A ban on child labour: the Basu and Van’s model applied to the Indian “carpet-belt” industry
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Abstract

This work contains a theoretical discussion on child labour in India. It tries to explain the demand for and the supply of child weavers, linking these factors to others, such as the supply of education. In particular, it is analyzed the Basu and Van’s model referred to a specific cluster: the carpet industry of Uttar Pradesh. If child labour is due to parents’ concern for the household survival, and not to parents’ selfishness, the popular argument for banning child labour gets considerably weakened. However, this assumption about parental decision-making, matched with the assumption of substitutability in production between child and adult labour, could result in multiple equilibria in the labour market. The first equilibrium is characterized by low wages and working children; the other one by high wage and no child labour. The paper investigates this result and discuss its policy implications.
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Introduction
Although this work is focalised on a specific category of child labourers - the Indian child weavers - I think it is necessary to make a brief overview about working children in general in order to clarify some important concepts. Child labour, in fact, is still a dramatic reality in almost all parts of the world.

In recent years the child labour problem and its impact have received increasing attention, which is manifested at international level, for instance, in the adoption of the UN Convention on the Rights of the Child in 1989 as well as in the creation of the International Programme for the Elimination of Child Labour (IPEC) of the ILO in 1992 and in the adoption of the Worst Form of Child Labour Convention (N.182) in 1999.2

From the beginnings of 1990s, institutions as UNICEF (United Nations Children’s Fund) and ILO (International Labour Organization) have set up their own research projects with the intention of understanding this problem and working out effective solutions.

This resolution was not easy to realise because the extension and the characteristics of the problem were, in those years, almost unknown and neither an only standard of definition nor an only legislative framework - which could regulate the phenomena - existed.

The international labour conventions on workers’ rights promoted by the ILO as well as the “Declaration of Human Rights”, besides not

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1 This paper is aimed to present some oversights of a study undertaken with the supervision of Professor Renata Targetti Lenti in the scope of the research unit group, who is working on the topic of Economic democracy and development process in Development Countries (DCs) and in Less developed Countries (LDCs), at the University of Pavia.

2 See http://ILOLEX.ILO.CH;1567/scripts/convds.pl.??C182
harmonising with the standards proposed by different national legislations, had no power of enforcement at all. Thus the necessity of a global intervention was felt to fill these methodological gaps. The first step was the achievement of a proper and clear definition of what we mean for child labour; I think that this operation is the foundation of any attempt to analyse the phenomena. Since it requires the development of investigative procedure apt to examine also cultural variables, child labour can never be disjointed from the social framework in which it is rooted. In fact working children are a product of the society that surrounds them and only analysing this framework it can be possible to find out cause and anticipate consequences.

1. General definitions

1.1 Child and child age groups
According to the Convention on the Rights of the Child, we can define a child as “every human being below the age of eighteen years unless, under the law applicable to the child, majority is attained earlier”.

The most common criterion for defining the concept of child is the chronological one, but this method undergoes a number of important limits as soon as the western temporal scanning of different periods of life is applied to societies structured on different parameters. In fact there are many big risks in wanting to impose an ethnocentric and Western approach to the study of child labour in states far off, both geographically and culturally, from the so-called “industrialised” countries.

On this subject it can be remembered that, in many developing countries, customs and social conventions are the criterion, which scans every person’s life through numerous rituals. In industrialised nations, for example, most teenagers are not even expected to look after themselves.

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while in several poor countries quite young children share considerable responsibility within the household.\(^5\)

Anyway, since it is commonly accepted that a child under five years of age is too young to be engaged in work (although there are some cases of exploitation or abuse by adults), or to start schooling, I have taken into account in my study only the child population aged 5-17.

1.2 Child labour

With the term child labour it is possible to refer to deeply different situations; in fact, contrary to what one may think, the term child labour does not encompass all work performed by children under the age of eighteen. Millions of young people legitimately undertake a work, which may be paid or unpaid but that is suitable for their age and level of maturity. By so doing, they learn to take responsibility; moreover they gain skills and add an income to their families contributing to their own well-being and to their countries’ economies.

Child labour does not include activities such as helping in the house with light housework, or doing some gardening, or babysitting when school is over and schoolwork has been done; in all these cases we can use the term *child work*.

The concept of child labour I will use in my study is based on the ILO Minimum Age Convention 1973 (N.138), which represents the most comprehensive and authoritative international definition of minimum age for admission to employment or work, implying “economic activity”.

This Convention stipulates that the ratifying states fix a range of minimum ages below which no child should be allowed to work. Minima vary according to the level of development of each country and to the type of employment or work.

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\(^5\) As reflected, for example, in the way the rights and responsibility of children are considered in the African Charter on the Rights and Welfare of Child (Organisation of African Unity, 1990).
As table 1.1 illustrates, the minimum age for employment or work should normally be no less than 15 years, but developing countries may fix it at 14. From the same table we can also note that in some developing countries also 12-13 year-old-children are used in particular economic activities; Convention N.138, in fact, exempts children aged 12 or 13, if engaged in light work.\footnote{http://www.citinv.it/associazioni/CNMS/archivio/convenzioni/convilo_138.html}

Light work is notoriously difficult to define. The ILO Minimum Age Convention 1973, in Art.7, stipulates that light work should:

(a) not be harmful to a child’s health and development;
(b) not prejudice attendance at school and participation in vocational training nor jeopardise “the capacity to benefit from the instruction received”.

In fact, the minimum age standard is strongly linked to schooling. By establishing such a link, the aim is to ensure that children’s human capital is developed to its fullest potential. In this way children themselves, their families and communities, and society as a whole will benefit by the increased contribution they can, when grown, give to the economic growth and social development of their country.

Although India has not yet ratified this very important Convention (table 1.2), the term child labour, as utilised in this working paper, will respect its standard, including all children under 15 years of age that are economically active, with the exclusion of:
- those who are under the age of five years;
- those between 12-17 years if engaged in light work.
### Table 1.1 Minimum age for employment fixed by national laws in selected countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>14 years</td>
</tr>
<tr>
<td>Algeria</td>
<td>16 years</td>
</tr>
<tr>
<td>Antigua and Barbuda</td>
<td>15 years</td>
</tr>
<tr>
<td>Belgium</td>
<td>15 years</td>
</tr>
<tr>
<td>Byelorussia</td>
<td>16 years</td>
</tr>
<tr>
<td>Brazil</td>
<td>14 years, apprenticeship at 12</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>16 years</td>
</tr>
<tr>
<td>China</td>
<td>16 years</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>15 years</td>
</tr>
<tr>
<td>Cuba</td>
<td>15 years</td>
</tr>
<tr>
<td>Egypt</td>
<td>12 years, no more than six hours a day</td>
</tr>
<tr>
<td>France</td>
<td>16 years</td>
</tr>
<tr>
<td>Germany</td>
<td>15 years</td>
</tr>
<tr>
<td>Greece</td>
<td>15 years</td>
</tr>
<tr>
<td>Guatemala</td>
<td>14 years</td>
</tr>
<tr>
<td>Honduras</td>
<td>14 years</td>
</tr>
<tr>
<td>India</td>
<td>14 years, 12 years for “light works”</td>
</tr>
<tr>
<td>Indonesia</td>
<td>12 years, no more than four hours a day</td>
</tr>
<tr>
<td>Iraq</td>
<td>15 years</td>
</tr>
<tr>
<td>Ireland</td>
<td>15 years</td>
</tr>
<tr>
<td>Israel</td>
<td>15 years</td>
</tr>
<tr>
<td>Italy</td>
<td>15 years</td>
</tr>
<tr>
<td>Kenya</td>
<td>16 years</td>
</tr>
<tr>
<td>Libya</td>
<td>15 years</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>15 years</td>
</tr>
<tr>
<td>Malta</td>
<td>16 years</td>
</tr>
<tr>
<td>Mauritius</td>
<td>15 years</td>
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<tr>
<td>Nicaragua</td>
<td>14 years</td>
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<tr>
<td>Niger</td>
<td>14 years</td>
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<tr>
<td>Norway</td>
<td>15 years</td>
</tr>
<tr>
<td>Oman</td>
<td>14 years</td>
</tr>
<tr>
<td>Pakistan</td>
<td>14 years</td>
</tr>
<tr>
<td>Poland</td>
<td>15 years</td>
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<tr>
<td>Portugal</td>
<td>15 years</td>
</tr>
<tr>
<td>Romania</td>
<td>16 years</td>
</tr>
<tr>
<td>Rwanda</td>
<td>14 years</td>
</tr>
<tr>
<td>Russia</td>
<td>16 years</td>
</tr>
<tr>
<td>Tanzania</td>
<td>12 years</td>
</tr>
<tr>
<td>Thailand</td>
<td>13 years</td>
</tr>
<tr>
<td>Togo</td>
<td>14 years</td>
</tr>
<tr>
<td>Venezuela</td>
<td>14 years</td>
</tr>
<tr>
<td>Zambia</td>
<td>15 years</td>
</tr>
</tbody>
</table>

Source: ILO (1998)
2. Estimates about child labour

Others serious difficulties arise just as soon as we try to quantify the extension of child labour. 

First of all, a number of official statistics on purpose do not quote any data about this phenomenon, which legally does not exist. 

Secondly, the lack of instruments of measurement in poorest countries, where child labour assumes epidemic proportions, has involved the compiling of statistics that had been superficially investigated. In fact they often lacked statistical findings of very important categories of child workers like those under 10 years old or those who combine school and work. It follows that any data, which measured the phenomenon, were extremely scanty and unreliable before the ILO investigation in 1992-1993 stated the appropriate methodology on how to face this evil. 

Actually the most suitable statistics are the data from SIMPOC, the statistical unit of the International Programme on the Elimination of Child Labour, publicised in April 2002. 

According to these data, 186 million children, of an estimated of 211 million children aged 5-14 at work in economic activity, are engaged in child labour to be abolished all over the world. Moreover, there are 141 million children from 15 to 17 involved in economic activity, of these 59 are engaged in child labour. 

In India, as in any other developing country, statistics on the extent of the problem vary greatly. 

According to 1991 Census, were almost 204 million children from 5 to 14 years in India, which means about 25 per cent of the total population of the country. 

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7 ILO (1996). 
8 ILO (2002).
As per Census, India had 10.75 million child workers in the age group 5-14 years in 1971, 13.64 million in 1981 and 11.28 million in 1991. In absolute terms, there is no trend in the number of working children at national level, though there is some decline in the incidence of child labour. This is only expected considering that the period 1971-1991 recorded the highest decade population growth in independent India. Unfortunately, this government statistics are absurdly inaccurate because they plenty underestimate the real number of working children in the country.

The fact that the 1991 Census data on age wise work participation was made public only in 1997, that is nearly six years after the Census was conducted, shows the “urgency” and the “interest” in dealing the issue of child labour on the part of Indian government.

Considering that in 1984, the Operations Research Group -Baroda, an independent research organisation, estimated there were forty-four million child labourers in India and taking into account population growth and employment trends, that figure would be approximately sixty-five million in 2002.

One hundred million child labourers - a number that corresponds to the government’s estimate of all non-school-going children, who are assumed to be working more than eight hours a day - are another frequently cited figure.

Another report, issued in 1994 by the Indian Government’s Department of Women and Child Development, by the Indian Council for Child Welfare and by UNICEF-India, concluded that the number of working children is almost 90 million.

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9 Mishra (2001) disagrees with this analysis.
10 Census of India (1991)
11 See http://www.caclindia.org/magnitude.html
I believe that the number of working children in the country is closer to 90 million – as estimated by UNICEF - than to about 12 million as assumed by the Government (1991 Census India).\textsuperscript{13}

Table 1.2. Ratification of the ILO Fundamental Conventions in selected countries (as of 25 Nov 2002).

<table>
<thead>
<tr>
<th>States</th>
<th>Forced Labour</th>
<th>Freedom of</th>
<th>Discrimination</th>
<th>Child Labour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C.29</td>
<td>C.105</td>
<td>C.87</td>
<td>C.98</td>
</tr>
<tr>
<td>Salomon Isl.</td>
<td>1985</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Myanmar</td>
<td>1955</td>
<td>--</td>
<td>1955</td>
<td>--</td>
</tr>
<tr>
<td>United States</td>
<td>--</td>
<td>1991</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>--</td>
<td>1963</td>
<td>--</td>
<td>1969</td>
</tr>
<tr>
<td>China</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1990</td>
</tr>
<tr>
<td>India</td>
<td>1954</td>
<td>2000</td>
<td>--</td>
<td>1958</td>
</tr>
<tr>
<td>Chile</td>
<td>1933</td>
<td>1999</td>
<td>1999</td>
<td>1971</td>
</tr>
</tbody>
</table>

Source: ILO (2002), \url{http://webfusion.ilo.org/public/db/standards/normes/appl/appl-ratif8conv.cfm?=EN}

3. The Indian carpet industry

Although carpet weaving is spread over different parts of the country, the name “carpet-belt" industry – an industry largely geared towards exports – has become synonymous with the Mirzapur – Bhadohi belt. This due to the fact that the only carpet industry in eastern Uttar Pradesh is believed to account for approximately 70 per cent of the whole carpet production in India.\textsuperscript{14}


\textsuperscript{14} Vijayagopalan (1993).
The so-called “carpet-belt” of Uttar Pradesh comprises basically the three core districts of Bhadohi, Mirzapur and Varanasi, and the four bordering districts of Allahabad, Koshambi, Jaunpur and Sonebhadra, which are all in the economically backward region of the eastern part of Uttar Pradesh. It is important to observe that the above specified carpet-weaving area is also very densely populated and the population is very much on the increase.

Because of the lack of other jobs, the working population of eastern Uttar Pradesh is left with option of either migrate in search of work or take up self-employment or employment in such expanding industries like carpet manufacturing.

No expansion in fact is taking place in farming land, and whatever land is available for agriculture it is not at all enough to feed the increasing population. Moreover the mechanisation of agricultural work and the breaking of joint families - hence the partition of land holdings - has made the demand for agricultural labour decrease considerably.

It may also be mentioned that village industries, like black-smithy, carpentry, and oil-smithy, are also disappearing due to both mechanisation and availability of manufactured goods in the markets and the change in people’s tastes. Moreover, because of the recent extinction of such traditional industries, as manufacturing of brass and bronze utensils, this area is all but industrialised.

It follows that the majority of the inhabitants of this area finds easy to switch on to carpet weaving, which was already existing in this area and which has an international support being an export item. In this way, we see that availability of unskilled labour is the main cause of the location of the carpet industry in the Mirzapur-Bhadohi area.

Table 1.3 below includes social, economic and demographic indicators to get an idea of the living conditions in Uttar Pradesh.
For comparative purpose I have provided data on the same variables for Kerala and for India as a whole. Kerala was chosen because of its achievements in the field of education and its consistently low rates of child economic participation over the past 30 years.

Table 1.3 below shows that the demographic situation in Uttar Pradesh is a source of worry. Since the eastern part of the state - where the "carpet-belt" is located - is one of the poorest areas in the whole country, it is likely that the economic situation in the Mirzapur-Bhadohi area is probably even worse than it is indicated by the overall figures for Uttar Pradesh.

Looking again at table 1.3, we can notice that the crude birth rate is higher than the national average one and it is considerably higher than in Kerala. In the past decade this has resulted in a rapid population growth even though the infant mortality rate is perhaps one of the highest in the world.

However what is more important to this study is to note that Uttar Pradesh will face a far more severe population pressure in the future because of a likely and significant future reduction in the infant mortality rate on one side and a very high birth rate on the other.

In addition, in reading this table, we can observe that the general rate of literacy in the state is below the national average, while among women the literacy rate is only about half the rate of Kerala.
Table 1.3 Economic, social and demographic indicators in Uttar Pradesh compared to Kerala and the whole India

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Uttar Pradesh</th>
<th>Kerala</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population growth rate, 1991-01 (%)</td>
<td>25,8</td>
<td>9,42</td>
<td>21,34</td>
</tr>
<tr>
<td>Children aged below 15 in rural areas, 1991 (%)</td>
<td>40,6</td>
<td>30,1</td>
<td>35,8</td>
</tr>
<tr>
<td>Crude birth rate, 1998 (per 1.000)</td>
<td>32,4</td>
<td>18,3</td>
<td>26,4</td>
</tr>
<tr>
<td>Crude death rate, 1998 (per 1.000)</td>
<td>10,5</td>
<td>6,4</td>
<td>8,5</td>
</tr>
<tr>
<td>Infant mortality rate, 1998 (per 1,000)</td>
<td>97</td>
<td>16</td>
<td>49</td>
</tr>
<tr>
<td>Literacy rate, 2001 (age 5 and above) (%)</td>
<td>57,42</td>
<td>90,92</td>
<td>65,38</td>
</tr>
<tr>
<td>Life expectancy at birth (years)</td>
<td>55,5</td>
<td>72,6</td>
<td>59,2</td>
</tr>
<tr>
<td>Female literacy rate, 2001 (age 5 and above)</td>
<td>43,11</td>
<td>87,96</td>
<td>68,82</td>
</tr>
<tr>
<td>Percentage of population attending school in the age group 6-10 years old, 2001.</td>
<td>36,7</td>
<td>91,92</td>
<td>61,5</td>
</tr>
<tr>
<td>Human development index, 1991-92</td>
<td>0,3</td>
<td>0,6</td>
<td>0,4</td>
</tr>
</tbody>
</table>

Source: Census of India 1991 and 2001

Similarly, the percentage of children, in the age group 5-10 years, is very low in Uttar Pradesh in respect of the national average and it is even less than half of that in Kerala.

To sum up, the socio-economic profile of this belt reflects a lag in such social development indicators like medical facilities, teacher-pupil ratio
in primary schools, birth rate, death rate, infant mortality rate, literacy and pro capita income. Almost more than 50 per cent of the population lives below the poverty line, so any addition to the family income helps to support the burden of a very tedious existence. This is the reason why in Uttar Pradesh, like in many developing countries, having many children is considered a great advantage because it means the possibility of a higher income for the family through child labour.

According to the “poverty explanation” for child labour, let’s call $R_{\text{min}}$ the minimal consumption required by the family for subsistence and $W_a$ the amount of the wages of the adults of the family; if

$$W_a < R_{\text{min}}$$

thus the wages of the children, $W_c$, will be necessary in order that the family can reach the subsistence,

$$W_a + W_c \geq R_{\text{min}}$$

Children are often not sent to school mainly because preparing them for a brighter future is unimportant when the immediate present is so black. In particular, they do not need to know how to read and write to perform the tasks assigned to them in carpet manufacturing. They are, however, required to have a good eyesight and manual agility.

A child is often sent to work instead of attending school because the net return to human capital investment is too low compared to investment in other assets.

According with Guha (2000), the household may enjoy two different types of utilities. First of all, there may be utility from earning income by sending children to work when they refrain from attending school: at a low level of income of the household, the utility of the household for earning income through child labour is positive, while that for attaining
education for its children is negative. However, as shown by many field surveys, there is latent desire of the parents to educate their children, desire which may increase with the growing awareness with respect to the possible benefits the household reap by educating its children.\textsuperscript{15} As income of the poor household increases, it will also gradually attain economic capability to bear the cost of education of the children.

From the point of view of the welfare of poor families as well as of society, it can be stated that children’s attainment of education is a step towards human development and, conversely, that the compulsion to send them to work, restraining them from education, is an act of human deprivation.\textsuperscript{16}

In figure 1.1, the horizontal OO’ axis measures the total number of children in the age group of 5-14 years; a movement from the point O towards O’ indicates an increase in enrolment in school education, conversely a movement from the point O’ towards the point O indicates an increase in the drop out from school education. Q is the income level below which no children go to school.

\textbf{Figure 1.1}

\textsuperscript{15} Burra (1995) and Gomango (2001).
It is observed that the curve $Y_cQY^*$ represents the line showing enrolment in school education. At the household income ($Y_h$) below $Y_c$, that is the critical level under which no children go to school, the enrolment in school education is zero. At $Y_c$, the enrolment in school education is measured at $OT$ and thus the non-enrolment is correspondingly measured at $OT$. As $Y_h$ exceeds $Y_c$, the enrolment in school education continues to rise, as it is found by the movement of $Y_cQY^*$ in the upward direction from the point $Q$ and above it.

This curve, therefore, looks like the Keynesian concept of the supply of labour curve. But this "enrolment curve" is not the supply of child labour curve, since it is the non-enrolment in school education that leads towards formation and consequent supply of child labour.

At the imaginary household income being assumed at $Y^*$, the enrolment in school education is expected at 100%; so, at this stage, no incidence will occur at child labour in the household.

According with this theory, the labour supply of children is, therefore, inversely related to the household’s income. It means that, if the price of schooling is too high or the household income is too low, parents may rather send their children to work instead of sending them to school. This is a typical “price effect”.

It has been observed that in India the introduction of mid-day meal in schools attracts poor students of rural areas and urban slums in primary schools and, consequently, its absence or discontinuation causes exodus of students from such primary schools. Moreover Dessy and Pallage

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16 This consideration can be sustained only if we do not refer to a typical neoclassical U function.
17 Drawing this (qualitative) curve I referred to Ahmed's (2000) study.
18 To simplify, I consider only one-child families. In fact, the presence of two or more children would imply a deeper analysis on scope economics into families.
19 Guha (2000).
(2001) argue the existence of a complementary between the quality of nutrition received by a child and his scholastic achievement. While parents may in fact value their children's education, they would not be inclined to invest in it if education and good health cannot be reconciled. Actually parents may know that the returns to education are high in the long run, but those returns can only be captured by a healthy child.

In a similar vein, regular health services can be made available through schools; it should provide routine physical examinations, vaccinations and treatments for non-serious illnesses and injuries. It does not probably manage to reduce immediate damage to the health of children, but can surely help to serve as a screening and detection system to identify imperilled young workers and the unsafe situations in which they labour.

4. Are adults and children substitute for one another?
Many researchers have observed that, since adult’s work could be done by children at much lower wages, employers prefer to hire children rather than adults.\(^{21}\) According to this empirical evidence, child labour thus increases adult unemployment, which in turn forces adults to put their children to work, generating a vicious circle.

This idea has also been implemented by the ILO itself in the book “Combating Child Labour”, where it is asserted that “…child labour is a cause of, and may even contribute to adult unemployment and low wages…” \(^{22}\)

Notwithstanding its popularity, there are very few theoretical and applied studies examining the child labour impact on adult labour market, not only in the carpet industry but in general.

In what follows, I will try to analyse this topic with special attention on two related problems:

\(^{21}\) Diamond and Fayed (1998)
1. the substituibility of children with adults;
2. the consequences of a ban on child labour in the child and adult labour markets.

4.1 Reasons for child weavers
The well-known “nimble fingers” argument claims that children have special physical abilities (such as small fingers to make fine hand knotted paragraph) that are not possessed by adults. Therefore if child labour was eliminated the industries requiring children’s nimble fingers would disappear and with them adult jobs would be lost. This theory is absolutely invalid, as many studies on this argument have shown.  

Although the argument of irreplaceable skills is clearly rejected by the empirical evidence, the substitutability of children with adults is not automatic. In fact, the substitution of adults with children depends on whether the employers have reasons for preferring children to adults. From the employer’s point of view, in fact, the most obvious reason for hiring children is to pay them less than adults for the same amount of work.

Besides there are also some non-pecuniary reasons for hiring children; these reasons are often felt more important than direct monetary cost savings and are usually classified into three sets:

- **awareness and innocence**: children are seen by employers as less troublesome and more willing to take orders and to perform monotonous work activities without complaining. Moreover children are generally less likely to be knowledgeable about workers’ rights or to join trade unions.

- **tradition**: in the carpet industry, as well as in most of the other Indian industries, there is a strong tradition of hiring children. Entrepreneurs

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23 See Anker et al. (1998) for details.
24 India, as many others developing countries which employ children, has output below full employment level and present open unemployment or under-employment, so it is reasonable to
have always employed children also because many parents are compelled by tradition to bound their children into the family occupation at an early age. Frequently, neither parents, nor children and sometimes nor employers see anything wrong in keeping up with this tradition.

- **physical characteristics**: a common justification for the use of child labour is that children provide irreplaceable skills; in particular, children are said to have special physical dexterity which adults lack. For example, it is often stated by employers that only children with small fingers have the ability to make fine hand-knotted carpets. Even though this argument is convincingly rejected by the evidence presented in this work - as well as in many other studies on child labour - it nonetheless remains a popular notion. Children’s better health appears to be one reason for the hiring of children in industries where the health of many adults stands compromised by earlier work in industry. This is an especially pernicious reason for child labour as this means that children’s health will soon be compromised as well. These reasons, which are usually not considered pecuniary since they do not represent direct labour costs, in my opinion could be considered pecuniary in the sense that they imply lower monitoring costs or higher productivity.

Moreover these findings are in line with a research by Rao and Rao (1998), who present in the article “Employers’ view of Child Labour” the results of a set of interviews with 125 employers of children in the city of Visakhapatnam in India. The employers were asked about the reasons why they engaged child workers and they were allowed for multiple answers. Overall, the children suitability for the jobs (64,8 per cent) was the most frequent answer; the lower labour costs/wages paid to children assume that employers are making a choice between adults and children and are not forced to employ children by labour supply constraints.

(59.2 per cent) was the next one, followed by the possibility of being able “to extract more work” from children (55.2 per cent).

As stated by Anker et al., Rao and Rao’s survey suggests that children are paid less than adults irrespectively of their productivity, when paid by daily wage and not by piece rate. Moreover many employers, who declared “lower labour costs” to be a reason for hiring children, also consider children more productive than adults (“to extract more work”). This makes the discrimination against child labour even clearer.

Furthermore, Rao and Rao’s study confirms that employers have also non-pecuniary reasons for hiring children, among them their suitability for the jobs. It means that, although not confirmed by any empirical evidence, the irreplaceability argument remains a popular notion.

On the supply side, it is generally argued that poverty induces children to work and supplement the meagre family resources. Most of poor families send their children to work in order to increase household income. It is not a coincidence that the socio-economic profile of the area in which the carpet industry is located is characterised by more than 50 per cent of the population living below the poverty line.

Another reason, strictly linked to poverty, is that parents may want children to work as part of a survival strategy to minimise the risk of the interruption of the income stream due to failed harvests or loss of employment, for example. This interruption is naturally severe for poor households, as this can threaten the lives of their members, since there are very few borrowing options for a poor Indian family. In fact, even if a bank or a co-operative society is accessible – and for the most this does not happen – the poor labourers cannot qualify for a loan, having no security or collateral to offer.

It follows that, for poor households, child labour seems a rational behaviour since it increase their income sources.
Thus, while poor families may be rational in their feelings that child labour is necessary for survival, child labour improves neither the social welfare nor the family's long-term one. In fact most children working full time are unable to either attend school or progress adequately in it. As a result they do not acquire the type of human capital, which allows them to have a fair chance in the labour market.

While it is true that most child labourers come from poor households and poor segments of society, there are, however, at least other two reasons, which can influence families to send their children to work:

- **tradition**: in many families children just follow their parents' footsteps, taking up their parents' occupation at very young age. Parents often believe that job can be a good training ground for the children in order to qualify for paying jobs and good income earning opportunities for when they become adults. Finally, we cannot forget that in India the rigidity of the caste system has, among other things, contributed to the mushrooming of child labour in the country.

- **inefficient school system**: actually, the majority of poor parents feel that sending their children to school will not improve their children's employment chances in life. The Indian school system has a single entry point and teaching by full time professional teachers ensures that it is accessible only to families, which do not utilise the services of their children in their businesses, in order to supplement their meagre income of adults. In my opinion, much more attention should be given to improving the quality and relevance of Indian schools to poor families. One way of achieving this would be to introduce quality vocational courses and job training into the primary and secondary school curriculum.

5. The Basu and Van's model

In the popular mind, child labour is very often equated with child abuse. The phenomenon is taken to be a product of both entrepreneurs of no
scruples seeking cheap labour and selfish parents who prefer enjoying leisure while their children work. It seems to me that while this popular description of entrepreneurs may well be accurate, the parents' one is mischaracterized.

I argue, in fact, that the traditional model of the household, where parents take their children's interests into account, while somewhat idealistic, is a better model. Thus, while not denying that child abuse does occur in any society, I take the position that whenever we have children working as a mass phenomenon as in many less developed countries, it is much more likely that this is due to the problem of stark poverty, which compels parents to send the children to work for survival, than to parents' attitude. Even in England, which witnessed some of the worst excesses of child labour in the late eighteenth and early nineteenth century, a parliamentary report noted that "parents were desperately unhappy about the situations their children were in but could do noting about it. The social system allowed them no choice".26

Once we accept this statement of household decision making, the case for declaring child labour illegal gets considerably weakened; nevertheless in some situations there may be a more complicated and equilibrium-based reason for declaring child labour illegal.

Basu and Van (1998) developed a model indicating the consequences of the banning of child labour; here I will try to apply their model to the case of those children who work in the carpet industry.

As many field surveys in the carpet belt area have shown, I assume that parents would not send their children to work if their own wages were higher or employment prospectus better.27 So, since the decision of

26 Horrel and Humphries (1995).
27 This is the "luxury axiom": it suggests that once adult income rises to the level such that $W_a = R_{min}$, then child ceases working and $W_c = 0$; this determines the supply of child labour. It is likely to hold more strongly in the presence of an alternative form of activity for the children, notably education. If there are educational costs (fees, transport, uniform, etc.), education will increase the family expenses and thus adult income must either be sufficient to cover these or
letting children work is taken by parents themselves by a criterion of cost-opportunity, I decided to include in Basu and Van’s model (graph 3.1) a unique supply curve (T) valid for both the categories of workers. Moreover, Basu and Van also assume that children and adults in the carpet industry are substitutes for one another. This is relevant for the demand side and suggests that children have no specialised skills or attributes for which there is regular demand.

Now, let’s suppose that all children were pulled out from work because of a total ban on child labour. There would be a shortage of labour supply and, because of the substitutability of child and adult labour, the wages of adults would rise in response to the excess demand for labour.

According to Basu and Van, as adult wages rise it is unnecessary for parents to send their children to work and so the ban becomes redundant. "In brief, once a ban is imposed, the ban may become unnecessary".

Consequently the labour market in the carpet industry could be characterised by multiple equilibriums: one in which wages are low and children work, and another in which wages are high and children do not work.

Only if the adult-wage $W_a$ is lower than the subsistence level (it means $W_a < s/(1+mf)$, as we will see in the next graph) there will be labour supply of children, otherwise only adults will work. On the demand side I assume that adults and children are substitutes in production, subject to an adult-equivalent scaling, given by $\gamma$, where $0<\gamma<1$. Basu and Van call $W_c/\gamma$ "effective child wage", referring to the market child wage per adult equivalent; if $W_a > W_c/\gamma$, then only children will be employed, while if $W_a = W_c/\gamma$, it will be indifferent to employ adults or children.

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the costs might be reduced or eliminated by the government (for example, free universal primary education).

28 This fundamental assumption is a bit simplistic; in fact it does not consider all the non-pecuniary reasons analysed in paragraph 4.1.

Let's suppose there are $N$ households in the carpet industry; simplistically, a household consists of one adult and $m$ ($\geq 1$) children. Let $c$ be the household consumption and $e$ (a number between 0 and 1) be each child's work effort. It is possible to represent the household's preferences by the Stone-Geary utility function:\footnote{Basu and Van (1998), p. 420.}

$$U(c, e) = (c-s)(1-e) \text{ if } c \geq s$$

$$U(c, e) = c-s \text{ if } c < s$$

In the above, $1-e$ is each child's leisure; $s > 0$ is a parameter that may be interpreted as the subsistence consumption level. The household maximises utility subject to the budget constraint:

$$c = meWc + Wa$$

Here it is assumed that the adult always works (at wage $Wa$), so it is possible to substitute out the $c$ variable to express the utility function in the form:

$$U = (meWc + Wa - s)(1-e)$$

The net marginal benefit from an increase in $e$ is:

$$du/de = (mWc)(1 - e) - (meWc + Wa - s) = s + mWc - 2meWc - Wa$$

This expression is decreasing in $e$. If $du/de < 0$ at $e = 0$, then it is optimal to set $e = 0$; if $du/de > 0$ at $e = 1$, then it is optimal to set $e = 1$. Otherwise the optimal solution is obtained setting $du/de = 0$. This argument implies:

$$e^* = 0 \quad \text{if } Wa > s + mWc$$

$$e^* = 1 \quad \text{if } Wa < s - mWc$$

$$e^* = (s + mWc - Wa)/(2mWc) \quad \text{otherwise}$$

Now, if 1 unit of child labour is equivalent to $\gamma$ units of adult labour, then in equilibrium we must have $Wc = \gamma Wa$.

We can therefore substitute out the $Wc$ variable to get

$$e^* = 0 \quad \text{if } Wa > s/(1 - m\gamma)$$

$$e^* = 1 \quad \text{if } Wa < s/(1 + m\gamma)$$
\[ e^* = \frac{s + m\gamma W_\text{a} - W_\text{a}}{2m\gamma W_\text{a}} \quad \text{otherwise.} \]

What explained above is clarified qualitatively in the graph below:

**Graph 1.1. Equilibrium in the child and adult labour markets**

\[ W_\text{a} = \frac{W_\text{c}}{\gamma} \]

\[ A = \text{adult supply} \]
\[ T = \text{total labour supply (Adult + Child)} \]
\[ D = \text{labour demand} \]
\[ W_l = \text{wage without a ban on child labour} \]
\[ W_b = \text{wage with a ban} \]

We can note that the aggregate labour supply is decreasing in \( W_\text{a} \); this means that the greater the wage rate is, the less willing parents are to send their children to work.

This inverse relationship between household's income and child labour is particularly true in the specific area we are studying. In fact, in the carpet industry of Uttar Pradesh many surveys have shown that the households
would be willing to keep their children out from work if they had an adequate income ($Wa = s/(1 + m\gamma)$ in graph 1.1).

It follows that poverty is probably the main force driving children to participate in work.

I think this is a very interesting point because many studies have shown that in other Indian industries where child labour is used (such as the gem polishing, the sport goods and the match ones), even if there is an increase in the household's income, it could be not sufficient in order to keep children out of work. This is due to the fact that in these industries there are neither schools nor infrastructural facilities where mothers can leave their children in security while they are at work.

This is particularly true for the match industry of Sivakasi in Tamil Nadu, where women and children constitute a very large proportion of workers. In such conditions, the obligations of families to send their children to school must be proceeded by the obligation of the State to make school attendance possible. Government can make education truly compulsory only where they have already made education a viable choice.

It follows that a blanket law obliging children to attend school (or also simply not to work) must be accompanied by reforms, which make it possible for them to comply, otherwise such law will lead only to increased problems for children and to a growing disrespect for it; I refer for this argument to other studies.  

Now it can be enough just to remember the fundamental role the variable household's income plays (differently that in other clusters) in the parents' choice of a future for their children in the carpet industry.

Looking again at graph 1.1, we can also note that the aggregate labour supply is increasing in $s$; it means that the greater the subsistence requirement is, the more likely parents are to send their children to work.

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31 Stella (2003).
This is an obvious consideration, which is valid for all the households who have their children working.

According to Basu and Van (1998), the T line in the above figure can be considered an extreme version of a bendward-bending labour supply curve. Once we have this particular kind of curve, it is possible that a collective ban on child labour may improve the welfare of the carpet weavers' households (assuming that these households are pure wage earners). This result is obtained because a collective ban on child labour reduces labour supply and raises wages.

Unfortunately it is very difficult that a total ban on child labour can be implemented in the carpet industry nowadays; this is due to the difficulties in monitoring children who work in family enterprises. In fact, the main effect of the 1948 Factories Act – the most important law against child weavers - was to transfer the bulk of carpet weaving production to homes, where children work behind closed doors. In this way the clandestine nature of the work makes it particularly difficult to regulate child participation. Moreover the population of Eastern Uttar Pradesh, where the carpet industry is situated, is dispersed in several villages of one thousand inhabitants or even less, except for the three towns of Mirzapur, Varanasi and Badohi.

The Basu and Van's model has implications in order to analyse gender issues within the domain of child labour. There is evidence that the labour supply response to changes among girls and boys in the labour market conditions can be very different.\footnote{Goldin (1979)} This model can, in principle, be extended to study the markets of both boy and girl labour, although the carpet industry is fundamentally an "only man area".

It is not clear why this happens since weaving is a female dominated occupation in other carpet producing countries such as Iran. It is likely that it would not be considered safe for women to work in enclosed...
rooms in close proximity with male weavers as it would be necessary if men and women were to work in the same loom. Moreover men could prefer to be the only one who earn in the household; in fact, there is some evidence that when women begin to work outside the household and contribute to the household's income, they also have more influence on household choices and decisions. Hence it is natural to expect that a man will take this into account before deciding to send his wife out to work.

In addition, even if the initial decision about whether a woman could work or not belongs to her husband, once she begins working the decision whether she continues to work or not may cease to be the husband's decision. This anticipated shift in decision-making is likely to introduce some important complications to modelling female labour, as distinct from child labour; I refer for this argument to other studies. However, here it can be useful to mention how the promotion of all-female weaving enterprises may accomplish two policy goals:

1) improving the status of women by increasing their income-earning opportunities,
2) eliminating the use of child labour.

Somebody may worry that the employment of both the parents can cause an increase in child labour as it happened in the factories of match of Sivakasi. Personally, I do not believe it can happen in the carpet industry because schools are geographically accessible in almost every village of eastern Uttar Pradesh and, unlike the parents in Sivakasi, here adults are conscious of the practical value of education for their children.

For all these reasons, I think that some appropriate schemes should be devised in order to make it easier to women to enter the labour market, reducing in this way the exploitation of children.

Obviously the Indian Government must play a central role in this field.
6. Cost implications in eliminating Indian child weavers
Anker et al. (1998) used simulated changes in the costs to explore alternative scenarios involving the elimination of child labour. Preliminary calculations suggest that replacing child workers with adults in the weaving stage of the hand-knotted carpet production would lead to an increase in the cost of carpets to consumers by only a few percentage points. This result depends on a number of assumptions, which I want to summarise briefly here.

The first one is that each carpet-enterprise uses an average of 22 per cent of child workers. Secondly, the lost "exploitation opportunity" is estimated by assuming that child weavers receive on average one-half of the pay rate of adult weavers. That is, if a child weaver were replaced by an adult weaver, then the loom owner would have to pay the new (adult) weaver 100 per cent more than he paid the child.

Thirdly, they consider the cost increases which arise from a general increase in piece rates. Therefore, as in the Basu and Van model, which I referred to the carpet industry situation, let's assume that some increases in costs are bound to take place in order to attract enough additional adult labour to replace child workers. Anker's best assumption is that weaving rates would increase by 5 per cent; this estimate could appear too low but we have to consider the large labour reserve available in a poor region like Uttar Pradesh. This third assumption together with the second one (child weavers receive on average one-half the pay rate of adult weavers) implies about a six per cent cost increase for average quality carpets produced using the average percentage of child labour. In my opinion, this six per cent cost increase estimate is a reasonable mid-range estimate. In addition, assumptions regarding whether increased costs are

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33 Strauss and Duncan (1995) and Riley (1997).
34 Anker et al. (1998)
passed on or assumed (in the form of reduced profits) by loom owners, middlemen, exporters, or importers affect the final estimates. Along with these assumptions, the probable impact of the elimination of child labour on the various actors in the carpet industry is shown in table 1.3. Loom owners and exporters are observed to be affected more adversely than importers or foreign consumers because they have to face the cost of weavers’ wages, which continues to be the major variable component, while the cost of raw materials and the other expenses remains fixed. Thus, any change in the weaving charges would have direct and immediate effect on the loom owners and exporters. Since importers and foreign retailers mark up the export price at about 65 and 185 per cent respectively, the impact of the elimination of child labour will have a lower impact on them, as clearly borne out in the table below.

An increase of 6 per cent in export price due to the elimination of child labour will be equivalent to about 60 per cent of the loom owner's revenues; it follows that loom owners have a strong economic interest in continuing to use child weavers. Moreover the cost of Indian carpets relative to revenues will go up by about 9 per cent for importer wholesalers and only 3 per cent for foreign retailers. The foreign buyer would end up by paying less than 2 per cent more. All the below estimates are based on a combination of survey data, in-depth information from industry and a range of assumptions made by Anker and his collaborators. They show that the costs due to the elimination of child labour are of manageable proportion, although they are necessary to ensure that the economic interests of loom owners are considered.

It is also very important that foreign importers and retailers do not shift to other countries for their carpet requirements because of the major increase in the cost of Indian carpets due to an honest effort to eliminate
this evil. Such a progressive measure by an open society such as India rather deserves to be rewarded with an increase in exports.

Table 1.3. Implications from elimination of child workers (assuming 6% increase in weaving charges)

<table>
<thead>
<tr>
<th>Recipients</th>
<th>Impact on gross revenues cost (%)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loom owner (receive 10 % of export price)</td>
<td>60</td>
<td>Has expenses of loom, building, supervising, ensuring quality control.</td>
</tr>
<tr>
<td>Exporter (has a gross revenue of 20-28% of export price)</td>
<td>25</td>
<td>Expenses include office, ware house, staff, travel, etc. An important expense is working capital required to make advance payments for wool, cotton, weaving charges, etc.</td>
</tr>
<tr>
<td>Importer (mark up about 65% of exporter price)</td>
<td>9</td>
<td>Has expenses at office, staff, travel, stocking, etc.</td>
</tr>
<tr>
<td>Foreign retailer (mark up 185% of export price)</td>
<td>3</td>
<td>Expenses include shop, staff, about stocking, advertisement, etc.</td>
</tr>
<tr>
<td>Foreign consumer (pays about 350% of export price)</td>
<td>2</td>
<td>Includes local and/or national sale taxes</td>
</tr>
</tbody>
</table>

Source: Anker et al. (1998), p.43.

Conclusions

By now I think it is understood that the issue of child labour is not simple at all. The existence of working children is a complex reality, inextricably linked with poverty and ignorance. It is a symptom, not a disease; yet, it cannot be neglected just because the larger problems of removing poverty and illiteracy appear far more intractable. It needs to be ensured that
workable solutions are devised to phase out this evil, which affects more than 180 million children in the world, half of them only in India. It has been argued in this work that there is much that can and ought to be done, but the precise policy to be followed depends on the economic milieu for which the prescription is being sought; this is the reason why I have decided to focus my attention on a specific industry, which involves more than 200,000 children: the carpet industry of Uttar Pradesh.

Besides moral and humanitarian reasons, there are obviously also many good economic grounds for India, as well as for every other country that is characterised by this evil, to be concerned with the elimination of child labour. Child labour, in fact, not only reduces school attendance and human capital accumulation but also increases children's mortality and causes inequalities in society.

The Basu and Van’s model has shown that the elimination of child labour in the carpet industry of Uttar Pradesh, where it has been found that children are perfect substitutes for adults (and vice versa), is also likely to cause the prevailing wage rate to increase, because of a reduction in the supply of labour. It seems clear that the presence of child weavers cheapens the labour supply and depresses the wage rate. Thus, by removing child labour, there would be in the market the tendency for the wage rate to rise.

The Indian Government must play a key-role in order to make this kind of ban effective since in the “carpet-belt” industry child labour is difficult to monitor owing to the fact that children are often engaged in small workshops or homes scattered over a vast expanse. Moreover, the Government can also use many other kinds of policies – taxes, subsidies, and other restrictions – the effects of which can be checked out using the Basu and Van’s model.

To sum up, ban is a powerful instrument but by no means unequivocally desirable. As I have analysed in this paper, it can be very useful in order
to fight the evil of child labour in the “carpet-belt” industry. It is because this industry has some particular characteristics, which make it particularly cut out for this kind of policy (for example, the availability of good schools in the area).

So one has to be very careful about the socio-economic context before using this instrument. Only if there are multiple equilibriums in the labour market, a ban is a benign and worthwhile policy intervention. The first best policy is, in my opinion, to attack the problem at its source; this entails improving the condition and scope for adult labour.

Finally, one important area of practical concern to which the Basu and Van’s model can be brought to bear is the debate on national and international labour standards.

In India, legislation has been used in several contexts and settings to combat child labour in the carpet industry. Probably an optimal program against child labour should utilise both the instrument of legislation and universal education. I think, in fact, there is a reciprocal relationship between the legislative policy on education and child labour. Not only the former can reinforce child labour legislation by keeping children out from the workforce, but also the latter, when sensitively enforced, can be a useful instrument to retain children in schools, thus helping governments in achieving their universal basic education objectives.

The obvious implication is that these policies, aimed at extending universal education and at reducing child employment, should be planned to move on together, and should both respond to the specific economic and social realities of the country. In such perspective, I think it is important to underline that a child’s presence in school is easier to monitor than a child’s abstention from work. Seen in that light, a policy of universal education can be planned to serve as an effective instrument of child labour reform, just as child labour laws can be designed to help promote universal education.
Bibliography


