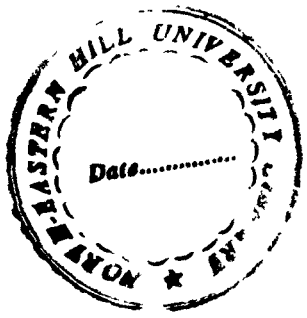
CITY SIZE, LABOUR PRODUCTIVITY AND INCIDENCE OF CHILD LABOUR: AN ECONOMETRIC ANALYSIS



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I, Ms Minakshi Chakraborty, hereby declare that the subject matter of this thesis is the record of the work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anyone else, and that the thesis has not been submitted by me for any research degree in any other University/ Institute.

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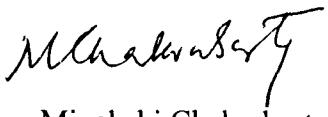

September, 2007 Minakshi Chakraborty

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The objective of this study is to investigate the incidence of child labour in the urban sector of India and to examine the differences, if any, across different city sizes. Child labour has been in existence in different parts of the world at different stages of development, including the developed countries (Abbott, 1908; Trattner, 1970). Prevalence of child labour has been of concern to researchers and policy makers alike. This concern about incidence of child labour is due to its adverse consequences on the working children as well as the society at large.

On account of these adverse consequences, several policy prescriptions both at the national and international levels have been made. These prescriptions fall into two categories. The first one is based on contribution of child work towards household welfare. It is argued that children are compelled to enter the labour market at an early age largely due to poor economic conditions. Therefore, in several countries, including India, the initial policy response to child labour has been that of allowing child labour in non-hazardous industries. The second one is based on consideration of harmful consequences of child labour on children and the economy. Consequent policy prescription is to eliminate child labour.

These debates have brought about a fundamental change in the way the incidence of child labour is looked upon. The growing emphasis in development literature is on poverty reduction, particularly among the most vulnerable sections of the population who send their children to work. With the recognition of the importance of human capital accumulation as a pre-requisite for development, child labour is viewed as a major impediment to economic progress. As a result, the policy prescriptions now aim at eliminating child labour by reduction in poverty and

universalisation of education. In other words, these policy measures now aim at altering the economic environment in which children work.

The prevalence of child labour as shown by the child work participation rates, are higher in India in absolute terms than in other developing countries. According to Weiner (1991), the number of working children in India could be anywhere between 13 and 44 million depending on how one defines child work and the data used. Children in India, whether sweating in the heat of stone quarries, working in the fields sixteen hours a day, picking rags in city streets, or hidden away as domestic servants, endure miserable and difficult lives. Most or all of these children are working under some form of compulsion, whether from their parents, from the expectations attached to their caste, or from simple economic necessity.

The Indian policy makers, being aware of the adverse consequences of child labour have passed several measures from time to time to eliminate child labour. For instance, the Constitution of India in Article 39 of the Directive Principles of State Policy pledges that "*the State shall, in particular, direct its policy towards securing ... that the health and strength of workers, men and women, and the tender age of children are not abused, and that citizens are not forced by economic necessity to enter vocations unsuited to their age or strength; that children are given opportunities and facilities to develop in a healthy manner, and in conditions of freedom and dignity, and that childhood and youth are protected against exploitation, and against moral and material abandonment.*" (Constitution of India, p. 17)

As a follow-up of this commitment, and being a party to the UN Declaration on the Rights of the Child 1959, India adopted the National Policy on Children in

1974. Moreover, India was the first country to join the International Program on the Elimination of Child Labor (IPEC) launched by the International Labor Organization (ILO), when it signed a Memorandum of Understanding with the ILO. The long-term objective of IPEC is to contribute to the effective abolition of child labour. In addition, several Acts were passed from time to time to protect the children from exploitation and working in hazardous conditions. Clearly, one needs to know how much of these provisions have affected the incidence of child labour in India. A quantitative assessment of the incidence of child labour also clears the deck from any ensuing confusion on what more needs to be done.

With the objective of altering the economic environment so that child labour is no longer a necessary phenomenon, there has been theoretical and empirical findings on the environment in which a child works. In recent years, researchers have also tried to relate the incidence of child labour with low labour productivity (Basu and Van, 1998). They state that, as wages of adults rise and other markets like credit and insurance become accessible, the incidence of child labour would decline and ultimately disappear. It is also pointed out that if the adult wage rate falls below subsistence level, children are sent to work. Further, the market demand of child labour is also influenced by the adult wage rate. The theoretical findings on this show that higher the child – adult wage ratio, higher is the demand for child labour (Basu and Van, 1998).

If the above assertion of the development economists is true, then we should have differential incidence of child labour in different regions with differences in labour productivity. The recent studies on child labour based on the rural sector of India clearly show that there is indeed a differential incidence of child labour across

different regions (Chaudhari and Nyland, 2002; Lieten, 2004; Levison et al, 1998; Mehta et al, 1985; Mundle, 1984; Padhi, 2004; and several others). However, most of these studies do not attempt to link the regional variation in the incidence of child labour with differences in labour productivity across regions. The results reflect that children are used as substitutes for low wage heads of households in the labour market if they live in regions with a high child-adult wage ratio. (Nielsen and Dubey, 2002).

Since wages in the rural sector are generally lower and large proportions of working children are concentrated in the rural areas, there is a large body of literature that deals with incidence of child labour in rural India (Dev and Raj, 1998, Nielsen and Dubey, 2002, Weiner, 1991 among others). The problem of child labour in the urban sector has, therefore, been somewhat neglected. There are some empirical estimates of child labour in the urban sector. However, these are limited in their findings as these studies are industry or region and city specific (Basu, 1999; Mehta *et. al.*, 1985; Mundle, 1984; Swaminathan, 1998).

This study aims at fulfilling these gaps in the literature. In this study, we document the incidence of child labour in urban sector of India and also in the urban areas among the states.

1.2 Objectives of the Study

As pointed out above, the main objective of this study is to look at the incidence of child labour in urban sector at various levels of disaggregation. We have also noted that the existing literature links the incidence of child labour to wage rates. In this

study, we attempt to investigate the incidence of child labour in relation to labour productivity for the urban sector of India. The objectives of the study, in detail are:

1. To prepare a child labour profile at the aggregate level of all India as well as disaggregated level of states by place of residence and by gender.
2. To investigate the incidence of child labour by city size in India and among the states, and
3. To identify the determinants or the factors explaining incidence of child labour.

1.3 Outline of the Study

The dissertation consists of six chapters and is organized in the following fashion. Chapter 2 presents the review of literature. Voluminous literature analyses the causes and consequences of child labour. Large section of the literature on child labour deals with how child labour emerged in the developed and developing countries. The study of causes and consequences of child labour in India has a pronounced rural bias, for example, Lieten (2004), Nielsen and Dubey (2002) and several others. Nevertheless, there have been a few studies that have investigated the incidence of child labour in urban areas. However, these studies are limited in their scope and coverage in the sense that these studies have looked at the incidence of child labour from industry-specific perspective. Further there are certain theoretical expositions, which have limited empirical findings. We have also looked at the discourses on city size and its relationship with labour productivity.

Chapter 3 describes the database and issues involved, including the limitations in using the household survey data for analyzing the incidence of child

labour. The data we have used in this study have been obtained from Schedule 10.0 collected by the National Sample Survey Organisation (NSSO) during the 38th (1983), 43rd (1987-88), 50th (1993-94) and 55th (1999-00) quinquennial rounds of surveys. In this study, we have used raw data, rather than the published tables brought out by the NSSO. The availability of raw data has allowed us to identify child labour in different city sizes of the urban sector. This also allowed us to ascertain the labour productivity of the adults across city sizes. The city sizes are identified on the basis of the stratum and the state-region code available in the data set. Based on this information we have classified the entire urban entity into four city sizes on the basis of their population. These are, City Size I, (towns with population less than 50,000), City Size II (towns and cities with population between 50,000 and 2 lakh), City Size III (towns and cities with population between 2 lakhs and 10 lakh), and City Size IV (cities with population above 10 lakhs). The labour productivity is measured by the wage rate.

In chapter 4, we looked at the incidence of child labour at the aggregate level of all India, divided into rural and urban sectors. The urban sector is further classified on the basis of population into four city sizes as mentioned above. We have shown graphically how the incidence of child labour increases steadily with the increase in the age of the child. The extent of child labour across city sizes is also studied for the three social groups, i.e., Scheduled Tribes (STs), Scheduled Castes (SCs) and Others (OTH). The inclusion of these groups in our study is to analyse the disparities that may prevail among these social groups due to the prolonged deprivation of the STs and SCs in our society. The analysis at the aggregate level is also extended to the state level. In this chapter we have also identified the children working in different

occupation groups across city sizes. This analysis brings out the variation in the nature of work done by the children in the different city sizes.

Chapter 5 is devoted to the analysis of determinants of child labour. We have looked at some of the correlates of the incidence of child labour and labour productivity such as disparities in the wage rate, sources of primary income and education that can influence the incidence of child labour. We also look at the role of city size and labour productivity together with other household characteristics on child labour in a cause-effect relationship by estimating an econometric model.

The summary of our findings, limitations and scope for further analysis are subject matter of chapter 6. Our findings, suggest that there has been a decline in the incidence of child labour across city sizes and in most of the states during the 1980s and 1990s. However, the difference in the proportions of child labour in the larger and smaller city sizes and more so in some of the states continue to exist. In our findings we have noticed that the labour productivity, which is ascertained through wage rate, is higher in the larger city sizes. More children in the larger city size are seen to attend school rather than participate in the labour market. These findings have very profound policy implications. An important policy implication that emerges from this is that in the long run enhancing labour productivity and universalisation of education can eliminate the problem of child labour.

CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction

In this dissertation, we have used the concepts of city size and labour productivity to show their influence on child labour. This chapter deals with the discourses on child labour and city size and their relationship with labour productivity.

The rest of the chapter is organized in the following manner. The next section presents an overview of how child labour emerged. Section 2.3 brings out the adverse consequences of child labourers to the economy and to the children as well. Section 2.4 captures the wide extent of child labour in different parts of the world. Section 2.5 gives the theoretical paradigm of child labour in relation to labour productivity, social structure, education and human capital formation. The theoretical literature on child labour is supported by empirical findings. We review some of the discourses on city size and its relationship with labour productivity in both international as well as national contexts in section 2.6. Finally, in section 2.7 we summarize the review of literature, identify the existing gap in the literature and need for this study.

2.2 Emergence of Child Labour

Researchers have traced the participation of children in the labour market since long. Trattner (1970) documented the history of the incidence of child labour since 1600 AD. Examining the incidence of child labour with a historical perspective from Graffenried (1890), Gilman and McLean (1906), Sargent (1910), Abbott (1908), we find that the emergence of child labour is related to the establishment of manufacturing industries. Willoughby (1890) explained how with the introduction of manufacturing industries, the demand for nimble fingers in England increased. This

resulted in a widespread use of child labour in almost all the manufacturing industries of England and in particular in the coalmines. Horrell and Humphries (1995) traced the participation of children in the early industrialization. In their investigation, using a dataset of household budgets, they found that with industrialization, higher relative wages were offered to the children. As a result, there was an increase in the demand for child labour. Industrialization also affected the household structures. Early marriage and increase in fertility rate was one response. Further, the older children facilitated with the increased wages departed, which led to a higher participation of the younger children in the labour market. However, after the legislation against child labour, there was decline in the participation of children in the factories but due to loss in parental income, girl children were mostly taken out of schools and used in domestic services. Humphries (2003) in his paper stated that child labour was more prevalent in the 19^{th} century industrialized countries than it is in the developing countries today.

The efforts to eliminate child labour have been traced back to 1802 when the Robert Peel's Factories Act was passed in Great Britain to abolish all forms of child labour. The Factory Act along with industrial revolution resulted in the decline of child labour in the industrialized countries. However, some researchers emphasized more on industrialization, which in their view, was largely responsible, for the decline in child labour than that of the Factory Act. Nardinelli (1980) illustrated how with the rise in industrial revolution there was a technological change, which resulted in the decline of child labour. In his paper he refuted the view that Factory Act resulted in the decline of child labour. This Act only speeded up the movement, which already took place due to rise in income. Consequently, with a period of

activism and progress, there was a sharp decline in the incidence of child labour, but much of the problem was exported to the developing economies. Later in the 19th and 20th centuries, various laws were passed to eliminate child labour. However, these laws had a very limited impact in reducing the incidence of child labour (Sanderson, 1974).

In the less developed countries, colonialism is regarded as one of the most significant factors resulting in the emergence of child labour. Grier (1994) observed that child labour in the period 1890-1930 is linked to the practices of both colonial and indigenous patriarchy and to the economic needs of time. He showed how the white owners used the African children in various domestic and economic activities. The most striking feature that he observed was the widespread nature of the use of children in the labour market. He also showed how the employers received assistance from the state to gain access to the labour of African children. The poor African children were not only used as child labourers by the white employers but also by their own kin. Another striking point noted in his paper is that how invisible children had been to scholars who largely ignored them as a cheap source of labour in the colonial economy and as a measure of economic and social stress in African reserves and rural locations.

Thus, it shows that child labour emerged in the developed countries with the initial increase in manufacturing industries. However, with technological advancement and the Factory Act, child labour in the developed countries declined. On the other hand, in the less developed countries, child labour resulted due to colonialism and it spread more rigorously in these countries.

2.3 Consequences of Child Labour

The adverse consequences of child labour to the children themselves and to the society have been pointed out by most of the researchers and policy makers. Nielsen (1999) divided these consequences into two groups. She argues that the incidence of child labour affects the children directly because they join labour force at an early age and forego acquisition of education and skills. These affect their earning capabilities as adults. Besides direct consequence on the earning capabilities, there is loss to the national income. Moreover, the use of child labour in the production process is now being used as a tariff barrier in some of the countries especially after World Trade Organisation (WTO) agreements.

Nielsen (1999) further argues that besides economic reasons there are physical and psychological reasons why children should not be allowed to work. Children are equally susceptible to dangers faced by the adult labourers under similar conditions. However, they are more seriously affected by these dangers because of their different physical conditions, physiological, anatomical and psychological states. Rise of child labour pulls down the health standards, education standards, etc. Thus, child labour brings an economy into the vicious circle of poverty as it acts as a cause as well as the effect of poverty.

Several researchers pointed out how the health condition of a child worsens by joining the work force at an early age. In a community based group comparison by Ambadekar *et. al.* (1999) undertaken on 223 child labourers aged between 8-15 years, who were matched by age to an equal number of controls and pair matched for gender to assess the effect of child labour on the growth of children, it was found that child labour has a deleterious effect on the growth of child. Again, Gharaibeh and

Hoeman (2003) did a qualitative survey on the working children and identified the health risks and child abuse associated along with it.

However, Satz (2003) pointed out that not all work performed by children are equally morally objectionable. Some work, especially work that does not interfere with or undermine their health or education, may allow children to develop skills they need to become well functioning adults and broaden their future opportunities. In the same way, Zelizer (1985) asserted that in the 19th century, child labour was often commended as necessary for building character and discipline and valuable for industrial conception. It is also perceived by some parents that work makes the child to have a good social life in future as it enables the child to have the importance of financing. They are of the view that combining work with schooling doubles the welfare of the child. It is this reason why part time work among children is common in the developed countries (Cunningham and Viazzo, 1996). Moreover, in the developing countries, some children work to support their studies besides supplementing their family income (Cigno and Rosati, 2002b).

Nevertheless, work of a child, either full or part time affects the education of that child negatively. It retards the child's physical, mental and spiritual development (Boyden, 1994). The biometric indicator of a nutritional status – body mass – varies with child's activity. The part time child workers are the worst affected of all in this context. In addition to showing nutritional status, body mass is a predictor of child's probability of survival in subsequent stages of life (de Onis and Habicht, 1996; Klasen, 1996).

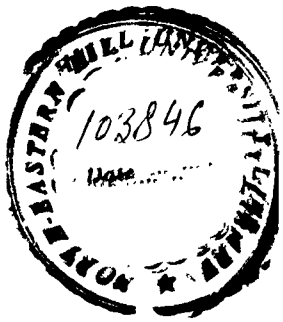
Children are often used by the employers in specific jobs, where the wage rate is low, and can make the children work for long continuous hours in hazardous

conditions. Children are also seen to be involved in such work as child prostitution, working for long hours in factories, etc, which are unambiguously detrimental to children.

Despite adverse consequences of child labour, it is reported in almost every country and more so in the developing economies. This awareness gave rise to a flood of research and writing about child labour that has dramatically increased the understanding of the phenomenon and the consequences of policy interventions. Basu and Tzannatos (2003) surveyed the large and rapidly growing literature on child labour focusing mainly on the new literature based on modern economic theory and econometrics. It also looked at the broad policy implications of these new findings.

2.4 Extent of Child Labour

The systematic collection of statistics regarding the incidence of child labour was carried out by the International Labour Organisation (ILO), World Bank and the individual nations. The ILO reports that an estimated 250 million children in the age group of 5-14 years do regular work (Nielsen, 1999). Child labour is most prominent in Asia where about 150 million children are reported to have been working. However, the estimates of child labour widely differ because of the differences in the meaning of child labour and different age thresholds used in different countries. Even within countries the age thresholds diverge as they may have different age for voting, employment and military services (Satz, 2003). All these complicate the estimation of child labour.



Patrinos and Psacharopoulos (1995) examined the schooling attainment and labour characteristics of the children aged 12-19 years, using data from the 1990 household survey in Paraguay. In his observation, he found that although schooling is compulsory for the children till they attain 13 years of age, it was found that 28 percent of those 12 year olds are already out of school. Among those out of school, 19 percent work formally in the labour market and contribute about a quarter of total family income. Among the 12 year olds still in school, one-quarter has repeated a grade or more.

Hadi (2000) surveyed the rural Bangladesh using 1995 sample survey of 4643 children aged 10-15 years in 150 villages. He found that 21 percent of the children were in the labour force although Bangladeshi laws prohibited child labour. In his estimation, he found that 2.3 percent of the children in the Bangladeshi villages were physically abused, 2 percent were financially exploited, 1.7 percent was forced to work in inappropriate activities and 3 percent were forced to work long hours. Multivariate analysis used in his paper, shows that out of school children, children of the illiterate, landless and unskilled labourers were more likely to be abused than others when age and sex of child are controlled. Besides, it is also found in Bangladesh, a large number of children are working shockingly long hours and in hazardous conditions.

In India, Weiner (1991) argues that the number of working children must be anywhere between 13 million to 44 million depending on how one defines child work and the data used. However, whatever be the estimate used, it definitely indicates towards a very high proportion of child labour.

There have been several micro studies examining the extent of child labour. Mehta, *et. al.* (1985) found that in India, Bombay has over 30,000 working children most of them are migrants. In a study of 73 working children from a part of Dharavi, the biggest slum in Asia, 68 percent were working as hotel boys; 22 percent had started working before the age of 10 years, a large number doing so to increase the family income, but earning less than Rs. 100 per month. 40 percent worked more than 12 hours a day and only 16 percent continued schooling. Two-thirds depended entirely on their employers for food, which was adequate. The study also stressed on the health conditions of the children. However, it was found that no child in the study was malnourished. Overall incidence of anemia and vitamin deficiency was 10 percent each. Only 7 percent had ailments related to their occupation.

Mundle (1984) presented a statistical profile of child labour in India and showed that global recession did not affect the status of Indian children directly, because of the basic narrow-mindedness of the country's economy, but it had constrained the government's ability to maintain or expand child-related programmes in real terms. In his paper he analyzed recent trends in a large set of life indicators for children in India. While labour market data and nutrition statistics appear ambiguous, other measures like anthropometrical measures, vital statistics such as infant mortality, life expectancy rates and demographic characteristics, such as literacy rates did not show generalized deterioration and occasionally provide evidence of improvements. The latter, however, show important inter-state variations with conditions actually deteriorating in some states. Moreover, the improvements observed have been registered under very low absolute conditions of living.

2.5 Discourses on Child Labour

This section deals with the theoretical and empirical investigations on child labour. The contemporary discourse on child labour takes a comprehensive view. The current literature on the explanations for the prevalence of child labour is broadly grouped into demand-side and supply-side factors. The supply side of child labour is mainly influenced by parental decisions. A child is a person who is in some fundamental way not developed but rather developing (Schapiro, 1999). Therefore parental decision is important in determining what a child should do. Parental decision on whether a child should work or go to school depends on the cost and benefit of education and the income of the household. On the demand side, the segmented labour market and demand for low-wage labour or specialized labour is used to explain the presence of child workers.

The literature on child labour thus covers various aspects. Accordingly, we have further subdivided this section into five subsections. The first subsection deals with the findings showing the relation between child labour and labour productivity. The second subsection deals with the theoretical literature explaining the relation between child labour and social structure. The third subsection explains the complementarities of child non-work with schooling of a child. The fourth subsection shows the dynastic trap in which child labour is a necessary phenomenon. Finally, the fifth subsection captures the other determinants explaining the incidence of child labour.

2.5.1 CHILD LABOUR IN RELATION TO LABOUR PRODUCTIVITY

The recent theoretical literature on child labour is based on two axioms, the luxury axiom and the substitution axiom (Basu and Van, 1998; Swinnerton and Rogers, 1999). The luxury axiom asserts that the households send their children to work only when driven to do so by poverty. In other words, child non-work is a luxury good. Households, whose adult income is very low, cannot afford to keep children out of some productive activity. Only when adult incomes begin to rise, do households take children out of the labour force. The evidence seems largely to confirm the axiom (Edmonds, 2001; Admassie, 2002; Wahba, 2002; Grootaert and Patrinos, 2002).

The substitution axiom asserts that adult and child labourers are substitutes subject to some equivalency correction. More specifically it means that adults can do what children can do. The study of the technology of production involving children by Levison *et. al.* (1998) lends strong support to the substitution axiom. In the traditional literature, children are regarded better than the adults at certain task. However, this study confirms that the adults in India are as good as the children in producing hand-knotted carpets. Therefore, from a technical point of view it is possible to replace child labour with adult labour.

In a more recent literature using the above two axioms, Basu and Van (1998) provided the most rigorous and formal economic analysis of child labour. They have analyzed the working of a productive economy that has multiple equilibriums in the labour market. In their model, they have proved that if a country's labour force is more productive there will be an unique equilibrium where only adults work. On the other hand if labour is less productive, i.e., adult wages are below a threshold level we could have a unique equilibrium where child labour is a necessary phenomenon.

While if child labour exists in at least one where the adult wages are lower than a certain minimum level, it is characterized as multiple equilibriums in the market. The model showing multiple equilibriums of Basu and Van (1998) is explained in the following way.

Assuming that there are 'N' identical families in the economy and that each family consists of one adult for simplicity. Family preference, >, is described by a binary relation defined in the set.

$$\{(C, e)\}\ C >= 0, e \in \{0,1\} \qquad (1)$$

Where 'C' refers to consumption by each family member and 'e' refers to child's work effort, which can take values 0 to1. The model, also assumes that the adults always work and the consumption of a child and an adult are equal. A family prefers to send the child to work if and only if in the absence of income from the child each individual's consumption falls below certain exogenously fixed subsistence level 's'. More formally for all $\delta>0$

$$(C, 0) > (C + \delta, 1) \text{ if } C >= s \text{ and } (C, 0) < (C + \delta, 1) \text{ if } C < s \qquad (2)$$

The household's aim is to choose 'C' and 'e' so as to maximize its preference subject to the following budget constraint.

$$2C <= ew_C + w_A \qquad (3)$$

Where, 'w_C' refers to the market wage of child and 'w_A' refers to market wage of the adult.

The solution to the household's maximization problem given by Basu and Van (1999) therefore are as follows:

$$C(w_A) = w_A / 2 \text{ if } w_A >= 2s \text{ or } C(w_A) = (w_A + w_C)/2 \text{ if } w_A < 2s \qquad (4)$$

$$e(w_A) = 0 \text{ if } w_A >= 2s \text{ or } e(w_A) = 1 \text{ if } w_A < 2s \quad (5)$$

Thus the labour supply of adults is given as

$$S^a = N \quad (6)$$

and labour supply of children is given as

$$S^c(w_A) = 0 \text{ if } w_A >= 2s \text{ or } S^c(w_A) = N \text{ if } w_A < 2s \quad (7)$$

Therefore, the conclusion that can be drawn from this is that children are made to work in the labour market when the wage rate of the adults is less than the subsistence level.

Further, the market demand for child labour is also shown in Basu and Van's (1998) model to be influenced by the adult wage rate. The market demand for adult and child labour is shown by assuming 'n' identical firms, each producing a single consumption good. Firm 'i's' production function is given by

$$X_i = f(A_i + \gamma C_i),\ f' > 0,\ f'' < 0 \quad (8)$$

'X_i' refers to firm i's output of the consumption good.

'A_i' and 'C_i' are the number of adults and child labourers employed by firm 'i'. The firm 'i' is a wage taker. Hence firm i's problem is as follows.

$$\text{Max}_{\{A_i, C_i\}} f(A_i + \gamma C_i) - A_i w_A - C_i w_C \quad (9)$$

Adults and children are substitutes in production subject to an adult equivalent scaling given by Υ, where $0<\Upsilon<1$. Now, if $w_A < w_A/\Upsilon$ then the firm will employ only adults. If $w_A > w_C/\Upsilon$, then it will employ only children. If $w_A = w_A/\Upsilon$, then it will be indifferent between adults and children.

Each firm will ensure that

$$f'(A_i + \gamma C_i) = min\ \{ w_A, w_C/\Upsilon) \quad (10)$$

The aggregate demand for adult and child labour, 'D^C' and 'D^A', is derived by multiplying each firm's demand by 'n'.

Hence,

$$D^A = D^A (w_A\ w_C) \text{ and } D^C = D^C (w_A, w_C) \qquad (11)$$

Thus from equation (11) we can conclude the following:

1. if $w_A > w_C/\Upsilon$, then $D^A = 0$ and $f'((\Upsilon D^C)/n) = w_C/\Upsilon$.

2 If $w_A < w_C/\Upsilon$, then $D^C = 0$ and $f'(D^A/n) = w_A$ and

3. if $w_A = w_C/\Upsilon$, then $f'((D^A + \Upsilon D^C)/n) = w_A = w_C/\Upsilon$.

The labour market equilibrium in this model is a pair of wages (w_A^*, w_C^*) such that

$$D^A (w_A^*, w_C^*) = N \text{ and } D^C (w_A^*, w_C^*) = S^C(w_A^*) \qquad (12)$$

Thus, Basu and Van (1998), shows the multiple equilibriums that exist in the labour market. While generalizing the model they assumed that in the economy, the firm's profits are not shared with the household but are consumed entirely by the entrepreneurs of the firms.

Swinnerton and Rogers (1999) took a completely different approach by assuming that the workers share the profit of the entrepreneurs. They showed that the workers own shares, so profits may accrue to the workers. In an equilibrium in which profits are high, workers may be sufficiently well off and therefore not send their children to work even if their wages are low.

In a reply to the above paper, Basu and Van (1999) stated such a formulation of parent not sending their children to work even with low wages is possible only if the workers get the entire profit of the economy. This they state to be extreme situation. In the new model they considered a situation where only some profit

accrues to the workers. Thereby with profit being shared they derived hybrid equilibrium in which some children work and some do not.

Basu and Van (1998) assumed α as the share of profit that accrue to the workers in the aggregate. The dividend earned by each dividend-receiving household is given by $\theta = \alpha\pi/\lambda N$. The income earned by the household in which only the adults work is given by $w + \alpha\pi+\lambda N$. Now if $\alpha=0$ we get the Basu and Van (1998) model. If $\alpha=1$ we get the Swinnerton and Rogers (1999) model. In the model generated by Basu and Van (1999) they assume that α can take any value (0,1), i.e., workers earn some profit of the economy, but not all. In such an economy they have established the existence of 'hybrid equilibrium'. This implies that some households send their children to work while some households gain by the redistribution of income and therefore do not send their children to work.

These theoretical findings have been recently tested empirically by some of the researchers. In India, using the rural data, Nielsen and Dubey (2002), in an empirical microeconomic analysis, tested four main hypotheses i.e., the substitution, subsistence, capital market and parental education hypotheses. The paper analyzed child labour, using household level survey data on employment and unemployment in India. The data were collected by the National Sample Survey Organization (NSSO) during the agricultural years 1983 (38^{th} round), 1987/88 (43^{rd} round), 1993/94 (50^{th} round), 1999/00 (55^{th} round).

The first hypothesis, i.e. the substitution hypothesis when tested shows that the child-adult wage ratio affects the distribution of children across different economic activities significantly. The substitution hypothesis states that a firm's

demand for child labour depends on the child-adult wage and productivity ratios. The results reflect that children are used as substitutes for low-wage heads of households if they live in regions with a high child-adult wage ratio.

The authors used the per capita expenditure, to test the subsistence hypothesis. In their paper, households with per capita monthly expenditure below Rs 150 are denoted as 'poor' and the rest are denoted as 'non-poor'. The effect of the per capita monthly expenditures on the probabilities of non-school activities is significantly negative for the poor. In a poor family, it is found that if the monthly expenditure per capita in the household of a person increased by Rs 100, among the 10-14 years of age, 40-50 percent of the children would be enrolled in school instead of performing wage work, working at home and engaging in other activities. As a consequence of this result, it seems that all wage work among Indian children may be eliminated at a price of roughly Rs 100 per working child.

When it comes to the capital market hypothesis, they found that for the children, there is an asset effect, since land holdings decrease the probability of wage work and other activities. However, the probability of domestic work still increases (for large land holdings) to reflect that children are needed in the household if the household owns land. In 1983, land holdings consistently increased the probability of non-enrollment indicating that the children are needed in the household. This effect on the school attendance may be interpreted in favour of the capital market hypothesis because land-owning households meet no capital constraint, and hence they are more likely to send their children to school. However, as the effect on work at home in rural areas shows, there is also a counteracting effect because the households need child labour in the household if they have land.

The fourth hypothesis about the effect of *parental education* on the accumulation of human capital among the children is tested through the inclusion of a set of indicator variables for the level of education of the household head. Education turns out to have a large positive and often monotonously increasing effect on school attendance, regardless of which non-school alternative is compared with. Hence, they derived a clear support for *parental education* hypothesis. Thus, their main findings are that the increased expenditure and parental education constitute the main factors responsible for the decline in child labour in the period 1983 to 1999-00.

Baland and Robinson (2000) developed a model in which they showed why child labour exists even if it is socially inefficient. Two arguments generate from this, one, parents use child labour as negative bequests, i.e., to transfer income from children to parents. Two, when there are capital market imperfections, as a substitute for borrowing i.e., to transfer income from future to the present. In such conditions child labour exists.

Extending the theoretical explanation of child labour using poverty as the main determinant we take the model of Ranjan (2001). He showed how poverty in combination with credit constraints gives rise to the phenomenon of child labour. Similarly inequality of income distribution has been another factor leading towards the emergence of child labour.

Besides the substitution hypothesis, the luxury axiom of child labour is also supported by enormous empirical findings. At the macro level, it is seen that as the nations get richer the incidence of child labour tends to fall. In China the sharp decline in child labour began in the 1970s when the Gross Domestic Product (GDP)

growth began to accelerate (Basu and Tzannatos, 2003). During 1985-95, when Thailand experienced average annual growth of 9 percent, the labour participation rate of children declined to 21 percent (Tzannatos, 2003). Further, Vietnam witnessed rapid growth through the 1990s. In this period, Vietnam's per capita income grew at the rate of 6.5 percent per annum while child labour in the same period decreased by 26 percent (Edmonds, 2001).

At the micro level as well there have been empirical studies showing the relation between child labour and poverty. Tzannatos (2003) traced the recent trends of child labour in Thailand where he showed that children are pulled out of the educational system not because of an immediate need for work but because poor households cannot finance the direct cost of education. Using unit record data from Zambia, Nielsen (1999) explored the effects of poverty and cost of primary schooling on household decision about sending children to school or to work.

Though there have been several empirical studies, which conform to the luxury axiom that poverty causes child labour, this axiom have also generated several criticisms. There are empirical studies that have failed to find a positive relation between poverty and child labour.

Chandrasekhar (1997), Dev and Raj (1998) in their survey of cross section data from developing countries and from different states of India show that a higher incidence of poverty is not correlated with high incidence of child labour. Data from Indian states show the relationship between incidence of child labour and incidence of poverty across states to be weak and insignificant.

Swaminathan (1998) examined features of child labour in an area of high economic growth in western India. He analyzed child labour and the conditions of

work of children in an area of recent industrial economic growth in western India. In particular, Swaminathan (1998) did an analysis on the Bhavnagar city of Gujarat. The analyses of the study were based on the data collected by two nongovernmental organizations, Shaishav and SPARC. The findings of his paper are listed in the following four points.

Firstly, economic growth in the study region has been associated with an expansion of the informal labour market, and of different forms of unregulated wage labour. The data available suggests an increase in the number of child workers over the period 1980 to 1995. The prevalence and absolute expansion of child labour in a period and region of relatively high growth of aggregate output indicates that economic growth is not a sufficient condition for the reduction of child labour.

Secondly, children earn low wages and although they make a positive contribution to household income, the share of household income that they contribute is small. In other words, income from child labour cannot make a big difference to the income of the households to which these children belong.

Thirdly, without basic education, both in terms of number of years and in terms of quality, higher skilled and higher productivity jobs are difficult to obtain. In the occupations that were found in the survey, years of work alone did not contribute to skill formation or higher earnings. In this context, regulation of the conditions of children's employment can only bring temporary relief and cannot raise earnings on a sustainable basis.

Fourthly, the evidence from his survey points to the narrowness of official definitions of hazardous work. In India, for example, Labour (Prohibition and Regulation) Act 1986 lists certain occupations and processes in which children are

not permitted to work such as ports, railways, cement manufacture training etc. The nature of work described by Swaminathan (1998) showed that children are still employed in such activities, which are prohibited by law.

Bhalotra and Heady (2003) using data for Ghana and Pakistan showed that households that own larger amounts of land tend to make their children work more. Larger landholdings means greater wealth and therefore their paper suggest that greater poverty does not lead to greater child labour. Similar findings in Vietnam show that households that start their own businesses are more likely to send their children to work (Edmonds and Turk, 2002).

Ray (2000) applied the luxury hypothesis and substitution hypothesis on Pakistani and Peruvian children. The idea of parental altruism, underlying the luxury axiom, namely that only poor parents send their children to work is rejected on Pakistani evidence, though weak support exists on Peruvian data. More generally, and consistent with recent field investigations on child labour in South Asia, his study find that income and related considerations do not have much effect on children's work input. In contrast, he finds that community variables have significant effect on child labour. Increased provision of public services leading to improved 'quality' of life discourages a household from putting its children into outside paid employment, and encourages their school enrollment. Moreover, in both countries and more so in Pakistan, increased education of adult females leads to a significant reduction in child labour. Female education coupled with increased infrastructural investment in basic amenities, e.g. provision of water and electricity, are likely to be effective in reducing a household's reliance on child labour and in increasing child schooling.

The results of his study also show that the interaction between adult male and child labour is qualitatively different from that between adult female and child labour. The Pakistani evidence provides little support for the 'Substitution Hypothesis'. He demonstrated how with rising adult female wages there is increased participation of children in the labour market.

2.5.2 CHILD LABOUR IN RELATION TO SOCIAL STRUCTURE

The social norms influencing child labour is demonstrated in a concrete way by Lopez-Calva (2003). In his model he assumed that each household 'i' has one child and that the child wage rate is fixed at 'w_c'. The benefit from having the child work is given by 'w_c' To decide whether child labour is worth it, the cost of having the child needs to be deducted from the benefit. C(i) is taken as the leisure cost of child work as perceived by the household. Besides the leisure cost, there is another cost of sending the child to work, that is, the social cost or the stigma cost θ. Assuming that the cost depends on how many others send their children to work, so that the stigma cost of sending a child to work is given by $\theta(n)$, where n is the number of children expected to be working and $\theta'(n)<0$, suggesting that one becomes more brazen the more other people are doing the same. Hence, household 'i' will send its children to work only if $w_c - \theta(n) >= C(i)$. Now, i(n) is the critical household that will send its children to work when it is expected that 'n' children are working in an aggregate. Hence $w_c - \theta(n) = C[i(n)]$. When n is the expected size of aggregate child labour, all households $i <= i(n)$ will send their children to work. It follows therefore that the actual amount of child labour will be equal to i(n). Evidently, n^* is an equilibrium

amount of child labour if $n^* = i(n^*)$. Hence, child labour can depend on social norms, in particular on the stigma costs of sending a child to work.

Besides, there are other social norms, like favoring son, which also has its influence on child labour. Ono (2003) showed the gender discrimination in allocating parental resources. He developed a model where parents maximize utility with respect to their choice between the quantity and quality of children. According to his empirical findings from Japanese data, he concluded that the intra-household resources are likely to be allocated in favour of sons and away from daughters in Japan. This induces the girl child into the labour market.

Horowitz and Wang (2004) identified that the children of a single household are not identical rather children in the same household differ in their capabilities. Therefore they construct a theoretical model that allows child heterogeneity in bilateral altruism. Their model illuminates potential inefficiencies in the time allocation of children across labour market obligations and education opportunities in poor households. When intrahousehold talent differentials across children are great, an inefficient reverse specialization arises. As a result more efficient child is sent to attain education while the less efficient are sent to work

There have been some empirical studies showing demographic structure in explaining the incidence of child labour. Camps-Cura (1998) analyzed the outcomes of changes in the family labour resource allocation for family incomes and household structures. During the first stage of the demographic transition, since women worked more than men due to child bearing and child rearing, and children were the main contributors to household incomes over the medium term, there was a substitution effect whereby women's wage labour was replaced by that of the children. With the

beginning of the second industrial revolution, a contrary trend was observed whereby child labour was replaced by that of married women, even by those reported as housewives in the Municipal Census. A smaller number of children, mandatory schooling, and an improvement of women's position within the factory with respect to men, all seem to explain this second substitution. As a result of all these transformations, household structures and family incomes do not conform to any pre-established norms and integrate what has been defined as a family economy of mutual assistance.

Chaudhari and Nyland (2002) showed how demographic pressures in the colonial and non-colonial countries initially increased the incidence of child labour. The initial increase of child labour is explained by the increase in demand for child labour, which was equally supplanted by the supply of child labour. However, in the long run, globalization process assisted the introduction of effective child labour standards. In the colonial countries, globalization infused the progressive ideas of industrialization, national independence and socialism. The colonial countries, which embraced these three goals, proved effective in eliminating child labour. Again, in the non-colonial countries, globalization resulted in the change in demographic structure. The demographic transition reflected in sustained reduction in the fertility rate, which translated into an increase in the potential entrants in the labour force and finally a decline in the proportion of children in most states. As the proportion of children in the population declines the activity rate also declines. The decline in the proportion of children in population is greater in countries with a higher Human Development Index (HDI) and Gender related Development Index (GDI).

Thus, he suggested that the ILO should include family planning as an additional instrument in its campaign against child labour. Further to enable this change in demographic transition, it requires high rate of employment growth. The high rate of growth should be accompanied with adequate instruments of social protection and meeting the basic needs.

2.5.3 CHILD LABOUR IN RELATION TO SCHOOLING

The historical experience of the industrialized world shows that universal education and the formal abolition of child labour, in general, preceded large-scale economic growth (Weiner, 1991). Abbas (2000) provided evidence from Pakistan in support of Romer's (1990) model of endogenous growth and showed that larger stock of human capital proxied by school enrolment rate, may enable the economy to make greater investment in physical capital which in turn brings about greater growth. Easterly (2001) indicated that Pakistan's lagging economic performance is primarily due to quality of its human resources. Human capital is partly a result of native talent and partly the fruit of education. The latter is produced with time. There is now a vast literature in development studies that establishes the instrumental value of education in the process of development. Ray (1998) pointed out that the rapid advances made in Europe and elsewhere in the early part of the century in the sphere of child labour and schooling coincided with rapid strides in female education and awareness and with vast improvements in the public provision of basic services and in the quality of life. Child labour also depends on the quality and the availability of schools and the transactions cost involved. The relation between child labour and schooling can be captured with the political economy models. The political economy

models provide insight into child labour and schooling, endogenously explaining why some nations ban child labour and others do not.

Ranjan (2001) showed in his analysis that legislative ban and compulsory education can reduce child labour if there were proper enforcement of the law. However people with low income have a high marginal utility of consumption and therefore chose to send their child to work. As a result, legislation cannot be accompanied with enforcement in a developing economy.

Tanaka (2003) stated the causes of child labour to be growing inequality. In his model he explained the highly unequal income distribution as a crucial determinant of the number of child labourer. In particular, if the economy has highly unequal income distribution, the majority does not support the public provision of schooling, and in equilibrium many households send their children to work. However, under equal income distribution with the same income per capita, the majority supports high quality of public education and the equilibrium amount of child labour becomes small.

In Tanaka's model, government does not legislate against child labour. Instead it collects taxes and runs schools. By providing good schools, the government tries to wean children away from labour to education. In his model, as long as households does not send its children to school, rising tax rates makes it worse off. However, once the schools are good enough for households to decide to take their children out of the labour market and send them to school, its welfare responds to the tax rate like an inverted U, because an increase in the tax rate improves the quality of schools.

Doepke and Zilibotti (2002) showed that the households with many children and less wealth tend to oppose legal restrictions on child labour. In his model, he has showed multiple steady state equilibrium in the economy. There can be an economy in which fertility is high, per capita wealth is low and poorly distributed, and opposition to legal restrictions is so high that government does not legislate against child labour, so these conditions persist through time. Alternatively, the same economy can be caught in a steady state equilibrium in which household size is low, equality is high, and public opinion is so strong that favors legal restrictions. The one exogenous change that can shift an economy from the first equilibrium to the other is a rise in the productivity of education.

Further, extending the relationship between child labour and schooling we find that Cigno and Rosati (2002a) in their model showed how education and child labour have a strong correlation. He stated that due to capital market imperfections, educational investment might be limited by household liquidity constraints. A country that starts with a largely uneducated work force, globalization raises the wage rates of uneducated relative to educated workers. This reduces the incentive to educate a child, and raises the incentive to make the child work at the earliest opportunity. On the other hand, if the wage rate of educated workers rises in absolute as well as relative terms, this will have a positive income effect on the demand for education.

Dreze and Kingdon (1999) pointed out that the ability of the parents to assess the personal and social value of education depends among other things the information they have at their disposal. If their entire reference group is largely

untouched by the experience of being educated the information might be quite limited and thereby children of such household will be sent to the labour market.

There have been several empirical studies probing the correlation between child labour and schooling. Starting from the period 1898-1917, Stambler (1968) in his survey in the New York City found that compulsory education and banning child labour have resulted in the expansion of education in the city. Further Heady (2003) analyzed the effect of children's work in schooling achievements. His paper presented the results of applying a new method of analyzing the effects of child work on learning achievement, based on a dataset that is unusually rich in information on work, schooling and test results. The results show that work has a substantial effect on learning achievement in the key areas of reading and mathematics if it is performed outside the home. The effect is much less clear for work at home, which has important implications for judging the harm of child work.

Using the survey of Ethiopia, Admassie (2003) state that where most of the literature on child labour focus on the manufacturing and export sector, a huge chunk of the children are unpaid agricultural and domestic labourers. Taking the assumption that poverty is the main determinant of child labour, simply eliminating child labour would aggravate the problem. Therefore, introducing a flexible schooling system that recognizes the peak demand seasons for family and agricultural labour can in someway reduce the illiteracy. In other words, the paper suggests that combining schooling with child work can help in reducing the problem of drop out and thereby eliminate child labour in the long run. Thus, it shows that schooling makes the child to have higher productivity in future life.

2.5.4 DYNASTIC TRAPS

There is a small body of literature that analyses the dynamics of child labour (Basu, 1999; Dessy, 2000; Razzaz, 2001; Hazan and Berdugo, 2002; Emerson and Souza, 2003; Bell and Gersbach, 2001). These models show that a person who receives more education as a child grows up to have higher human capital. In capital and labour markets, higher human capital will mean a higher labour income. Hence, a person who supplies more labour and gets less education as a child will grow up to be poorer as an adult. This person's child will be sent to work, following poverty, thereby perpetuating child labour across generations.

Hazan and Berdugo (2002), showed how economies could be caught in a trap where fertility and child labour are high and per-capita is low. Technological progress increases the wage differentials between adult and children lowering the benefit from child labour and leading to lower fertility. In their model, banning child labour hastens the transition to low fertility and sustained growth steady state equilibrium.

Moehling (2004) showed that racial differences in adult literacy, household resources, and school characteristics as an important determinant for explaining the racial gaps in children activities than the racial differences in family structure. The differences in the black and white family structure in the early 20th century, therefore, did contribute to the persistence of racial inequality. However, much more important for explaining the racial gaps in children experiences were racial differences in adult literacy and other measures of household resources. Poverty and illiteracy in one generation bred poverty and illiteracy in the next. The state's role in the perpetuation of racial inequality was also larger than that of racial differences in family structure.

The evidence of the dynastic traps, which has been identified by various researchers, also exists in the contemporary times. Wahba (2002) analyses the 1988 Egyptian Labour Force Sample Survey, a nationally representative sample of 10,000 households. Her analysis is based on 10,742 children aged 6-14 years for whom full information on schooling, work and parental characteristics is available. She finds that a 10 percent rise in the market wage rate for illiterate men results in a 22 percent decrease in the probability of child labour for boys and a 13 percent decrease for girls.

There have been various empirical findings showing the relationship between child labour and human capital formation. Psacharopoulos (1997) showed that child labour impedes the acquisition of education and human capital. Emerson and Souza (2003) in their regression analysis using the data from the National Household Surveys in Brazil in 1982, 1989 and 1996 showed that starting to work at a younger age results in foregone earnings as an adult for both men and women. Child labour inhibits the acquisition of human capital through loss of education and through other channels, by damaging health or affecting attitudes (Rosati and Rossi, 2003).

2.5.5 OTHER DETERMINANTS OF CHILD LABOUR

The above-mentioned studies, however limit themselves to the supply side of child labour. In recent years, theoretical analyses of child labour have been extended in various directions. While the factors like poverty, illiteracy of the household are undoubtedly an important reason for the presence of child labour, the mitigation of child labour does not have to wait till poverty or illiteracy is eliminated.

At the micro level, though poverty ensures supply of child labour, it is the structure of demand that determines the use of child labour. When there is demand for child labour, poverty ensures that the supply is forth coming.

Lieten (2004) states that apart from the common view that poverty is pushing poor children into the labour market there is large demand of the inexpensive labour, which pulls the child into the labour market. One causal factor on the pull side is the profit motive. The paper expresses concern that if children are not protected by family adults or by public institutions they may end up in an abject dependency relationship with employers.

Duryea and Kuenning (2003) demonstrated how the employment rates for 14–16 year old boys and girls in urban Brazil increased as local labour market opportunities improved. Children, as they show, are more likely to leave school as local labour market conditions become more favorable. The relationship between children's schooling and work and local labour market conditions changes in years of crisis compared to other years. The effects of macroeconomic fluctuations on children's school and work behavior are examined with particular focus on whether the income effect or substitution effect dominates as macroeconomic conditions change over time.

Stegeman (2004) stated the causes of child labour to be growing inequality, growth of informal sector, and commodification of goods and lure of consumerism. Children often work to sustain their families. They form a large part of inexpensive labour, which has great demand.

Thus it is both the supply and demand for child labour, which ensures that children remain in the labour market. As stated by Dessy and Pallage (2001) child

labour may arise because of the lack of a coordination mechanism between parental decisions to invest in the human capital of their children and firms' decisions to invest in skill-biased technologies.

Epstein (1993) argues that child labour in China is perpetuated by external factors including foreign investment and change in the Asian labour market. The presence of child labour and inadequate educational provision can be traced to those changing economic priorities that have both welcomed foreign investment and have increased social inequality within the country. The exploitation of child labour is one of the dehumanizing trends that define 'commodity socialism' in stark terms. Western attitudes and practices have not only encouraged such practices but have legitimized them as well.

Jafarey and Lahiri (2002) explained that if the poor households have access to credit markets at reasonable rates of interest, a serious reduction in the incidence of child labour can take place. However, credit on its own is unlikely to eliminate child labour. One also needs to improve the economic conditions of the poor households and to provide their children with better quality primary education. Moreover, proper functional credits markets are also important for the effectiveness of other policies to reduce child labour. For example, the impact of trade sanctions on child labour is likely to be more favourable when the poor families have better access to credit. Trade sanctions can in fact be counterproductive if credit markets are completely absent.

Jensen and Nielsen (1997) investigated what affects school attendance and child labour in a less developed countries, 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 analysis finds some support for the hypothesis that poverty forces household to keep their children away from school.

Cunningham (2000) observed that current explanations for the decline in child labour in the OECD countries fall into four broad categories. First, he argued that the explanation is related to the rational decisions of families which it is held, chose to reduce their children's participation in the labour market as the economy reached higher levels of economic development. A second category of explanation emphasizes state action generally in the form of child labour laws or school attendance. A third body of thought stresses technological development. The underlying assumption being that technologically sophisticated forms of production tend to diminish the demand for child labour. Finally, cultural values and cultural change are emphasized to explain the reduction in the incidence of child labour.

Aizer (2003) showed that as female participation in the labour force continues to grow in the US, so too does reliance on non-parental child care. However, the high cost of child care has impeded the ability of many working mothers to find sufficient child care for their children. As a result, in 1998, over eight million children aged 5 to 14 years spent time without adult supervision on a regular basis in the US. The paper examined the effect of the lack of adult supervision after school on a panel of school-age children using ordinary least squares and fixed effect estimation. He found that children with adult supervision are less likely to skip school, use alcohol, steal or hurt someone. These findings suggest that expanding after school or child care programs typically geared to pre-school children to accommodate more school-

age children may have important consequences for their human capital development and labour market outcomes later in life.

Asanta (2004) showed how the number of street children in Cochabamba, a major town in Bolivia, is increasing. Factors responsible for bringing the children in streets are child abuse often in combination with alcoholism, disintegration of nuclear families as a consequence of personal disasters.

Khan and Ali (2004) analyzed the factors which are responsible for part time work by children using the primary data of two districts of Pakistan, i.e. Pakpattan and Faisalabad. The study probes the question as to whether and to what extent child characteristics; head of the household characteristics, parent characteristics and household characteristics affect the decision of part time work by parents. The determining factors are also analyzed for urban and rural areas separately. The complex interactions uncovered by the analysis suggests that poverty and its related aspects, for example, low educational level of adults, unemployment in adults, ownership of assets and larger family size are the main factors forcing parents to engage their children in part time work. Their paper suggest that sending children to school requires suitable policies including provision of employment opportunities for adults, subsidized schooling, increase in income of adults, fertility control and capillary provision of schools.

The above review of the literature shows that child labour emanates from various factors. Some of them mentioned in the above studies are poverty, unequal distribution of income, parental illiteracy, inaccessibility of the credit market etc. In the contemporary discourse there have been several measures suggested by the researchers. These measures are broadly classified into collaborative measures and

coercive measures. The collaborative measures are the interventions that alter the economic environment (Basu and Tzannatos, 2003). A small body of literature suggests policy interventions that build in incentives for parents to send their children to school (Bourguignon *et. al.*, 2003; Schultz, 2001; Ravallion and Woodon, 2000; Dreze and Kingdon, 1999; Duflo, 2000 and Filmer and Sayed, 1999). Again, coercive measures which implies complete banning of child labour is also suggested by various researchers (Bhagawati, 1995; Srinivasan, 1996; Rodrik, 1996)

However, the measures undertaken to eliminate child labour have not been strong enough to root out child labour in India. These need empirical investigations at various disaggregate levels.

2.6 Discourses on City Size

In the Census of India 2001, the definition of urban area adopted is as follows:

a) All places with a municipality, corporation, cantonment board or notified town area committee, etc.

b) A place satisfying the following three criteria simultaneously:

   i. a minimum population of 5,000;

   ii. at least 75 per cent of male working population engaged in non-agricultural pursuits; and

   iii. a density of population of at least 400 per sq. km. (1,000 per sq. mile).

Apart from these, the outgrowths of cities and towns have also been treated as urban under 'Urban Agglomerations': Examples of out-growths are railway colonies, university campuses, port areas, military camps, etc. that may have come up near a

statutory town or city but within the revenue limits of a village or villages contiguous to the town or city. Each such individual area by itself may not satisfy the demographic criteria laid down at (b) above to qualify it to be treated as an independent urban unit but may deserve to be clubbed with the towns as a continuous urban spread. Towns with population of 1,00,000 and above are called cities. However in our study we have considered the entire urban sector. Both towns and cities of the urban sector, in our analysis are considered to be cities. In other words, we use the two terms interchangeably.

A voluminous literature exists on how economic development expands with the growth in the size of the city. Sviekauskas (1975) found that with an increase in the city size, the productivity of factors increases. He has specifically established that with the doubling of city size labour productivity increases by six to seven percent. This is the reason he explained for having lower incidence of poverty in bigger cities.

Dinlersoz (2004) finds a very high correlation between city size and educational attainment of the local population in developing countries. The positive correlation between the two is explained with the following two arguments. First, the types of goods produced in larger cities require relatively high skill labour inputs. Second, public and private services demanded by higher skill people are only offered in larger cities. The main findings of his paper propose that total employment increases in proportion to city population, and the employee size of an establishment is stochastically decreasing as city population increases. While these results are partly driven by the differences in industry composition across cities, for many industries larger cities tend to accommodate more employment through an expansion

in the number of establishments, but not necessarily through an increase in average establishment size.

Eaton and Eckstein, (1997) finds that larger cities have higher levels of human capital, higher rents and higher wages per worker, even though workers are homogeneous and free to migrate between cities. Kim (1991) argues that the two interacting forces determine the city size. First, holding other things constant, the wage rate increases with the size of the city, because the larger the city, the better the match between the diverse job requirements and the diverse labour pool. The higher wage of a city will in turn attract more workers from its hinterland.

In Indian context the literature on city size is relatively new. In the recent years, Dubey and Gangopadhyay (1998) and Dubey *et. al.* (2000) argue that the city size has definite implications on incidence of poverty because cities of different sizes have different functional uses as well as varying concentrations of population and economic activities. (Sharma, 2003), explained how relative city growth provides information on shifts in production patterns, changes in income distribution, and economic growth in a spatial context.

2.7 Existing Gap in the Literature and Need for this Study

From the above review of literature, it is apparent that the study of causes and consequences of child labour in India has a pronounced rural bias. There have been few studies that have investigated the incidence of child labour in urban areas. However, these studies are limited in their scope and coverage in the sense that they have looked at the incidence of child labour from industry-specific perspective. Further, these studies treat entire urban system as one. In other words, these studies

calculate incidence of urban child labour at the national level and/or at the state level without making any distinction between different sizes of urban centres.

This study is an attempt to fill this gap in the existing literature by combining the effect of labour productivity and city size on child labour.

CHAPTER 3

DATA SOURCES AND METHODOLOGICAL ISSUES

3.1 Introduction

The exploitation of children by the employers due to poor economic condition of the households was recognised by the policy makers while drafting the constitution. As a result various provisions were made by the Government of India to protect the children from exploitation and allow them a healthy and educative environment. Consequently, various researches were carried out from time to time to identify the sector in which child labour pre dominantly lie. According to the Indian census of 1991, there are 11.28 million working children under the age of fourteen years in India. Over 85 percent of child labourers are in the country's rural areas, working in agricultural activities. Such estimation has helped the government in policy making. However, the data on the incidence of child labour in the urban sector of India at various levels of disaggregation is not available. This analysis is an attempt to fill this gap by classifying the urban sector into city sizes.

The rest of this chapter is organized in the following fashion. The next section 3.2 outlines the detail of the data used in this study and also highlights the caution needed in using these data sets. Section 3.3 delves into the methodological issues in measuring incidence of child labour. Section 3.4 provides an introduction to statistical and econometric techniques that have been used in this study.

3.2 Data Sources

There are two main sources of data on which comprehensive analysis of child labour both over time and across states is possible. One is the decennial Census data. For implementing the policy of child protection, several measures and programmes were introduced using this data. Since 1951, the Census collects information on working

population in different age groups. The 1981 census defined a worker as a person whose main activity is participation in any economically productive work by his physical or mental activity. The census classified the workers into main and marginal workers. Main workers are those who had worked for major part of the year, i.e. 6 months or more, while marginal workers are those who had not worked for major part of the year i.e. less than 6 months. The adoption in 1991 and 2001 census of almost the same definition and concept of workers (main and marginal) of 1981 census, the direct comparison of the results is possible. Since these workers are categorized on the basis of the age of the worker, it is possible to identify child labourers.

The second source of data is the data collected by the National Sample Survey Organisation (NSSO) during large-scale (thick) surveys on Consumer Expenditure and Employment and Unemployment. The NSS surveys cover almost the entire territory of India. Consequently, we have data on almost the entire geographical territory of the country. The households in these surveys are collected using a two stage stratified sampling design technique. Therefore, weights are a natural part of the data sets. In the various thick rounds of survey, detailed information on economic activities, social and demographic characteristics and household assets and expenditure were collected from roughly 120,000 households covering around 600,000 individuals at the all India level.

The basic difference between the two sources of the data is the information content. While from the census we get only basic demographic information about different population groups, NSSO data has information on several easily

quantifiable welfare indicators. In view of the above, we use the NSS data in this study. Moreover, this is the only detailed data that is available to researchers that has details of households. In other words, it is possible to identify the characteristics that induce a child to work.

The NSS data that we use are for the most recent large sample surveys of four quinquennial rounds on Employment and Unemployment (Schedule 10). These are the 38th, 43rd, 50thand 55th rounds[1]. The 38th round corresponds to the calendar year of 1983 and the other four rounds correspond to the agricultural years (July to June) of 1987-88, 1993-94 and 1999-00 respectively. Thus the period that will be covered in the study will be from the early eighties till 1999-00. In this study, we have used the raw data, rather than the published tables brought out by the NSSO. The availability of raw data has allowed us to identify child labour and to estimate the other household characteristics at each level of aggregation.

According to the NSSO, persons who are either 'working' (or employed) or 'seeking or available for work' (or unemployed) constitute the labour force. Persons who are neither 'working' nor 'seeking or available for work' for various reasons during the reference period are considered to be 'out of the labour force'. The usual activity status relate to the activity status of a person during the reference period of 365 days preceding the date of survey. The activity status on which an individual spent relatively longer time (i.e., major time criterion) during the 365 days preceding the date of survey is considered as the *principal usual activity status* of the children. To decide the principal usual activity of a person, he/she is first categorized as belonging to the labour force or not during the reference period on the *basis of major*

time criterion.' For person belonging to the labour force, the broad activity status of either 'working' or 'not working but seeking and/or available for work' is ascertained based on the same criterion, viz, relatively longer time spent in accordance with either of the two broad statuses within the labour force during the 365 days preceding the date of survey. Within the broad activity status so determined, the detailed activity status of a child pursuing more than one such activity is determined once again on the basis of the relatively longer time spent on such activities. A person whose principal usual status is determined on the basis of the major time criterion could have pursued some economic activity *for a relatively shorter time* (minor time) during the reference period of 365 days preceding the date of survey. The status in which such economic activity is pursued is the subsidiary economic status of that person. It may be noted that engagement in work in subsidiary capacity could arise out of the following two situations, viz.

- A person could be engaged for a relatively longer period during the last 365 days in one economic/non-economic activity and for a relatively shorter period in another economic activity, and
- A person could be pursuing one economic activity/non-economic activity almost throughout the year in a principal usual activity status and simultaneously pursue another economic activity for a relatively shorter period in a subsidiary capacity.

For persons reporting some subsidiary activity, the number of subsidiary activities pursued by him/her during last 365 days is ascertained and recorded. This has enabled us to identify children in the labour market pursuing all form of work.

Each household in the data set has the NSS region code, state code and the stratum number. From this data set, we get the information on the towns and cities by the stratum size. The NSS region in which each of these cities is located clearly identifies the city from that NSS region. For example, the NSS Region 141 (coastal regions in the state of Maharashtra) has data on stratum 6 and 7 that corresponds to the metropolitan city in that region, Mumbai (Bombay).

Utilizing the information of the stratum size, we have classified the entire urban areas into four city classes. This classification is done in accordance to the population of the towns and cities. These are:

City Size I: Towns and cities with population less than 50,000

City Size II: Towns and cities with population between 50,000 and 2 lakh

City Size III: Towns and cities with population between 2 lakh and 10 lakh

City Size IV: Towns and cities with population above 10 lakh

Thus based on the information of the activity status of the child and the stratum size, it is possible to identify child labourers in various city sizes of the urban sector.

The NSS data lists the household characteristics for each of the surveyed household. These characteristics include the household composition, income, and sources of income, education, social group and religious denomination of the household.

The analysis is carried out at the aggregate level as well as at the disaggregated (state) level. The survey during all four rounds covers almost the entire territory of India except some inaccessible areas that are less than 0.01 percent of the

Indian Territory and even lower proportion of population. For example, until 1987-88 rural areas of Nagaland were not surveyed by the NSSO. Starting with the 1993-94 survey, the rural areas in Nagaland were undertaken in a limited way, with only the rural areas situated within a 5 km radius of a bus route being surveyed. Similarly, one rural and one urban region, respectively, in the Jhelum Valley in Jammu and Kashmir, were not surveyed during 1993-94. However, the analysis in this study is mainly dependent on the urban data.

Furthermore, there have been some minor changes in the number of states and union territories that are there in the data. For example, in 1983 and 1987-88, Goa, Daman and Diu were combined together as a single union territory. By 1993-94, Goa had become a separate state, and was de-linked from Daman and Diu. Hence, in several cases, direct comparability, in the areas covered during the four rounds of survey, does not exist.

For each household, the main source of income is also reported. For the urban sector, the NSS provides four major sources of household income, i.e., self-employment, regular wages and salaries, casual labour and others. The main source of income implies that 50 percent or more of the household income comes from that source. Utilizing this information, the workers in the four city sizes have been put into four main groups: (i) self-employed (ii) regular wage/salary employment (iii) casual labour (iv) others. The last category consists of households where no one-income source contributes 50 percent or more, that is, the households in this category have diversified income sources.

The reliability of estimates depends crucially on the sample size. The sample size or number of children surveyed across city sizes and states in the four rounds of survey that are used in this study is reported in Tables 3.3, 3.4, 3.5 and 3.6. For administrative purposes, there are 35 states and union territories in India. We are treating all states and union territories as states. Three states of Chhattisgarh, Jharkhand and Uttaranchal (renamed as Uttarakhand) were created in 2000. We could identify the districts of Madhya Pradesh, Bihar and Uttar Pradesh respectively that fall under the three new states. Therefore the estimates for these six states are as per the political boundaries in 2001 for all the four rounds of survey that we present in this study.

While at the aggregate level the sample size for the number of children surveyed is fairly large, it is not so for all the states. To circumvent this problem we have taken 17 states for which the sample size is reasonably large. There are 17 states, namely, Andhra Pradesh (APR), Assam (ASS), Bihar (BIH), Chhattisgarh (CHH), Gujarat (GUJ), Haryana (HAR), Jharkhand (JHA), Karnataka (KAR), Kerala (KER), Madhya Pradesh (MPR), Maharashtra (MAH), Orissa (ORI), Punjab (PUN), Rajasthan (RAJ), Tamil Nadu (TND), Uttar Pradesh (UPR) and West Bengal (WEB). The North Eastern States, including, Manipur (MAN), Meghalaya (MEG), Mizoram (MIZ), Nagaland (NAG), Sikkim (SIK), Arunachal Pradesh (ARP) and Tripura (TRI) are calculated together due to a small sample size in each of these states. Also the remaining small states and union territories barring the North Eastern states are put together for the same reason.

3.3 Methodological Issues

This section delves into the methodological issues in measuring the incidence of child labour. It is divided into four sub-sections. In section 3.3.1 we discuss the issues related to the employment of children in India. In section 3.3.2 we discuss the deflators used to deflate the average consumption and earnings to constant (1993-94=100) prices. 3.3.3 summarizes the poverty norm used in this study.

3.3.1 EMPLOYMENT OF CHILDREN

A child is classified as labourer if the child is in the age group 5-14 years and is 'economically active'. A person is treated as economically active or gainfully employed if he/she does work on regular basis for which he or she receives remuneration or if such labour results in output for the market. This is the definition used by International Labour Organization and also by the Indian Census to estimate number of working children in India. In this study we have determined the children in the labour force in the age group 5 to 14. The age range is defined in Nielsen and Dubey (2002). We have considered the children working both in principal and subsidiary status. The activity pursued by an individual for a relatively longer time during the 365 days preceding the date of survey is considered as the principal usual activity status of the person. A person working in principal capacity could have pursued some economic activity for a relatively shorter time during the reference period. This is the subsidiary economic status of that person Since children at all age levels particularly at a lower age are less likely to have demand in the labour market we have determined the working children at all ages ranging from 5 years to 14 years.

3.3.2 PRICE DEFLATORS

The data on consumption expenditure and wages, which we have used in this study, have been collected at market prices. For temporal comparisons, these have to be deflated to constant prices. We deflated all the expenditure and earnings information at 1993-94 prices. The deflators for the urban sector are based on Consumer Price Index Numbers for Industrial Workers (CPIIW). The Labour Bureau, Shimla, compiles these Index Numbers. We use the General Index in all cases.

CPIIW are collected from 50 industrial centres in 1983 and 1987-88 on base 1960=100. They were compiled for industrial workers relating to factories, mines and plantations. The weighting diagram was drawn on the basis of the Family Living Survey (FLS) in 1958-59. A new series on base 1982 replaced the old series with effect from October, 1988. In the new series (1982=100) the coverage was increased to seven sectors viz. (a) factories, (b) mines, (c) plantations, (d) railways, (e) public motor transport undertakings (f) electricity generation and distribution establishments and (g) ports and docks. Also the number of centres has increased to 70 in the new series. The weighting diagram for the new series (1982=100) was derived by conducting Working Class Family Income and Expenditure Survey, 1981-82 in all the centres.

We generate weighted state averages in order to derive the state-specific deflators for the urban sector. Linking factors are available only for the centres common to all the years. Therefore, we could convert the CPIIW at 1982 base to 1960 base only for these centres. Hence, for the state averages of 1993-94 at the old base (which is needed for the deflators for 1983 and 1987-88), we take into consideration only the centres for which linking factors are available. Since our aim

is to deflate the monetary variables (per capita expenditure, wages, etc.) to 1993-94 prices, the CPIIW of 1999-00 are not converted to the old base and so the state averages and thus the deflators for 1999-00 are based on all the centres for which CPIIW are available.

CPIIW are not available for all states and union territories. In such cases the CPIIW of the neighboring states are taken. CPIIW of Assam are used for Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura; CPIIW of Tamil Nadu are used for Pondicherry and Andaman & Nicobar Islands; CPIIW of Kerala are used for Lakshadweep; CPIIW of Maharashtra are used for Goa, Dadra & Nagar Haveli and Daman & Diu; CPIIW of Punjab is used Chandigarh in 1983 and 1987-88 whereas CPIIW of Chandigarh is used for urban Chandigarh in 1999-00; CPIIW of Punjab is used for Himachal Pradesh.

3.3.3 POVERTY NORM

There are two indispensable requirements for calculating poverty level – welfare profile of the population and poverty norm. The other requirement is a suitable poverty norm. In India, the poverty norm that is used to measure poverty is based on absolute minimum requirement. The derivation of the minimum normative absolute living standards, or the absolute poverty line (PL), in India has followed two alternative tracks. These are based on two different descriptions of the minimum normative food basket and the calorific norm.

The earliest PL using a PCTE of Rs.20 per month at 1960-61 all India prices was suggested by the expert group appointed for the seminar, in 1962, on *Some Aspects of Planning*. It was anchored in the minimum normative food basket. The other track, of anchoring the absolute PL in the normative minimum calorie intake,

was adopted by the Task Force,[2] constituted by the Planning Commission in 1979. This group accepted the calorie intake norms recommended by the Nutrition Expert Group (1968), according to fourteen age-sex-activity categories. The census based activity pattern, according to age and sex (differing for rural and urban populations), was super-imposed on the (projected) rural and urban populations.[3] This provided the age-sex-activity-specific composition of the rural and urban populations.

The specific calorie norms (assumed to be uniform for the rural and urban populations) were then weighted by the corresponding compositions of the rural and urban populations separately, to derive the rural and urban *average* uniform calorie norms. The daily calorie requirements per person worked out, on the average, to 2435 for rural and 2095 for urban areas. The NSSO data on consumer expenditure relating to the 28th round (1973-74) provided information on the average quantities of food items consumed per capita, as well as on the PCTE for the households grouped into pre-specified PCTE class intervals. The average per capita quantities of food items consumed within each PCTE class interval were converted into calories using appropriate conversion factors. Thus, a relationship between average daily calorie consumption per capita and the associated average PCTE was obtained separately for the rural and urban populations. Given the average calorie norms per capita for rural and urban sectors, using inverse interpolation method the Task Force derived the associated PCTE, or the PL, Z. For the rural sector, the PL turned out to be Rs.49.09 at 1973-74 prices; the corresponding figure for the urban sector worked out to be Rs.56.64 at 1973-74 prices.

Another poverty norm that some researchers have used for calculating poverty incidence in India was suggested by Dandekar and Rath (1971).[4] They used

a uniform daily calorie norm of 2250 per capita. The rural PL turned out to be (after rounding off) the PCTE level of Rs.15 per month at 1960-61 prices. As for the urban sector, there is no such widely held consensus on the PL. The corresponding Urban Poverty Norm was then arrived at by assuming that the urban price level is 20 percent higher than the rural one.[5] This figure works out to be Rs.18 PCTE per month at 1960-61 prices.

We are using here the PLs developed by others in the early seventies, to calculate poverty in 1983, 1987-88, 1993-94 and 1999-00. The PLs have been derived at 1960-61 prices or 1973-74 prices whereas the expenditure distribution is reported by the NSSO at market prices for different rounds of survey. Clearly, either the expenditure distribution is to be deflated to base prices of PLs or the PLs are to be inflated to take into account the change in prices. Researchers often used the latter method, inflating PLs using appropriate consumer price indices. For this, we have to take each PL and find its nominal value in 1983, 1987-88, 1993-94 and 1999-00. An important requirement for converting the PLs to nominal value is the movement of prices between the base year and the four years of our study. Therefore, we have to take into account the regional disparities in the price levels and, hence derive, what may be termed the state level PL. To do this we need the state-specific price indexes.

The issue of appropriate price indexes to be used for updating PLs for variation in prices is probably the most contentious issue after the derivation of poverty norm. This issue has been one of the hotly debated in the Indian poverty studies.[6] The database of price indexes for such a disaggregated study is not quite

satisfactory. The easily available indexes relate to specific segments of the population. For example, for rural areas the consumer price index (CPI) is available for agricultural Labourer (CPIAL) and Rural Labour (CPIRL) for twenty states. Similarly, for the urban areas, price data are also available for industrial workers (CPIIW) and for the urban non-manual employees (CPINM).

In a pioneering work, Minhas *et. al.* (1988) used data from the Labour Bureau and the Department of Statistics, CSO, on the item-specific price relatives and price indices that are used in the calculations of the four sets of CPIs. They used the available price data and the weighting diagrams from the NSS surveys on consumer expenditure, to construct two sets of indices for total rural population and the total urban populations. An Expert Group constituted by the Planning Commission (GOI, 1993) also looked into the issue of state-wise price variation but recommended to use state-level CPIAL for the rural sector and CPIIW for the urban sector.

All the methodologies suggested in the literature for updating the PLs for increase in prices use the base year poverty line derived by the Task Force (GOI, 1979) at 1973-74 prices as the starting point. The differences in these methodologies produce numerically different PLs. All these PLs have been used on the same expenditure distribution. Given that these PLs are numerically different, one would get different absolute values of poverty incidences. Dubey and Gangopadhyay (1998) have studied the sensitivity of the PLs to poverty incidence and shown that trend in poverty incidence is independent of the PL used. The reason they cite for such a result is the nature of expenditure distribution that is lognormal. Clearly not much is gained by using a particular PL as far as poverty incidences are concerned.

Another related issue is variation in prices over the space. The consumers in different regions have different consumption habits, consume different baskets of commodities, especially food. Researchers have tried to address this issue in detail. Consequently, regional price indices are now used to account for price changes in the PLs in a specific region. The strategy has been to first derive state-wise PL relative to all India PL reported at 1973-74 prices by the Task Force (GOI, 1979) or any other PL for that matter. Then update the state-specific PL for price changes from that state.

3.4 Econometric Exercise

The available evidence suggests that a child tends to work depending on household specific factors like household assets, education, location of the household and so on.

Several researchers (see for example Nielsen and Dubey, 2002; Khan and Ali, 2004) in recent times have used these factors to determine the contribution of each factor to the probability of child labour. For calculation of contribution of different factors to child labour, it is assumed that child labour is a phenomenon, which is affected by a set of factors that could explain the outcome. Based on these considerations, we define a binary variable y that takes values

y=1 if child is sent to work

=0 otherwise

This binary variable is then regressed on to a set of explanatory variables that includes various individual as well as household characteristics. Such a specification of an econometric model has been extensively used in the literature. Since the dependent variable is binary, we cannot use least squares method to estimate the

coefficients. Instead, one can use maximum likelihood estimation technique to calculate coefficients. The issues involved in specification and estimation of these models are discussed at length in Johnston (1984), Kmenta (1985), Amemia (1985).

The probit model (the word probit is a contraction of 'probability unit') is one statistical model that is used for discrete or binary models. In this study we have used probit model that allows us to calculate marginal contributions of different household characteristics on the poverty status of the households. A probit model is defined as

$$\Pr(y_i \neq 0 \mid x_j) = \Phi(x_j b) \qquad (1)$$

where Φ is the standard cumulative normal distribution, and $x_j b$ is called the probit score or index.

The log-likelihood function for probit which is maximized is

$$\ln L = \sum_{j \in S} w_j \ln \Phi(x_j b) + \sum_{j \notin S} w_j \ln \{1 - \Phi(x_j b)\} \qquad (2)$$

where w_j denotes the optional weights.

For purpose of estimation, we have used dprobit option from STATA.[7] The dprobit option fits maximum-likelihood probit models and rather than reporting coefficients b_i, where b_i is the ith element of b, it reports the change in the probability for an infinitesimal change in each independent, continuous variable and reports the discrete change in the probability for dummy variables. That is, it reports

$$b_i^* = \left.\frac{\partial \Phi(xb)}{\partial x_i}\right|_{x=\bar{x}} = \phi(\bar{xb}) b_i \text{ for continuous variables and}$$

$b_i^* = \phi(\bar{x}_1 b) - \phi(\bar{x}_0 b)$ where $\bar{x}_0 = \bar{x}_1 = \bar{x}$ except that the ith elements of $\bar{x}_0$ and $\bar{x}_1$ are set to 0 and 1, respectively. dprobit also reports test statistics z_i based on the underlying coefficients b_i.

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[1] The 61st round survey has been conducted during the year 2004-2005. However, the data set was not yet available when this study was finalised.

[2] See Perspective Planning Division (1979).

[3] For specific numerical assumptions made in this connection, see Perspective Planning Division (1979), pages 5-7.

[4] This was also used by Bardhan (1973) and later, more widely, by other researchers.

[5] Chatterjee and Bhattacharya (1974) estimate that during 1963-64 the urban price level for all items, based on the Paasche index, was 14.7% higher than the rural price level. The same calculations, based on the Laspeyres index, give an urban level that was 16% higher than the rural one.

[6] Dubey and Gangopadhyay (1998b) have details on these debates. See Deaton and Tarrozzi (1999), Deaton (2003) for further details on this issue.

[7] STATA is a statistical and econometric analysis package that is specially suited for large scale data analysis.

Table 3.1: Sample Size (Number of Children Surveyed) by City Size and Gender

City Size	1983			1987-88			1993-94			1999-00		
	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls	Children
I	10,424	9,514	19,938	10,251	9,262	19,513	8,379	7,421	15,800	9,337	8,309	17,646
II	6,588	6,043	12,631	6,597	5,930	12,527	6,086	5,398	11,484	6,521	5,955	12,476
III	6,012	5,361	11,373	5,981	5,422	11,403	5,576	5,055	10,631	5,085	4,544	9,629
IV	3,901	3,550	7,451	4,129	3,916	8,045	4,280	3,759	8,039	4,533	4,200	8,733
All Urban	26,925	24,468	51,393	26,958	24,530	51,488	24,321	21,633	45,954	25,476	23,008	48,484
All Rural	59,168	53,034	112,202	62,146	54,943	117,089	45,290	39,708	84,998	49,041	43,624	92,665
All India	86,093	77,502	163,595	89,104	79,473	168,577	69,611	61,341	130,952	74,684	66,817	141,501

Note: City Size: I-Population less than 50,000, II- Population between 50,000-2 lakh, III-Population between 2-10 lakh, IV-Population above 10 lakh

Source: Special tabulation by the author using unit record data on Employment and Unemployment collected by the NSSO during 38th, 43rd, 50th and 55th rounds of surveys.

Table 3.2: Sample Size (Number of Children Surveyed) by State, City Size and Gender in 1983

States	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
APR	742	437	390	422	1,991	739	441	341	366	1,887	1,481	878	731	788	3,878
ASS	288	181	90		559	279	132	85		496	567	313	175		1,055
BIH	645	575	383		1,603	594	527	337		1,458	1,239	1,102	720		3,061
HAR	515	313	299	315	1,442	506	274	237	265	1,282	1,021	587	536	580	2,724
JHA	190	128	50		368	182	110	46		338	372	238	96		706
KAR	600	301	238	341	1,480	566	281	226	357	1,430	1,166	582	464	698	2,910
KER	442	164	209		815	429	174	209		812	871	338	418		1,627
MPR	831	539	615		1,985	739	459	562		1,760	1,570	998	1,177		3,745
MAH	697	594	563	1,232	3,086	614	503	451	1,119	2,687	1,311	1,097	1,014	2,351	5,773
ORI	264	172	148		584	201	171	154		526	465	343	302		1,110
PUN	424	247	418		1,089	406	193	325		924	830	440	743		2,013
RAJ	619	237	443		1,299	559	226	397		1,182	1,178	463	840		2,481
TND	725	725	240	491	2,181	679	706	279	463	2,127	1,404	1,431	519	954	4,308
UPR	1,381	734	1,001	165	3,281	1,241	694	869	184	2,988	2,622	1,428	1,870	349	6,269
WEB	450	616	292	332	1,690	385	598	272	288	1,543	835	1,214	564	620	3,233
OTH	935	58	633	603	2,229	778	57	571	508	1,914	1,713	115	1,204	1,111	4,143
NES	676	567			1,243	617	497			1,114	1,293	1,064			2,357
Urban India	10,424	6,588	6,012	3,901	26,925	9,514	6,043	5,361	3,550	24,468	19,938	12,631	11,373	7,451	51,393

Note:

i. As in Table 3.1
ii. The names of the states are abbreviated, for details, see Chapter 3, Section 3.2.
iii. OTH are Small States and Union Territories excluding smaller states of North Eastern Region.
iv. NES are North Eastern States including Sikkim but excluding Assam

Source: As in Table 3.1

Table 3.3: Sample Size (Number of Children Surveyed) by State, City Size and Gender in 1987-88

States	Boys					Girls					Children					
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
APR	603	464	447	386	1,900	577	501	433	389	1,900	1,180	965	880	775	3,800
ASS	434	194	43		671	350	130	40		520	784	324	83		1,191
BIH	685	569	464		1,718	575	417	416		1,408	1,260	986	880		3,126
HAR	432	309	329	321	1,391	363	288	288	273	1,212	795	597	617	594	2,603
JHA	169	199	19		387	129	145	18		292	298	344	37		679
KAR	562	289	212	352	1,415	590	272	222	340	1,424	1,152	561	434	692	2,839
KER	363	78	219		660	368	69	193		630	731	147	412		1,290
MPR	756	547	644		1,947	646	489	600		1,735	1,402	1,036	1,244		3,682
MAH	607	478	468	1,457	3,010	548	412	443	1,410	2,813	1,155	890	911	2,867	5,823
ORI	330	236	128		694	297	228	107		632	627	464	235		1,326
PUN	405	275	413		1,093	375	282	359		1,016	780	557	772		2,109
RAJ	546	229	453		1,228	476	196	392		1,064	1,022	425	845		2,292
TND	710	622	299	401	2,032	702	602	271	382	1,957	1,412	1,224	570	783	3,989
UPR	1,368	708	919	240	3,235	1,210	577	842	213	2,842	2,578	1,285	1,761	453	6,077
WEB	405	499	257	408	1,569	380	448	215	397	1,440	785	947	472	805	3,009
OTH	975	187	667	564	2,393	862	201	583	512	2,158	1,837	388	1,250	1,076	4,551
NES	901	714			1,615	814	673			1,487	1,715	1,387			3,102
Urban India	10,251	6,597	5,981	4,129	26,958	9,262	5,930	5,422	3,916	24,530	19,513	12,527	11,403	8,045	51,488

Note:

i. As in Table 3.1
ii. The names of the states are abbreviated, for details, see Section 3.2, Chapter 3.
iii. OTH are Small States and Union Territories excluding smaller states of North Eastern Region.
iv. NES are North Eastern States including Sikkim but excluding Assam

Source: As in Table 3.1

Table 3.4: Sample Size (Number of Children Surveyed) by State, City Size and Gender in 1993-94

States	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
APR	447	554	412	396	1,809	424	551	386	313	1,674	871	1,105	798	709	3,483
ASS	237	73	65		375	208	79	85		372	445	152	150		747
BIH	315	216	328		859	271	162	250		683	586	378	578		1,542
CHH	158	104	130		392	140	91	147		378	298	195	277		770
GUJ	285	260	146	499	1,190	293	255	96	439	1,083	578	515	242	938	2,273
HAR	126	220	76		422	84	167	85		336	210	387	161		758
JHA	193	109	345		647	182	85	275		542	375	194	620		1,189
KAR	399	324	332	270	1,325	414	310	276	267	1,267	813	634	608	537	2,592
KER	406	146	187		739	372	185	181		738	778	331	368		1,477
MPR	639	436	306	253	1,634	516	345	293	279	1,433	1,155	781	599	532	3,067
MAH	494	323	714	1,106	2,637	447	287	633	1,012	2,379	941	610	1,347	2,118	5,016
ORI	179	128	151		458	190	131	154		475	369	259	305		933
PUN	249	318	265	188	1,020	217	286	239	146	888	466	604	504	334	1,908
RAJ	430	287	225	147	1,089	329	253	207	103	892	759	540	432	250	1,981
TND	471	478	345	348	1,642	449	437	382	309	1,577	920	915	727	657	3,219
UPR	88	19	12		119	56	19	17		92	144	38	29		211
WEB	423	469	326	268	1,486	356	395	244	228	1,223	779	864	570	496	2,709
OTH	1,691	907	1,211	805	4,614	1,450	724	1,105	663	3,942	3,141	1,631	2,316	1,468	8,556
NES	1,149	715			1,864	1,023	636			1,659	2,172	1,351			3,523
Urban India	8,379	6,086	5,576	4,280	24,321	7,421	5,398	5,055	3,759	21,633	15,800	11,484	10,631	8,039	45,954

Note:

i. As in Table 3.1

ii. The names of the states are abbreviated, for details, see Section 3.2, Chapter 3

iii. OTH are Small States and Union Territories excluding smaller states of North Eastern Region.

iv. NES are North Eastern States including Sikkim but excluding Assam

Source: As in Table 3.1

Table 3.5: Sample Size (Number of Children Surveyed) by State, City Size and Gender in 1999-00

States	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
APR	415	585	316	643	1,959	401	491	302	543	1,737	816	1,076	618	1,186	3,696
ASS	265	73	65		403	211	78	63		352	476	151	128		755
BIH	330	352	224	106	1,012	305	290	177	73	845	635	642	401	179	1,857
CHH	185	106	125		416	165	88	105		358	350	194	230		774
GUJ	406	404	149	439	1,398	345	343	131	396	1,215	751	747	280	835	2,613
HAR	135	230	71		436	121	193	58		372	256	423	129		808
JHA	255	184	183		622	177	164	190		531	432	348	373		1,153
KAR	464	322	230	157	1,173	393	283	211	157	1,044	857	605	441	314	2,217
KER	426	141	186		753	444	176	171		791	870	317	357		1,544
MPR	659	463	277	212	1,611	568	391	243	216	1,418	1,227	854	520	428	3,029
MAH	499	374	726	974	2,573	492	332	675	962	2,461	991	706	1,401	1,936	5,034
ORI	232	187	81		500	215	150	71		436	447	337	152		936
PUN	290	281	261	152	984	209	264	187	131	791	499	545	448	283	1,775
RAJ	453	344	325	148	1,270	391	297	280	134	1,102	844	641	605	282	2,372
TAM	490	441	173	382	1,486	492	447	164	349	1,452	982	888	337	731	2,938
UPR	1,342	605	726	639	3,312	1,107	541	707	616	2,971	2,449	1,146	1,433	1,255	6,283
WEB	336	434	215	285	1,270	332	454	185	261	1,232	668	888	400	546	2,502
OTH	1,005	362	752	396	2,515	896	371	624	362	2,253	1,901	733	1,376	758	4,768
NES	1,150	633			1,783	1,045	602			1,647	2,195	1,235			3,430
Urban India	9,337	6,521	5,085	4,533	25,476	8,309	5,955	4,544	4,200	23,008	17,646	12,476	9,629	8,733	48,484

Note:

i. As in Table 3.1

ii. The names of the states are abbreviated, for details see section 3.2, chapter 3.

iii. OTH are Small States and Union Territories excluding smaller states of North Eastern Region.

iv. NES are North Eastern States including Sikkim but excluding Assam

Source: As in Table 3.1

CHAPTER 4

STATISTICAL PROFILE OF CHILD LABOUR IN INDIA

4.1 Introduction

Child labour is a significant problem in India. In absolute numbers, child labour is most prevalent in Asia, with India as one of the main contributors. In this chapter, we have discussed at length, the extent of child labour in the urban sector of India. The magnitude of child labour, in the urban sector, is captured by disaggregating the urban sector into four city sizes. Given our data set, the study has been carried out at two levels, all India level and state level. Each of these levels is, in turn, is disaggregated into four city sizes based on the population of the cities.

In each of these city sizes the incidence of child labour is estimated for the working children in the age group 5 to 14 years. To estimate the working children across city sizes we have considered the children working both in principal and subsidiary status. The activity status by which we have determined children in the labour force is discussed in chapter 3. The ratio of the working children to the child population of the age group 5 - 14 years gives us the incidence of child labour at various levels.

The rest of this chapter is organized in the following manner. The next section looks into the magnitude of child labour in India. Section 4.3 examines the disparities among social groups that affect the incidence of child labour. Section 4.4 deals with the extent of child labour in different states across city sizes. Section 4.5 examines the nature of occupations children are involved in. Section 4.6 concludes the chapter.

4.2 The Magnitude of Child Labour in India

The wide extent of child labour in India is very much evident from the various estimates carried out from time to time. In table 4.1 we have shown the proportions of child labour at various disaggregate levels. The table gives the sectoral classification of the estimates of child labour for the four periods, i.e., 1983, 1987-88, 1993-94 and 1999-00. The urban sector is further classified into four city sizes based on the population. The table also gives a gender classification of the estimates of child labour in India.

It is apparent from the table that the proportion of child labour in India is notably high. However, the proportion of child labour, which was exceedingly high in 1983, gradually declined over the years. For instance in 1983, 11 percent of the children were labourers, which came down to 4 percent in 1999-00. This reduction of child labour has been an outcome of various measures taken by the government of India. However, these measures could not sweep off the child labourers from our society. Despite the acceptance of international standards and commitments on restricting the use of child labour, the existence of a national child labour policy, wide-spread national and state level laws and regulations, children are still engaged in work, often under hardship or hazardous conditions. It deprives them of their childhood and their dignity, and is detrimental to their health, education, and more importantly, in developing capabilities and availing opportunities as normal individuals in the society.

The rural sector dominates the child labour scenario. The socio-economic conditions in the rural sector are worse off than that in the urban sector, which compels the children in the rural areas to enter the labour market. Compared to 5

percent children of the rural sector, only 2 percent of the urban children are labourers in 1999-00. The gender gap in the proportion of child labour is not much evident in the rural sector as it is in the urban sector. This implies that both boys and girls in the rural sector are induced to work. Consequently, a large part of the theoretical and empirical literature on child labour in India concentrates on the rural sector. Cigno and Rosati (2002b) in a study on rural India observed that inaccessibility of schools appears to affect the child birth rate and the morbidity and mortality rate adversely. An increase in the survival probability reduces the incidence of child labour. Therefore, detrimental health conditions and inaccessibility of schools in the rural areas are the main factors leading to child labour. Further, low adult wage rate and lack of alternative employment opportunities also drive the children into the labour market.

It is noticeable from the table that there is a sharp decline in the proportion of child labourers in the rural sector, from 13 percent in 1983 to 4.7 percent in 1999-00. This evidently shows a movement towards the right direction. However, it has been observed that, though the incidence of child labour in rural India has declined, both relatively and absolutely, but the type of economic activity in which, children are engaged shows a disturbing pattern. While the percentage of child labourers in self-employed activities and regular salaried jobs has declined, casual wage employment has increased. Therefore, the measures taken are not adequate to bring about a qualitative change in the incidence of child labour in the rural sector.

However, in this study, we have concentrated in the urban sector, which have limited empirical findings. Since 1961 there has been a fast trend towards urbanization. The increasing urbanization is associated with development. In the

process of development, there is an expansion of Social Overhead Capital. This includes development of educational and health centres, expansion of employment opportunities etc. These factors are presumed to reduce the incidence of child labour. However, despite the presence of these factors, about 2 percent of the children (1999-00) are labourers in the urban sector, of which nearly 3 percent are boys and approximately 2 percent girls. Though in our estimate, it is evident that child labourers in the urban sector have shown a sharp decline, but to completely eliminate child labour much more needs to be done. Therefore, to analyse the cause of child labour in the urban sector we have classified the entire urban sector into four city sizes on the basis of population.

The schedule of child labourers show that the proportions of child labour decreases with the increase in the city size. In 1983, the proportion of child labour in city size I was about 6 percent, while in city size II and city size III, it was less by 1 percentage point. In city size IV, the proportion of child labour was almost 3-percentage point less than that in city size I. The trend continued in 1987-88, where about 5 percent of the children were labourers in city size I while the corresponding proportion in city size II and III was near about 4 percent. It was further lower in city size IV at about 3 percent. Again, in 1993-94, the period of high growth economy, observed a sharp reduction in the incidence of child labour but the disparity in the four city sizes continued. In 1999-00, the incidence of child labour is merely 1-2 percent in city size IV, while in the lower city sizes it ranged from 2 percent to 3 percent.

Figure 4.1 illustrates graphically the proportion of child labourers in four city sizes covering the period 1983 to 1999-00. Two points can be drawn from the figure:

(a) There is a gradual decline in the proportion of child labourers as one move from the smaller city sizes to the larger city sizes in the entire period, 1983 to 1999-00. The bar representing the proportion of child labour in city size I exceed that of the other three city sizes.

(b) In the entire period, from 1983 to 1999-00, the proportion of child labourers steadily decreased. Furthermore, this decrease is noticed in all the four city sizes.

The incidence of child labour is not the same at all ages from 5 years to 14 years. This is because at a lower age, children cannot be productively used in any kind of wage work. Children below 10 years are primarily used in household work, which are rarely reported. As they grow older, they are more prone to exploitation. In tables 4.2 to 4.5 we have shown the proportion of children working in the age group 5-14 years in the four periods of surveys. The same analysis is also shown through line graphs shown in the figures 4.2 to 4.5. This analysis elucidates further why there is a need to study child labour in the urban sector.

The table 4.2 illustrates the difference in the proportions of children in the labour market in different ages ranging from 5 to 14 years in 1999-00. Here we observe that, the probability of the child to join the work force increases steadily by an additional year in the age of the child. In 1999-00, less than 1 percent of the children below 10 years are in labour market in the urban sector. At the age of 10 to 11 years, little above 1 percent of the children enters the labour market. As the age of the child increases to 12 years, around 4 percent of the children enter the labour market and then it steadily increases at every age. Nearly 9 percent of the children of 14 years in 1999-00 are in the labour market.

Considering the gender-wise classification for child labourers in different age we notice an equally high proportion of both boys and girls in the labour market at the age of 14 years. Nearly, 11 percent boys and 7 percent girls of 14 years are noticed in the labour market in 1999-00. In the same year, at the age of 12 to 13 years, about 12 percent and almost 7 percent of the boys and girls respectively are in the labour market.

The estimation of child labour in the four city sizes in different ages captures the enormous extent of child labour in the urban sector. Huge chunk of child labourers at the age of 14 years are concentrated in the lower city sizes. In 1999-00, we observe that near about 11 percent of children at the age of 14 years are noticed in the labour market in city size I. The corresponding proportion in city size III and IV ranges from 7 percent to 8 percent. Again, in all the city sizes, the proportion of child labour steadily increases with the increase in the age of the child. Irrespective of city sizes, more children enter the labour market after the completion of 12 years of age, though the increase is more rapid in the lower city sizes.

If we consider the boys of 14 years of age in the labour market, we find that about 14 percent of the boys in city size I are in the labour force. On the other hand, proportion of boys working in city size IV is almost half the proportion of child labourers in city size I. Similarly, girls of 14 years of age have a very high participation in the labour market in city size I (7.83 percent) while it is almost 2 percent less in city size IV.

The analysis is also carried out for the other three periods, i.e., 1983, 1987-88 and 1993-94. Table 4.3 gives the analysis for the year 1983. In 1983, almost 17 percent of the children at the age of 14 years were in the labour market. Interestingly

in 1983, even at age of 10 to 11 years, the proportion of child labour ranged from 5 percent to 6 percent. However, below 10 years, lesser proportion of children participated in the labour market. The proportion of boys in the labour market was higher than that of the girls at all ages irrespective of the city sizes. Incidence of child labour in the lower city sizes in this period was strikingly high. For instance, in 1983, remarkably large proportion of boys, covering 23 to 24 percent were seen to be working at the age of 14 years in city size I. Equally high was the proportion of girl child labourers at the age of 14 years in city size I (15 percent). In the city size IV, for both boys and girls, the proportion of child labour was less by almost 7 to 8 percentage points.

Moving on to 1987-88 shown in table 4.4, nearly 13 percent of the children at the age of 14 years participated in the labour market. The proportion of child labour started increasing steadily from nearly 4 percent at the age of 10 years, below which the proportion of child labour was less than 1 percent. Yet again, 16 percent of the boys and more or less 10 percent of the girls at the age of 14 years were child labourers in 1987-88. Both boys and girls working at the age of 14 years are very high in the lower city sizes. For instance, nearly 19 percent boys and about 13 percent girls of 14 years of age were reportedly workers in city size I.

We have pointed out earlier, that starting from the period 1993-94 there is a steep decline in the incidence of child labour. Though the overall estimate of child labour in 1993-94 is very low but figuring out the proportion of child labour in different age, child labour at the age of 14 continues to be high and more so if we look into the smaller city sizes. Table 4.5 gives the analysis of children working in different ages in the year 1993-94. We observe that in 1993-94, about, 9 percent of

the children at the age of 14 years were labourers. At this age, about 11 percent of the boys and 7 percent of the girls were in the labour market. In city size I, at the age of 14 years, almost 13 percent of the boys were in the labour market compared to 10 percent of the same in city size IV. Similarly, more than 8 percent of the girls at the age of 14 years were in the labour market in city size I while 5 percent of them were in city size IV.

Thus, in the urban sector incidence of child labour increases beyond 10 years of age. This is contrary to what we see in the literature reporting on the rural sector where child labour is exceedingly high even at five years of age of a child. In almost the entire period from 1983 to 1999-00, the incidence of child labour at 5 years of age is zero.

Figure 4.2 to figure 4.5 illustrate the tables in a visual form. In the figure, the horizontal axis measures the age of the child while the vertical axis measures the proportion of child labourers. The four curves indicate the proportion of child labour in different ages ranging from 5 years to 14 years in the four city sizes. The following points can be noted from this analysis.

a) The curves rise upward from left to right indicating a direct relationship between the age of the child and the proportion of child labourers. The upward rising curve substantiates the fact that the probability of entering the labour market increases with the increase in the age of the child.

b) The four curves reflecting the incidence of child labour in the four-city sizes overlap one another at a lower age, but as the age of the child increases, the curves move apart from one another. This indicates that

the differential incidence of child labour across city size is noticed beyond a certain age. However, the age at which the curves move apart differ in the four-time period. For instance, in 1983, the curves move apart after 8 years of age but in the later period, i.e., in 1999- 00, the differential incidence is noticed after 10 years.

c) The curve-indicating incidence of child labour in city size I is at the highest, that is followed by that in city size II, III and IV. Such a sequence of one following the other is more perceptible at the higher age of the child, i.e., for 14-year-old children.

Thus, it can be concluded that larger proportion of child labour is noticed in the lower city sizes across time and age compared to that of the larger city sizes. However, with time the difference in proportion of the two extreme city sizes narrowed down to an insignificant figure. For instance, in 1983 there was nearly 3 percentage point difference in the proportion of child labour in city size IV and city size I, but in 1999-00, the difference in the two city sizes lessened to less than 1 percentage point. The declining influence of city sizes on child labour can be possibly explained by the government initiative to uplift the backward economies.

4.3 The Magnitude of Child Labour by Social Group

India is a country with diverse cultures and languages. Certain sections of the population in this country have a long history of deprivation and exploitation. The socially disadvantaged groups of the society that we are considering in this study, Scheduled Castes (SCs) and the Scheduled Tribes (STs) were traditionally and historically deprived of their basic rights albeit for different reasons. Access to

education and employment opportunities were far from their reach. After independence, the Indian Constitution made provisions that made India to be a welfare state with the principle of equality and justice to all. Special provisions were made to safe guard and actively promote the welfare of weaker sections, i.e., SCs and STs. Special incentives have been provided by the constitution to these social groups as far as access to education and employment opportunities was concerned. Under Article 46 of the constitution, the State is obliged to promote with special care the educational and economic interests of the weaker sections of the people. In particular, the Constitution pledged to protect STs and SCs from social injustice and all forms of exploitation. It is therefore, worth seeing, whether the proportions of child labour differs among different social groups of India. The children of the socially disadvantaged groups, i.e., STs and SCs are compared with Others in this analysis.

The comparative analysis of the three social groups pictured here shows that the social discrimination starts at a very early age. The ST children stricken by poverty are more prone to join the work force at an early age compared to the other two social groups. The ST children in almost all the city sizes have a higher participation in the work force than that of the SCs and Others. However, in the recent years, ST children in the labour market have gone down significantly.

Table 4.6 gives the extent of child labour by social groups in the four periods, i.e., 1983, 1987-88, 1993-94 and 1999-00 across city sizes. Starting with the, in 1999-00, we find that, the disparity among the three social groups in terms of child participation in the labour market is not that obvious if we consider the overall urban child labour proportion. However, if we classify the urban sector into four city sizes,

the difference in proportion of child labour among the three social groups is noticed in some city sizes, particularly in the lower city sizes, where the incidence of child labour among the ST children are the highest compared to that of the SCs and Others. For instance, in city size II, more than 4 percent of the ST children are in the labour market compared to 2-3 percent of children among the SCs and Others. In the other city sizes, i.e., I, III and IV more of SC children are in the labour market compared to that of STs and Others. Thus, in both the cases we find that the children of the socially disadvantaged groups, either, the STs or the SCs participate more in the labour market.

Looking into the gender classification of child labourers by social groups, we notice that girls belonging to the socially disadvantaged groups have a higher probability of entering the labour market at an early age compared to that of others. Girl child labourers among the Others household is only 1.5 percent compared to almost 3 percent among the STs and the SCs. Girl child of the socially advantaged households are not only better off than the girls among the STs and SCs but are also better off than the boys of the same social group. There is almost 2 percentage points difference in the proportion of boys and girls belonging to the socially advantaged groups participating in the labour market. Besides, girl child labourers among the Others are consistently low in all the city sizes. On the other hand, ST girls are often seen more in the labour market than that of the ST boys, particularly, in the lower city sizes. For instance, in city II, almost 6 percent of the ST girls are child labour while 2 to 3 percent boys of the same are in the labour market. Larger participation of girls in the labour market among the STs is also seen in other city sizes with an

exception in city size IV. Again, girl child labourers among the SCs are also higher than that of the boys in all the city sizes of the urban sector.

The current analysis, therefore, pictures the disparity among social groups in terms of children in the labour market, particularly in the lower city sizes. However, the difference in proportion among the three social groups is not large enough as it was in the earlier period. In the year 1983, child labour among the socially disadvantaged groups was massive but as we move on from one period to another, we find a steady decline in the incidence of child labour. By 1999-00, the disparity among social groups in the entire urban sector is no longer noticed but the disparity still remains in the lower city sizes as more children of the socially disadvantaged groups are seen in the labour market.

In 1983, we find the widest extent of disparity among the social groups, in terms of their children in the labour market. In 1983, the proportion of ST children in the labour market was more than 9 percent while 5 to 6 percent of the children belonging to the SCs and Others entered the labour force. The difference in proportion of child labourers among the three social groups was relatively less in the larger city sizes while it widened in the smaller city sizes. In city size I, participation of the ST children in the labour market was almost 7 percentage points higher compared to that of the SCs and Others. Again in city sizes II and III, a similar trend is noticed where more ST children are in the labour market in relation to the children among SCs and Others. On the contrary, in city size IV, less than 3 percent of the ST children were in the labour market while the proportions of child labour among the SC's and others in city size IV was around 4 percent. In 1983, therefore, we find that

the STs were the worse off among the three social groups as relatively more children of the same entered the labour market.

In the year 1983, contrary to 1999-00, we find that the boys among all the three social groups had a higher participation in the labour market compared to that of the girls. For instance, almost 15 percent of the ST boys were in the labour market in city size I in 1983 compared to 8 percent of the ST girls. In the larger city sizes the gender gap among the ST children was not very high. Among the SCs and Others the gender gap was perceptible in all the city sizes with more boys participating in the labour market.

In 1987-88, we find that children among the Others had the least proportion of child labourers compared to both STs and SCs. The STs had the highest incidence of child labour in 1987-88 with almost 7 percent of the boys and 4 percent of the girls being in the labour market. Nevertheless, the decline of the ST children in the labour market since 1983 to 1987-88 was most noteworthy. ST boys in the labour market decreased by almost 6 percentage points and that of girls by 3 percentage points in the 5 to 6 year period. However, the SC children, though lesser in proportion than that of the STs, did not experience a significant decline in the labour market in this period. Children among the Others, which constituted the least proportion in both the periods i.e. 1983 and 1987-88, listed a decline of about 1 to 2 percentage points.

In the period, 1983 to 1987-88, we find that the overall decline in child labour is followed by the decrease in child labour of all the three social groups. However, the decrease in the incidence of child labour in the four city sizes did not follow the same pattern among the three social groups. For instance, among the Others,

proportion of child labour decreased almost uniformly in all the city sizes. On the contrary, among the SCs and STs the proportion of child labour decreased only in the lower city sizes while in city size IV the proportion of child labour among the STs and SCs increased. For instance, in city size I, the ST children from the labour market decreased by almost 7 percentage points which is made up with an increase of 7 percentage points in city size IV. In the other city sizes, i.e., II and III, the proportion of ST child in the labour market decreased by 2 to 3 percentage points. The pattern is almost similar for the SC children in the labour market but the change is not as drastic as that in case of STs. Also looking into the gender classification, both boys and girls among the STs have a higher participation in the labour market compared to that of the SCs and Others.

Extending our analysis to 1993-94, we find that the decline in the proportion of child labour among the three social groups continued in this period as well. In this period, the decline in child labour is steeper among the ST children. For instance, in the period 1987-88 to 1993-94, the proportion of ST children in the labour market decreased by 2 percentage points. In this period, SC children in the labour market, decreased by 1 percentage point while children among others decreased by less than 1 percentage point. Looking into the four city sizes, we find an obvious decline in the proportion of child labourers in all the four city sizes and also for the three social groups. However, the proportion of ST children in the labour market in city size IV continued to be high, with more than 5 percent of the ST children in city size IV being in the workforce while children among SCs and Others in the labour market in city size IV ranged between 1 to 2 percent.

In 1993-94 the disparity among the social groups in terms of child labour lessened, particularly, among the boys. For instance, there was only 1 percentage point difference in the proportion of child labour among the boys of STs and Others. However the ST girls even in 1993-94 had a very high incidence of child labourers. Around 5 percent of the ST girls were in the labour market compared to merely 2 to 3 percent of the girls among the SCs and Others. Interestingly the STs, which had the highest proportion of child labourers till 1993-94, decreased considerably in 1999-00 to around 2 to3 percent among the ST boys and 3 to 4 percent among ST girls and they constituted the least proportion of child labourers. SCs in this period had the highest proportion of child labour with almost 4 to 5 percent of them being in the labour market.

This analysis shows that in the initial period, i.e. from 1983 to 1987-88, more children among the socially disadvantaged groups were attracted to the labour market in the larger city size, but with the expansion of time period the excess children irrespective of any social groups were pulled out of the labour market. Further, we also find that the disparities among social groups in terms of child exploitation narrowed down to a great extent for the entire period from 1983 to 1999-00. However, this analysis points out that though the incidence of child labour decreased and the disparity among the social groups is also largely reduced in the entire urban sector, but in lower city sizes disparity continues. This is evident as we find more children of the socially disadvantaged groups entering the labour market at an early age in city size I.

4.4 The Magnitude of Child Labour in Different States of India

In the earlier section we have noted the differential incidence of child labour in the four city sizes. The trend over the last two-decade suggests that the incidence of child labour declined, but the disparity in the four city sizes remained. The analysis at the aggregate level does not picture the diversity that is there in India. In this section we have carried out a similar analysis for the states and union territories. For this analysis at the disaggregate level, we kept in mind the limitation of the data. To estimate the incidence of child labour across city sizes in different states of India we have used the sample survey data collected by the NSSO. The sampling design of the NSSO is such that the households in states are selected based on population size called PPS (Probability Proportion to Size). The population in the states ranges from less than a million in smaller states like, Mizoram and union territories like Lakshadweep to over 130 million in bigger states like Uttar Pradesh.

The population size of the states has a bearing on the number of households selected for survey by the NSSO. For example, in Uttar Pradesh, the number of households selected for survey is over 10,000, whereas in Lakshadweep and smaller states, it is just about 250. Clearly, the smaller sample size is constraint in getting reliable estimate. The second constraint is constant reorganisation of states and union territories. Yet another problem related to working with NSS data at the disaggregated level is inability of the NSSO to collect data from troubled states like Jammu and Kashmir. The security concerns prevent collection of desired information from the selected analysis.

In order to carry out analysis at the state level, one has to take into account these factors. Therefore to avoid any misrepresentation in the smaller states we have

clubbed these states into one single unit. For instance, the northeastern states inclusive of Mizoram, Meghalaya, Nagaland, Tripura, Arunachal Pradesh, Manipur and Sikkim are clubbed together to represent the incidence of child labour in the northeastern states. The 17 major states with sufficiently large sample size are considered individually for the analysis. These 17 states are, Andhra Pradesh (APR), Assam (ASS), Bihar (BIH) Chattisgarh (CHH), Gujarat (GUJ), Haryana (HAR), Jharkhand (JHA), Karnataka (KAR), Kerala (KER), Madhya Pradesh (MPR), Maharashtra (MAH), Orissa (ORI), Punjab (PUN), Rajasthan (RAJ), Tamil Nadu (TND), Uttar Pradesh (UPR), West Bengal (WEB). There are statistical tests, e.g. estimated standard errors that one can use to have a feel of the reliability of the estimates obtained from the sample survey data. It turns out that estimated standard errors stabilize if sample size approaches around 200 households. We have more or less applied this rule of thumb to identify the states in which the analysis can be carried out individually. The remaining small states and union territories with a small sample size are again clubbed together to form a single unit. The analysis is carried out in different city sizes of the urban sector.

Table 4.7 reports working children in different states across city sizes in 1999-00. It is apparent from the table that Andhra Pradesh shows a very high proportion of child labour. In 1999-00 around 5 percent of boys and 3 percent of girls are reportedly workers in Andhra Pradesh and it constitutes the highest proportion of child labour among all the states in the country. Next to Andhra Pradesh is Uttar Pradesh, which also has a significant proportion of its children working. It is noted that in Uttar Pradesh, in the same year, almost 5 percent boys in the age group 5-14 years are in the labour market. However, girl child labourers in Uttar Pradesh are

relatively low amounting to merely 1.5 percent. Equally high is the proportion of child labourers in Karnataka, Assam, Chhattisgarh etc. In almost all the states in the country the incidence of child labour is around 3 to 4 percent. However, in a few states, like Kerela and the northeastern states, the proportion of child labourers for both boys and girls is less than 1 percent. This analysis, therefore, shows that child labour in India is wide spread and its prevalence is seen in almost all the states of the country.

In the major states we observe that a large chunk of child labourers are concentrated in the smaller city sizes. In 1999-00, in Andhra Pradesh, the incidence of child labourers among boys are around 5-6 percent and among girls 4-5 percent in the smaller city sizes. In the larger city size of Andhra Pradesh around 3-4 percent boys and less than 1 percent girls are child labourers in 1999-00. In the same way, a similar trend is noticed for almost all the states in the country. States like Chhattisgarh, Haryana, Karnataka, Punjab, Rajasthan and West Bengal have an exceedingly high proportion of child labourers in the smaller city sizes while it is relatively low in the larger city sizes. On the other hand, Kerela, Madhya Pradesh, Maharashtra, northeastern states and other small states and union territories account for a small proportion of child labourers in almost all the city sizes.

In the previous rounds of surveys we find a considerably huge proportion of children in the labour market in almost all the states of the county. In table 4.8 the proportion of child labour in different states in the year 1983 is shown. In 1983, the proportion of child labour in Andhra Pradesh was exceedingly high with over 11 percent of the boys and 5 percent of the girls participated in the labour market. Interestingly, the proportion of boy child labourers in Andhra Pradesh was equally

high in all the city sizes with the proportion ranging from 10 percent to 12 percent. Equally, high was the proportion of child labour in Tamilnadu, where about 9 percent of the boys and almost 6 percent of the girls participated in the labour market. In Tamilnadu, however, a huge chunk of child labourers was from small city sizes. For instance, the proportion of boys working in city size I was more than 14 percent but it was merely 4 percent in city size IV. Again, the proportion of boy child labourers in states like Karnataka, Uttar Pradesh, Bihar, Haryana, Orissa, Punjab and Rajasthan ranged between 6 to 8 percent. Northeastern states constituted the least proportion of child labourers with around 1 percent of the boys in these states were in the labour market.

The difference in incidence of child labour in different city sizes was also evident in most of the states. However, the difference in proportion was larger in some states compared to that of the others. For instance, in Rajasthan, Haryana, Jharkhand, Maharashtra, Punjab etc, the difference in proportion of child labour across city sizes is clearly perceptible.

In some of the states, girl child labourers also accounted to be very high. For instance, in states like Rajasthan, West Bengal and Karnataka the proportion of girl child in the labour market exceeded 5 percent. However, in most of the states proportion of girl child labourers was less than that of the boys with an exception of Rajasthan. This gender difference in Rajasthan shows that girls are more prone to exploitation than that of boys. However, low proportion of girl child labourers in other states does not necessarily mean that girls are more protected than boys. For instance, around 1 percent of the girls, were seen in the labour market in Uttar Pradesh compared to more than 5 percent of the boys. Low proportion of girl child

labourers in these states is probably due to under-reporting or more use of the girls in domestic activities.

In 1987-88 the proportion of child labour declined in almost all the major states of the country. Table 4.9 illustrates the proportion of child labourers in different states in the year 1987-88. Barring Karnataka and Tamilnadu, in the other states, proportion of child labour decreased significantly. The two main states, i.e., Andhra Pradesh and Karnataka in 1987-88 had 8 percent of boy child labourers and 6 percent of girl child labourers. The proportion of child labour in Rajasthan was also notably high as almost 5 percent of the children were in the labour market. In this period, girl child labourers in Rajasthan, similar to that of the 1983 survey had a significantly large share in the labour market. This difference is noticed in almost all the periods, which is an exception compared to the other states where boys in the labour market are more than that of the girls. In states like West Bengal, Uttar Pradesh, Haryana, Orissa, Punjab and Assam the proportion of child labourers ranged from 3 percent to 4 percent. In other states the proportion of child labour in the same period was around 2–3 percent. Another, important observation in 1987-88 was high proportion of child labourers in the northeastern states. In 1983, northeastern states accounted for less than 2 percent of child labourers but in 1987-88, the proportion significantly increased to above 4 percent. While most of the states were experiencing a decline in child labourers in the 4-5 year period, northeastern states had a steep increase in child labourers. However, in the current analysis, i.e., in 1999-00, the proportion of child labourers in the northeastern states has again gone down to an insignificant figure.

In the following period in 1993-94, the overall decline is obvious for all the states in the country across city size and sex. Table 4.10 illustrates the proportion of child labourers in the different states in the period 1993-94. In this period, the proportion of child labourers in Andhra Pradesh was remarkably high with a disparity in the proportion of child labour across city sizes. In 1993-94, where about 7 to 8 percent of the children in the lower city sizes were child labourers, the proportion in the larger city size remained very low at merely 1.74 percent. In this period, West Bengal had a sufficiently large proportion of child labourers with almost 6 percent of the children being in the labour market. Again, states like Assam, Madhya Pradesh and the northeastern states had a sufficiently large proportion of children in the labour market, all exceeding 3 percent. In the other states, the proportion of child labour went down to 1 to 2 percent, which signifies a steep decline since 1983.

The differential incidence of child labour across city sizes is palpable in some states of the country like Andhra Pradesh, Madhya Pradesh, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, and also the northeastern states. Only few states in the country do not show any differential incidence of child labour across city sizes.

Thus, the disaggregate analysis at the state level picture the differential incidence of child labour across city sizes. In the aggregate analysis, though we found an overall decline in the incidence of child labour, but considering some of the states in the country, only for the urban sector, we find that a lot more needs to be done to eradicate child labour totally. Some of the states like Andhra Pradesh, Tamilnadu, Uttar Pradesh and Karnataka in all the periods spell out a huge proportion of child labourers. The most noteworthy observation at this level of

analysis is that the states where proportion of child labour is very high, is largely due to the lower city sizes. Another point of concern is the northeastern states where the proportion of child labour increased for the entire period, i.e., 1983 to 1993-94, while it was declining for all the major states.

4.5 The Nature of Child Labour

Children in India are often stated to be working in hazardous condition and are employed in various forms of occupation. It has been ascertained by various researchers that the demand for child labour is in specific jobs that require long continuous hours of work or hazardous working conditions. These jobs are normally associated with higher adult reservation wages to allow for the docility and flexibility. Further, it is also realized that the inferior technology industries where high profit margin is entirely sustained by keeping the wages at a low level will employ more children (Padhi, 2004). The nature of work done by the children in India is of serious concern. Children perform a variety of jobs: some work in factories, making products such as carpets and matches; others work on plantations, or in the home. Rosati and Rossi (2003) stated that the number of hours spent working is not only important in itself as a measure of child welfare but is also essential for evaluating the cost of work in terms of health and capital accumulation.

For analyzing the different occupations of the children working we have used 2 digit-level NCO codes based on the National Classification of Occupations, 1968. In table 4.11, we state the main occupation of the children by city size in 1999-00. It is apparent from the table that the large proportion of children is used in domestic work. Nearly 9 percent of the working children are maids or involved in other

housekeeping services. Next in proportion are the machinery fitters where about 8 percent of the children are involved in this activity. A considerable proportion, i.e., 6-7 percent of the children is also seen working in shops as shopkeepers or as salesman. Besides this, a good proportion of the children are also engaged in tailoring and other spinning activities.

Classifying the nature of work of children in different city sizes we find that there is wide disparity in the nature of work done by the children in the four city sizes. In city size IV, more than one fourth of the children are engaged in domestic duties as maids or other services. In the lower city size, i.e., in city size I, the proportion is much below covering only 4 percent of the working children. Even in city sizes II and III, children involved in domestic duties are around 6 to 8 percent, which is much below than that in city size IV. Substantial proportions (13.27 percent) of the children in city size IV are also engaged in mining or construction activities. The proportion of children in other city sizes of the same group is very low hovering around 1 percent. In city size III, large proportions (12.18 percent) of the children are shopkeepers. In city size II, significant proportions of the children are machinery fitters (15.34 percent) or salesman (12.18 percent). In city size I, children are engaged in diverse forms of occupations. Therefore the proportion of children working in any one occupation group is not as significant as that in other city sizes. Compared to the other occupation groups in city size I, children are more seen in farming operations, i.e., they work as cultivators (8.46 percent) or as agricultural labourers (7.33 percent).

Classifying the child labourers into males and females we find a significant difference in the nature of work done by them. Large proportions of girls are found

to be working as maids or in other domestic services. More than 17 percent of the girl child labourers are engaged as maids or involved in domestic activities. A significant proportion of the girls are seen working as tobacco preparers (10.03 percent). Also, more than 8 percent of the girl child labourers are spinners or weavers. A good deal of the girl child labourers are also seen working as cultivators or agricultural labourers, tailors and also involved in production related work as bricklayers and other related work.

However, the employment of girl child in different activities, differ in the four city sizes. For instance, in city size IV, almost 35 percent of the girls are engaged in domestic duties as maids or other housekeeping services. Equally high is the proportion of girls engaged in managerial services (31.21 percent) in city size IV. On the other hand, girls in the lower city sizes are not primarily engaged in any one form of work. In city size III, about 17 percent of the girls are engaged in domestic duties. More than 10 percent of the girls in city III are also tobacco makers and bricklayers. Girls working as domestic workers in the lower city sizes are lower than that in the large city sizes. For instance, 8 percent of the girl child labourers in city size I are domestic workers, which is lower than that of city size II and III by 8 percentage points. On the other hand, girls engaged as tobacco makers is very high in city size I (14.53 percent). A significant proportion of the girl child labourers are also spinners and weavers (11.16 percent) in city size I. Almost 13 percent of the children are also agricultural labourers in the same city size.

For boys the type of work is very different from that of girls because they often work long hours doing hard physical labour outside the home for very small wages. In 1999-00, the proportion of boys working as machinery fitters (12.88

percent) is the highest. Around 9 percent of the boys also work in shops as shopkeepers or salesman and a similar proportion of boys also work as labourers.

Looking into the city size classification, we find that in city size IV, larger proportion of the boys are engaged in domestic services (14.70 percent) while boys in this occupation groups is less than 1 percent in city size I and II. In city size II and III, significant proportions of the boys work outdoors, either in the shops, or as labourer. In city size I, large proportion of the boys are engaged in farming operations.

The nature of work done by the children in the period 1983 to 1993-94 are also shown in tables (4.12 to 4.15). In this period the varying nature of work done by the children in the four city sizes are noticed which gives almost a similar picture as that of the current period. While we find that the proportion of child labour in farming and other agricultural activities in the period 1983 to 1999-00 has gone down but children working as maids particularly among girls have increased significantly from 12.58 percent in 1983 to 17.54 percent in 1999-00. Further, proportion of boys at a tender age, working in construction or in machinery activities have also increased sharply in the same time period. Boys in machinery activities have increased from 3.35 percent in 1983 to 12.88 percent in 1999-00. The increase is very significant in the larger city sizes. Again the proportion of boys involved in construction activities has increased rapidly from 2.76 percent to 6.31 percent in the same period. If we compare the other two periods, i.e., 1987-88 and 1993-94 we see that in these occupation groups, like, maid and construction activities, proportion of children have steadily increased. The increase of child labourers in these occupation groups is however uniform in all the city sizes. This implies that irrespective of city

sizes, children are now more involved in such activities which are more casual in nature.

4.6 Conclusion

In this chapter we have seen the differential incidence of child labour across city sizes at the all India level as well as in the different states of the country. The analysis clearly shows that the incidence of child labour in the lower city sizes is higher than that in the larger city sizes. Further, the incidence of child labour among the socially disadvantaged groups is also higher in the larger city sizes. There is also a wide disparity in the nature of work done by the children in different city sizes. More children of the lower city sizes are found in farming operations while in the larger city sizes more children are engaged in domestic duties. Therefore, in our analysis city size, emerge as an important determinant of the incidence of child labour.

Table 4.1: Incidence of Child Labour in India

City Size	1983			1987-88			1993-94			1999-00		
	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls	Children
I	7.37	4.79	6.16	5.29	4.35	4.84	3.89	3.30	3.61	3.33	2.34	2.87
II	6.41	3.78	5.15	4.89	3.37	4.17	3.96	3.11	3.56	3.19	1.77	2.52
III	6.89	3.20	5.13	4.59	2.52	3.60	4.30	2.06	3.23	2.31	1.70	2.02
IV	4.57	2.34	3.51	3.86	2.54	3.21	2.60	1.16	1.93	2.24	1.65	1.95
All Urban	6.60	3.83	5.29	4.80	3.39	4.13	3.74	2.56	3.18	2.83	1.90	2.39
All Rural	13.60	12.54	13.10	10.27	9.68	10.00	7.25	7.28	7.26	4.77	4.73	4.70
All India	12.07	10.61	11.38	9.15	8.33	8.76	6.43	6.15	6.30	4.27	4.11	4.20

Note: City Size: I-Population less than 50,000, II- Population between 50,000-2 lakh, III-Population between 2-10 lakh, IV-Population above 10 lakh

Source: Special Tabulation by the author using unit record data on Employment and Unemployment collected by the NSSO during 38th, 43rd, 50th and 55th rounds of surveys.

Figure 4.1: Incidence of Child Labour by City Size

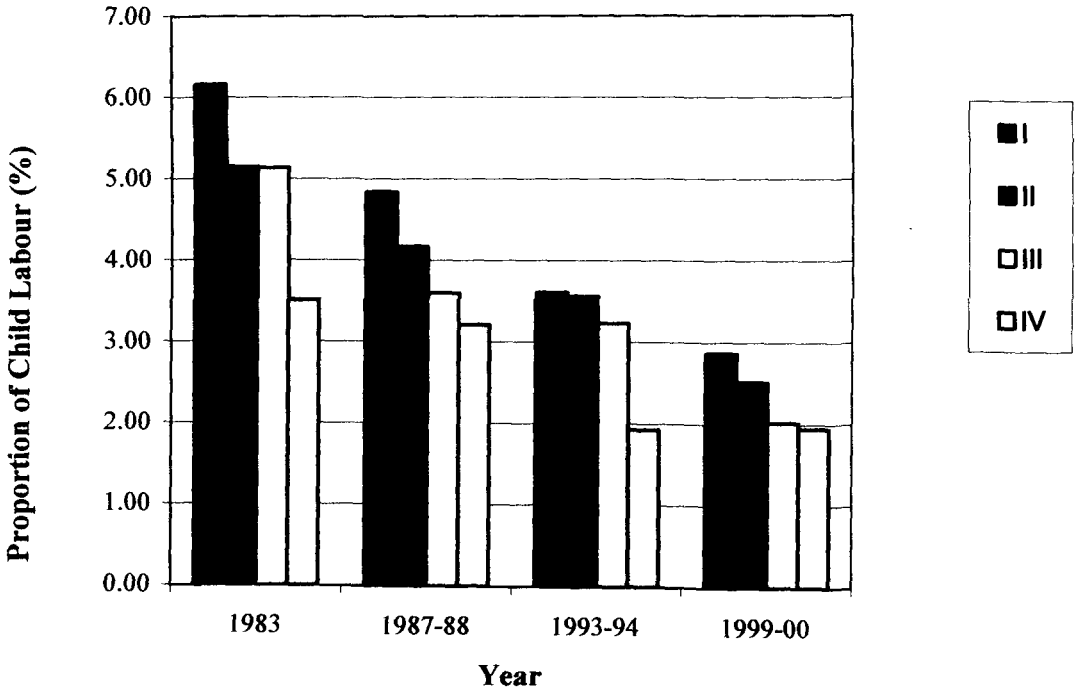

Table 4.2: Incidence of Child Labour by Age in 1999-00

Age	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.21	0.00	0.00	0.00	0.07	0.19	0.00	0.73	0.00	0.21	0.20	0.00	0.35	0.00	0.14
7	0.13	0.32	0.15	0.00	0.15	0.48	0.00	0.00	0.00	0.14	0.28	0.16	0.07	0.00	0.14
8	1.10	0.00	0.41	0.85	0.62	0.35	0.00	0.38	0.17	0.22	0.74	0.00	0.39	0.47	0.43
9	0.69	1.64	0 03	0.84	0.83	1.77	0.35	0 06	0.00	0.64	1.20	0.99	0.05	0.43	0.74
10	1.96	2.27	1 60	1.92	1.96	1.79	1.07	0.12	1.32	1.18	1.88	1.73	0.94	1.66	1.60
11	1.80	1.53	1.69	2.09	1.79	3.42	2.79	2.57	2.85	2.96	2.55	2 16	2.10	2.44	2.34
12	6.31	5.86	3.75	4.33	5.24	3.00	3.33	2 11	1.86	2.63	4.84	4.70	2.96	3.21	4.05
13	8.35	6.56	8.24	3.86	6.85	4.96	4.11	2.81	5.12	4.43	6.73	5.38	5.67	4.55	5.65
14	13.76	13.04	7.95	7.58	10.82	7.85	5.95	7.97	5.28	6.78	10.82	9.63	7.96	6.50	8.84
Total	3.33	3.19	2 31	2.24	2.83	2.34	1.77	1 70	1.65	1.90	2.87	2.52	2.02	1.95	2.39

Note: As in Table 4.1

Source: As in Table 4.1

Table 4.3: Incidence of Child Labour by Age in 1983

Age	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
5	0.20	0.11	0.53	0.64	0.32	0.02	0.00	0.17	0.00	0.05	0.12	0.06	0.36	0.34	0.19
6	0.23	0.13	0.11	0.00	0.15	0.20	0.61	0.32	0.00	0.30	0.21	0.36	0.22	0.00	0.22
7	0.72	0.00	0.34	0.22	0.40	0.94	0.03	0.22	0.34	0.49	0.82	0.01	0.28	0.28	0.44
8	1.89	1.62	1.53	0.08	1.48	1.40	0.48	1.16	0.00	0.91	1.65	1.06	1.37	0.04	1.21
9	1.75	1.97	1.13	1.88	1.72	1.98	0.88	2.06	1.77	1.68	1.86	1.43	1.61	1.82	1.70
10	8.72	6.38	6.96	3.80	7.03	4.42	3.10	2.51	2.99	3.48	6.76	4.82	4.84	3.43	5.38
11	7.98	7.01	9.90	2.42	7.29	5.18	4.89	4.32	2.38	4.46	6.65	6.00	7.48	2.40	5.96
12	13.91	11.20	12.74	9.17	12.27	10.88	7.89	5.44	3.96	8.01	12.50	9.66	9.38	6.80	10.30
13	15.61	16.05	14.08	10.01	14.42	9.93	10.43	8.74	5.06	9.01	12.73	13.27	11.49	7.63	11.75
14	23.19	20.16	24.13	16.39	21.53	14.46	10.42	8.68	7.30	11.05	19.39	15.61	16.45	12.21	16.71
Total	7.37	6.41	6.89	4.57	6.60	4.79	3.78	3.20	2.34	3.83	6.16	5.15	5.13	3.51	5.29

Note: As in Table 4.1

Source: As in Table 4.1

Table 4.4: Incidence of Child Labour by Age in 1987-88

Age	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
5	0.48	0.32	0.09	0.00	0.28	0.00	0.00	0.00	0.44	0.08	0.26	0.18	0.05	0.24	0.19
6	0.00	0.00	0.00	0.19	0.03	0.13	0.08	0.28	0.17	0.16	0.06	0.04	0.13	0.18	0.09
7	0.26	0.28	0.62	0.26	0.34	0.26	0.00	0.00	0.38	0.16	0.26	0.14	0.31	0.32	0.25
8	1.04	0.53	1.31	0.50	0.90	0.43	0.18	0.29	0.40	0.34	0.76	0.36	0.82	0.45	0.63
9	1.48	1.00	1.40	1.06	1.28	1.69	0.70	0.69	0.80	1.08	1.59	0.85	1.06	0.91	1.17
10	5.18	3.31	3.97	3.26	4.12	5.18	3.71	1.50	2.44	3.56	5.18	3.51	2.85	2.86	3.85
11	4.61	5.61	4.52	2.86	4.55	5.21	3.35	5.85	3.33	4.55	4.88	4.61	5.15	3.09	4.55
12	11.48	11.02	11.28	6.01	10.35	8.71	7.67	4.70	4.62	6.95	10.17	9.50	8.20	5.39	8.77
13	13.08	11.28	9.81	11.34	11.55	10.91	8.08	6.42	5.26	8.16	12.02	9.86	8.10	8.49	9.93
14	18.85	17.15	14.23	12.69	16.27	13.28	10.72	6.94	7.85	10.17	16.16	13.93	10.67	10.25	13.27
Total	5.29	4.89	4.59	3.86	4.80	4.35	3.37	2.52	2.54	3.39	4.84	4.17	3.60	3.21	4.13

Note: As in Table 4.1

Source: As in Table 4.1

Table 4.5: Incidence of Child Labour by Age in 1993-94

Age	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
5	0.06	0.15	0.02	0.04	0.07	0.07	0.84	0.00	0.00	0.22	0.07	0.45	0.01	0.02	0.14
6	0.14	0.00	0.00	0.00	0.05	0.25	0.00	0.17	0.00	0.12	0.19	0.00	0.08	0.00	0.08
7	0.50	0.59	1.07	0.35	0.62	0.73	0.06	0.73	0.00	0.43	0.61	0.35	0.90	0.19	0.53
8	0.44	1.24	0.65	0.00	0.60	0.68	0.13	0.26	0.31	0.37	0.55	0.72	0.47	0.15	0.50
9	0.93	1.79	1.11	1.22	1.24	2.41	1.51	0.74	0.38	1.41	1.64	1.65	0.94	0.84	1.32
10	3.09	3.40	2.56	0.93	2.61	3.45	1.80	1.83	1.69	2.33	3.26	2.63	2.23	1.27	2.48
11	3.88	4.84	5.75	1.39	4.05	3.63	3.90	2.81	1.31	3.08	3.75	4.37	4.24	1.35	3.56
12	6.47	9.49	8.24	4.97	7.29	6.34	7.14	5.56	1.06	5.41	6.41	8.47	7.06	3.43	6.47
13	11.98	10.05	11.09	8.63	10.61	7.25	6.32	5.53	1.97	5.56	9.52	8.23	8.40	5.17	8.07
14	13.29	8.15	13.91	9.62	11.47	8.47	9.23	3.40	5.31	6.96	11.10	8.71	9.05	7.57	9.33
Total	3.89	3.96	4.30	2.60	3.74	3.30	3.11	2.06	1.16	2.56	3.61	3.56	3.23	1.93	3.18

Note: As in Table 4.1

Source: As in Table 4.1

Figure 4.2: Incidence of Child Labour by Age and City Size in 1983

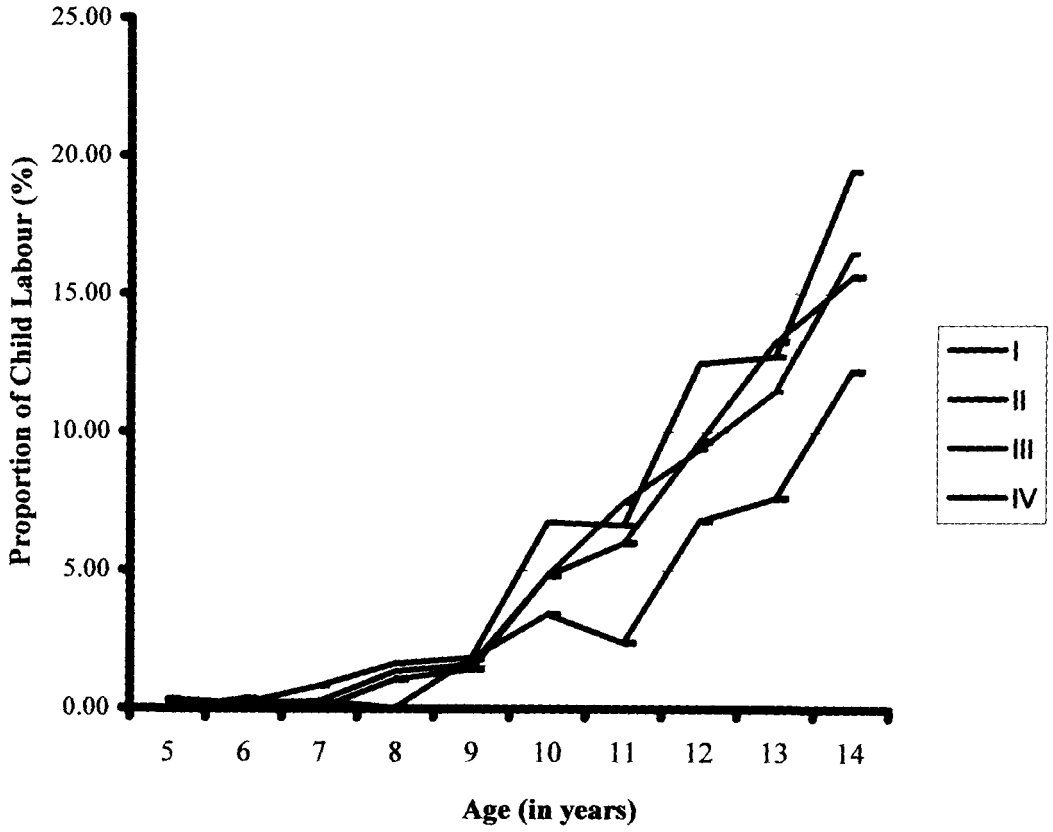

Figure 4.3: Incidence of Child Labour by Age and City Size in 1987-88

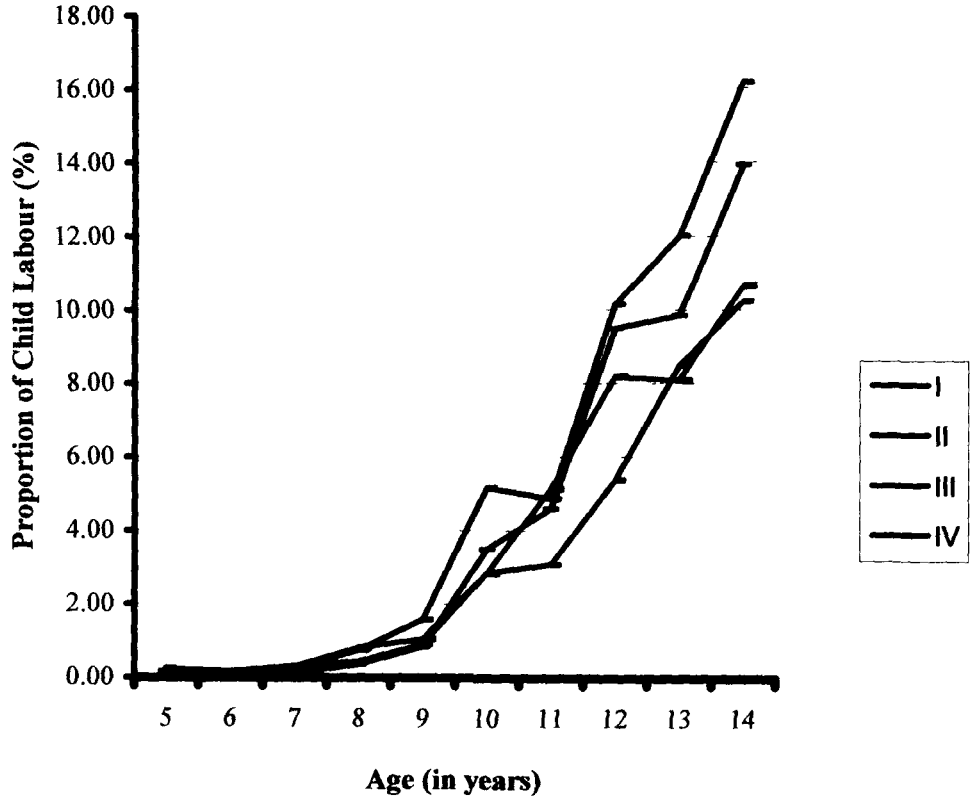

Figure 4.4 Incidence of Child Labour by Age and City Size in 1993-94

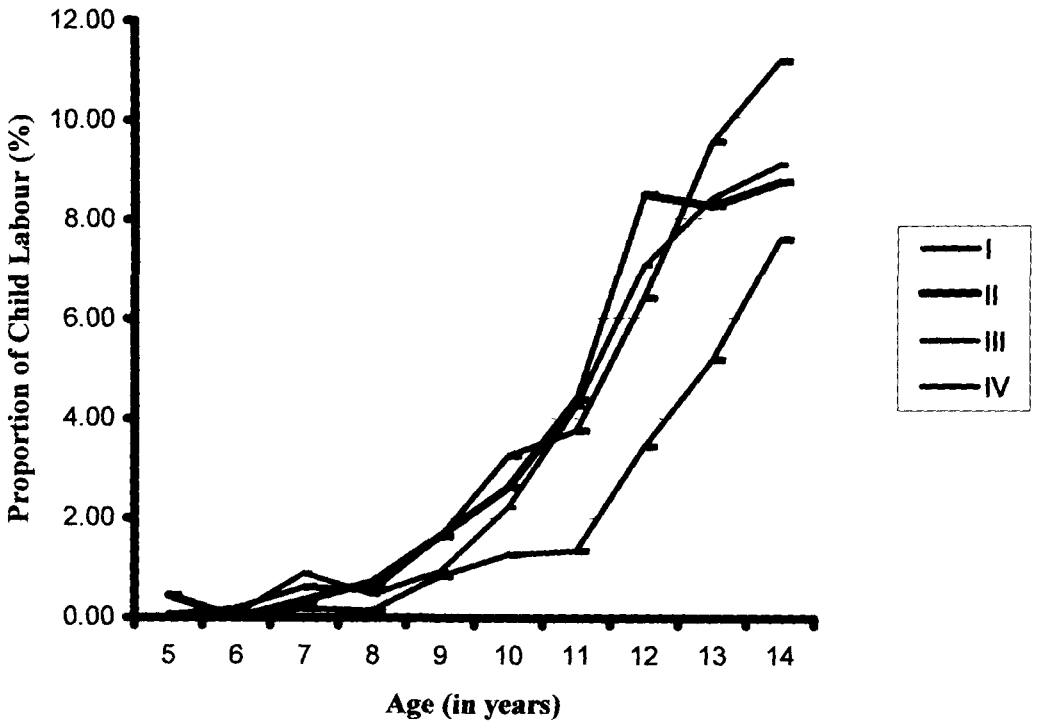

Figure 4:5 Incidence of Child Labour by Age and City Size in 1999-00

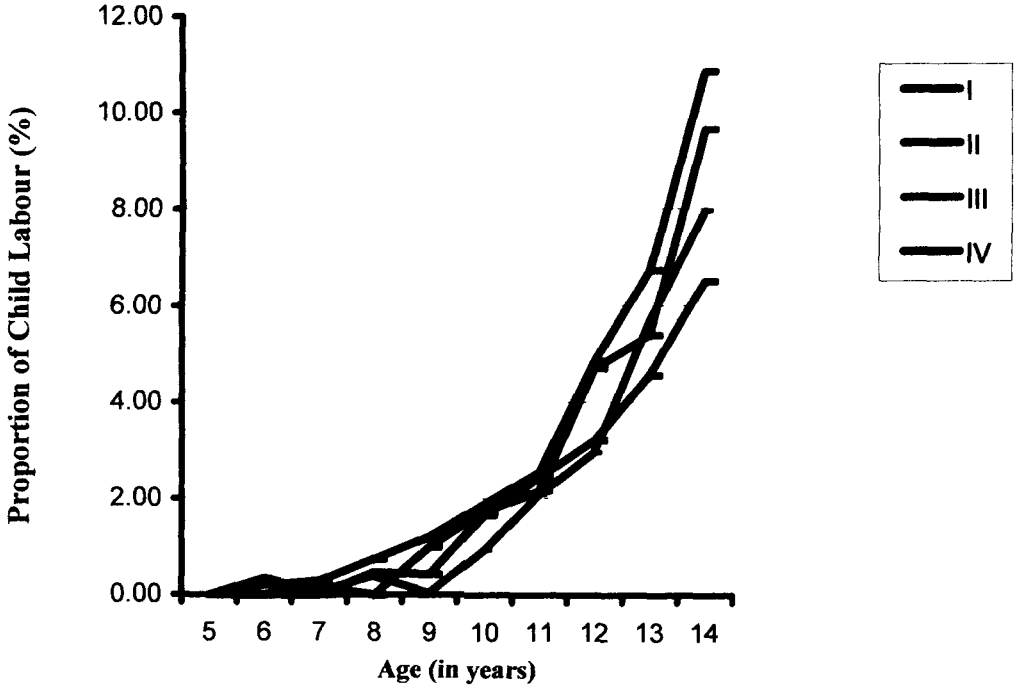

Table 4.6: Incidence of Child Labour by City Size and Social Group

Year	City Size	Boys			Girls			Children		
		ST	SC	OTH	ST	SC	OTH	ST	SC	OTH
1983	I	14.83	7.31	6.95	8.08	5.87	4.46	12.08	6.63	5.77
	II	8.82	6.80	6.27	7.03	5.52	3.41	7.96	6.17	4.90
	III	7.39	5.82	7.02	8.50	4.21	2.93	7.89	5.09	5.06
	IV	2.98	5.12	4.47	2.90	1.69	2.46	2.93	3.62	3.50
	All Urban	11.65	6.49	6.42	7.36	4.74	3.56	9.75	5.68	5.06
1987-88	I	6.50	6.34	5.05	5.05	5.12	4.19	5.79	5.77	4.64
	II	6.54	4.71	4.84	3.81	4.87	3.14	5.28	4.78	4.03
	III	7.54	4.74	4.48	1.56	2.22	2.60	4.30	3.51	3.59
	IV	8.74	5.91	3.41	6.27	3.52	2.30	7.47	4.76	2.86
	All Urban	6.90	5.59	4.59	4.11	4.22	3.24	5.51	4.94	3.95
1993-94	I	3.19	3.64	3.97	3.28	3.93	3.19	3.24	3.77	3.60
	II	5.28	2.75	4.11	10.12	3.24	2.85	7.49	2.98	3.51
	III	3.23	3.79	4.41	1.29	1.17	2.21	2.45	2.55	3.36
	IV	6.07	1.29	2.73	4.83	1.03	1.05	5.40	1.17	1.95
	All Urban	4.17	3.01	3.86	4.91	2.62	2.46	4.53	2.83	3.19
1999-00	I	1.87	4.45	3.21	2.08	4.68	1.84	1.97	4.56	2.58
	II	2.68	2.56	3.35	5.80	2.04	1.50	4.24	2.32	2.47
	III	2.09	2.86	2.20	2.37	2.91	1.41	2.22	2.88	1.83
	IV	1.50	2.51	2.21	0.00	3.31	1.38	0.79	2.92	1.81
	All Urban	2.04	3.23	2.80	2.77	3.36	1.55	2.39	3.29	2.21

Note: As in Table 4.1

Source: As in Table 4.1

Table 4.7: Incidence of Child Labour by City Size and State in 1999-00

States	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
APR	5.54	6.14	4.25	3.10	5.15	5.05	4.58	1.69	0.17	3.40	5.32	5.40	2.99	1.75	4.33
ASS	3.02	0.39	9.68		3.41	3.07	1.67	17.90		5.88	3.04	1.01	14.23		4.56
BIH	2.45	1.90	1.38	0.36	1.67	1.19	0.52	5.45	0.00	1.69	1.86	1.35	3.14	0.21	1.68
CHH	4.92	3.42	0.56		3.21	1.66	3.01	0.00		1.44	3.42	3.23	0.31		2.41
GUJ	2.09	3.07	0.62	0.29	1.58	2.24	0.63	2.21	2.98	2.10	2.16	2.04	1.36	1.51	1.81
HAR	5.44	1.20	1.43		2.80	0.00	0.00	0.00			2.92	0.58	0.77		1.44
JHA	2.05	1.29	5.18		3.02	1.97	0.22	2.55		1.65	2.02	0.79	3.97		2.39
KAR	5.93	4.48	1.81	2.28	4.14	2.74	1.23	0.99	3.39	2.26	4.52	2.95	1.44	2.87	3.26
KER	0.69		0.00		0.38	0.00		0.63		0.16	0.34		0.30		0.27
MPR	1.66	1.22	2.41	2.08	1.70	1.22	0.12	1.04	0.26	0.78	1.45	0.70	1.78	1.18	1.27
MAH	0.79	2.29	1.37	1.13	1.27	0.94	0.30	1.62	0.68	0.94	0.86	1.35	1.49	0.91	1.11
ORI	2.68	0.00			1.33	0.46	1.28			0.67	1.64	0.58			1.02
PUN	5.59	1.44	3.18	3.14	3.30	6.90	0.12	0.00	0.00	2.01	6.17	0.81	1.79	1.82	2.72
RAJ	3.61	1.53	2.69	1.19	2.61	3.08	1.39	2.87	1.27	2.42	3.36	1.46	2.77	1.23	2.52
TND	3.14	4.53	1.72	4.16	3.64	2.55	2.65	0.20	1.00	1.97	2.84	3.58	1.00	2.69	2.83
UPR	4.60	4.56	4.26	4.32	4.45	3.54	1.11	1.50	0.10	1.59	4.14	2.95	2.85	2.14	3.07
WEB	4.81	3.03	0.00	1.52	2.47	3.78	3.72	0.89	8.09	4.36	4.29	3.38	0.41	4.77	3.41
OTH	0.49	2.01	1.20	1.71	1.42	0.22	0.07	0.31	4.32	2.31	0.36	0.99	0.81	2.95	1.84
NES	0.75	0.22			0.57	1.13	0.94			1.06	0.92	0.58			0.80
Urban India	3.33	3.19	2.31	2.24	2.83	2.34	1.77	1.70	1.65	1.90	2.87	2.52	2.02	1.95	2.39

Note:

i. As in Table 4.1
ii. The names of the states are abbreviated, for details see section 3.2, chapter 3
iii. OTH are Small States and Union Territories excluding smaller states of North Eastern Region.
iv. NES are North Eastern States including Sikkim but excluding Assam

Source: As in Table 4.1

Table 4.8: Incidence of Child Labour by City Size and State in 1983

States	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
APR	10 98	8 21	13 97	12 11	11 32	7 58	4 95	3 43	2 84	5 30	9 30	6 61	9 06	7 89	8 43
ASS	2 80	1 59	1 31		2 32	3 41	1 92	9 40		3 65	3 10	1 76	5 33		2 97
BIH	3 13	7 46	10 43		6 75	2 47	2 05	4 93		2 93	2 81	4 90	7 80		4 92
GUJ	9 40	7 75	4 43	1 95	6 98	2 70	1 99	0 55	2 80	2 24	6 19	4 96	2 76	2 35	4 75
HAR	5 75	4 22	2 57		4 99	1 71	5 98	1 15		3 14	3 76	5 03	1 82		4 10
KAR	8 20	9 98	6 68	5 02	7 68	6 82	2 64	6 16	4 10	5 44	7 55	6 31	6 42	4 55	6 59
KER	3 49	1 71	4 22		3 37	1 97	2 33	0 79		1 70	2 74	2 03	2 53		2 54
MPR	4 68	3 81	6 05		4 82	3 28	2 77	2 76		3 01	4 06	3 32	4 52		3 99
MAH	7 00	3 85	4 18	3 15	4 44	2 44	2 26	0 61	1 11	1 61	4 89	3 13	2 62	2 19	3 14
ORI	3 36	11 15	5 68		6 06	5 91	4 36	0 00		3 94	4 49	7 70	2 73		5 04
PUN	8 21	6 55	3 78		6 01	3 86	0 93	0 78		2 15	6 08	3 98	2 45		4 21
RAJ	7 02	6 41	3 42		6 03	10 40	7 44	3 24		8 14	8 63	6 92	3 33		7 04
TND	14 14	6 64	10 86	4 92	9 33	7 38	7 33	4 02	2 31	5 80	10 95	6 96	7 09	3 68	7 62
UPR	7 77	7 54	7 13	5 42	7 40	3 08	1 28	4 37	0 73	2 83	5 56	4 53	5 83	2 78	5 20
WEB	5 27	5 53	4 33	5 02	5 14	4 85	5 56	4 35	8 33	5 62	5 08	5 54	4 34	6 57	5 37
OTH	4 56	10 53	7 30	3 65	4 33	4 12	7 80	3 63	0 85	1 96	4 36	9 33	5 56	2 39	3 26
NES	1 67	1 36			1 56	1 84	2 76			2 15	1 75	1 99			1 83
Urban India	7 37	6 41	6 89	4 57	6 60	4 79	3 78	3 20	2 34	3 83	6 16	5 15	5 13	3 51	5 29

Note

i As in Table 4 1

ii The names of the states are abbreviated, for details see section 3 2, chapter 3

iii OTH are Small States and Union Territories excluding smaller states of North Eastern Region

iv NES are North Eastern States including Sikkim but excluding Assam

Source As in Table 4 1

Table 4.9: Incidence of Child Labour by City Size and State in 1987-88

States	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
APR	8.19	8.63	7.59	6.68	7.99	8.58	7.16	6.17	1.80	6.76	8.38	7.89	6.92	4.13	7.38
ASS	4.11	0.32	10.41		4.08	4.11	3.26	10.27		4.90	4.11	1.45	10.35		4.44
BIH	3.64	5.36	2.47		3.83	1.17	0.64	0.19		0.73	2.52	3.35	1.44		2.45
GUJ	2.46	2.79	4.88	3.01	3.13	1.83	1.19	0.70	1.07	1.28	2.17	2.05	2.91	2.11	2.27
HAR	3.94	4.78			3.97	2.78	2.03			2.05	3.44	3.59			3.13
KAR	7.98	3.34	10.31	4.46	6.58	6.05	4.66	2.32	4.51	4.85	7.00	3.97	6.18	4.49	5.72
KER	1.39	3.41	6.03		3.12	1.51	2.54	3.19		2.16	1.45	2.96	4.64		2.64
MPR	3.13	2.41	2.68		2.79	2.96	0.65	2.42		2.19	3.05	1.58	2.56		2.51
MAH	3.49	3.10	2.64	1.94	2.66	4.32	1.79	3.13	1.50	2.49	3.89	2.49	2.90	1.72	2.58
ORI	3.95	3.41	5.64		4.24	3.40	5.23	0.58		3.25	3.69	4.29	3.37		3.77
PUN	7.66	5.09	5.21		6.04	1.38	1.15	1.31		1.30	4.60	3.12	3.31		3.72
RAJ	4.59	3.64	3.25		3.98	9.77	4.85	1.88		6.29	7.05	4.22	2.61		5.08
TND	7.84	7.70	8.42	8.14	7.93	6.66	7.32	7.85	4.92	6.67	7.26	7.51	8.15	6.51	7.31
UPR	5.74	7.31	3.72	2.58	5.23	1.57	1.84	1.06	0.00	1.35	3.80	4.88	2.48	1.32	3.44
WEB	5.51	2.19	5.38	6.37	4.62	5.08	2.47	3.24	5.61	4.18	5.30	2.32	4.42	6.00	4.41
OTH	4.94	2.80	4.35	2.54	3.17	2.33	0.83	2.50	1.61	1.77	3.66	1.76	3.52	2.11	2.51
NES	3.56	4.97			4.18	3.92	5.80			4.78	3.73	5.39			4.47
Urban India	5.29	4.89	4.59	3.86	4.80	4.35	3.37	2.52	2.54	3.39	4.84	4.17	3.60	3.21	4.13

Note:

i. As in Table 4.1
ii. The names of the states are abbreviated, for details see section 3.2, chapter 3
iii. OTH are Small States and Union Territories excluding smaller states of North Eastern Region.
iv. NES are North Eastern States including Sikkim but excluding Assam

Source: As in Table 4.1

Table 4.10: Incidence of Child Labour by City Size and State in 1993-94

States	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
APR	8 07	9 48	7 31	2 91	7 74	7 97	6 11	4 15	0 24	5 61	8 02	7 81	5 78	1 74	6 71
ASS	2 78	4 60	2 41		3 02	1 48	9 59	8 09		4 85	2 18	7 19	5 59		3 93
BIH	1 89	1 52	2 15		1 89	0 49	0 70	0 55		0 57	1 25	1 17	1 48		1 32
CHH	0 95	0 00	0 20		0 44	1 96	0 84	1 78		1 59	1 43	0 38	1 05		1 00
GUJ	2 45	2 66	3 44	2 42	2 60	2 71	1 16	0 00	0 62	1 41	2 58	1 87	2 02	1 59	2 01
HAR	3 36	2 93	3 88		3 19	0 84	1 52	1 28		1 31	2 40	2 34	2 43		2 37
JHA	0 47	2 49	1 43		1 34	3 58	0 00	0 62		1 42	1 97	1 30	1 05		1 38
KAR	9 64	5 16	5 12	4 24	6 49	4 48	2 01	0 30	0 00	2 17	7 01	3 63	2 91	2 09	4 37
KER	0 51	1 82	1 09		0 90	0 88	0 05	0 40		0 56	0 68	0 87	0 73		0 73
MPR	2 82	0 61	1 54	0 39	1 60	2 48	0 85	0 87	1 57	1 60	2 67	0 72	1 24	1 02	1 60
MAH	3 15	3 21	3 70	2 74	3 12	1 60	1 74	1 31	1 00	1 29	2 42	2 51	2 59	1 89	2 25
ORI	4 12	2 28	2 41		3 13	3 92	1 88	1 02		2 52	4 02	2 07	1 73		2 82
PUN	1 74	2 05	6 18	0 28	2 89	0 00	1 08	0 21	1 28	0 60	0 90	1 60	3 28	0 76	1 80
RAJ	2 56	1 78	2 65	2 84	2 42	3 70	8 11	2 61	0 00	4 19	3 08	4 71	2 63	1 71	3 23
TND	4 91	4 49	12 17	6 67	6 39	4 65	4 02	7 52	3 77	4 86	4 77	4 27	9 71	5 29	5 61
UPR	0 74		9 46		1 28	0 00		0 00			0 46		3 80		0 73
WEB	3 73	2 41	2 97	1 94	2 82	4 48	8 72	1 37	3 08	5 19	4 07	5 37	2 30	2 48	3 89
OTH	4 18	6 71	4 37	1 47	3 99	2 95	0 60	1 56	0 50	1 55	3 61	3 98	3 02	1 07	2 88
NES	1 15	0 11			0 73	1 09	0 35			0 81	1 12	0 22			0 77
Urban India	3 89	3 96	4 30	2 60	3 74	3 30	3 11	2 06	1 16	2 56	3 61	3 56	3 23	1 93	3 18

Note

i As in Table 4 1

ii The names of the states are abbreviated, for details see section 3 2, chapter 3

iii OTH are Small States and Union Territories excluding smaller states of North Eastern Region

iv NES are North Eastern States including Sikkim but excluding Assam

Source As in Table 4 1

Table 4.11: Percentage Distribution of Children in Different Occupation Groups by City Size in 1999-00

NCO	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
24	0 85	0 26	0 48	0 00	0 46	2 31	0 00	0 00	31 21	7 56	1 41	0 17	0 28	13 27	3 20
40	6 26	5 66	18 58	11 58	9 09	3 77	6 13	3 00	0 11	3 41	5 31	5 82	12 18	6 70	6 90
43	6 38	15 00	9 52	8 72	9 82	0 63	1 89	0 00	0 77	0 85	4 18	10 48	5 61	5 34	6 36
50	1 93	0 00	1 21	1 41	1 16	1 11	1 65	0 00	0 59	0 92	1 61	0 57	0 71	1 06	1 07
52	2 86	4 96	1 50	8 11	4 20	1 01	2 26	4 41	0 00	1 72	2 15	4 03	2 70	4 67	3 25
53	0 76	0 65	2 28	14 70	3 53	7 97	16 72	17 01	34 86	17 54	3 52	6 19	8 33	23 27	8 94
54	3 48	3 91	0 00	1 52	2 67	0 00	0 00	5 29	0 46	1 07	2 15	2 56	2 18	1 07	2 05
55	0 00	0 41	0 40	1 28	0 42	2 97	2 08	3 36	0 00	2 18	1 14	0 98	1 61	0 74	1 10
56	3 50	1 01	1 10		1 74	0 00	0 00	0 00			2 16	0 66	0 65		1 07
61	10 04	0 35	5 61		4 67	5 93	0 78	3 59		2 98	8 46	0 50	4 78		4 02
62	4 37	1 27	0 97	0 00	2 11	8 80	2 86	0 00	9 81	5 97	6 06	1 82	0 57	4 17	3 60
63	3 94	1 88	2 32	0 00	2 36	12 79	2 42	1 99	0 72	5 70	7 33	2 07	2 18	0 30	3 65
75	3 35	3 59	0 00	3 37	2 87	11 16	15 73	3 16	0 17	8 43	6 34	7 78	1 30	2 01	5 02
77	1 79	5 57	6 05	0 26	3 31	0 44	0 00	3 60	0 00	0 82	1 28	3 65	5 05	0 15	2 35
78	3 99	0 17	1 75		1 79	14 53	11 71	10 81		10 03	8 02	4 15	5 47		4 97
79	4 82	1 60	1 74	9 34	4 21	5 43	9 32	8 77	3 21	6 50	5 05	4 26	4 63	6 73	5 09
84	7 20	21 76	12 72	10 30	12 88	0 00	3 12	0 00	0 00	0 75	4 44	15 34	7 49	5 92	8 21
88		4 30	5 02	0 00	2 07		0 00	5 66	7 83	2 73		2 82	5 28	3 33	2 32
94	0 08	0 00	0 00	0 24	0 08	7 02	9 76	1 84	1 43	5 53	2 74	3 36	0 76	0 75	2 18
95	5 27	7 02	7 34	7 92	6 60	3 03	10 43	10 52	1 39	5 84	4 41	8 19	8 65	5 15	6 31
98	1 80	3 42			1 64	0 00	0 00				1 11	2 24			1 01
99	9 35	9 15	10 39	7 53	9 13	9 41	1 59	6 51	4 56	5 94	9 37	6 55	8 79	6 27	7 90
Total	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00

Note

i As in Table 4 1

ii NCO codes are occupation groups at two-digit level (see Appendix)

iii Occupational groups with less than 1 percent of child labourers are not reported

Source As in Table 4 1

Table 4.12: Percentage Distribution of Children in Different Occupation Groups by City Size in 1983

NCO	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
40	8.90	8.56	13.46	10.75	9.94	3.89	2.17	10.20	5.28	4.70	7.03	6.18	12.41	8.94	8.06
43	4.74	11.91	9.81	20.15	9.04	0.43	2.14	2.34	0.00	1.14	3.13	8.27	7.39	13.49	6.20
50	2.60	3.56	0.55	1.28	2.27	0.92	0.28	1.21	0.00	0.73	1.98	2.34	0.76	0.86	1.71
52	2.27	4.01	5.14	1.27	3.14	0.98	0.30	0.00	0.00	0.55	1.79	2.63	3.48	0.85	2.22
53	2.37	1.89	3.06	7.55	2.95	6.24	12.77	14.42	42.03	12.58	3.81	5.94	6.73	18.95	6.40
54	2.76	0.65	0.54	0.67	1.61	0.81	0.00	0.30	0.00	0.45	2.03	0.41	0.46	0.45	1.19
55	0.96	0.96	0.93	0.39	0.89	3.25	1.30	3.52	0.66	2.58	1.81	1.08	1.77	0.48	1.50
61	13.14	3.83	2.21	0.00	7.40	19.76	2.96	5.11	0.00	11.30	15.61	3.51	3.15	0.00	8.80
62	8.93	6.20	7.40	0.25	7.08	15.41	8.05	7.58	0.69	10.90	11.35	6.89	7.46	0.40	8.45
63	9.20	3.62	1.23		5.33	14.42	10.11	4.58		10.32	11.14	6.03	2.31		7.12
65	3.38	1.26	0.00		1.85	0.45	7.74	0.33		2.16	2.29	3.68	0.11		1.96
75	8.72	5.81	5.68	0.37	6.55	8.15	13.22	11.19	0.90	9.23	8.51	8.57	7.46	0.55	7.51
77	2.43	2.69	0.49	5.01	2.37	1.85	1.57	2.36	1.00	1.79	2.21	2.27	1.10	3.68	2.16
78	4.36	4.65	1.68	0.61	3.49	6.68	14.08	9.14	0.45	8.32	5.23	8.16	4.09	0.56	5.22
79	2.52	3.86	5.88	3.91	3.66	0.65	4.34	2.86	9.35	2.74	1.82	4.04	4.90	5.71	3.33
81	0.69	2.06	3.11	1.98	1.63	0.00	0.19	0.00	0.00	0.05	0.44	1.37	2.10	1.33	1.06
84	1.27	4.99	5.26	5.16	3.35	0.17	0.00	0.23	0.00	0.13	0.86	3.13	3.64	3.45	2.19
89	0.83	0.63	1.85		0.90	0.27	0.00	9.98		1.87	0.62	0.39	4.48		1.25
94	1.48	0.49	1.06		1.01	1.99	2.43	3.35		2.15	1.67	1.22	1.80		1.42
95	2.68	1.20	6.74	2.35	3.13	2.63	2.36	0.86	0.74	2.08	2.67	1.64	4.84	1.81	2.76
97	0.45	0.73	1.29	0.99	0.74	0.64	3.39	0.66	3.95	1.62	0.52	1.72	1.09	1.97	1.06
99	4.05	6.05	5.85	9.66	5.47	2.73	1.46	0.99	6.38	2.46	3.56	4.34	4.28	8.58	4.39
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Note:

i. As in Table 4.1

ii. NCO codes are occupation groups at two-digit level (see Appendix)

iii. Occupational groups with less than 1 percent of child labourers are not reported.

Source: As in Table 4.1

Table 4.13: Percentage Distribution of Children in Different Occupation Groups by City Size in 1987-88

NCO	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
40	12 33	10 60	8 45	6 40	10 38	2 49	4 44	4 37	8 74	3 99	8 07	8 25	7 10	7 37	7 84
43	7 70	10 20	10 48	6 92	8 86	0 00	0 60	6 00	3 29	1 52	4 37	6 54	9 00	5 42	5 94
50	0 90	1 51	3 85	0 36	1 65	2 17	0 15	0 00	0 00	1 08	1 45	0 99	2 58	0 21	1 42
52	2 59	4 04	5 19	5 43	3 84	0 10	0 00	2 47	0 00	0 46	1 51	2 50	4 29	3 19	2 50
53	2 11	3 88	7 39	10 60	4 66	6 08	8 78	8 54	35 97	10 62	3 83	5 75	7 77	21 09	7 03
55	0 00	0 36	0 44	0 00	0 43	1 91	6 59	1 20	2 49	2 96	1 15	2 74	0 69	1 03	1 43
61	10 89	6 27	1 08		6 37	18 56	6 07	0 00		10 39	14 21	6 19	0 72		7 96
62	11 42	5 40	2 39		6 66	14 66	4 74	7 26		9 39	12 82	5 15	4 00		7 74
63	5 78	3 34	2 59	0 77	3 91	16 41	13 04	4 96	0 00	11 80	10 37	7 04	3 38	0 45	7 05
65	1 77	0 76	0 26		0 98	1 64	0 98	0 92		1 17	1 71	0 84	0 47		1 06
75	3 87	7 11	6 64	2 58	5 15	9 34	14 10	21 82	1 22	11 58	6 24	9 78	11 65	2 02	7 71
77	2 58	3 85	2 79	0 52	2 72	0 24	2 20	1 77	1 22	1 07	1 57	3 22	2 46	0 81	2 06
78	0 75	2 38	2 58		1 48	12 35	8 50	19 17		11 13	5 76	4 72	8 06		5 32
79	4 59	4 67	4 73	2 67	4 43	1 17	3 23	2 80	3 59	2 20	3 11	4 12	4 09	3 05	3 55
84	4 72	5 45	8 10	9 69	6 19	0 43	0 00	0 00	0 00	0 21	2 86	3 37	5 42	5 68	3 82
87	2 42	1 76	0 76	0 63	1 69	0 00	0 00	0 00	0 00		1 37	1 09	0 51	0 37	1 02
88	0 52	2 66	3 49		1 66	0 00	0 63	0 58		0 24	0 30	1 89	2 52		1 10
94	0 72	0 43	0 00	3 00	0 74	3 47	5 60	2 76	1 62	3 63	1 91	2 41	0 91	2 43	1 89
95	1 05	3 28	0 76	0 55	1 49	0 58	1 50	2 06	7 83	1 89	0 85	2 60	1 19	3 56	1 65
97	2 01	0 00	2 15	1 09	1 44	0 32	6 41	0 00	1 06	1 78	1 28	2 44	1 44	1 08	1 57
98	2 05	3 81	1 79	3 50	2 59	0 00	0 00	0 00	5 68	0 66	1 16	2 36	1 20	4 40	1 83
99	4 78	5 09	6 61	13 74	6 24	1 95	2 80	3 82	4 45	2 75	3 55	4 21	5 68	9 90	4 85
Total	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00

Note

i As in Table 4 1

ii NCO codes are occupation groups at two-digit level (see Appendix)

iii Occupational groups with less than 1 percent of child labourers are not reported

Source As in Table 4 1

Table 4.14: Percentage Distribution of Children in Different Occupation Groups by City Size in 1993-94

NCO	Boys					Girls					Children				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban	I	II	III	IV	All Urban
24	1 24		1 40	8 87	1 97	0 55		1 54	2 93	0 81	0 94		1 44	7 11	1 53
40	7 34	10 93	14 49	4 79	9 79	2 08	3 02	0 98	0 00	1 94	5 08	7 84	10 23	3 37	6 83
43	9 44	10 13	15 33	11 93	11 46	0 73	1 56	4 99	0 00	1 73	5 70	6 78	12 06	8 39	7 79
50	1 56	1 13	1 07	0 66	1 20	2 04	0 36	1 68	0 00	1 30	1 77	0 83	1 26	0 46	1 24
52	3 77	8 43	5 02	9 68	6 14	0 45	1 36	0 00	0 00	0 58	2 35	5 66	3 44	6 81	4 05
53	1 96	1 44	1 12	11 16	2 84	7 05	30 08	17 67	42 66	19 05	4 15	12 64	6 34	20 51	8 95
61	10 84	7 41	0 90	1 95	6 19	7 08	2 75	0 65	0 00	3 93	9 22	5 59	0 83	1 37	5 34
62	12 20	1 67	3 44		5 49	11 10	9 55	4 38		8 31	11 73	4 75	3 74		6 55
63	5 89	2 44	0 00	0 21	2 70	22 21	3 78	0 14	1 23	10 68	12 90	2 96	0 05	0 52	5 71
75	4 40	7 35	3 68	5 50	5 16	7 79	9 20	13 28	4 26	8 92	5 85	8 07	6 71	5 13	6 58
78	1 78	1 60	1 84	0 00	1 51	12 39	11 71	19 36	0 00	12 39	6 34	5 55	7 36	0 00	5 61
79	5 73	7 14	2 87	4 30	5 19	8 99	6 70	2 21	9 87	7 10	7 13	6 97	2 66	5 95	5 91
80	1 31	1 05	1 13	0 00	1 02	0 00	1 03	0 00	11 38	1 36	0 75	1 04	0 78	3 38	1 15
84	4 56	4 67	9 01	6 30	5 96	0 37	0 00	0 00	0 00	0 16	2 76	2 84	6 17	4 43	3 77
88	0 81	3 36	2 88	2 72	2 28	0 00	0 00	0 00	0 00		0 46	2 05	1 97	1 91	1 42
94	0 64	0 41	1 88	0 94	0 94	5 68	1 76	1 86	4 45	3 70	2 81	0 94	1 88	1 98	1 98
95	2 94	2 75	1 59	3 44	2 61	0 65	1 78	2 37	0 00	1 25	1 96	2 37	1 84	2 42	2 10
99	5 39	10 69	13 67	8 69	9 37	3 63	2 01	8 52	2 55	4 01	4 63	7 30	12 05	6 87	7 35
Total	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00

Note

i As in Table 4 1

ii NCO codes are occupation groups at two-digit level (see Appendix)

iii Occupational groups with less than 1 percent of child labourers are not reported

Source As in Table 4 1

CHAPTER 5

DETERMINANTS OF CHILD LABOUR

5.1 Introduction

In this chapter we have used several variables to check the robustness of our hypothesis, which we presumed earlier. In chapter 1, we have hypothesized that larger the size of the city, lower will be the incidence of child labour. A related hypothesis is influence of increased productivity on the incidence of child labour. Our motivation for extending this work has its origin in a seminal paper by Sviekauskas (1975). Sviekauskas (1975) has shown a positive relationship between city size (measured by the population of the city) and factor productivity. By incorporating city size into our analysis we can determine the existence of multiple equilibrium in the labour market as suggested by Basu and Van (1998) and Basu (1999). These tests are done by Nielsen and Dubey (1999) using the Indian data for rural areas for the period 1983 to 1999-00. In this chapter we have focused on the changes of incidence of child labour in different city sizes with the inclusion of different set of variables.

The rest of this chapter is organized as follows: section 5.2 examines factors that have an impact on the incidence of child labour. These determinants are explained in terms of city size and labour productivity. In section 5.3 we report the econometric estimates of the determinants of child labour. Section 5.4 concludes the chapter.

5.2 Factors Influencing Child Labour

To analyse the determinants of child labour we have introduced various independent variables. This section deals separately with each of these independent variables, which affect the incidence of child labour.

5.2.1 CITY SIZE

Baland and Robinson (2000) state that child labour may not only be present in an efficient outcome of household utility maximization but also in an inefficient outcome resulting from corner solutions in poor economies with capital market imperfections or lack of possibility for negative bequests. To test empirically the influence of poor economies on child labour in the urban sector we have classified the entire urban sector on the basis of population. It has been empirically shown by Sviekauskas (1975) that as the size of the city grows factor productivity also increases. In other words, the return of the factors of production in the lower city sizes is small as they are trapped in underdevelopment. In the previous chapter, i.e. in the statistical profile of child labour we have explained the differential incidence of child labour in the four city sizes. As mentioned earlier and also reported in table 4.1, larger proportion of child labour is noticed in the lower city sizes across time and age compared to that of larger city sizes. However, with time the difference in proportion of the two extreme city sizes narrowed down to an insignificant figure. For instance, in 1983 there was nearly 3 percentage point difference in the proportion of child labour in city size IV and city size I, but in 1999-00, the difference in the two city sizes narrowed down to less than 1 percentage point. Nevertheless, extending our analysis with the social groups, we find that in the lower city size children belonging to socially disadvantaged groups has a higher probability of entering the labour market. Also estimating the incidence of child labour in different states, we find that even in 1999-00, there are certain states with a high proportion of child labour and the major proportion of it comes from the smaller city sizes. Thus city size in our analysis emerges as an important determinant in the incidence of child labour.

5.2.2 LABOUR PRODUCTIVITY

As stated by Basu and Van (1998), a firm's demand for child labour depends on the child-adult wage and productivity ratios. In the theoretical model it is shown that adult and children are substitutes in production according to a simple adult equivalence scaling (γ) where both adult and children are remunerated according to their marginal product (w). If individuals are homogenous and both child and adult labour are supplied, the equilibrium wage ratio in a region, r, is a fixed constant representing the equivalence scaling.

$$\textit{Wage Ratio} = \Upsilon = Wc_{\gamma} / Wa_{\gamma}$$

Where, Wc_{γ} is the wage of the child and Wa is the wage of the adult. Based on the information on total weekly wages, the wage ratio is computed for each city size using all children with an observed wage to approximate the child wage and using adults of the age group 15 years to 59 years to approximate the adult wage.

The wage rate can be presented in two types, viz., (i) those based on current prices, i.e., the prices prevailing in the year to which the estimate relate. (ii) Those based on constant prices, i.e., prices prevailing in the year, which is taken as a base. For purpose of comparing wage rate, for both adult and children across different city size in the four periods of surveys, it is desirable to take into account the estimates of wage rate at some constant base year prices. This is because the rise in wage rate with current prices will also be influenced by an inflationary rise. To eliminate the effect of rising prices on the wages, we have deflated the daily wages at 1993-94 prices.

The wage ratio reflects the substitutability between adult and child labour in the ordinary labour market. In table 5.1 we have shown the average daily wages of

the adults and the children and also computed the average wage ratio for child wages to adult wages. It is apparent that the child-adult wage ratio in all the periods with an exception in 1987-88 is high in the larger city size. Further, there is a steady increase in the wage ratio since 1983. This implies that the relative value of child labour over the period has increased and the increase is more evident in the larger city sizes. High wage ratio in the larger city sizes is indicative of high demand for child labour in the larger city sizes. This explains the narrowing difference in the proportion of child labour in the larger and smaller city sizes. It is also noticed by Swaminathan (1998) that economic growth combined with a deregulation of labour market increases the demand for child labour.

In our analysis, we find that though on one side the demand for child labour increases in the larger city sizes due to high child-adult wage ratio, but on the other side the supply of child labour in the larger city sizes is expected to be low due to high adult wage rate. From table 5.1, it is also evident that the average daily wage rate of the adults is higher in the larger city sizes. For instance, in 1999-00, in city size I, the average daily wage rate of the adults are Rs 76 while in city size IV, the daily wage rate increases to Rs 83. Thus, labour productivity increases in the larger city sizes.

Following the luxury axiom, that adults send their child to work only when the wages of the adults fall below the subsistence level (Basu and Van, 1998) we have computed the average daily wage of the households who send their children to work and corresponding to it we have also computed the average daily wages of the households who do not send their children to work (table 5.2).

In the entire urban sector the average daily wages of the households who send their children to work is around Rs. 46 to Rs 51 in the period 1983 to 1999-00 with an exception in 1987-88. Irrespective of any city size the average daily wages of the households with child labourers are relatively low. Comparing it with the wage rate of the household who do not send their child to work, a huge difference is noted in their daily earnings. The average daily wages of the households who do not send their children to work exceeds Rs 80 in most cases with few exceptions. The difference in the wage rates of the two types of households, i.e., with and without child labourers have increased over the period. For instance, in 1983 there was a difference of Rs 32 in the daily wage rate of the two types of households. However in 1999-00, the difference widened to Rs 50. Again looking into the differential wage rate in the four city sizes the wage rates in both the cases, i.e., with or without child labourers increases with the increase in city size.

Thus it can be inferred that low wage rate of the households leads to poor economic condition, which induces them to send their children to work. Further, high child-adult wage ratio also implies poor economic condition in which the firms aim to maximize profit by keeping the wages at a low level. Through this analysis we can draw a strong correlation between the wage rate of the households and the incidence of child labour.

In the following sub-sections we have conditioned the two variables, i.e., city size and labour productivity on other variables to find an influence in the incidence of child labour.

5.2.3 MEANS OF LIVELIHOOD

The nature and type of work from which a household derives its major income is an important indicator of the activity pattern of its members. The means of livelihood implies that 50 percent or more of the household's income comes from that source. Utilizing this information, the households in the urban sector have been put into four main groups: (i) self-employed (ii) regular wage/salary employment (iii) casual labour and (iv) others. The last category consists of households where no one income source contributes 50 percent or more, that is, the households in this category have diversified income sources. The primary source of income determines the standard of living of the households. It is therefore imperative to find the type of households, which send their children to work. However, this classification of the households in these four explicit categories was done only in the 43rd, 50th and 55th round of the NSSO. Therefore, our analysis is limited to these three rounds.

Table 5.3 shows the proportion of child labour in relation to child population classified by means of livelihood. It is evident from the table that the probability of the child entering the labour market is high, if the means of livelihood of the household to which the child belongs is casual labourers. In 1987-88, more than 7 percent of the households deriving their major source of income as casual labourers send their children to work. With the passage of time, the proportion of child labourers from such households decreased steadily and in 1999-00, the proportion has come down to 5 percent. However, even in the 1999-00 analyses, if we compare the casual labour households with other sources of earning, we still find that they have a higher probability of sending their children to work.

The next in proportion are the self-employed households. In 1987-88, the incidence of child labourers among self-employed households was around 5 percent but it came down significantly in the following years and in 1999-00, around 3 percent of children among these households are in the labour market.

Though, there is an evident decline in the proportion of child labourers from the above-mentioned two types of households but even in 1999-00, it continues to be higher than that of the regular wage earners or the workers deriving their income from diverse sources. Our findings regarding the self-employed households having a high proportion of child labourers find an uncanny similarity to the observation noticed in Vietnam by Edmonds and Turk (2002). The reason stated for this was that the household that starts its own business uses its own labour including child labour more intensively.

Looking at workers in different city sizes, the proportion of child labour decreases as one moves from lower city size to larger city size. However, the differential incidence of child labour across city sizes is perceptible among the households, whose means of livelihood is from casual labourers and the self-employed. For instance, in 1999-00, in city size I and II, about 6 percent of the children of the casual labourer households, have the probability of entering the labour market. On the other hand, the probability of the casual labourers having child labourers in their household in city size III and IV is 4 percent. This shows that though in all the city sizes, the households earning their livelihood as casual labourers send their children to work more than any other household type but interestingly this reduces with the increase in city size.

The difference in the proportion of child labourers from casual labourer households was even higher in the earlier period of surveys. For instance, in 1987-88, in city size I, the incidence of child labour among the casual labourer households was nearly 10 percent while in city size IV it was around 5 percent. The difference in the incidence of child labourers across city sizes among the casual labourer households is also noticed in 1993-94.

In 1999-00, we find that the proportion of child labourers among self-employed households is about 4 percent. The incidence of child labourers among the self-employed households in the larger city sizes is much lower compared to that of smaller city sizes. A similar trend is also noticed in the earlier periods. Thus it is emphatically clear that, in all types of households, with the increase in city size, lesser proportion of children is sent to work.

Exploring the reasons for differential incidence of child labour in different household types, we have determined the average daily wages at 1993-94 prices of the workers in different types of household. Assuming that the observed wages reflect labour productivity, we find that the households send their children to work at a very low wage rate. Therefore, it is imperative to find in which source of earning the wage rate is low. Table 5.4 shows the average daily wage of the adult workers in different types of households in all the four city sizes. It is apparent from the table that the wage rates of the casual labourers are the lowest compared to the other source of income. In 1999-00, the average daily wage of the casual labourers is Rs. 31, which is less than half of the earnings of regular wage earners (Rs 108). Also the self-employed workers have a daily earning of Rs. 58, which is higher than that of the casual labourers, but undeniably lower than the regular wage earners.

Furthermore, the households earning from diverse sources is higher than both the regular wage earners and casual labourers.

The difference in wage rate among four categories of workers magnifies in areas of high concentration of child labourers. For instance, in 1999-00, the average daily wage of the casual labourers in city size I is only Rs 32, while it is around Rs 110 for the regular wage earners, Rs 91 for 'others' and Rs 52 for the self employed. As we move on to the larger city size, the disparity in wage rate among the workers narrows down. In city size IV, the casual labourers earn almost Rs 10 more than what they earn in city size I. In the same way, the self-employed workers earn almost Rs 20 more in city size IV compared to what they earn in city size I. Nevertheless in all the city sizes the casual labourers and the self-employed workers have the least wage rate compared to the regular wage earners and workers having diverse source of earning. This induces more children in the labour market from these two types of households. Similarly, in 1993-94, the average daily wage of the casual labourers in city size I was Rs 28, which was the lowest compared to Rs 76 of the regular wage earners, Rs 60 of the 'others' and Rs 41 for the self employed. The casual labourers and the self-employed households are the lowest wage earners. Therefore high incidence of child labour among the casual labourers and the self-employed is explained by the low wage rate of these households.

Recognizing casual labourers as a cheap source of labour it is imperative to identify the incidence of child labourers among the casual labourers in public and private work. It is apparent from table 5.5 that the proportion of child labourers among the households deriving their income from casual source in private work is higher than that of the households deriving income from casual source in public

work. For instance, in 1999-00, the incidence of child labourers among the public casual labour households is less than 2 percent in comparison to 8 percent of the children from private casual labourer households. This difference is evident in all the city sizes. For instance, in city size IV in 1999-00 less than 1 percent of the children from public casual labourer households are reportedly labourers while 4 percent of the children from private casual labourer households are in labour force.

The proportion of child labourers among the households deriving income from casual labourer households in private work is exceedingly high in comparison to the casual labourers in public work. In the private sector organization there is gross exploitation of labour. The wages are low and there are no amenities and benefits available to the private casual labourers. On the other hand, the labour laws in respect of payment of wages protect the public casual labourers, working conditions etc. Thereby, inexplicable condition of the private casual labourers induces the households to send their child to work. Lower proportion of children being sent to work in the larger city sizes even among the private casual labourers is explained by better condition of these labourers in the larger city sizes.

Thus, the income of the household and the source from which income generates has a positive influence on child labour. Therefore, protection given to the workers by increasing wage rate or ensuring steady income can help in reducing the incidence of child labour.

5.2.4 CHILD LABOUR IN RELATION TO INEQUAL DISTRIBUTION OF INCOME AND WEALTH

Assuming poverty as an important determinant of child labour we have classified the average expenditure into fourteen expenditure classes in the four city sizes. The

average expenditure is first deflated at 1993-94 prices The average expenditure is then classified into various categories. These expenditure classes are taken from 0-50 to 650-700. The proportion of people in these expenditure classes is shown in lognormal curve in the figures 5.1 to 5.4. In figure 5.1, the per capita expenditure of the four city sizes in 1983 based on 1993-94 prices is shown. It is apparent from the figure that the proportion of population in a lower expenditure class is low. The proportion of population increases with the increase in expenditure and then finally decreases. The population distribution curves in the four city sizes shows that the average expenditure is lower in the lower city sizes and higher in the larger city sizes. Similarly figure 5.2, 5.3 and 5.4 reports the same findings in the years 1983, 1987-88, 1993-94 and 1999-00 respectively. This implies that inequality in the lower city sizes is much higher than that in the larger city sizes. Therefore the inequality measures also emerge as an important determinant of child labour. Higher inequality in the smaller city sizes leads to higher incidence of child labour and vice-versa.

5.2.5 CHILD LABOUR AND CHILD SCHOOLING

Labour productivity influences and is influenced by education. Dessy (2000), states that the incidence of child labour could be reduced only by the promotion of human capital development, which is the main constraint on poor countries' economic development. They stressed on compulsory education laws, which can keep a child longer in school and limit their job opportunities during the school hours. A positive relation between children attending school and city size is apparent in table 5.6. In 1999-00 nearly 89 percent of the children are seen to be attending school in city size IV while 81 percent of the children in city size I are school goers. This difference is observed in all the four rounds of surveys done by NSSO Therefore, larger

enrolment of children in larger city sizes explains the lesser incidence of child labour.

In the earlier periods of surveys, the difference in the proportion of children attending school across city size was even more obvious. The proportion of children attending school increases rapidly with the increase in city size. For instance, in 1983 about 66 percent of the children attended school in city size I while in city size IV about 81 percent of them attended school. Similarly, the trend continued in the other two rounds, i.e., 1987-88 and 1993-94.

The analysis therefore captures the direct relationship between school goers and city size. Compulsory education laws can thereby emerge as one of the most important step towards the reduction of child labour.

5.2.6 CHILD LABOUR AND PARENTAL EDUCATION

Education increases the opportunity cost of an individual and induces them to participate in the labour market. This contributes to overall efficiency in the economy to the extent that the market wage is higher than the implicit shadow wage of being involved in household activities (Meier and Rauch, 2000). Thereby, education of the parents has an optimistic effect in increasing the labour productivity and reducing the incidence of child labour. Nielsen and Dubey (2002) in their empirical analysis reported parental education as an important factor in explaining the incidence of child labour. In their findings, reduction of child labour since 1983 is closely associated with the increase in parental education.

In tables 5.7 and 5.8 we have shown how education have an impact on the labour productivity using the data set of 1983, 1987-88, 1993-94 and 1999-00. It is evident from all the four time periods that with an increase in education, the daily

wage rate increases. In 1999-00, the adults without any education have a daily earning of Rs.38 but a professional graduate have a daily earning of more than Rs 227. Even a general graduate have a daily earning of Rs. 157. In addition, we find a steady increase in the daily earning as one move along the education scale. This is true in all the time periods and across city size. Therefore education has positive impact on labour productivity. Further the average daily wage at all levels of educational attainment increases as one moves from a lower city size to higher city size. Thus again labour productivity increases with education and city size.

In table 5.9 we have reported the influence of parental education in sending their children to work in 1983 to 1987-88. In table 5.10 we have replicated the same analysis for 1993-94 to 1999-00. We have classified the education of the parent based on their level of educational attainment into seven categories in 1983 and 1987-88 and 8 categories in 1993-94 to 1999-00. They include, illiterate, literate below primary, primary, middle, secondary and higher secondary, graduate and above in professional subjects and graduate and above in general subjects. The classification of secondary and higher secondary is not available in the first two periods. The pattern showing the proportion of child labour in relation to their parent's education is similar in all the four periods. The difference lies only in the figure, where in the earlier periods, i.e., 1983 and 1987-88, larger proportion of children are in the work force with an exception only of those children belonging to parents with higher education. It is evident from tables 5.9 and 5.10 that as the educational attainment of the parents increase lesser is the incidence of child labour. In 1993-94, in city size I, incidence of child labourers in households with parents without education are 6.22 percent. On the other hand, 0.08 percent of the children of

professional graduate parents and 0.29 percent of the children belonging to general graduate parents of the same city size are reportedly labourers. The number is even less in the larger city sizes. For the same year, in city size IV, 3.64 percent of the children of illiterate parents are in the labour market while a very negligible proportion i.e. 0.09 percent of the children among graduates are in the labour market.

Similarly, in 1999-00 the proportion of working children among illiterate parents is significantly high at almost 5 percent while among the graduate parents it is around 1 percent. The table therefore substantiates the fact that the educational attainment of the parents has a positive influence in reducing the incidence of child labour. The incidence of child labour in the larger city sizes is lower at all levels of educational attainment of the parent. It is worth noting the proportion of children working belonging to an illiterate parent in city size IV in 1993-94 and 1999-00 is about 4 percent. The probability of a child of a graduate parent working in the larger city size is negligible. Accordingly, we can conclude that parental education has a positive influence in the reduction of child labour and increase in enrolment of children in schools.

Thus, based on the above stated reasons for the high incidence of child labour, an important policy implication that emerges from it is increase in the labour productivity and emphasis on all such factors, which can influence productivity. Therefore universalisation of education and enforcement of minimum wage act in the long run can help in reducing the incidence of child labour.

5.3 Econometric Estimates

In this analysis the econometric estimation is done by maximum likelihood probit analysis to examine the probability of child labour conditioning on city size, parental education, income and other characteristics of the household.

In this analysis, the probit estimation is done for the households having children in the age group 5 years to 14 years. Here, first we estimate the probit model for the full sample, and then in order the highlight the specific areas with different economic condition, we follow the sub sample for the states in India. The probit results for the urban India is expressed in table 5.11, which reports the probability derivative of the parameter estimates, computed at the mean of the explanatory variables. The probability derivative, show the percentage point change in probability of the dependent variable for one unit increase at the mean of a given explanatory variable holding all other variables constant at the mean. The probit estimates for the states are shown in table 5.11 to table 5.30.

From the NSS employment and unemployment data set, we have derived the following dependent and independent variables.

Child labour is used as a dependent variable. It is a binary variable. It takes value1 if a child is reported to be working and 0 if he/she is out of the work force. This variable is used to regress upon the following independent variables.

City Size I = this is a binary variable taking value 1 for the cities with population less than 50,000 and zero otherwise

City Size II	= this is a binary variable taking value 1 for the cities with population between 50,000-2 lakh and zero otherwise
City Size III	= this is a binary variable taking value 1 for the cities with population between 2-10lakh and zero otherwise.
Real wage of the parent	= is a continuous variable. The real wage of the parent is measured at 1993-94 prices.
Self Employed	= if the main source of the income is from self employment in the urban sector, this binary variable takes value 1, zero otherwise.
Regular Wage-Earner	= if the main source of the income is from regular wage /salary earning in the urban sector, this binary variable takes value 1, zero otherwise.
Casual Labour	= if the main source of the income is from casual labour in the urban sector, this binary variable takes value 1, zero otherwise.
Female Head	=this variable is binary, 1 if the household is headed by female and zero otherwise.
Female Head Working	= this variable is binary, 1 if the household headed by female is working, zero otherwise.
Female Head Educated	= this variable is binary, 1 if the household headed by female is educated, zero otherwise.
Education of the Parent	

Below primary	= this variable is binary, 1 if the head is literate but below primary level. Zero otherwise.
Education of the Parent Primary	= this variable is binary, 1 if the head is educated up to primary level. Zero otherwise.
Education of the Parent Middle	= this variable is binary, 1 if the head is educated above primary level and up to higher secondary. Zero otherwise
Education of the Parent Graduate	= this variable is binary, 1 if the head is literate but is graduate or above. Zero otherwise.
Households Below Poverty Line	= this variable is binary, 1 if the household is below poverty line. Zero Otherwise.
Scheduled Tribe	= this is binary variable. If household belongs to Scheduled Tribe, it is 1. Zero otherwise.
Scheduled Caste	= this is binary variable. If household belongs to Scheduled Caste, it is 1. Zero otherwise.
Muslim	= this is binary variable. If household belongs to Muslim religion, it is 1. Zero otherwise.
Christian	= this is binary variable. If household belongs to Christianity, it is 1. Zero otherwise.
Other Religion	= this is binary variable. If household belongs to a religion other than Hinduism, Islam or Christianity, it is 1. Zero otherwise.

The reference groups in the estimation are city size IV (cities with population above 10 lakh), graduates for education, other caste for caste, Hindu for religion,

other (more than one source or diverse income sources) means of livelihood for means of livelihood.

The variables like scheduled caste and tribes are included because these groups have been traditionally debarred from attending educational institution and also in the possession of capital. Religion indicators are also included to account for restrictions or traditions that certain individuals act up to. Gender, education and employment status of the head of the household are also used to determine its influence on child labour. The main results of this estimation is summarized below

1. City size, which is the main focus in our research, suggests that the incidence of child labour increases in the lower city sizes. Controlling for other things, in India, in 1983, if the household resided in the lower city size, say, city size I, it has over 16 percent higher probability of sending their child to work. Similarly in city size II and III, the additional probability of the households sending their child to work is about 10 percent and 11 percent respectively, relative to city size IV. The relative positions did not change much over the years, but the value of the coefficient declined significantly. In 1987-88, the additional probability of a child working in city size I was 11 percent and that in city size II and III, it was 6 percent and 8 percent respectively, compared to city size IV. The decline in the coefficients is evident for the entire period. In 1999-00, the additional probability of sending their children to work in city size I is 3 percent and then it monotonously decreases with the increase in city size.

2. Wage rate of the household is another important determinant influencing the incidence of child labour. The coefficient of this variable is negative indicating that an additional increase in rupee has a declining influence on child labour.
3. Besides the real daily wage of the household, the source from which the income is generated is another important determinant of child labour. Our findings suggest that in 1999-00, if the household derives its main source of income as casual labourers, there is 10 percent higher probability of sending their child to work compared to the households deriving their income from diverse sources. The self-employed households have 3 percent higher probability of sending their child to work. On the other hand the households deriving their income as regular wage earner have a 3 percent less probability of sending their child to work.
4. Poverty is explained by various researchers as one of the most important determinant of child labour. Our finding in the urban sector for 1999-00 shows that the households living below the poverty line have a 12 percent higher probability of sending their children to work.
5. The role of education in reducing the incidence of child labour appears to be very important. A head of the household in the urban areas if illiterate has over 46 percent higher probability of sending their children to work relative to a graduate head of the household in 1983. The value of the coefficient has declined to 35 percent in 1999-00. Similarly, the marginal effects of the parental education in different level of attainment are positive. This signifies that households with no or little education is

completely unaware of the benefit of education and therefore prefer to send their child to work rather than to school. Parents who had themselves been in school are presumably more likely to invest in education of their children. Moreover higher education of the parents also enables them to have a higher daily. This imposes a positive income effect on the incidence of child labour.

6. Gender of the household head is another determinant of child labour. It is generally perceived that the females are more protective of their children and therefore if the household is headed by a female it less likely for that household to have any child labourers. In 1999-00, there is 1 percent less probability of the female-headed households sending their child to work. However, if the female headed in the household is working there is positive influence on child labour. This is possibly because the females in the household work only when the income of the household is not substantial to meet the expenses. On the other hand, if the female head is educated relative to male educated head have less probability of sending their child to work.
7. The other characteristics of the household, i.e., caste and religion of the household also determine to some extent the influence of child labour. The socially disadvantaged groups, i.e., the Scheduled Tribes and Scheduled Caste compared to the others have a higher probability of sending their child to work. Again, it is found that the probability of a Christian child in the labour market is negative relative to a Hindu child but a Muslim child has a higher probability of being in the labour market.

Thus in the econometric analysis we find the children being sent to work are influenced by the city size and other household characteristics. More importantly education of the parents emerge as the most important determinant of child labour in this analysis. Therefore, children will be working irrespective of the size of the cities unless education is not universalized. Further, other household characteristics like increase in income, employment and education of the females can help in reducing the incidence of child labour. Reducing the disparities among the social groups can also go a long way in reducing child labour.

We also estimated a maximum likelihood probit model for the urban sector in each state of India. The results are reported in tables 5.12 to 5.30. In some of the states, like Orissa, Assam, Bihar, Chattisgarh etc., the urban sector has only three categories, i.e., city size, I, II and III. In view of the above, we have taken city size I as the controlled variable for estimating the incidence of child labour in different city sizes in the states. We have reported the results of the entire four periods, i.e., 1983, 1987-88, 1993-94 and 1999-00. By reporting the entire four periods, we can exemplify the gradual change in the relative positions of the states in terms of the incidence of child labour. However, the estimation for small states and union territories with a small sample size are done by grouping these states into one single unit. Similarly the northeastern states with a small sample size are formed in another group to reflect the incidence of child labour in these states.

The distinguishing feature of the result at the state level is that in most of the states, the additional probability of a child working is low in the larger city sizes. In some of the states, like, Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh shows a negative influence on child labour if the child resides in

higher city sizes. In Karnataka, the marginal probability of a child working in the larger city size is exceedingly low. For instance, in 1999-00, there is 8 percent lesser probability of a child working in city size II in the state of Karnataka, compared to that in city size I. However, the coefficient turns out to be Positive for some states, particularly in the year 1999-00. In the earlier periods, i.e. 1983, 1987-88, in almost all the states, the additional probability of a child working in the larger city sizes was very low. Other variables like income and source of income show a significant influence in the incidence of child labour. Again the households generating their income from casual labourers, in almost all the states have a positive influence in the incidence of child labour. Keeping other things constant, education of the parents has the largest effect on reducing probability of sending their children to work. In certain states the socially disadvantaged groups and religion also pose a positive response in the incidence of child labour.

5.4 Conclusion

From the above analysis we see that our findings support the two hypotheses that we have earlier stated. The first hypothesis relating to the inverse relationship between city size and incidence of child labour is emphatically shown in our estimates. The estimation done at various aggregate and disaggregate levels support our hypothesis that the incidence of child labour decreases with the increase in city size. Consequently, the related hypothesis, i.e., decrease in the incidence of child labour with increasing labour productivity is also tested econometrically. Our findings support the hypothesis that the incidence of child labour decreases with the increase in labour productivity. Our research suggests a strong relationship between parental

education and incidence of child labour. Therefore, children will be working irrespective of the size of the cities unless education is universalized. Further, other household characteristics like increase in income, employment and education of the females can help in reducing the incidence of child labour. Reducing the disparities among the social groups can also go a long way in reducing the incidence of child labour.

Table 5.1: Average Daily Wages of Adults and Children and Child - Adult Wage Ratio by City Size

(in Rs.)

Year	City Size	Adult Wage	Child Wage	Wage ratio
1983	I	49.28	12.38	0.25
	II	50.63	11.52	0.23
	III	58.81	14.75	0.25
	IV	67.06	52.54	0.78
	All Urban	55.67	18.92	0.34
1987-88	I	76.95	12.84	0.17
	II	63.64	12.29	0.19
	III	109.41	13.77	0.13
	IV	115.65	19.88	0.17
	All Urban	90.87	14.06	0.15
1993-94	I	60.56	28.29	0.47
	II	69.36	29.37	0.42
	III	71.38	28.51	0.40
	IV	81.44	45.53	0.56
	All Urban	70.16	31.95	0.46
1999-00	I	76.12	42.14	0.55
	II	81.21	27.44	0.34
	III	82.33	30.64	0.37
	IV	83.16	55.69	0.67
	All Urban	80.34	37.93	0.47

Note:

i. City Size: I-Population less than 50,000, II- Population between 50,000-2 lakh, III- Population between 2-10 lakh, IV-Population above 10 lakh

ii. Adult Wage is computed for adults in the age group 15 to 59 years

iii. Child Wage is computed for the children in the age group 5 to 14 years

iv. Wage Rate is measured at 1993-94 prices

Source: Special tabulation by the author using unit record data on Employment and Unemployment collected by the NSSO during 38th, 43rd, 50th and 55th rounds of surveys.

Table 5.2: Average Daily Wages of the Households

(in Rs.)

Year	City Size	Wages of the Households with Child Labourers	Wages of the Households without Child Labourers
1983	I	45.45	80.37
	II	43.46	70.28
	III	48.43	77.67
	IV	53.78	86.04
	All Urban	46.71	78.66
1987-88	I	62.46	76.90
	II	52.72	80.82
	III	53.16	87.62
	IV	61.92	104.28
	All Urban	57.98	86.41
1993-94	I	44.22	77.21
	II	49.20	84.60
	III	52.29	86.76
	IV	56.79	98.18
	All Urban	49.22	85.80
1999-00	I	50.41	91.95
	II	42.48	104.01
	III	47.15	103.25
	IV	51.73	96.44
	All Urban	48.13	98.50

Note: As in table 5.1

Source: As in Table 5.1

Table 5.3: Incidence of Child Labour by Means of Livelihood

Year	City Size	Self Employed	Regular Wage/ Salary Earner	Casual Labour	Others	Total
1987-88	I	5.72	2.39	9.30	2.00	4.85
	II	5.22	2.62	6.94	2.33	4.17
	III	5.09	2.21	5.57	0.99	3.59
	IV	3.75	2.58	4.82	3.60	3.21
	All Urban	5.19	2.44	7.46	2.06	4.13
1993-94	I	4.45	1.47	6.80	0.60	3.61
	II	4.57	2.02	6.07	3.42	3.58
	III	4.66	1.58	5.39	1.62	3.23
	IV	2.85	1.00	4.35	0.15	1.93
	All Urban	4.23	1.53	6.04	1.61	3.19
1999-00	I	3.34	1.60	4.78	0.63	2.87
	II	2.72	1.22	5.93	0.60	2.52
	III	2.49	0.86	3.85	1.67	2.02
	IV	2.72	1.06	3.11	2.20	1.95
	All Urban	2.88	1.19	4.58	1.03	2.39

Note: As in table 5.1

Source: As in Table 5.1

Table 5.4: Average Daily Wages of Adult Workers by Means of Livelihood

(in Rs.)

Year	City Size	Self Employed	Regular Wage/ Salary Earner	Casual Labour	Others	Total
1987-88	I	52.26	73.13	94.83	108.92	76.77
	II	43.38	74.50	27.35	57.84	63.35
	III	48.41	119.45	98.80	73.28	109.93
	IV	56.50	98.43	32.43	43.42	89.63
	All Urban	50.12	91.79	72.48	83.30	84.75
1993-94	I	43.20	77.86	28.72	64.11	59.87
	II	50.10	80.01	31.46	73.02	67.77
	III	43.60	82.69	33.37	60.23	70.11
	IV	60.34	88.06	37.12	71.05	80.01
	All Urban	48.38	82.31	31.44	66.59	68.89
1999-00	I	52.32	109.85	32.04	91.32	94.06
	II	56.91	106.96	36.04	79.58	88.39
	III	52.89	110.63	38.07	77.33	93.14
	IV	72.54	107.21	41.39	101.96	96.75
	All Urban	58.36	108.59	31.77	87.74	93.17

Note: As in table 5.1

Source: As in Table 5.1.

Table 5.5: Incidence of Child Labour among Households with Heads Working as Casual Labourers in Public and Private Work

City Size	Casual Labourers in Public Work				Casual Labourers in Private Work			
	1983	1987-88	1993-94	1999-00	1983	1987-88	1993-94	1999-00
I	4.83	0.21	0 74	1 70	10.45	8 07	6.79	11.16
II	8.04	8.33	3 87	2 43	9 44	6 98	6.52	8.86
III	2.70	9.26	3 76	1 50	10 57	4 43	4.85	6.53
IV	4.86	0.00	0 00	0 75	6 18	4 86	4 07	4.41
All Urban	5.26	3.46	1 81	1 78	9 75	6 72	5 98	8.00

Note: As in table 5.1

Source: As in Table 5.1

Figure 5.1: Proportion of Population by Expenditure Classes and City Sizes in 1983

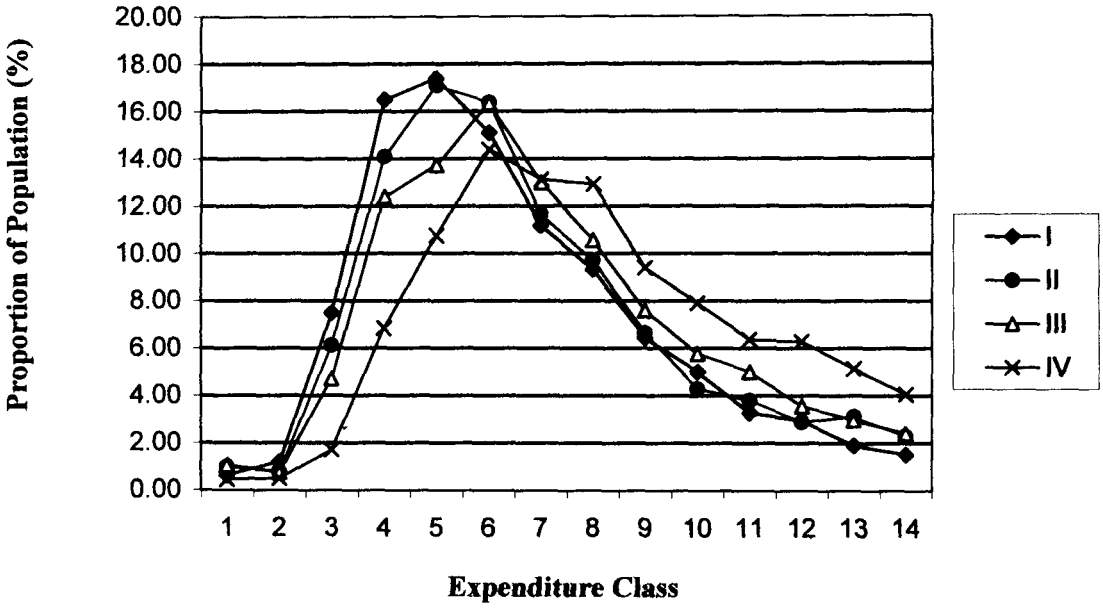

Figure 5.2: Proportion of Population by Expenditure Classes and City Sizes in 1987-88

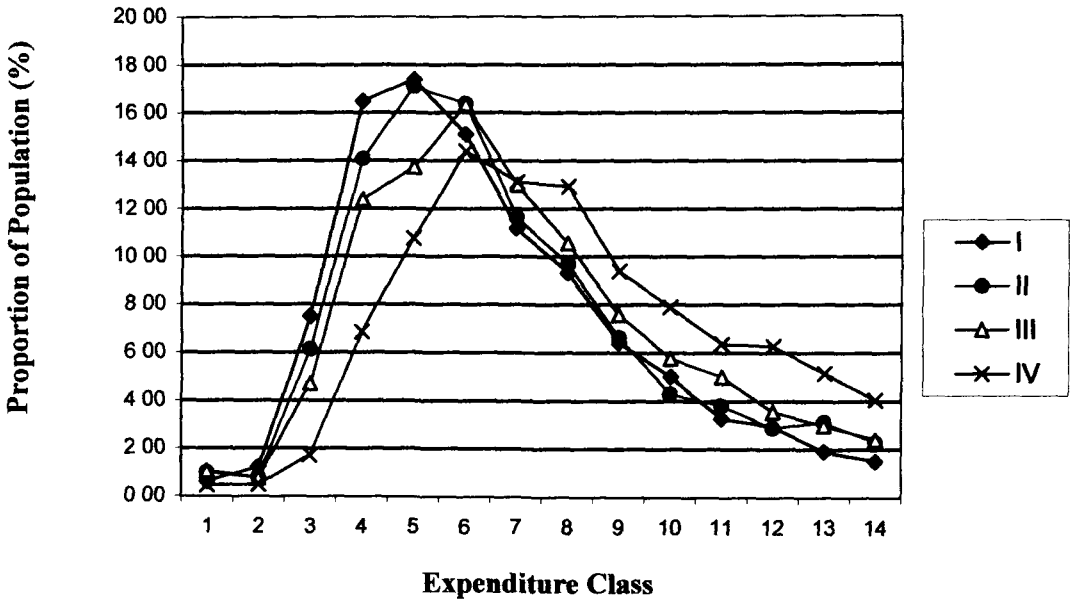

Figure 5.3: Proportion of Population by Expenditure Classes and City Sizes in 1993-94

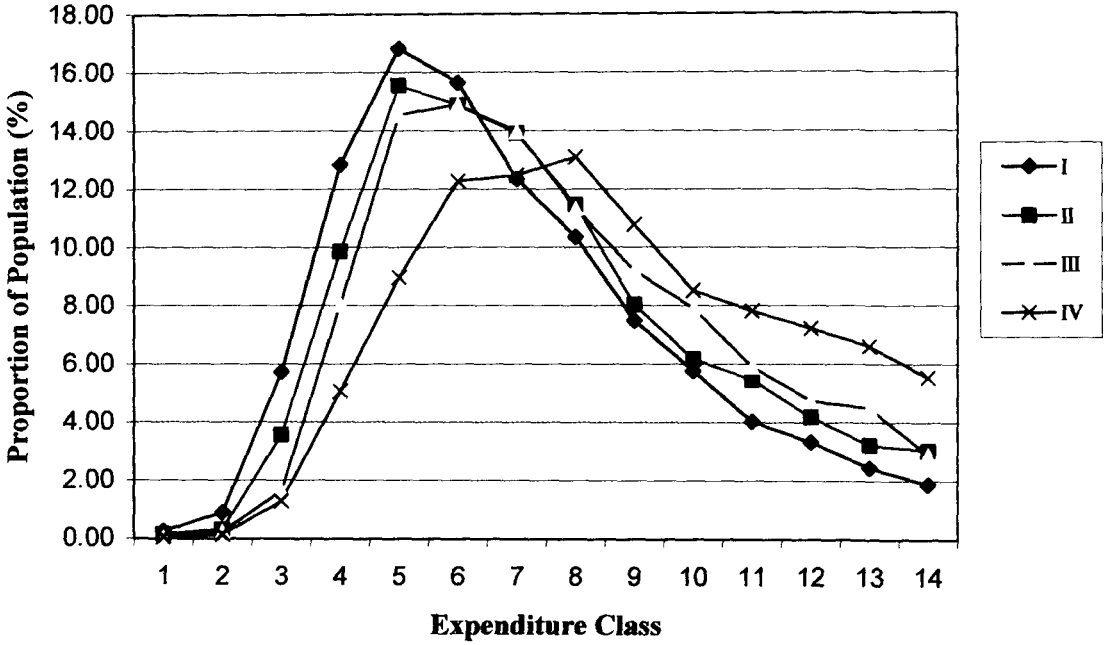

Figure 5.4: Proportion of Population by Expenditure Classes and City Sizes in 1999-00

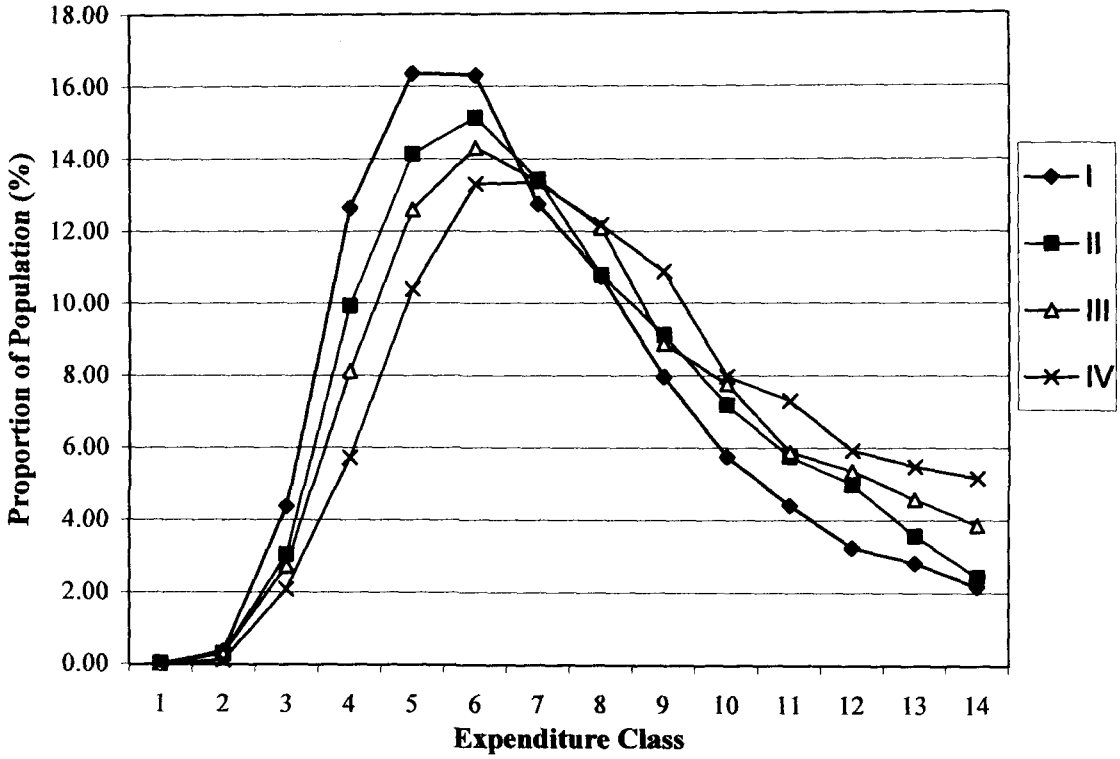

Table 5.6: Percentage of Children Attending Schools in Different City Sizes

City Size	1983			1987-88			1993-94			1999-00		
	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls	Children	Boys	Girls	Children
I	71.39	60.27	66.16	72 65	64 24	68 64	83 81	75 82	80 02	88.36	86 70	87.57
II	74.27	65.74	70 17	77 08	70 26	73 87	85 91	81 66	83 90	91 17	88.01	89.74
III	74.92	68.13	71 69	78 09	70 67	74 54	84 35	80 22	82 39	94.43	89.85	92.28
IV	83.79	78.29	81.18	84 50	80 97	82 77	89 93	88 95	89 47	95 26	92.73	93.99
All Urban	74.75	66.06	70 63	76 89	70 00	73 60	85 69	80 85	83 40	91 33	88 44	89.95

Note: As in table 5 1

Source· As in Table 5.1

Table 5.7: Average Daily Wages of Workers by Education in 1983 and 1987-88

(in Rs.)

Education	1983					1987-88				
	I	II	III	IV	All Urban	1	2	3	4	All Urban
1	26 19	26 76	29 62	34 43	28 27	59 00	29 02	33 54	45 87	45 11
2	37 56	32 39	37 35	43 07	37 54	112 17	38 19	128 11	44 00	85 23
3	36 50	37 42	39 05	44 28	38 94	51 88	40 75	125 59	49 25	64 86
4	47 95	46 31	47 10	50 13	47 86	58 30	59 19	123 91	52 47	73 38
5	66 56	63 66	77 79	76 76	71 10	79 29	78 78	95 79	83 85	84 25
6	121 90	153 03	117 86	149 46	133 35	148 40	129 86	157 71	201 73	163 23
7	91 44	90 40	93 33	113 14	97 60	120 16	105 09	155 57	172 64	142 02
Total	49 13	50 62	58 74	66 43	55 48	76 78	63 34	109 94	89 61	84 75

Note

i As in Table 5 1

ii Education Codes 1 -Illiterate 2 - Literate below Primary 3 - Primary, 4 - Middle 5 Secondary 6 Graduate and above in Professional Subjects, 7 - Graduate and above in General Subjects

iii Wage is computed for adults of the age group 15 to 59

iv Wage rate is measured at 1993-94 prices

Source As in Table 5 1

Table 5.8: Average Daily Wages of Workers by Education in 1993-94 and 1999-00

(in Rs.)

Education	1993-94					1999-00				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban
1	30.17	31.61	33.23	39.25	32.74	36.39	37.14	40.47	43.39	38.7
2	41.09	41.15	40.46	46.30	42.12	53.54	49.37	50.53	53.51	51.93
3	41.36	43.56	41.95	47.52	43.43	56.11	52.48	47.94	55.59	53.47
4	50.95	52.27	52.48	55.12	52.56	118.97	60.91	58.58	61.09	77.45
5	76.19	77.05	71.92	84.47	77.55	98.48	95.37	89.90	90.37	93.79
6	82.36	89.30	81.66	91.27	86.15	114.03	107.64	115.01	106.33	110.74
7	136.40	146.94	174.92	177.06	160.97	215.85	216.85	241.75	232.02	227.29
8	110.31	117.67	119.10	129.59	120.08	145.69	151.38	159.47	172.74	157.66
Total	59.86	67.77	70.11	80.04	68.90	94.00	88.39	93.11	96.76	93.16

Note: As in Table 5.7

Source: As in Table 5.1

Table 5.9: Incidence of Child Labour by Parental Education in 1983 and 1987-88

Education of the Parent	1983					1987-88				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban
1	9 27	7 95	8 31	6 28	8 41	7 44	6 78	6 35	5 84	6 87
2	5 60	6 32	6 87	3 45	5 70	4 15	4 66	3 53	3 90	4 08
3	3 57	4 30	4 22	2 65	3 72	3 33	3 02	2 67	2 38	2 93
4	4 08	1 92	2 49	1 77	2 82	2 79	2 69	2 05	1 32	2 37
5	1 66	1 17	1 14	1 57	1 41	0 93	1 11	0 80	1 29	1 02
6	4 17	3 22	1 20	4 58	3 42	3 32	0 85	2 65	1 80	2 26
7	1 85	1 70	1 33	2 49	1 84	1 41	1 53	2 27	3 06	2 09
Total	6 16	5 16	5 14	3 52	5 29	4 85	4 17	3 60	3 21	4 13

Note As in table 5 7

Source As in Table 5 1

Table 5.10: Incidence of Child Labour by Parental Education in 1993 and 1999-00

Education of the Parent	1993-94					1999-00				
	I	II	III	IV	All Urban	I	II	III	IV	All Urban
1	5 48	5 69	5 05	2 31	4 94	5 02	5 24	4 58	3 84	4 75
2	2 13	2 34	2 45	1 77	2 74	2 18	2 03	1 01	1 59	1 77
3	2 51	2 70	3 20	1 82	2 60	2 51	2 05	1 54	1 98	2 07
4	0 69	0 41	1 48	1 09	0 88	1 46	0 78	1 58	0 98	1 18
5	1 03	1 74	0 37	0 92	1 03	0 62	1 06	0 23	1 52	0 93
6	0 25	0 07	0 44	0 15	0 22	0 82	0 35	0 55	1 04	0 74
7	0 29	0 77	1 35	0 00	0 49	0 00	0 00	1 65	0 00	0 50
Total	1 12	4 21	0 90	1 20	1 80	0 31	0 62	1 11	0 31	0 55

Note As in table 5 7

Source As in Table 5 1

Table 5.11: Results of Maximum Likelihood Probit Model in the Urban Sector of India
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size I	0.1663	**820.98**	0.1124	**549.15**	0.0472	**302.35**	0.0371	**393.34**
City size II	0.1179	**534.83**	0.0672	**306.50**	0.0577	**355.23**	0.0227	**227.63**
City size III	0.1030	**452.17**	0.0857	**387.50**	0.0798	**479.68**	0.0126	**119.17**
Self-employed			-0.1221	**-251.83**			0.0349	**207.27**
Regular wage			-0.1377	**-281.38**	0.0798	**127.75**	-0.0336	**-198.22**
Casual labour			-0.0548	**-108.35**	0.0187	**36.60**	0.1039	**533.81**
Real Wage of the Household Head	-0.0008	**-466.57**	-0.0004	**-287.06**	0.0942	**163.72**	0.0000	**14.75**
Households Below Poverty line	0.1268	**275.35**	0.1603	**529.96**	-0.0009	**-624.58**	0.1228	**1377.28**
Education of the Parent Illiterate	0.4637	**1566.37**	0.4555	**1496.83**	0.0849	**710.33**	0.3564	**1403.84**
Education of the Parent Below primary	0.2970	**941.25**	0.3052	**978.31**			0.1132	**473.55**
Education of the Parent Primary	0.2242	**723.99**	0.1902	**627.86**	0.2306	**1498.35**	0.0958	**385.27**
Education of the Parent Middle	0.1489	**475.45**	0.1259	**407.33**	-0.1332	**-91.20**	0.0334	**139.27**
Education of the Parent Secondary	-0.0031	**-10.16**	0.0091	**31.18**	0.2510	**400.72**	0.0343	**133.85**
Education of the Parent Higher Secondary					0.1039	**572.40**	-0.0009	**-3.03**
Female Head	0.3150	**155.92**	0.1691	**77.02**			-0.0119	**-52.29**
Female head working	-0.2997	**-188.69**	-0.1821	**-102.52**	0.1258	**54.25**	0.0949	**302.02**
Female Head Educated	0.0022	**2.61**	-0.0410	**-52.61**			-0.0020	**-7.36**
ST	0.0760	**193.95**	0.1203	**325.29**	-0.1209	**-84.83**	0.0726	**390.31**
SC	0.1088	**526.17**	0.0879	**418.49**	0.1196	**408.77**	0.1049	**1029.23**
Muslim	0.2378	**1265.72**	0.1853	**1020.15**	0.0989	**701.81**	0.1579	**1692.70**
Christian	-0.1323	**-295.34**	-0.1434	**-324.15**	0.1142	**694.67**	-0.0580	**-226.10**
Other religion	-0.0595	**-175.00**	-0.1459	**-400.37**	-0.0678	**-215.34**	-0.0634	**-343.24**

Note:

i. df/dx are marginal effects, i.e., the change in probability of children working with a one-unit change in the right side variable. z is the test of the underlying coefficient being 0.

ii. The coefficients significant at 95% confidence interval are highlighted in bold

Source: As in Table 5.1

Table 5.12: Results of Maximum Likelihood Probit Model in the Urban Sector of Andhra Pradesh
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.1157	-187.29	-0.0005	0.84	-0.0041	10.36	0.0284	106.86
City size III	-0.0598	-96.62	-0.0246	39.74	-0.0245	57.98	-0.0261	-80.68
City size IV	-0.0655	-93.94	-0.0350	-45.69	-0.0462	-78.92	-0.0624	-204.48
Self-employed					0.8845	1055.76	0.1506	236.49
Regular wage					0.7041	1409.16	0.0618	103.5
Casual labour					0.9942	1511.74	0.2508	352.64
Real Wage of the Household Head	-0.0022	-257.27	-0.0004	-57.88	-0.0009	-148.86	-0.0009	-185.36
Households Below Poverty line	0.5062	142.26	0.0863	101.31	0.0427	115.52	0.0502	171.58
Education of the Parent Illiterate	0.4781	374.35	0.5215	438.11			0.2517	364.87
Education of the Parent Below primary	0.3699	274.56	0.3828	305.42	0.2497	308.06	0.0813	124.61
Education of the Parent Primary	0.3001	230.41	0.3377	268.28			0.1085	153.75
Education of the Parent Middle	0.1989	149.15	0.2358	183.77	0.3042	183.87	-0.0277	-45.37
Education of the Parent Secondary	-0.0290	-22.75	0.1208	99.03	0.1512	165.89	-0.1422	-240.99
Education of the Parent Higher Secondary					0.0470	67.78	-0.0833	-113.67
Female Head	0.0518	37.72	-0.0967	-79.05	0.0478	55.35	0.0055	8.68
Female head working							0.1219	128.95
Female Head Educated	-0.1583	-49.71	-0.2002	-61.21			0.0368	46.43
ST	0.0323	22.29	0.3660	170.05	0.0943	99.61	0.2010	266.82
SC	-0.0004	-0.47	0.1148	151.15	-0.0288	-59.17	0.0907	289.15
Muslim	0.1659	271.12	0.1875	324.59	0.1211	237.97	0.1477	490.21
Christian	-0.0331	-17.65	-0.0935	-67.42	-0.0347	-32.78	0.1398	162.33
Other religion	0.0953	41.04					-0.0982	-73.56

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.13: Results of Maximum Likelihood Probit Model in the Urban Sector of Assam
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.1180	-67.28	-0.1935	-112.31	0.1070	71.94	-0.1523	-197.61
City size III	-0.0188	-7.74	0.0488	20.29	0.0217	16.41	0.0652	76.61
City size IV								
Self-employed					0.4427	76.72	0.0111	9.33
Regular wage					0.2380	83.56	-0.0823	-72.00
Casual labour					0.6231	121.03	0.2785	131.62
Real Wage of the Household Head	-0.0001	-31.28	-0.0013	-77.28	-0.0005	-52.89	0.0003	89.27
Households Below Poverty line					-0.0240	-14.02	-0.0212	-30.07
Education of the Parent Illiterate	0.3946	100.95	0.2858	94.23			0.3642	175.23
Education of the Parent Below primary	0.3971	104.62	-0.0037	-1.16	0.0338	14.88	0.1132	67.14
Education of the Parent Primary	0.3192	87.69	-0.0368	-14.41			-0.0449	-30.47
Education of the Parent Middle	0.2099	58.82	-0.0012	-0.50			-0.0840	-61.25
Education of the Parent Secondary	0.1759	49.43	-0.0424	-17.87	-0.0712	-25.83	-0.1545	-94.11
Education of the Parent Higher Secondary					-0.0893	-70.46	0.1172	59.00
Female Head	-0.5254	-318.97	-0.3673	-196.04	0.7943	127.35	0.9429	1052.37
Female head working	0.6432				-0.2164	-112.07	-0.0865	-50.27
Female Head Educated	0.2573	28.13	0.7010				-0.2172	
ST	-0.1415	-16.51	-0.0699	-22.00	-0.0218	-8.95	0.0354	24.04
SC	0.0387	15.73	-0.0100	-4.88	-0.0663	-34.1	-0.0232	-26.77
Muslim	-0.1578	-60.39	-0.1785	-81.79	0.0721	41.47	0.0368	30.22
Christian							0.0863	25.08
Other religion	0.0961	8.97						

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.14: Results of Maximum Likelihood Probit Model in the Urban Sector of Bihar
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.0937	-128.17	0.0403	-59.11	0.0959	73.88	-0.0163	26.72
City size III	-0.0586	-68.79	-0.0282	41.71	-0.0323	-28.70	0.0830	-114.53
City size IV							-0.1068	130.24
Self-employed					0.1401	51.02	0.0080	9.83
Regular wage					-0.1899	-93.84	-0.1015	-109.40
Casual labour					0.1042	45.01	0.0978	97.15
Real Wage of the Household Head	-0.0016	-206.89	0.0001	8.79	-0.0007	-58.02	0.0010	119.33
Households Below Poverty line	-0.0877	-42.26	0.1045	87.75	0.0529	46.59	0.1873	270.39
Education of the Parent Illiterate	0.3099	265.66	0.4509	484.76			0.4253	343.51
Education of the Parent Below primary	0.2365	201.96	0.2692	271.89	0.3361	197.45	0.0208	15.82
Education of the Parent Primary	0.2085	151.56	0.3225	315.99			0.1221	85.90
Education of the Parent Middle	0.0625	53.65	0.0873	85.43			-0.1111	-77.81
Education of the Parent Secondary	-0.1176	-93.08	0.1553	158.03	0.4435	212.71	-0.0756	-50.83
Education of the Parent Higher Secondary					0.1508	110.73	-0.2303	-112.82
Female Head	-0.3149	-175.19	0.4660	661.38	-0.1536	-51.91	0.4390	235.60
Female head working			-0.6307				-0.1962	-53.26
Female Head Educated	0.3325	132.00	-0.4389	-97.59			-0.3518	-149.33
ST	0.1069	62.54	-0.0372	-22.56	-0.1417	-22.03	0.0205	13.61
SC	0.1863	181.36	0.1331	150.28	0.2822	200.23	0.2185	270.44
Muslim	0.2098	281.77	0.0220	30.53	0.1922	173.48	0.2228	367.64
Christian	-0.3074	-111.06	-0.5607	-131.22	0.4970	109.36	-0.4711	-167.05
Other religion	-0.1569	-53.46	-0.1882	-86.09	0.4841	68.24		

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.15: Results of Maximum Likelihood Probit Model in the Urban Sector of Chhattisgarh
Dependent Variable: Child Labour

Independent Variables	1993-94		1999-00	
	dF/dx	z	dF/dx	z
City size II	-0.1354	-125.76	-0.0914	-128.51
City size III	0.1056	115.39	-0.0490	73.45
City size IV				
Self-employed	0.0426	13.26	0.0594	45.23
Regular wage	-0.1137	-37.68	0.1435	105.53
Casual labour	0.1364	41.30	0.4216	255.49
Real Wage of the Household Head	-0.0005	-41.87	-0.0010	-82.91
Households Below Poverty line	0.1096	117.63	0.2648	223.18
Education of the Parent Illiterate			0.0636	40.07
Education of the Parent Below primary	0.2885	165.14	-0.0269	-18.13
Education of the Parent Primary			0.0871	51.52
Education of the Parent Middle			-0.1279	-92.61
Education of the Parent Secondary	0.1878	107.69	-0.1612	-118.08
Education of the Parent Higher Secondary	0.2350	173.36	-0.0389	-20.97
Female Head	-0.1635	-109.47	0.1171	36.70
Female head working			-0.0294	-12.47
Female Head Educated			-0.1407	-69.76
ST	0.0644	49.57	-0.0094	-9.50
SC	0.0873	76.87	-0.0272	-38.05
Muslim	-0.1234	-63.91	-0.0328	-32.21
Christian				
Other religion			0.2773	118.46

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.16: Results of Maximum Likelihood Probit Model in the Urban Sector of Gujarat
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.1063	-160.08	-0.0711	-99.68	-0.0095	19.64	-0.0370	-111.07
City size III	-0.0246	-36.46	-0.0280	-35.92	-0.0314	-49.68	-0.0069	-16.67
City size IV	-0.0493	-66.16	-0.0490	-65.07	-0.0039	-8.40	-0.0276	81.32
Self-employed					0.8789	602.89	0.1713	124.98
Regular wage					0.5564	862.62	0.0914	67.23
Casual labour					0.9770	899.83	0.2337	145.94
Real Wage of the Household Head	-0.0019	-269.94	0.0004	52.46	-0.0011	-174.82	0.0006	139.95
Households Below Poverty line	0.0443	14.89	0.1878	131.74	0.0530	125.85	0.1832	532.61
Education of the Parent Illiterate	0.4476	433.67	0.5538	441.10			0.6681	262.99
Education of the Parent Below primary	0.0469	47.68	0.4464	339.06	0.4998	341.22	0.4370	173.50
Education of the Parent Primary	0.1657	167.70	0.2621	208.48			0.3876	147.73
Education of the Parent Middle	0.0643	61.47	0.2513	171.67	0.3392	81.61	0.3206	124.17
Education of the Parent Secondary	-0.0766	-79.56	0.0434	34.07	0.4345	303.34	0.3207	119.30
Education of the Parent Higher Secondary					0.1890	194.77	-0.0558	-23.97
Female Head	-0.0556	-31.69	0.7274	704.12	-0.0237	-28.86	0.3008	201.97
Female head working			-0.3417				-0.0630	-40.48
Female Head Educated	-0.1259	-34.33	-0.2820	-117.30			-0.0585	-54.52
ST	0.3338	202.22	0.1757	149.70	0.0270	31.31	0.0156	25.03
SC	0.0752	93.70	0.1970	238.03	-0.0013	-2.84	0.0745	187.81
Muslim	0.3772	506.24	0.2098	273.07	0.0643	122.03	0.0240	63.93
Christian	-0.0811	-22.47			0.1606	74.97		
Other religion	-0.2554	-202.27	-0.1562	-65.37			0.0644	50.50

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.17: Results of Maximum Likelihood Probit Model in the Urban Sector of Haryana
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.1050	-96.49	0.1707	153.27	-0.0210	-32.99	-0.0306	-80.75
City size III	-0.2961	-133.76			0.2395	185.14	-0.0301	55.33
City size IV								
Self-employed					0.9634	.	0.0458	66.30
Regular wage					0.3521	568.60	-0.0415	-61.61
Casual labour					0.9942	572.59	0.0492	58.47
Real Wage of the Household Head	-0.0002	-11.33	-0.0002	-25.21	-0.0011	-138.90	-0.0016	-112.10
Households Below Poverty line			0.4146	167.13	0.0077	15.81	0.1234	339.36
Education of the Parent Illiterate	0.4843	231.70	0.7564	334.37			0.9982	914.73
Education of the Parent Below primary	0.1869	79.92	0.6591	283.01	0.1662	157.47	0.9843	756.33
Education of the Parent Primary	0.2202	94.58	0.1311	57.66			0.9808	780.56
Education of the Parent Middle	-0.1372	-58.11	0.5856	251.68	0.2796	97.87	0.9852	832.40
Education of the Parent Secondary	-0.1947	-104.56	0.0992	42.76	0.1405	100.55	0.9673	794.10
Education of the Parent Higher Secondary					-0.0156	-25.11	0.9238	.
Female Head	-0.3081	-98.14			0.0084	10.38	0.9780	2895.96
Female head working							-0.1113	
Female Head Educated	0.0848	13.19					-0.2645	
ST	0.4237	68.27	-0.0288	-8.74				
SC	0.1843	141.08	-0.0138	-11.28	0.1675	222.35	0.2480	458.31
Muslim					0.0988	76.63	0.7842	148.13
Christian								
Other religion	0.2129	76.18	0.0282	12.82	-0.0355	-53.69	0.3395	208.39

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.18: Results of Maximum Likelihood Probit Model in the Urban Sector of Jharkhand
Dependent Variable: Child Labour

Independent Variables	1993-94		1999-00	
	dF/dx	z	dF/dx	z
City size II	0.0904	**62.03**	-0.0245	**-33.05**
City size III	-0.0297	**-28.72**	0.0748	**99.17**
City size IV				
Self-employed	-0.4805		-0.0090	**-7.24**
Regular wage	-0.9754	**1473.70**	-0.0512	**-42.09**
Casual labour	-0.7296	**1095.61**	-0.0723	**-52.79**
Real Wage of the Household Head	0.0004	**53.28**	0.0008	**135.30**
Households Below Poverty line	0.2177	**198.90**	0.2307	**311.60**
Education of the Parent Illiterate			0.7647	**349.66**
Education of the Parent Below primary	0.3206	**200.85**	0.5574	**225.57**
Education of the Parent Primary			0.5565	**220.87**
Education of the Parent Middle			0.5916	**240.48**
Education of the Parent Secondary	0.2019	**100.90**	0.4759	**173.46**
Education of the Parent Higher Secondary	0.0770	**60.85**	0.3236	**102.86**
Female Head	-0.0307	**-14.53**	-0.0399	**-16.75**
Female head working			0.2216	**68.62**
Female Head Educated			-0.1681	**-65.94**
ST	0.0980	**63.24**	0.2275	**207.85**
SC	0.2138	**186.10**	0.1491	**166.91**
Muslim	0.0235	**11.95**	0.2383	**272.43**
Christian	0.0689	**27.69**	-0.2034	**-144.33**
Other religion			0.5450	**247.84**

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.19: Results of Maximum Likelihood Probit Model in the Urban Sector of Karnataka
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.2042	-286.59	-0.0345	-35.17	-0.0578	-157.97	-0.0814	205.81
City size III	-0.0279	-33.70	-0.0253	-33.05	-0.0243	-61.14	-0.0354	87.52
City size IV	-0.2332	-355.84	-0.0879	-124.22	-0.0753	-181.88	-0.0910	211.61
Self-employed					-0.0925	-124.65	0.2239	202.35
Regular wage					-0.2081	-123.78	0.1750	156.55
Casual labour					-0.1079	-100.82	0.3313	247.85
Real Wage of the Household Head	-0.0004	-59.12	-0.0018	-235.92	-0.0009	-161.94	-0.0007	-119.46
Households Below Poverty line	0.1208	75.27	0.3292	252.01	0.0933	234.05	0.0735	180.35
Education of the Parent Illiterate	0.4641	431.96	0.3529	223.81			0.3126	292.44
Education of the Parent Below primary	0.3022	239.79	0.2404	146.66	0.1298	153.10	0.0445	47.13
Education of the Parent Primary	0.1536	131.80	0.1959	124.45			0.1533	146.18
Education of the Parent Middle	0.1112	94.93	0.1200	74.26	0.2017	83.78	0.0461	48.31
Education of the Parent Secondary	-0.1222	-107.70	0.1242	80.56	0.0456	51.97	0.0832	81.11
Education of the Parent Higher Secondary					0.0000	-0.08	-0.0532	-46.49
Female Head	0.0879	21.85	0.2489	144.36	-0.0633	-119.35	0.0034	3.83
Female head working	-0.3118	-93.44					0.2125	160.26
Female Head Educated	0.2268	79.54	-0.3677	-166.28			-0.0924	-114.21
ST	0.2069	88.18	0.0684	34.95	-0.0839	-133.53	0.1497	222.85
SC	0.1005	120.55	0.2383	263.44	0.0002	0.50	0.0448	97.77
Muslim	0.1591	226.11	0.1616	264.15	0.0845	182.47	0.1410	393.34
Christian	-0.0722	-51.18	-0.1139	-65.01	-0.0758	-97.79	0.0036	4.51
Other religion	-0.1344	-109.74	-0.2159	-108.29			-0.0371	-36.07

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.20: Results of Maximum Likelihood Probit Model in the Urban Sector of Kerela
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.1014	-112.00	0.0044	4.10	0.0362	53.53	-0.0223	-108.84
City size III	-0.0339	-40.86	0.0198	28.51	0.0146	25.36	-0.0023	-11.22
City size IV								
Self-employed					-0.0560	-36.77	0.0143	36.62
Regular wage					-0.1615	-62.27	-0.0133	-35.02
Casual labour					-0.0368	-15.68	-0.0032	-8.46
Real Wage of the Household Head	0.0011	98.26	-0.0014	-157.33	-0.0007	-83.54	0.0001	53.88
Households Below Poverty line	0.2334	109.48	0.0944	65.29	0.0318	58.25	0.0316	146.27
Education of the Parent Illiterate	-0.0453	-23.17	0.1753	92.06			-0.0348	-118.36
Education of the Parent Below primary	0.1102	54.30	-0.0538	-49.05	-0.0674	-117.73	-0.0518	-188.66
Education of the Parent Primary	-0.0125	-6.90	-0.0534	-50.50			-0.0541	-190.42
Education of the Parent Middle	-0.0452	-25.37	-0.0152	-13.28			-0.0801	-207.67
Education of the Parent Secondary	-0.1269	-82.20	-0.1095	-98.03	-0.0382	-47.27	-0.0389	-145.14
Education of the Parent Higher Secondary					-0.1162	-112.54	-0.0291	-92.82
Female Head	0.4558	108.55	0.5169	105.10	0.0453	40.77	0.0163	32.90
Female head working			-0.1499	.			0.0139	33.19
Female Head Educated	-0.1627	-93.34	0.9240	.			-0.0063	-13.35
ST							0.1120	48.89
SC	-0.1177	-94.56	0.0205	14.80			0.1134	202.86
Muslim	0.2877	275.27	0.0906	108.64	0.0346	51.24	0.0742	262.55
Christian	-0.0811	-72.19	-0.0123	-12.92	0.0507	79.47	0.0054	17.62
Other religion								

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.21: Results of Maximum Likelihood Probit Model in the Urban Sector of Madhya Pradesh
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.0364	-58.90	-0.1357	-228.50	-0.0173	-42.12	-0.0353	-104.81
City size III	-0.1884	-319.77	-0.1504	-259.01	-0.0162	-35.14	0.0073	16.73
City size IV					-0.0289	-58.25	-0.0546	-136.95
Self-employed					0.9118	.	0.1193	140.74
Regular wage					0.5539	1712.32	0.1089	123.56
Casual labour					0.9729	1637.66	0.2826	273.19
Real Wage of the Household Head	-0.0008	-90.72	-0.0011	-166.52	-0.0002	-57.66	-0.0010	-123.68
Households Below Poverty line	0.3192	177.07	0.1458	166.46	0.1457	359.99	0.1051	235.16
Education of the Parent Illiterate	0.6179	517.28	0.4286	387.39			0.4454	368.71
Education of the Parent Below primary	0.5132	413.29	0.1603	147.55	0.3036	409.71	0.2631	213.74
Education of the Parent Primary	0.4690	368.19	0.1089	100.61			0.2597	194.18
Education of the Parent Middle	0.2412	170.91	-0.0066	-6.16	0.7132	122.12	0.2059	151.95
Education of the Parent Secondary	0.1522	105.47	-0.0522	-53.05	0.2018	280.82	0.1360	95.76
Education of the Parent Higher Secondary					0.0923	180.13	0.1173	81.40
Female Head	-0.5131	-1361.27	-0.4150	1183.08	-0.1190	-192.88	-0.1938	-266.52
Female head working	0.6371	.	0.7011	.	0.1229	.	0.2694	149.16
Female Head Educated	-0.2620	-83.16	0.1573	40.80			0.1444	80.11
ST	-0.0928	-101.25	0.0875	96.22	0.1456	203.02	0.1068	206.47
SC	0.0655	91.28	-0.0258	-29.97	-0.0024	-5.75	0.0582	134.07
Muslim	0.1821	248.94	0.2056	273.54	-0.0059	-11.12	0.1326	340.97
Christian	0.5584	330.55	-0.1075	-54.39				
Other religion	-0.0251	-21.95	-0.0767	-54.52	-0.0485	-19.47	-0.1667	-163.68

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.22: Results of Maximum Likelihood Probit Model in the Urban Sector of Maharashtra
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.0427	-87.64	-0.1397	-308.68	0.0437	116.29	-0.0321	-122.85
City size III	-0.0357	-66.24	-0.0665	-143.07	0.0105	36.42	-0.0273	-129.14
City size IV	-0.0892	-206.17	-0.1682	-406.80	-0.0083	-29.43	-0.0219	-104.87
Self-employed					0.9263		0.0617	131.02
Regular wage					0.3717	1633.53	0.0453	100.36
Casual labour					0.9851	1634.94	0.1925	320.81
Real Wage of the Household Head	-0.0010	-225.54	-0.0009	-232.32	-0.0011	-320.52	0.0001	33.56
Households Below Poverty line	0.2498	199.66	0.2737	346.69	0.0407	161.92	0.0616	305.7
Education of the Parent Illiterate	0.4812	498.67	0.3724	440.56			0.1889	363.29
Education of the Parent Below primary	0.2936	284.56	0.1843	224.38	0.1150	218.78	-0.0009	-2.16
Education of the Parent Primary	0.2700	294.65	0.0728	103.45			0.0427	94.49
Education of the Parent Middle	0.2463	263.64	-0.0223	-30.45	0.4452	209.45	-0.0231	-55.09
Education of the Parent Secondary	0.0447	51.39	-0.0369	-57.53	0.1196	203.80	0.0080	17.32
Education of the Parent Higher Secondary					0.0028	7.52	-0.0219	-38.00
Female Head	-0.1015	-84.47	0.8305	1852.43	-0.0074	-17.98	0.0846	133.70
Female head working			-0.3205				0.0207	35.11
Female Head Educated	0.0354	14.56	0.0625	32.93			-0.0006	-1.07
ST	0.1824	195.23	0.1551	199.76	0.0978	162.25	-0.0395	-111.89
SC	0.2128	315.05	0.0206	33.88	0.1911	449.30	0.0203	79.14
Muslim	0.1811	375.80	0.1184	247.23	0.1445	391.48	0.1428	698.86
Christian	0.0535	37.27	-0.1517	-92.94	0.0775	89.56	-0.0550	-92.71
Other religion	0.0392	62.36	-0.0878	-151.08	0.0167	49.78	-0.0149	-50.25

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.23: Results of Maximum Likelihood Probit Model in the Urban Sector of Orissa
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	0.1710	153.62	0.0436	-38.10	-0.0182	-24.72	-0.0285	46.22
City size III	-0.0774	64.82	-0.0475	39.49	-0.0490	-71.87		
City size IV								
Self-employed					0.9383	732.59	0.0009	0.64
Regular wage					0.3656	809.70	-0.0244	-17.62
Casual labour					0.9602	719.11	0.1359	86.70
Real Wage of the Household Head	-0.0046	-210.78	-0.0011	-73.75	-0.0035	-306.58	-0.0011	-80.93
Households Below Poverty line	0.0889	41.10	0.1007	51.70	0.1617	211.25	0.1520	168.86
Education of the Parent Illiterate	0.4114	180.63	0.5947	259.71			0.3197	150.59
Education of the Parent Below primary	0.2879	122.76	0.3713	161.92	0.0503	38.85	0.0179	8.76
Education of the Parent Primary	0.0793	32.84	0.2744	110.80			-0.1728	-88.18
Education of the Parent Middle	-0.0383	-16.25	0.1579	68.98	-0.1148	-114.49	0.1382	63.37
Education of the Parent Secondary	0.1612	73.14	0.1592	68.53	0.1252	91.20		
Education of the Parent Higher Secondary					0.0574	64.63		
Female Head	0.5872	672.55	0.0563	14.08	0.5268	150.20	0.6064	137.60
Female head working	-0.5723						-0.2809	-237.65
Female Head Educated	0.3474	75.23	-0.0532	-8.47			-0.0472	-12.20
ST	0.0192	11.79	0.2607	144.72	0.1868	165.70	-0.0204	-21.94
SC	0.1249	91.22	0.4143	228.98	-0.0833	-120.80	0.2342	303.01
Muslim	0.4079	161.82	0.0098	4.91	-0.1209	-147.89	0.3010	281.59
Christian	-0.3044	-97.39	-0.2002	-86.02	-0.0350	-17.28		
Other religion							0.4563	54.49

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.24: Results of Maximum Likelihood Probit Model in the Urban Sector of Punjab
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	0.0013	1.12	-0.0940	-112.82	0.0475	52.14	-0.0416	-103.4
City size III	-0.0395	-45.00	-0.0538	-73.59	0.1105	115.93	-0.0159	-34.85
City size IV					0.1199	99.18	-0.0339	61.76
Self-employed					0.9207		-0.0062	-7.04
Regular wage					0.5402	814.16	-0.0247	-27.85
Casual labour					0.9880	912.11	0.1271	105.77
Real Wage of the Household Head	-0.0016	-126.19	-0.0006	-62.22	-0.0021	-180.85	-0.0004	-52.07
Households Below Poverty line	0.0549	22.74	0.3201	141.44	-0.0361	-46.70	0.1147	302.34
Education of the Parent Illiterate	0.4311	225.89	0.3967	206.75			0.0570	60.48
Education of the Parent Below primary	-0.0058	-2.88	0.4063	190.97	0.0740	52.91	-0.0709	-90.88
Education of the Parent Primary	0.2059	99.97	0.2138	108.12			-0.1126	-161.01
Education of the Parent Middle	0.0121	6.35	-0.0120	-6.59			-0.0451	-53.89
Education of the Parent Secondary	-0.0919	-53.50	0.0633	38.27	0.0599	38.03	-0.0761	-97.31
Education of the Parent Higher Secondary					-0.0283	-26.08	-0.0774	-87.78
Female Head	-0.1822	-52.37	0.1733	47.78	0.0308	19.46	0.1809	125.48
Female head working	0.2579	37.29					0.1253	75.65
Female Head Educated	0.1206	19.31	-0.1560	-42.66			-0.0606	-54.79
ST	0.0189	5.21	0.3762	77.20			0.0976	75.35
SC	0.2683	267.21	0.1479	164.09	0.1180	167.51	0.0629	163.10
Muslim	0.1621	52.67	0.3092	137.66	0.3594	90.05	0.0570	56.55
Christian	-0.1677	-46.14	-0.0440	-10.68				
Other religion	0.0375	41.53	-0.0998	-140.01	0.0233	36.72	-0.0193	-55.51

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.25: Results of Maximum Likelihood Probit Model in the Urban Sector of Rajasthan
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.1023	-128.15	-0.0271	30.54	0.2459	270.20	-0.0424	-107.1
City size III	-0.2373	-307.35	-0.0661	-92.14	-0.0774	83.07	-0.1443	-370.32
City size IV					-0.0327	30.15	-0.0414	-66.80
Self-employed					0.8528	1138.98	0.0502	48.35
Regular wage					0.7362	1366.8	-0.0891	-86.22
Casual labour					0.9304	1386.02	0.1211	99.94
Real Wage of the Household Head	-0.0015	-128.05	-0.0003	-27.57	-0.0006	-60.32	0.0008	166.43
Households Below Poverty line	0.2338	78.71			0.0999	131.11	0.1728	388.27
Education of the Parent Illiterate	0.5532	304.52	0.6072	453.98			0.3407	255.27
Education of the Parent Below primary	0.3525	186.55	0.3444	244.29	0.4491	383.30	0.1972	147.11
Education of the Parent Primary	0.3977	219.16	0.3735	267.34			0.0668	49.32
Education of the Parent Middle	0.3198	168.16	0.1481	101.16			0.1037	75.25
Education of the Parent Secondary	0.2743	143.59	-0.0124	-9.10	0.1196	91.44	0.0674	48.09
Education of the Parent Higher Secondary					0.2056	224.19	-0.0360	-23.79
Female Head	0.5273	908.95	0.0409	18.09	-0.1717	-128.06	-0.1743	-174.9
Female head working	-0.5472						0.2232	114.11
Female Head Educated			0.3099	78.65			0.2995	147.65
ST	0.1323	61.47	0.0031	1.66	-0.0289	-13.81	0.1692	159.62
SC	0.0539	62.54	-0.0734	-85.90	0.1607	183.65	0.2408	520.47
Muslim	0.3378	376.95	0.1006	112.50	0.0700	68.90	0.1023	214.46
Christian							0.2213	51.62
Other religion	-0.1297	-94.69	-0.2514	-125.18	-0.0440	-20.54	0.1438	138.91

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.26: Results of Maximum Likelihood Probit Model in the Urban Sector of Tamil Nadu
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.0418	-85.67	0.0375	79.61	0.0262	77.78	-0.0142	-67.25
City size III	-0.0194	-32.35	0.0273	44.15	0.0627	157.27	-0.0414	-143.15
City size IV	-0.1013	-190.51	-0.0306	55.98	-0.0132	-36.56	0.0103	44.41
Self-employed					-0.0876	-96.74	0.1683	191.42
Regular wage					-0.1351	-87.60	0.1746	200.72
Casual labour					-0.0684	-54.35	0.3353	282.80
Real Wage of the Household Head	-0.0011	-148.66	-0.0001	-18.90	-0.0002	-45.22	0.0001	48.76
Households Below Poverty line	0.0818	84.98	0.1150	124.82	0.0544	179.69	0.1216	504.2
Education of the Parent Illiterate	0.4166	318.20	0.5019	409.97			0.2373	190.91
Education of the Parent Below primary	0.3372	257.11	0.3999	330.27	0.2054	258.52	0.1426	133.64
Education of the Parent Primary	0.2733	217.77	0.2719	238.90			0.1203	112.39
Education of the Parent Middle	0.0959	75.39	0.1820	163.87			0.1360	117.42
Education of the Parent Secondary	0.0899	71.70	0.0193	18.17	0.1467	184.60	0.1370	113.93
Education of the Parent Higher Secondary					0.0138	26.06	0.0159	13.19
Female Head	0.4692	64.93	-0.0403	-11.13	-0.0084	-15.21	-0.0241	-48.99
Female head working	-0.2862	-64.30	0.0722	17.98			0.1396	159.32
Female Head Educated	-0.0029	-1.42	-0.0660	-39.76			-0.0154	-25.26
ST	-0.0722	-48.10	-0.1184	-56.42			0.0105	14.60
SC	-0.0203	-32.97	0.0163	28.73	0.0202	61.86	0.0471	173.67
Muslim	0.0934	142.60	0.1732	263.55	0.0727	167.15	0.1536	485.98
Christian	-0.1848	-251.22	-0.1166	-165.76	-0.0400	-75.01	0.0699	130.47
Other religion	0.1901	104.69	-0.1388	-75.17			-0.0230	-20.20

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.27: Results of Maximum Likelihood Probit Model in the Urban Sector of Uttar Pradesh
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.1027	198.95	-0.0900	-165.07			-0.0612	-202.19
City size III	-0.0090	-18.30	-0.0648	-137.90	0.0859	164.22	-0.0432	-147.15
City size IV	-0.1750	-225.85	-0.1156	-144.57			-0.1032	-384.35
Self-employed					-0.1040	-44.21	0.0445	96.31
Regular wage					-0.0746	-26.91	-0.0582	-117.86
Casual labour					0.1647	56.19	0.3118	530.69
Real Wage of the Household Head	-0.0005	-79.27	-0.0011	-213.56	-0.0013	-210.12	-0.0009	-143.67
Households Below Poverty line	-0.0333	-27.53	0.2152	156.63	0.1719	379.44	0.1575	514.73
Education of the Parent Illiterate	0.5095	750.81	0.4143	551.99			0.4832	629.08
Education of the Parent Below primary	0.3137	440.30	0.2474	305.79	0.4897	593.21	0.2308	282.72
Education of the Parent Primary	0.2424	299.25	0.1661	200.84			0.2355	265.67
Education of the Parent Middle	0.1814	233.65	0.1501	176.53	0.5110	224.96	0.0943	110.14
Education of the Parent Secondary	0.0313	40.77	-0.1316	-164.72	0.3785	331.98	0.1438	155.00
Education of the Parent Higher Secondary					0.3132	469.81	0.1875	182.06
Female Head	-0.2320	-135.12	0.5350	1161.74	-0.2877	-1666.18	0.0197	25.24
Female head working			-0.5402		0.8206		0.2226	178.56
Female Head Educated	0.3561	170.64	-0.0005	-0.12			-0.1058	-109.90
ST	-0.1696	-81.74	-0.0070	-5.01	0.2218	67.37	0.0507	34.84
SC	0.1684	286.33	0.1178	180.55	0.0986	206.63	0.0676	215.95
Muslim	0.2672	620.36	0.2633	568.69	0.2240	407.70	0.2213	887.77
Christian	-0.2087	-59.72	0.1508	21.38	0.0119	3.61	0.2205	98.98
Other religion	-0.2361	-120.58	-0.3449	-149.69	0.1891	65.78	-0.0405	-28.22

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.28: Results of Maximum Likelihood Probit Model in the Urban Sector of West Bengal
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.1177	-195.60	-0.0230	-36.97	0.0083	15.67	-0.0001	0.18
City size III	-0.0519	-76.35	0.0022	2.64	-0.0250	-43.81	-0.0196	-45.28
City size IV	-0.1317	-190.35	-0.0200	-29.39	-0.0389	-60.63	-0.0180	-43.77
Self-employed					0.2383	99.57	-0.0703	-90.45
Regular wage					0.1167	68.59	-0.0864	-111.21
Casual labour					0.1077	52.69	-0.0215	-26.20
Real Wage of the Household Head	-0.0004	-101.82	-0.0002	-38.76	-0.0005	-101.02	0.0007	173.45
Households Below Poverty line	0.2352	119.25	0.2786	297.30	0.1304	232.45	0.1735	478.35
Education of the Parent Illiterate	0.4300	387.43	0.5795	496.61			0.4085	433.50
Education of the Parent Below primary	0.3249	311.52	0.5090	435.28	0.3720	425.01	0.1559	178.42
Education of the Parent Primary	0.2069	210.44	0.2887	239.48			0.0910	101.87
Education of the Parent Middle	0.1205	121.48	0.2154	173.15	0.2995	210.57	0.0193	21.57
Education of the Parent Secondary	-0.0136	-13.52	-0.0128	-10.18	0.1265	141.14	0.0888	87.53
Education of the Parent Higher Secondary					0.0565	86.93	-0.1657	-145.64
Female Head	0.1972	114.40	-0.2563	-51.58	-0.1515	-159.46	-0.0595	-56.85
Female head working			0.2252	38.83			0.3198	228.37
Female Head Educated			0.2997	108.29			-0.0347	-29.29
ST	-0.1235	-80.36	0.1714	87.06	0.1429	98.67	0.0220	21.16
SC	0.0720	102.21	-0.0557	-77.52	0.0954	175.97	0.0741	199.62
Muslim	0.2979	330.07	0.1204	182.84	0.1029	150.65	0.1957	419.62
Christian	-0.0711	-27.06	0.1899	32.25	-0.1507	-60.27	0.1766	59.63
Other religion	-0.2086	-89.12					-0.1192	-73.72

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.29: Results of Maximum Likelihood Probit Model in the Urban Sector of Small States and Union Territories (Excluding North Eastern States) Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	0.0681	-43.68	-0.0650	-63.00	0.0254	36.86	0.0743	201.77
City size III	-0.0518	-51.37	-0.0160	-20.61	-0.0412	-74.78	0.0493	131.35
City size IV	-0.0810	-115.35	-0.0328	52.08	-0.0366	96.57	-0.0044	-16.78
Self-employed					0.9470	.	0.0426	66.50
Regular wage					0.3212	1071.80	-0.0103	-16.40
Casual labour					0.9755	966.39	0.0213	29.80
Real Wage of the Household Head	0.0000	-1.81	-0.0004	-85.47	-0.0008	-205.95	-0.0004	-95.96
Households Below Poverty line	-0.1227	-37.83	-0.0847	-95.99	-0.0307	-84.11	0.1297	519.50
Education of the Parent Illiterate	0.4088	291.39	0.3836	282.92			0.3813	331.21
Education of the Parent Below primary	0.3170	201.28	0.2370	162.20	0.4089	504.85	0.0829	96.84
Education of the Parent Primary	0.2033	130.42	0.1880	145.36			0.1371	144.25
Education of the Parent Middle	0.3310	225.50	0.2793	212.20	0.6870	214.29	0.1207	124.46
Education of the Parent Secondary	0.0959	77.86	0.0921	80.33	0.2652	222.69	0.0781	81.88
Education of the Parent Higher Secondary					0.0560	116.07	0.0984	88.76
Female Head	0.8354	652.21	-0.1792	-296.63	-0.0704	-164.36	-0.0967	-197.44
Female head working	-0.2466	.	0.8728	.			0.2578	148.80
Female Head Educated	0.0774	19.08	-0.1393	-37.67			0.1572	96.47
ST	-0.1400	-43.41	-0.0156	-7.49	0.0847	49.60	0.0518	77.15
SC	0.2697	358.32	0.3320	449.02	0.1153	252.7	0.1078	354.79
Muslim	0.3117	278.26	0.2904	334.31	-0.0390	-78.54	0.1964	599.14
Christian	0.0109	3.96	0.1755	71.65	-0.0785	-75.37	-0.0776	-100.24
Other religion	-0.1979	-152.97	0.1997	167.53	-0.0741	-77.52	-0.0357	-65.53

Note: As in Table 5.11

Source: As in Table 5.1

Table 5.30: Results of Maximum Likelihood Probit Model in the Urban Sector of North Eastern States (Excluding Assam)
Dependent Variable: Child Labour

Independent Variables	1983		1987-88		1993-94		1999-00	
	dF/dx	z	dF/dx	z	dF/dx	z	dF/dx	z
City size II	-0.2151	-116.53	-0.0705	-49.00	-0.0409	-46.32	0.0056	8.22
City size III								
City size IV								
Self-employed					-0.0957	-78.64	-0.0214	-18.04
Regular wage					-0.0378	-24.74	-0.0272	-22.75
Casual labour					-0.0222	-12.89	-0.0439	-34.64
Real Wage of the Household Head	-0.0008	-41.99	0.0001	20.29	-0.0008	-72.35	-0.0001	-18.76
Households Below Poverty line	0.4210	41.14	0.0297	8.34	0.0907	41.09	0.1097	130.20
Education of the Parent Illiterate	0.0721	19.32	0.0710	22.63			0.1192	69.39
Education of the Parent Below primary	0.2522	71.42	0.2453	86.37	0.0828	42.26	0.0291	20.16
Education of the Parent Primary	0.1710	48.55	0.0948	35.68			0.0123	8.41
Education of the Parent Middle	0.1156	37.93	0.0798	31.80	0.3969	61.15	-0.0369	-26.67
Education of the Parent Secondary	0.0373	10.90	-0.0025	-1.03	0.0280	13.72	-0.0245	-16.23
Education of the Parent Higher Secondary					0.0169	16.79	-0.0717	-45.33
Female Head	0.2420	39.17	-0.4846	-367.15	-0.1581	-491.47	0.0259	9.24
Female head working			0.8493		0.9514		0.1374	39.59
Female Head Educated	-0.2102	-32.64	-0.0294	-4.80			-0.0709	-30.93
ST	-0.2251	-52.38	-0.0637	-15.80	0.1685	74.59	0.1300	83.68
SC	0.0717	17.17	0.1742	47.14	-0.0105	-6.71	0.1304	92.94
Muslim	0.0360	10.81	0.0348	9.31	-0.0722	-42.25	0.1473	98.32
Christian	-0.0494	-10.66	0.1354	32.24	-0.1632	-99.73	-0.0943	-66.45
Other religion	0.1430	33.92	-0.2119	-41.23	-0.0110	-4.93	-0.0125	-9.18

Note: As in Table 5.11

Source: As in Table 5.1

CHAPTER 6

CONCLUSION AND POLICY IMPLICATIONS

6.1 Summary of the Main Findings and Policy Implications

In this study we have documented incidence of child labour in the urban sector of India over the period 1983 to 1999-00 at the aggregate level as well as at the state level. The urban sector is further divided into four city sizes according to the population. We use the data on Employment and Unemployment collected by the National Sample Survey Organisation, Government of India.

The existing literature highlighted the fact that there are very few studies that deal with the issue of incidence of child labour in the urban areas in general and in India in particular. This study is an attempt to address this issue. The detailed profile of the incidence of child labour is prepared. Our analysis illustrates the differential incidence of child labour between rural and urban sectors.

As mentioned above, the urban sector is further divided into four city sizes according to the population. These are, City Size I, (towns with population less than 50,000), City Size II (towns and cities with population between 50,000 and 2 lakh), City Size III (cities with population between 2 lakhs and 10 lakh), and City Size IV (metropolitan cities with population above 10 lakh). We have estimated incidence of child labour in all four-city sizes. The available data show that a larger proportion of children work in the smaller cities compared to the larger ones. The analysis also suggests that the proportion of working children has declined over time across all the city sizes. However, the disparity in the incidence of child labour across city sizes is still persisting. Another important finding is the increase in the incidence in child labour with increase in the age of the children. Besides, the proportion of child labour being high in the smaller city sizes, we also find the nature of work done by the children is different in the smaller cities compared to that in larger ones.

Extending our analysis to the social groups, we find that children belonging to socially disadvantaged groups have higher probabilities of being in the labour market (relative to children belonging to higher caste groups, OTH). Among the socially disadvantaged groups, SCs have the highest probability of sending their children to work, higher than even the STs. The socio-religious factors also appear to be an important factor in incidence of child labour. Our analysis suggests that after controlling for all other things, relative to Hindus, the children from the Muslim households have the highest probability of being in the labour force in 1983. Though there is a perceptible decline in the probabilities over time, Muslim children continue to have highest probability of being working. Relative to Hindus, Christians and other religious groups have about 6 to 13 percent lower probability. These findings suggest that the sociocultural factors are also important determinants of child labour.

There are large variations in the incidence of child labour across states, which could be related to the differential development levels of the states. Based on the sampling design of the NSSO, we have identified 17 states with sufficiently large sample size in this dissertation. These states are Andhra Pradesh, Assam, Bihar, Chhattishgarh, Gujarat, Haryana, Jharkhand, Karnataka, Kerela, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. The rest of the states and Union Territories (UTs) have been clubbed into two groups due to smaller sample sizes. The northeastern states inclusive of Mizoram, Meghalaya, Nagaland, Tripura, Arunachal Pradesh, Manipur and Sikkim are clubbed together to represent the incidence of child labour in the northeastern states. Other small states and UTs form the second group.

The disaggregated analysis at the state level shows a very high proportion of child labourers in some of the major states in the country. States like Andhra Pradesh, Karnataka, Tamil Nadu and Uttar Pradesh higher proportion of child labourers in urban sector. In Andhra Pradesh, the state that has the largest proportion of child labourers in 1999-00, we observe relatively higher proportion of child labourers in the lower city sizes. For example, in City Size I, around 5 - 6 percent boys and 4 - 5 percent girls are engaged in regular work. A similar trend is noticed among almost all the states in the country though there differences in proportions. States like Chhattishgarh, Haryana, Karnataka, Punjab, Rajasthan and West Bengal have high proportion of child labourers in the smaller city sizes while it is relatively low in the larger city sizes. On the other hand, Kerela, Madhya Pradesh, Maharashtra, northeastern states and other small states and UTs report a small proportion of child labourers in almost all the city sizes.

The theoretical literature suggests that there is a positive correlation between city size and labour productivity. Assuming that wage rate would reflect the labour productivity, our analysis broadly conforms to these theoretical formulations. This implies that with the increase in city size, labour productivity increases. Our findings also lend empirical support to the hypothesis regarding the inverse relationship between adult wage rate and the incidence of child labour formulated by Basu and Van (1998).

The income of the household and the source from which income is generated is shown to have positive influence on child labour. Households with unsteady income mainly from casual work and more so if it is private in nature, have a high probability of sending their children to work. The reason for this is the low wage rate

among the casual labourers, insecurity of income etc., induces them to send their children to work.

At the all India level results of our econometric estimation emphasize the existence of differential incidence of child labour across city sizes. Controlling for other things, if the household is located in the smallest city size, i.e., city size I, it had over 16 percent higher probability of sending their children to work in 1983. Similarly in city sizes II and III, the additional probability of the households sending their child to work was about 10 percent and 11 percent, respectively, relative to city size IV. The relative positions did not change much over the years, but the absolute value of the estimated coefficients declined significantly. In 1999-00, the additional probability of sending their children to work in city size I is 3 percent and then it monotonously decreases with the increase in city size. The possible explanation could be the differences in the earnings of the households in the four city sizes.

We have estimated the role of location of the household on the incidence of child labour by fitting our model for each one of the major states. Our results suggest that the location does play a role as far as child work is concerned. In most of the states, the children residing in larger city sizes have lower probability of being in the labour force. The incidence of child labour when conditioned on the various explanatory variables in the major states of the country gives a similar result as that at the all India level. Though there is a large variation in these probabilities across different states, the marginal probability of a children working in the lager city sizes is low in most of the major states in comparison to city size I. Again, there is a decline in these probabilities over time and across city sizes. However, disparities among states persist.

The other determinants like primary source of income, socio-religious factors, etc., have a significant influence in the incidence of child labour in almost all the major states. For instance, the additional probability of a SC child working in Bihar is almost 21 percent higher compared to that of OTH in 1999-00. Further the Muslims in Bihar have almost 22 percent higher probability of sending their children to work. In a similar way, most of the states in the country witness a very high marginal effect if the child belongs to a socially disadvantaged group. In some cases the additional probability of an ST child being in the workforce is higher than that of the SCs. Further, Muslim children in almost all the states have a higher additional probability of being in the workforce relative to Hindus and Christians.

Thus, from the above analysis we see that our findings support the two hypotheses that we have stated in Chapter 1. The first hypothesis relating to the inverse relationship between city size and incidence of child labour is emphatically shown in our estimates. The estimation done at various aggregate and disaggregate levels support our hypothesis that the incidence of child labour decreases with the increase in city sizes. Consequently, the related hypothesis, i.e., decline in the incidence of child labour with increasing labour productivity is also tested and confirmed econometrically.

We have also captured the direct relationship between city size and school goers. This implies that child labour can be reduced if schools are more accessible. Compulsory education for the children in the age group 5-14 years can go a long way in reducing the incidence of child labour.

Among the household characteristics, the marginal effect of parental education is extremely important. Our analysis also suggests a strong relationship

between parental education and incidence of child labour. Therefore, children will be working irrespective of the size of the cities unless education is universalized. Further, other household characteristics like increase in income, employment and education of the females can help in reducing the incidence of child labour.

Important policy implications that emerge from our analysis is that besides universalizing education, proper enforcement of minimum wage regulation can help a great deal in alleviation of child labour.

6.2 Limitations of the Study

Despite these important findings, the study has certain limitations. Firstly, we have not been able to identify the industries where child labour is mostly concentrated. Secondly, wages are inadequate as a measure of labour productivity. Higher wages in the larger city sizes could be due to higher costs of living rather than higher productivity. Therefore, other measures of productivity like Total Factor Productivity when applied to the industries or firms could perhaps bring out a clearer picture of the role of productivity on child labour and could test the validity of the substitution hypothesis that we have discussed in chapter 2.

6.3 Scope for further Research

Though this study establishes some very clear and strong relationship in the incidence of child labour and its determinants, there are several unexplored aspects that could fruitfully be pursued. The socio-economic conditions vary greatly across states and even within the same state, there are wide variations across districts and various socio-religious groups. The analysis of the incidence of child labour could be

extended to the regional or district levels to further test the robustness of the relationships between child labour and the various determinants.

APPENDIX

National Classification of Occupations, 1968 (Divisions and Groups)

Division 0-1 Professional, Technical and Related Workers

Groups 00 Physical Scientists

01 Ph ysical Science Technicians

02 Architects, En gineers, Technologists And Surveyors

03 Engine ering Technicians

04 Aircra ft And Ships Officers

05 L ife Scientists

06 L ife Science Technicians

07 Ph ysicians And Surgeons (Including Dental And Veterinary Surgeons)

08 Nursing And Other Medical And Health Technicians

09 Scientific, Medical And Technical Persons, Other

10 Mathemati cians, Statisticians And Related Workers

11 Economists And Related Workers

12 Accountants, Auditors A nd Related Workers

13 Social Scientists And Rel ated Workers

14 Jurists

15 Teach ers

16 Poets, Authors, Journalis ts And Related Workers

17 Sculptors, Painters, Phot ographers And Related Creative Artists

18 Composers And Perform ing Artists

19 Professional Workers, no t elsewhere classified.

Division 2 Administrative, Executive and Managerial Workers

Groups 20 Elected and Legislative Officials

21 Administrative And Executive Officials Gove rnment And Local Bodies

22 Working Proprietors, Dir ectors And Managers, Wholesale And Retail Trade

23 Directors And M anagers, Financial Institutions

24 Working Proprietors, Dir ectors And Managers Mining, Construction, Manufacturing And Related Concerns

25 Working Propri etors, Directors And Managers And Related Executives, Transport, Storage And Communication

26 Working Proprietors, Dir ectors And Managers, Other Services

29 Administrative, Executiv e And Managerial Workers, not elsewhere classified.

Division 3 Clerical and Related Workers

Groups 30 Clerical and Other Supervisors

31 Village Officials

32 Stenogra phers, Typists And Card And Tape Punching Operators

33 Book Ke epers, Cashiers And Related Workers

34 Computing Machine Op erators

35 Clerical And Related Wo rkers

36 Transport And Communicat ion Supervisors

37 Transport Conductors An d Guards

38 Mail Distributors And Related Workers

39 Telephone And T elegraph Operators

Division 4 Sales Workers

Groups 40 Merchants and Shopkeepers, Wholesale And Retail Trade

41 Manufacturers, Agents

42 Technical Salesmen And Commercial Travelers

43 Salesmen, Shop Assistants And Commercial Travelers

44 Insurance, Real Estate, Securities And Business

Service Salesmen And Auctioneers

45 Money Lenders And Pawn Brokers

49 Sales Workers, not elsewhere classified.

Division 5 Service Workers

Groups 50 Hotel And Restaurant Keepers

51 House Keepers, Matron And Stewards (Domestic And Institutional)

52 Cooks, Waiters, Bartenders And Related Workers

(Domestic And Institutional)

53 Maids And Other House Keeping Service Workers, not elsewhere classified.

54 Building Caretakers, Sweepers, Cleaners And Related

Workers

55 Launderers, Dry-Cleaners And Pressers

56 Hair Dressers, Barbers, Beauticians And Related

Workers

57 Protective Service Workers

59 Service Workers, not elsewhere classified

Division 6 Farmers, Fishermen, Hunters, Loggers And Related Workers

Groups 60 Farm Plantation, Diary And Other Managers And Supervisors

61 Cultivators

62 Farmers Other Than Cultivators

63 Agricultural Labourers

64 Plantation Labourers And Related Workers

65 Other Farm Workers

66 Forestry Workers

67 Hunters And Related Workers

68 Fishermen And Related Workers

Division 7-8-9 Production And Related Workers, Transport Equipment Operators And Labourers

Groups 71 Miners, Quarrymen, Well Drillers And Related Workers

72 Metal Processors

73 Wood Preparation Workers

74 Chemical Processors And Related Workers

75 Spinners, Weavers, Knitters, Dyers And Related Workers

76 Tanners, Fell Mongers And Pelt Dressers

77 Food And Beverages Processors

78 Tobacco Preparers And Tobacco Product Makers

79 Tailors, Dress Makers, Sewers, Upholsterers And Related Workers

80 Shoemakers And Leather Good Makers

81 Carpenters, Cabinet And Related Wood Workers

82 Stone Cutter And Carvers

83 Stone Cutters And Carvers

84 Machinery Fitters, Machine Assemblers And Precision Instrument Makers (Except Electrical)

85 Electrical Fitters And Related Electrical And Electronic Workers

86 Broadcasting Station And Sound Equipment Operators And Cinema Projectionists

87 Plumbers, Welders, Sheet Metal And Structural Metal Preparers And

Erectors

88 Jewellery And Precious Metal Workers And Metal Engravers (Except Printing)

89 Glass Formers, Potters And Related Workers

90 Rubber And Plastic Product Makers

91 Paper And Paper Board Product Makers

92 Printing And Related Workers

93 Painters

94 Production And Related Workers

95 Bricklayers And Other Construction Workers

96 Stationary Engines And Related Equipment Operators, Oilers And Greasers

97 Material Handling And Related Equipment Operators, Loaders And Unloaders

98 Transport Equipment Operators

99 Labourers, not elsewhere classified

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