parents attempt to protect boys' schooling and only allow their sons to work when they fail in school. Boys who work are self-selected along a variety of observable and unobservable characteristics that make them more likely to drop out of school and engage in market work. Girls' schooling does not appear to be similarly valued by their parents. Girls who are put to work (mostly in their own homes) appear to be those who would otherwise be more likely to remain in school. Girl's work seems to be much more detrimental to their schooling, correcting for both observable and unobservable characteristics.

Akabayashi and Psacharopoulos (1999) uses a time log data from a 1993 survey in the United Republic of Tanzania to investigate the relationship between child work and human capital

development. It found that factors that increase children's working hours decrease their hours of study and that hours of work are negatively correlated with studying ability.

Khanam (2006) in her study of impact of child labour on school attendance and school attainment in Bangladesh finds that child labour adversely affects the child's schooling, which is reflected in lower school attendance and lower grade attainment. School attendance suffers most compare to grade attainment. The gender-disaggregated estimates confirm that work has much devastating effect on current school attendance of girls than that of boys.

Ravallion and Wodon (2000) studied the effects on children's labour force participation and school enrollments of the pure school-price change induced by a targeted enrollment subsidy in rural Bangladesh. This theoretical model predicts that the subsidy increases schooling, but its effect on child labour is ambiguous. Our empirical model indicates that the subsidy increased schooling by far more than it reduced child labour. Substitution effects helped protect current incomes from the higher school attendance induced by the subsidy.

Another study by **Boozer and Suri (2001)** on Ghana found that an hour of child labour decreases school attendance by .38 hours. **Psacharopoulos (1997)** in his study of child labour versus educational attainment in Latin American countries found that working children contribute significantly to total household income. The fact that a child is working reduces his or her educational attainment by about 2 years of schooling relative to the control group of non-working children. Similarly, **Levy (1985)** and **Rosenzweig and Evenson (1977)** reported that child labour markets lower school enrolment and attendance.

Ray (1999) tested two hypotheses that in his study that there is a positive association between hours of child labour and poverty and there is a negative association between child schooling and poverty using data from Peru and Pakistan. Both of these hypotheses are confirmed by the Pakistani data, but not by the Peruvian data. The reduction in poverty rates due to income from children's labor is greater in Pakistan than in Peru. The nature of interaction between adult and child labor markets varies with the gender of the child and the adult. In Peru rising men's wages significantly reduce the labor hours of girls, whereas in Pakistan there is a strong complementarity between women's and girls' labor markets. Both data sets agree on the positive role that increasing adult education can play in improving child welfare.

Cigno, Rosati and **Guarcelo (2002)** found that the 10-14 labour participation rate and the primary school nonattendance rate are positively correlated with each other across countries and

years of observation but the coefficient of correlation is much less than unity. The proportion of workers with completed primary education has a negative effect on child labour and so does the share of workers with secondary or higher education. If skill composition is not controlled for, trade raises the 10-14 labour participation rate, but has no significant effect on the primary school nonattendance rate. If skill composition is controlled for, trade has no significant effect on either measure of child labour.

Jackline Wahba (2001) finds that there is significant relationship between working of children and schooling. The correlation coefficient is negative indicating that there is a trade off between child labour and child schooling choices. This trade off is bigger in urban areas and for males.

Sedlacek, Ilahi and Sasaki (2005) show that in Latin America, child labour does have a negative and significant effect on educational enrolment. However it has an even larger adverse effect on the pace of progression through school and the quality of attainment through attendance. These results are stronger for the poor.

A positive relationship between child labor and poverty is confirmed in only Ecuador and Peru. There, children in each progressively higher quintile have a lower probability of working. The data for Brazil and Nicaragua reveal no particular pattern between household income level and child labor. This paper conducts a direct test of how exogenous increases in child labor supply associated with more lax compulsory schooling regulations across countries affect school enrollment and grade attainment of children in those countries.

Duryea and Arends-Kuenning (2003) and **Rosati and Rossi (2003)** have shown that for the cases of Brazil, Pakistan and Nicaragua respectively, the decisions to attend school and to work are made under simultaneous conditions, with these decisions influenced by unobserved factors. Children who work are significantly less likely to attend school than their peers. Reducing the probability of working by 10% results in an increase in the probability of attending school by7%. Child labor also has a cost in terms of lost attained schooling. The findings demonstrate that choices regarding child labor and education are intimately related with each other and with household attributes. These choices are particularly sensitive to factors affecting the child's market opportunities and the household's income level. Policies that do not affect both household income and the value of a child's time in school relative to work, may fail to address the problem.

Behrman and Knowles (1999) estimate the associations between household income and children's school success in Vietnam. The estimates indicate that these associations are considerable. This association is strongest for grades completed per year of school, not for completed grades, There are some gender differences, the most important being a smaller association between income and grades completed per year of school for boys than for girls. This difference implies that schooling of girls is treated as more of a luxury (less of a necessity) than is schooling of boys.

Jensen and Nielsen (1997) investigate what affects school attendance and child labour in an LDC, using data for Zambia. The empirical analysis suggests that both economic and sociological variables are important determinants for the choice between school attendance and child labour. In particular, the authours find some support for the hypothesis that poverty forces households to keep their children away from school.

Rossi and Rosati (2003) opines that school attendance does not rule out child labour, but working hours are assumed to have a negative influence on human capital accumulation. The empirical analysis suggests that both economic and sociological variables are important determinants for the choice between school attendance and child labour. They also find some support for the hypothesis that poverty forces households to keep their children away from school.

Child Malnutrition and Child Labour

The united nations estimates that one out of every three preschoolers in developing countries.180 million children under the age of 5 exhibit at least one manifestation of malnutrition, stunting (UN ACC/SCN 2000). Because improving preschooler health and nutrition are seen to be important development objectives in their own right, many international organizations, such as the World Bank, are prioritizing improvements in child health and nutrition. The improvements in preschool health status and primary education are not competing objectives; rather, improved preschool nutrition will facilitate meeting the education objectives. Further, if improving preschool nutritional status enhances the acquisition of knowledge at school, and leads to higher attained heights as adults, these improvements have added value where there exist positive associations between schooling and productivity, and height and productivity.

Like child malnutrition, child labour is also a widespread problem in developing countries. Finding if there is any correlation between these two factors can help us in finding remedies for both of these problems. Not much work has been done taking malnutrition and child labour together. Most of the works talk about the general consequence of malnutrition among children.

In his work long ago, **Pedro Belli (1971)** pointed out that Children who suffer from malnutrition, especially during the first months of life, will grow up into weaker, smaller, more disease prone and less intelligent adults than those who were well fed from the moment they were born. Countries where the incidence of malnutrition is high will have populations that are less productive than countries where malnutrition is rare. The rate of growth in countries where malnutrition is widespread is seldom high. Per capita income levels, as well, are probably affected by the extent to which populations have suffered from malnutrition, especially if it occurred during childhood. On an aggregate level, the productivity of the labour force of any country would depend upon the aggregate level of nutrition at a given time. A test based upon per capita production of proteins lagged ten years, shows that roughly 60% of the variance in per capita income may be explained by variations in per capita production of proteins. There is a strong and positive correlation between per capita income at time t and protein supply at time t. Belli also suggests that distribution of income within countries as well as across nations is probably in good part a result of malnutrition.

There are some other studies regarding child malnutrition, which talk about the impact of child malnutrition on child health. **Harold Alderman, John Hoddinott,** and **Bill Kinsey (2003),** Using longitudinal data from rural Zimbabwe, have shown that improved preschooler nutritional status, as measured by height given age, is associated with increased height as a young adult, a greater number of grades of schooling completed, and an earlier age at which the child starts school. Improved preschooler nutritional status enhances the acquisition of schooling, and leads to higher attained heights as adults (and that lost growth velocity as a preschooler is only partially recovered subsequently). These improvements also have instrumental value where there existed positive associations between schooling and productivity, and height and productivity. Lastly, the determinants of preschool heights include shocks such as war and drought and that these temporary events have long-lasting impacts.

Glewwe and **Jacoby (1995)** investigated why children in low-income countries often delay primary school enrolment. They found out that the most important reason behind this is early

childhood malnutrition. They found almost no support for alternative explanations like borrowing constraints and the rationing of places in school for this delay in enrolment. Though their work does not involve the issue of child labour explicitly, but since there is a close correlation between child schooling and child labour, we can use their findings in discussion of child labour.

Similarly, **Alderman, Behrman, Lavy and Menon (2001)** employed longitudinal data to investigate the impact of child health (indicated by nutritional status) on school enrolments in rural Pakistan using an explicit dynamic model. This study indicates that child health (nutrition) is three times as important for enrolment than suggested buy other native estimates that assume that child health is predetermined rather than determined by household choices in the presence of unobserved factors such as preferences and health endowments.

4 DATA AND METHODS

The empirical objective of this cross-country study is to analyze possible relations between the incidence of child labour and other economic and social indicators. In order to do this, we collected child labour data for various countries from the ILO website. The data set is given in the Appendix 1. There are several problems with this data source, some of which need to be mentioned. First of all, generally, following ILO's own convention, labourers below 14 years are considered child labourers. For some countries the data set was available for 0-14 years old workers, while for some countries only 10-14 years old workers data was available. Some other countries even had data for 12-14 years old and 12-19 years old child workers. So getting a proper picture of comparative positions of countries in terms of their child labour situations was almost impossible. The next step was to choose some economic and social indicators which we thought can be good reflectors of a countries well being and at the same time are supposed to have some intuitive correlation with incidence of child labour in any country. We chose GDP per capita (expressed in US Dollars) as the economic indicator. For the social indicators we chose percentage of labour intensive exports in the total exports of any country, prevalence of malnutrition (underweight) among children aged less than 5 years, gross enrolment ratio in primary education (expressed in percentage and irrespective of gender of student). Child labour is generally used in the labour intensive industries of any country such as garment productions, carpet weaving, gem and other precious stone polishing, matchbox making, fireworks production etc. So the proportion of labour intensive exports in the total export of any country was thought to be a reflection of the child labour situation of any country. This is also the bottom line of the well known Rybczinsky Theorem. The theorem says, if the endowment of one of the factors of production increases, the endowment of the other being constant, the output of the good using the accumulating factor intensively will increase and the output of the other good will decrease in absolute terms, provided that commodity and factor prices are kept constant. In our exercise we used a simplified version of this proposition. We wanted to check whether the exports of the labour intensive countries increase as the percentage of child labour in total population increases in these countries.

To do our analysis, we collected data on trade flow from the UNCTAD statistical yearbooks. We followed the SITC (3 digit classifications) to get the data. Among the labour intensive

exportables we mainly included commodities like, leather, leather manufactures, cotton and various textile products. Following the SITC (3 digit) classification we included the following commodities. Jute and other textile based fibres, n.e.s. raw or processed (264), leather (611), manufactures of leather or of composition leather, n.e.s. (612), textile yarn (651), cotton fabrics, woven (652), fabrics, woven, of man made fibres (653), textile fabrics, woven, other than cotton manmade fibres (654), knitted of crocheted fabrics (655), tulle, lace, embroidery, and small wares (656), special textile fabrics and related products (657), made up articles, wholly or chiefly of textile materials (658), outergarments, men's of textile fabrics (842), outergarments, women's, of textile fabrics (843), undergarments of textile fabrics (844), outergarments and other articles, knitted (845), undergarments, knitted of crocheted (846) and clothing accessories of textile fabrics (847). We calculated the total exports of these labour intensive products by adding the exports under these SITC classifications and then calculated the percentage of them in total exports of the country in a particular year.

The data on prevalence of malnutrition (underweight) among children aged less than 5 years, gross enrolment ratio in primary education (expressed in percentage and irrespective of gender of students) and GDP per capita (expressed in US dollars) data were obtained from World Development Reports 1990 and 2000. There was another problem, which kept coming up during our data analysis. The countries with data on child labour were different from countries with the data on malnutrition and different from the country set with primary level gross enrolment data. Finally we could find 21 countries with all required data. With these data we attempted to find out whether there exists any relation between the percentage change in child labour between 1990 and 2000 and the percentage changes in the other four economic and social indicators of these countries.

	COUNTRY	% change in child labour between 1990 and 2000	% change in malnutrition prevalent in children less than age 5	% change in PGER	% change in GDP per capita	% change in labour intersive export proportion in total export
1	Argentina	-91	170	13.21	76.64	-43.6
2	Bangladesh	-7.38	-6.78	23.75	26.67	7.25
3	Benin	-70	-21.03	64.4	-2.93	69.1
4	Bolivia	182	-5	21.05	32.35	
5	Botswana	-76	-53.7	-0.97	13.22	
6	Brazil	-46.3	-5	43.81	12.22	
7	Colombia	0	-16.25	9.8	47.59	-71.64
8	Costa Rica	-40.3	2	5.88	112.6	72.61
9	Dominican Republic	-15.7	-11.67	29.47	163	-30.7
10	Equador	72.62	-15.9	-0.86	23.11	
11	Egypt	167	-42.67	6.59	-11.96	-30.7
12	El Salvador	-8.2	-6.4	37.04	128.94	-65.25
13	Ethiopia	29.4	-167	87.5	-43.98	642.48
14	Greece	-83.33		-2.04	26.19	-34
15	Guatemala	174	-15.92	32.47	93.38	
16	Honduras	84.3	-7.77	-2.75	48.64	258.24
17	India	61.1	-11.89	1.02	22.64	-14.21
18	malta	-45.9		-1.85	52.88	-63.66
19	Mauritius	-45.9	-37.66	-1.83	69.24	30.6
20	Mexico	106.8	-46.43	-3.51	89.7	
20	Morocco	95.23	-10	55.38	9.65	112.52
21	Nicaragua	-33.33	-20	10.75	652.55	
22	Pakistan	-34.33	-7.9	4.28	16.51	-14.72
24	peru	185.71	-11.25	1.68	55.8	-41.1
25	Portugal	-92		-1.62	43.03	-56.75
26	Sri Lanka	-65.3	-13.42	-2.65	80.14	27
27	Sudan	-6.3	20.05	11.53	-58.59	-50.39
28	Thailand	-79	-5.4	-2.04	29.54	
29	Turkey	-61	-17	-7.07	13.76	10.4

Dependent Variable: CHLAB (% change in child labour between 1990 and 2000)

Sample: 1990 2010

Included observations: 18

Excluded observations: 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MAL (% change in malnutrition prevalent in children less than age 5)	-0.531982	0.444943	-1.195616	0.2517
GDP (% change in GDP per capita)	-0.064212	0.301095	-0.213262	0.8342
PGER (% change in Gross Enrolment in Primary Education)	-0.096139	0.840089	-0.114439	0.9105
TRADE (% change in labour intensive export proportion in total export)	-0.050420	0.177766	-0.283632	0.7808

R-squared	0.103602	Mean dependent var		9.851667
Adjusted R-squared	-0.088483	S.D. dependent var		79.66343
S.E. of regression	83.11316	Akaike info criterion		11.87141
Sum squared resid	96709.17	Schwarz criterion		12.06927
Log likelihood	-102.8427	Durbin-Watson stat		1.962267

As the result shows, there was no possible correlation between these variables.

Rank Correlation Analysis

The relationship between child labour incidence and the trade performance is an important aspect of studying child labour issues. Thus we attempted another exercise to find out the relation between child labour and trade performance of a country. For this purpose we used the child labour data set used in the previous analysis. Trade data used here was different from the above trade data in the sense that they were taken starting from 1970 up to 2000. During this period the era of globalization set in most of the countries. Globalization constitutes various changes in the economic, social and political structure of a nation. One of the most important constituents of globalization is trade liberalization. Trade liberalization is opening up of trade to the world, which is a very necessary condition of globalization. Naturally, before and after trade liberalization, the export and import structure of a country undergoes significant changes. We tried to catch these changes in three decades. To do this, we calculated the averages of the yearly export percentage of each decade. In similar fashion we obtained average of child labour proportions of the total labour force for each decade from yearly data. There were 21 countries available for which we got trade data and the child labour data as well for all the three decades. There were many countries for which export data were available for 1970s and 1980s but not for 1990s. This is because, before and after trade liberalization, the changes were so drastic, some countries stopped exporting the labour intensive products altogether which they once used to export. For another set of countries, child labour data were only available for 1990s. Only 21 countries were there for which both sets of data were available. With these data, we performed Spearman's rank correlation to find out if there is any correlation among the changes in the trade structure and child labour incidence of the countries.

	COUNTRY	% change in child labour between 1990 and 2000	% change in labour intersive export proportion in total export	rank of X	rank of Y	d	d square
1	Argentina	-91	-43.6	20	16	4	16
2	Bangladesh	-7.38	7.25	9	9	0	0
3	Benin	-70	69.1	18	5	13	169
4	Colombia	0	-71.64	7	21	-14	196
5	Costa Rica	-40.3	72.61	13	4	9	81
6	Dominican Republic	-15.7	-30.7	11	12	-1	1
7	Egypt	167	-30.7	2	13	-11	121
8	El Salvador	-8.2	-65.25	10	20	-10	100
9	Ethiopia	29.4	642.48	6	1	5	25
10	Greece	-83.33	-34	19	14	5	25
11	Honduras	84.3	258.24	4	2	2	4
12	India	61.1	-14.21	5	10	-5	25
13	malta	-45.9	-63.66	14	19	-5	25
14	Mauritius	-45.9	30.6	15	6	9	81
15	Morocco	95.23	112.52	3	3	0	0
16	Pakistan	-34.33	-14.72	12	11	1	1
17	peru	185.71	-41.1	1	15	-14	196
18	Portugal	-92	-56.75	21	18	3	9
19	Sri Lanka	-65.3	27	17	7	10	100
20	Sudan	-6.3	-50.39	8	17	-9	81
21	Turkey	-61	10.4	16	8	8	64

Using this data, we calculated Spearman's rank correlation using the following formula

$$r = 1 - \frac{6\sum d^2}{n^3 - n}$$

The rank correlation in this case was $r = 0.143$

Again, there is no significant correlation between the child labour and trade structure.

Dummy Variable Analysis

We divided the countries in four categories depending on their continents. There were countries from four continents in out dataset. The continents are Asia, Africa, America (both Latin and Central America) and Europe. We took dummy variables for these four continents. The descriptions of these dummy variables are given below.

das = dummy variable for Asia ; takes value 1 if country is in Asia, otherwise 0.

daf = dummy variable for Africa; takes value 1 if country is in Africa, otherwise 0.

deu = dummy variable for Europe; takes value 1 if country is in Europe, otherwise 0.

dla = dummy variable for America; takes value 1 if country is in America, otherwise 0.

Due to data discrepancy, there were some missing observations in European countries, so during our calculations, all the European countries took the value 0. So the deu variable was excluded automatically. For the rest of the calculation, we compared the child labour situation in Asia and Africa with respect to the American countries. we did a robust dummy variable test, whose results are given below.

. reg change in child labour between1990 and 2000 change in malnutrition prevalent in children change in pger change in gdp per capita
> a change in labour intensive export daf das,robust

Regression with robust standard errors Number of obs =   18

F(6, 11) = 5.53
Prob > F   = 0.0073
R-squared = 0.4253
Root MSE   = 75.077

% ch in chlab	Robust Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
% ch in mal	-.7803314	.3409705	-2.29	0.043	-1.530802	-.0298603
% ch in pger	-1.377014	.997122	-1.38	0.195	-3.571665	.8176369
% ch in gdp	-.4293231	.6063982	-0.71	0.494	-1.763996	.9053503
% ch in export	-.0902174	.1459389	-0.62	0.549	-.4114268	.230992
daf	-13.17867	111.4881	-0.12	0.908	-258.5622	232.2049
das	-104.7162	63.78241	-1.64	0.129	-245.1003	35.66796
_cons	88.03386	77.3515	1.14	0.279	-82.21566	258.2834

According to the result, we get only two significant results. There is a strong negative correlation between % change in child labour and % change in prevalence in malnutrition among children less than 5 years. This can be intuitively contradictory. One possible explanation can be that in absence of sufficient parental income or any social support system, the earnings of child labourers actually help them to fight malnutrition. From a policy perspective, this again supports the view that restrictive legislation against child labour such as banning may actually worsen the situation.

The other significant relationship shows that in comparison with the Central and Latin American countries, the child labour situation in Asian countries has improved in the ten-year period from 1990 to 2000.

Though this analysis gives a decent R^2, still it does not give very significant results, from which definite conclusions can be drawn.

5 CONCLUSION

The results obtained from our cross-country study found no significant correlation between the socio economic variables and the incidence of child labour. The discrepancy in the dataset mentioned earlier might be a reason behind this insignificant relationship. Most of the studies in the literature found a negative relationship between per capita GNP of a country and the incidence of child labour in that particular country. But most of the studies were country specific, while we did a cross-country study. In our dataset, both developed and underdeveloped countries were included. This can be a possible explanation why we did not get any clear-cut relationship between per capita GNP and incidence of child labour. In another word, it can be said that this study also proved that there might not be any such rule that richer countries have less child labour and poorer countries have more child labour. This finding supports the arguments of those who consider child labour not to be a solely economic phenomenon. Child labour is result of various social, economic and political factors. Therefore some other important socio economic variables were included in our study to study the interrelation between these variables and incidence of child labour. But there also we did not get any significant result. The reason behind this might be that different countries have very different socio economic and political structure. So it is difficult to get a unique relationship between these different factors and child labour. From a policy perspective, this shows that policies to curb child labour also have to be tailored to be country specific.

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