Child Labor: Cause, Consequence, and Cure, with Remarks on International Labor Standards

KAUSHIK BASU[1]

1. *Introduction*

ACCORDING TO THE Bureau of Statistics of the International Labor Organization, in 1995 at least 120 million of the world's children between the ages of five and fourteen years did full-time, paid work (ILO 1996; Kebebew Ashagrie 1998). Many of them worked under hazardous and unhygienic conditions and for more than ten hours a day. This is not a new problem. In different parts of the world, at different stages of history, the laboring child has been a part of economic life. In particular, children have worked in large numbers in factories from the time of the industrial revolution in Europe and from the mid-nineteenth century in America. In contemporary times, the incidence of child labor is very high in Third World countries, and it has been that way for several decades now.

What has increased is the awareness of and concern for children who work as laborers. This is caused, in part, by the increasing globalization of the world, which has brought not only more information about the condition of labor in different nations to academics and activists the world over, but also goods produced by children in faraway lands into the hands of consumers in high-income countries. This has, in turn, brought two very different kinds of people onto the same platform—individuals who are genuinely concerned about the plight of children in poor countries, and those who comprise the forces of protectionism in developed countries. The two have rallied together to support a variety of interventions in Third World labor markets, ranging from banning imports into industrialized nations of products "tainted" by child labor inputs, through setting international labor standards to be monitored by international organizations such as the WTO or ILO, to labeling products that involved child labor so as to give the consumer the option to boycott them.

Any such intervention is likely to have not just an impact on the well-being of children, but also spillover effects on others. It is imperative, therefore, that policy in this area be based on careful analysis and research, and not just emotion or impulse.

The literature on child labor is enormous, but it is scattered across the social sciences and piecemeal, lacking a common theoretical foundation. The aim of this paper is to provide an analytical survey of this field, keeping in mind that this is an area where the primary reason for theorizing is ultimately to influence policy. The main policy debates and options are summarized in Section 3. Section 2 provides the factual background of the problem, drawing on large-scale data sets and on the substantial literature rooted in formal and informal micro studies. Thanks to the enormity of the problem in the last century, there is also a sizeable historical literature on the subject.[2] I draw on this, not comprehensively, but keeping in mind contemporary concerns and the analytical focus of this paper, and report on this in Section 2.2.

Sections 4 through 7 are on models and theories related to child labor. The traditional argument for government intervention in child labor markets is based on the standard claim of externalities. Such arguments are recapitulated in Section 4, which also summarizes the early theoretical ideas of some classical economists. Conventional models treat the household as a single decision-making unit (Gary Becker 1964); but once we recognize that there may be divergence of interests within the

household, there is scope for arguing that children are victimized. There is now a whole range of bargaining models available for analyzing intra-household decision making, some of which explicitly look into the question of child labor (for example, Carolyn Moehling 1995, and Manash Gupta forthcoming). These models are summarized in Section 5, along with some suggestions for extensions. If there are no externalities and no divergence of interest in the household, can there still be a case for intervention? Section 6 sketches a model (Kaushik Basu and Pham Hoang Van 1998) showing that, for a class of situations, the answer is yes, because of the labor market's propensity to have multiple equilibria. The model of Section 7 sketches an argument against harassment and shows how this kind of analysis can be used in thinking about child-labor legislation.

Child labor regulation is an important part of the current debate on international labor standards. Section 8 discusses some questions concerning international labor standards in which the problem of child labor arises explicitly. Section 9 consists of brief concluding remarks.

2. *The Empirical Context*

To place this analytical survey in context and also to keep our focus on real-world policy concerns, it is useful to begin by briefly recounting the world's actual experience with child labor. This exercise is broken up into two subsections, one describing contemporary macro aggregates, and another describing the historical roots of the problem.

2.1 *Contemporary*

Any estimate of child labor depends on how we define "child" and "labor" and on the quality of statistics available.

[2] See, for instance, Michael Anderson (1971), Claudia Goldin (1979), David Vincent (1981), Hugh Cunningham (1990), Clark Nardinelli (1990), Moehling (1995), Sara Horrell and Jane Humphries (1995, 1995a), Cunningham and Pier Paolo Viazzo (1996), and Douglas Galbi (1997).

The ILO's Convention No. 138 specifies fifteen years as the age above which, in normal circumstances, a person may participate in economic activity.[3] Following this, most studies treat a person of age less than fifteen years as a "child." As a study by the US Department of Labor notes, while ILO Convention 138 "has been ratified by only about one quarter of the ILO membership, it has nevertheless been internationally recognized and used as a blueprint for national policy and practice with respect to child labor" (US Department of Labor 1993, p. 5). This observation carries even greater weight because the US itself is not a signatory to the convention.

A child is classified as a "laborer" if the child is "economically active" (Ashagrie 1993).[4] Governments and international organizations usually treat a person as economically active or "gainfully employed" if the person does work on a regular basis for which he or she is remunerated or that results in output destined for the market. The Indian census, for instance, explicitly uses such a convention. We know from micro studies that if we instead include those "invisible" workers who do unpaid work that finds no market outlet, such as work within the household, the estimates of child labor can shoot up. D. Jayaraj and S. Subramanian's (1997) re-

cent calculations for the state of Tamilnadu, India, show that for the 5–14 age group in 1983, if they use the restrictive definition of the kind that the ILO uses, 13 percent of all children were laborers. Using the more liberal definition, the figure jumps to 33 percent.[5]

Even after the definitions are sorted out (to the extent that they can be) official data on child labor tends to be deficient because of the likelihood of underreporting. In most countries there are laws that place restrictions on child labor, ranging from an outright ban (as in most industrialized countries) to other kinds of limitations such as an outright ban on child labor for very small children, and for all children in hazardous industries (as, for instance, in Bangladesh, India and Pakistan). Thus it is natural for guardians and employers to hide the information of "illegal" work by children.

Keeping all these caveats in mind, and cobbling information from various sources, Ashagrie (1993; see also Christiaan Grootaert and Ravi Kanbur 1995) was the first to put together an international data set on child labor. He found that in 1990 there were nearly 79 million children who were economically active. Most of them (57 million) were in Asia. However, over the previous ten years, he found that the absolute number of children working was declining in Asia but rising in the Americas and Africa, sharply in the latter. This data is summarized in Table 1.

It is worth pointing out that while

---

[3] While this is so under "normal circumstances," Convention 138 does specify some special cases. Thus for "light work" the age limit is thirteen years, and for "hazardous work" it is eighteen years (ILO 1996). See UNICEF (1994) for a discussion of Convention 138 and for alternative conceptions of what constitutes child labor (see also Karl Eric Knutsson 1997).

[4] The ILO often distinguishes between "child work" and "child labor," the latter being used to describe the more pejorative part of "child work," whereas "child work" in itself could include doing light household chores and can actually have some learning value (ILO 1995, p. 1). I shall, however, here use "work" and "labor" interchangeably, while referring to what the ILO calls "child labor."

[5] This point is reinforced at the all-India level by Myron Weiner (1996, p. 3007) who argues that "most of the 90 million children not in school are working children." See also Sophie Labenne (1995) for alternative definitions of child labor and how different variables affect them in India. Some economists adopt the convention of distinguishing between "work" and "home care," classifying children who do not attend school and are not formally employed as "home care laborers" (Kimberly Cartwright and Harry Patrinos 1998).

TABLE 1
CHILD LABOR: AGGREGATE AND DISTRIBUTION

	Number of Children (below 15 years) Working (in thousands)		
	1980	1985	1990
World	87,867	80,611	78,516
Africa	14,950	14,536	16,763
Americas	4,122	4,536	4,723
Asia	68,324	61,210	56,784
East Asia	39,725	33,463	22,448
Southeast Asia	6,518	6,079	5,587
South Asia	20,192	19,834	27,639

Source: Ashagrie (1993).

Ashagrie's (1993) estimates, as summarized in Table 1, have the virtue of comprehensiveness, they generally give lower values for the incidence of child labor than other existing estimates. Indeed, more recent works by Ashagrie (1998) and the ILO (1996), which were based on detailed experimental surveys in Ghana, India, Indonesia and Senegal, have resulted in upward revisions of these figures. In addition, it must be kept in mind that all figures quoted in this section relate to full-time work. Recent ILO estimates suggest that if "child labor" is taken to include those who do part-time work, the numbers more than double. Thus the 1995 figure for child labor, quoted at the start of this essay, would rise to 250 million.

The Asian figures are very large, but it has to be kept in mind that Asia's population is very large. So to get a better idea of the magnitude of the problem, we may wish to look at the "participation rate," that is, the percentage of children of the relevant age group who work as laborers. In terms of participation rates, for the 10–14 years category, the problem in 1990 was most serious in Africa, with a figure of 27.87 percent. The participation rate for Asia was 15.19 percent. These statistics are available from the ILO (1996a), which has now compiled inter-country data on child labor from 1950 to 1995, along with projections up to 2010. A summary of this information is provided in Table 2 and Figure 1. The first five rows show the distribution of child labor across the main continental regions of the world. In addition, a sample of five nations, from among those that had a participation rate of over 20 percent in 1950, is represented in the table to give the reader a glimpse of how varied the experience of different nations has been.

As this graph and table show, the problem is enormous, but the trend, fortunately, is in the right direction. For some countries, such as China, India, and especially Italy, the decline in the participation rate of children has been quite rapid. For most Latin American nations, such as Brazil, the decline is notable but less marked. The problem has been extremely persistent in large parts of sub-Saharan Africa, as illustrated by Ethiopia, but even here the trend is downwards. For China, interestingly, the decline is most rapid between 1980 and 1990, which happens

TABLE 2
PARTICIPATION RATES FOR CHILDREN, 10–14 YEARS

	1950	1960	1970	1980	1990	1995	2000	2010
World	27.57	24.81	22.30	19.91	14.65	13.02	11.32	8.44
Africa	38.42	35.88	33.05	30.97	27.87	26.23	24.92	22.52
Latin America & Caribbean	19.36	16.53	14.60	12.64	11.23	9.77	8.21	5.47
Asia	36.06	32.26	28.35	23.42	15.19	12.77	10.18	5.60
Europe	6.49	3.52	1.62	0.42	0.10	0.06	0.04	0.02
Ethiopia	52.95	50.75	48.51	46.32	43.47	42.30	41.10	38.79
Brazil	23.53	22.19	20.33	19.02	17.78	16.09	14.39	10.94
China	47.85	43.17	39.03	30.48	15.24	11.55	7.86	0.00
India	35.43	30.07	25.46	21.44	16.68	14.37	12.07	7.46
Italy	29.11	10.91	4.12	1.55	0.43	0.38	0.33	0.27

Source: ILO (1996a).

to coincide with the period of very rapid growth in incomes.[6]

The overall growth of an economy is by no means the only factor, nor for that matter the most important factor, in the mitigation of child labor. Changes in technology, improvement in the conditions of the adult labor market, and the availability of decent schooling can all lead to children being voluntarily withdrawn from the labor force. Victor Levy (1985), in a study of rural Egypt, found that mechanization did contribute to a diminution in child labor and also in fertility. The cultivation of cotton, especially weeding and picking, has conventionally been child-labor intensive in Egypt. So changes in cropping pattern, away from cotton, played a role in curbing child labor.

[6] One has to be careful not to read too much into these macro statistics. Most of the data are constructed by extrapolating from a few small-scale detailed studies. Even in the US, where a considerable amount of money and effort goes into collecting labor data, the amount of child labor is prone to be underreported (Douglas Kruse and Douglas Mahoney 1998). The problem must be that much more acute for developing countries, especially ones where state control makes it difficult for independent researchers to collect and verify data.

We shall return to the subject of *how* to curb child labor later. Let us, before that, take a look at the historical backdrop of the contemporary situation, just described.

2.2 *Historical*

Here is an excerpt from an interview with a child laborer.

Q. "What were your hours of labor, do you recollect, in that mill?"
A. "In the summer season we were very scarce of water."
Q. "But when you had sufficient water, how long did you work?"
A. "We began at 4 o'clock in the morning and worked till 10 or 11 at night; as long as we could stand upon our feet."
Q. "You hardly could keep up for that length of time?"
A. "No, we often fell asleep."

This could have been a contemporary interview, but it is not; it took place in June 1832. The interview was conducted by a British Parliamentary committee, investigating the conditions of child labor in the United Kingdom. In this case the interviewee was Peter
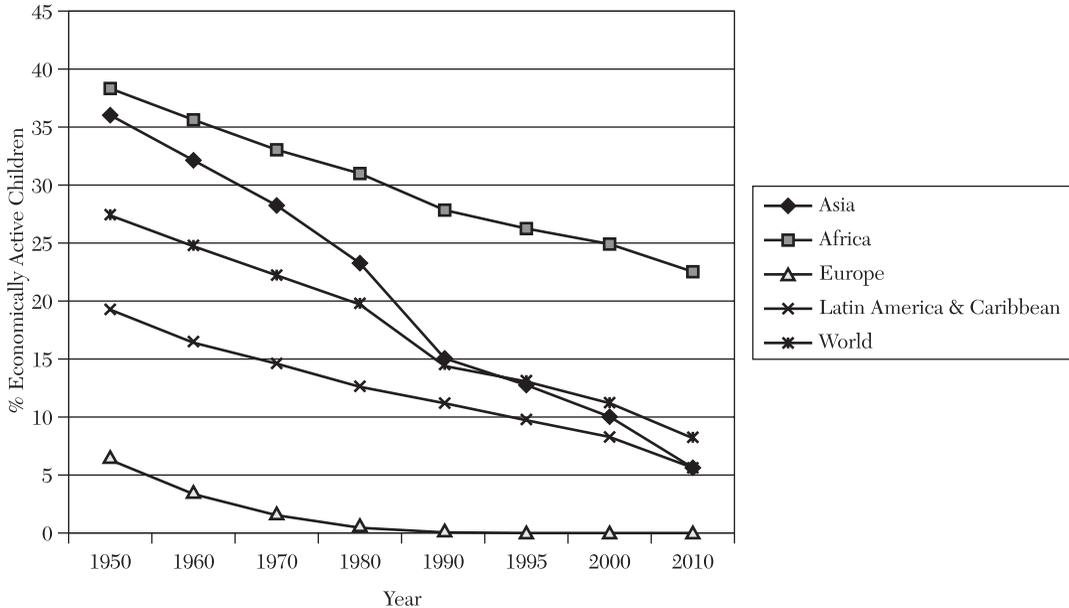
Figure 1. Trends in the Participation Rates of Children 10–14 Years of Age.

Smart, who had worked as a laborer from the age of five years. Peter Smart was not an exception. The Select Committee Report of 1831–32 from which I have taken the above interrogation (see *British Parliamentary Papers* 1968, p. 338), is an enormous document, reporting on a series of interviews of both child laborers and factory owners and managers. The story that emerges has little variation. The children worked long hours, were frequently beaten, and were paid a pittance.

British census data reveal that the incidence of child labor was very high in the early and middle nineteenth century. According to the Census of England and Wales in 1861, 36.9 percent of boys in the 10–14 age group were laborers, and the statistic for girls was 20.5 percent.[7] A comparison with Table

2 shows that though the incidence of child labor was higher for Africa and Asia in 1950, currently no continental region in the world has higher participation rates than Britain did in the middle of the last century. However, some *nations*, such as Ethiopia, have a much higher rate (see Table 2). While the participation of children in the labor force may have been particularly high in Britain, the experience of other industrializing nations, such as Belgium, the US, and Japan were not very different (Rene De Herdt 1996; Donald Parsons and Goldin 1989; and Osamu Saito 1996).[8]

While, historically, attention was drawn to the child labor problem during the industrial revolution, there are scholars who have argued that the problem was not especially acute during this time. According to them, child labor

[7] Going by the census, child labor in England and Wales peaked in 1861 for boys, and in 1871 for girls. The participation rates dropped off rapidly after 1871 (see Cunningham 1996).

[8] For a general discussion of intercountry experience in the last century see Weiner (1991) and Cunningham and Viazzo (1996).

was comparably widespread even in the early eighteenth century, though the children did not work in factories at that time. But most of such observations are based on impressions rather than statistics. Moreover, the experience of working on farms, alongside one's parents, is arguably less grim than working in factories for fourteen hours at a stretch (Cunningham 1990), as suggested by the interview quoted above.

This view finds reinforcement in a contemporary study conducted by researchers at the Delhi School of Economics[9] and the Indian Social Institute which shows that child labor in *rural areas* is often "light," so much so that these children ought to be able to get education without seriously cutting into their work commitments, *if* they had access to proper schools (Bhatty et al. 1997). This study, based on interviewing 1,221 rural Indian parents, found that among the out-of-school children, about half worked less than three hours on the day preceding the survey and only 18 percent worked more than eight hours. The story is very different for *factory* workers and organized child labor, as, for instance, in the match industry of Sivakasi (Kothari 1983; Kulkarni 1983).

The large incidence of child labor in the industrialized nations in the last century gave rise to a lot of debate and ideas from which we can benefit today.[10] What is quite striking and noteworthy is that child labor has not always been thought of as an evil. There have been times when it was treated as unpleasant to the child, but nevertheless desirable, somewhat akin to our contemporary view of education. Thus we

find an eighteenth-century writer observing that "parents, whose childhood was spent in idleness, have contracted every absurd prejudice against the employment of children, as unnatural, cruel and unprofitable."[11] B. L. Hutchins and A. Harrison (1903) have recounted many instances of this attitude. They quote, for instance, a 1770 document, which argues that "being constantly employed at least twelve hours in a day . . . we hope the rising generation will be so habituated to constant employment, that it would at length prove agreeable and entertaining to them . . . [From] children thus trained up to constant labor we may venture to hope the lowering of its price" (Hutchins and Harrison 1903, p. 5).[12]

Nevertheless, as the excesses of child labor increased through the early nineteenth century, opposition also mounted. And by the late nineteenth century, child labor was on the decline. It is true that this institution would soon be "exported" out of the industrialized nations, as the practice of child labor got shifted to the colonies, but within the boundaries of industrialized nations, it was undeniably on the way out.

How did this happen? There is no consensus on this. On the one hand, there was a series of legislative acts limiting child labor and ultimately declaring it unconditionally illegal, and there

---

[9] I am grateful to Jean Dreze, who was part of this team, for a very valuable discussion on this.

[10] For a lucid summary account, see Cunningham and Viazzo (1996a).

[11] Quoted in Cunningham (1990, p. 120).

[12] By the time the child labor debate picked up steam in the United States in the late nineteenth century, child labor was viewed as it is today, as an unmitigated evil. The reasons given against the institution of child labor are also rather like the ones given today, the important exception being the argument of "race degeneracy." Child labor, it was reasoned, should be ended in the South because that would help "the preservation of its Anglo-Saxon stock" (A. J. McKelway 1906, p. 261). Similar sentiment was expressed repeatedly by several authors in the March 1906 issue of *The Annals   of the American Academy of Political and Social Science.*

were also rules about compulsory education which made it difficult for children to work full time. On the other hand, the increasing prosperity of Europe, the USA, and Japan made it easier for parents to pull children out of work without having to fear that this would commit the household to poverty.

All these factors must have played a role with important regional and sectoral differences. Peter Scholliers' (1995, p. 208) study of child labor in Ghent, Belgium, revealed that by the mid-nineteenth century "the number of children under twelve had diminished substantially, and this without any legislative intervention." By contrast, the law played an important role in the decline of child labor in the cotton mills of Manchester (Per Bolin-Hort 1989). Martin Brown, Jens Christiansen, and Peter Philips (1992), in their study of the fruit and vegetable canning industry in the US between 1880 and 1920, found that the decline in the incidence of child labor was due to both natural economic reasons and legal factors, though the economic forces were the stronger explanatory variable.

There is, however, some agreement on one matter. If one is using legislative fiat to fight child labor, it is more effective to legislate for compulsory education instead of simply banning child labor (Weiner 1991). One good reason for this is that a child's presence in school is easier to monitor (and thus ensure) than a child's absence from work.

There were others who, in the context of the historical debate, felt that legislation, whether it be for compulsory education or a direct ban on child labor, cannot be as effective as economic progress, and that the right policy is to wait for economic progress. Such a position is associated with Nardinelli (1990; and, for discussion, see Cunningham and Viazzo 1996).

One of the more systematic investigations of the historical role of law in the decline of child labor occurs in the work of Moehling (1998). Her focus of study is the United States from 1880 to 1910. This is part of the period during which the incidence of child labor dropped off rapidly. It was also a period of activism against child labor. In 1900 twelve states had a minimum age limit of fourteen years for manufacturing employment. By 1910 thirty-two states had such a restriction. The question Moehling investigates is whether it was the legislation that caused the decline in child labor or it was the diminishing dependence of industry on child labor that made the judicial activism possible.

The method that she uses is the "difference of difference of difference" (DDD). A more standard method (for instance, one used by Joshua Angrist and Alan Krueger 1991, and Robert Margo and T. Aldrich Finegan 1996) would have required her to compare the difference in the difference in the occupation rates of children aged thirteen years and fourteen years in states that have a law debarring those below fourteen years old from working in manufactures, and states that have no such law, to see if the law had an impact. What Moehling does is to add another layer of differencing by looking at the difference-in-difference before and after some states adopted such legislation. This presumably nets out the effect that there may be differences between different states, stemming not from law but more inherent traits, such as industrial structure. Using national random samples of households from the censuses of 1880, 1900, and 1910 and the method of DDD, Moehling concludes that minimum age restrictions had little impact on employment in the US at the turn of the century.

The finding is important but not conclusive. Once one begins to go the route of adding on differences, strictly speaking, there is no stopping. Just as there may be innate differences between states, there may be innate differences (in particular, ones that are not the product of law) in changes over time across states.

Turning to the subject of state intervention, one must, in assessing the efficacy of a law, distinguish between the case where the law is not properly implemented, and one in which the law is implemented but its net effect on society is not desirable. What Moehling's study points to is the inadequate implementation of the US law. This does not mean that the law is not the right method of intervention for eradicating child labor. Another country at another point in history may be able to implement a law that had, allegedly, failed elsewhere in the late nineteenth century. An important policy question facing us is whether a legislative intervention is a desirable one. Does it promote welfare when properly implemented? To answer such questions it is essential to have a theoretical model for analyzing child labor. Later, when we have studied such models, we will see that there is scope for using both legislative and nonlegislative interventions. Policy toward child labor has to be more nuanced and context specific than what governments and international organizations have attempted. But before we get to such a conclusion it is useful to recapitulate what the major policy options are, and the role of different institutions.

3. *The Policy Questions*

In the battle against child labor, a variety of laws and interventions have been tried and even more discussed. In re-

counting this debate, it is useful to distinguish between three kinds of interventions and institutions: intra-national, supranational, and extra-national.

Intra-national effort consists of the laws that a country enacts and interventions that it plans in order to control child labor within the national boundary. This invariably comes with a certain amount of institutional paraphernalia, such as organizations set up to administer the law and otherwise dissuade child employment. Contrary to the popular view, the question is not just between banning and not banning child labor. Instead, a range of different instruments have been tried. This varies from one of the earliest pieces of legislation, such as the child labor law enacted by the state of Massachusetts, USA, in 1837, which prohibited firms from employing children under the age of fifteen years who had not attended school for at least three months in the previous year, to contemporary laws, such as Nepal's Labor Act of 1992 and The Children's Act of 1992, that place restrictions on indigenous child labor.[13] Many countries also have important nongovernmental, intra-national efforts to curb child labor. The Daughters' Education Programme (DEP) in northern Thailand is one such effort. DEP tries to prevent young girls from going into prostitution by providing education and mobilizing local opinion. Literacy programs and compulsory education, to the extent that these get in the way of labor, may also be viewed as an intra-national intervention. I return to the subject of education below.

Supranational interventions are those

---

[13] The Children's Act of 1992 prohibits children of age thirteen years or less from doing any work as employed laborers. The Labor Act of 1992 places restrictions on the kind of labor that children can do in "enterprises" that employ ten or more persons (ILO 1995).

attempted through international organizations, such as the ILO, the WTO, and UNICEF, which by establishing conventions, and encouraging and cajoling nations to ratify them, have tried to curb child labor. The most powerful, and also controversial, instrument that the supranational institutions can use to curb child labor is the imposition of "international labor standards," that is, a set of minimal rules and conditions for labor which all countries are expected to satisfy. Since the adoption of such standards makes it possible to take punitive action (such as imposing trade sanctions) against defaulting nations, these can be potentially quite effective. Labor standards are discussed in Section 8.

Thanks to controversy and a divergence of opinion, the world has been slow to adopt international labor standards. This has led some developed countries to consider legislation and other action in their own countries that could curb child labor in developing nations. Such actions are what I label as *extra-national*. Consider, for instance, the Child Labor Deterrence Act, or the so-called "Harkin's bill," which has been debated extensively in the US Congress. In a nutshell, this is a law that seeks to disallow the import into the US of goods that have been produced with the help of child labor. The law will work within the US but is nevertheless expected to have a strong deterrent effect in developing countries. There are variants of the Harkin's bill that have been considered and debated in the US. The "Sanders' amendment," which seeks to amend the Tariff Act of 1930 so as to deter the import of goods produced by unfree or bonded child labor, is another (and, to me, a more reasonable) example of extra-national intervention, as are recent efforts to have imported goods that

are "child labor free" to be labeled as such.

The trouble with such extra-national interventions is that these can come to be misused by lobbies and protectionists representing narrow, sectarian interests. It is possible to take different views about the original motivation behind a bill. Krueger (1997), for instance, did an unusual test of the hypothesis that it is protectionism that prompted the Harkin's bill (see also Dani Rodrik 1997). His study was based on checking what kinds of constituency the sponsors of the bill come from; and he concluded that the motivation for the bill was humanitarian concern. On the other hand, while the recent versions of the Harkin's bill have no mention of trade and protection, giving the impression of its only concern being the humanitarian one regarding the plight of children, an early version of the bill had openly appealed that adult workers in the United States and other developed countries should not have their jobs imperiled by imports produced by child labor in developing countries (US Department of Labor 1992, p. 5; see also Basu 1994; and Sen. Tom Harkin 1994).[14] Fortunately, the original motivation is not the relevant question. What one has to be aware of is that such laws *can* be misused by the forces of protection.

An intra-national intervention which deserves to be discussed separately is education and compulsory schooling. Historically this has been considered a major instrument for eradicating child

---

[14] Subsequently, the text of the bill (version of April 17, 1997) has changed further and this time in the right direction. It now tends to isolate child labor performed "under circumstances tantamount to involuntary servitude" or "under exposure to toxic substances or working conditions otherwise posing serious health hazards" as the kind against which the import restriction in the US will principally apply.

labor. The relation between education and child labor has been an area of active empirical investigation.[15] The important finding is that not only are these not mutually exclusive activities but there may be important complementarities between them. George Psacharopoulos' (1997) study, using household survey data from Bolivia and Venezuela, shows that, though working children contribute substantially to household incomes, the educational attainment of children who work is significantly lower than that of nonworking children. Patrinos and Psacharopoulos' (1997) research using Peruvian data, however, reveals that child labor is not detrimental to schooling and leaves the authors wondering if in some cases "working actually makes it possible for the children to go to school" (p. 398). Presumably they are referring here to part-time work which leaves children the time to go to school. Hence, a restricted amount of child labor and schooling can actually be complementary. This is especially true in rural areas and the urban informal sector where work hours are not rigid. In his study of child labor in rural Bengal, Arup Maharatna (1997) found that male (female) children, aged 10–15, worked on average 7.78 hours (4.59 hours) a day, and of that only 3.01 hours (0.01 hours) were spent on formal wage employment. The importance and possibility of work-and-school among the very poor is also brought out well in Grootaert's impressive empirical study of child labor in Cote d'Ivoire. This does not detract from the fact that compulsory education can play a role in limiting child labor (Weiner 1991). Moreover, even if the education is not compulsory, the mere availability of good schools can do a lot in diverting children away from long hours in the work place (Jean Dreze and Haris Gazdar 1996; Tony Addison et al. 1997).

In debating policy questions, in particular the use of compulsive measures, such as legal bans and compulsory education, it has to be kept in mind that for a child to work is not the worst thing that can happen. So when we stop child labor, there must be reason to believe that this will not make children worse off, for instance, by causing starvation or bodily harm.[16]

Even if *legal* intervention in the child labor market is found to be undesirable, this does not mean government should sit back and wait for natural economic growth to gradually remove children from the labor force. Government can intervene in the market to create a variety of incentives, such as providing better and more schools, giving school meals, and improving conditions in the adult labor market, which result in a reduction of child labor.

The justification for a lot of these interventions depends on whether we believe that the state is more concerned about the well-being of children than are the parents of the children. I believe that such a presumption would be wrong when child labor occurs as a *mass phenomenon* as distinct from cases of isolated abuse. This is not to deny that there are contexts where legal bans, total or sectoral, are desirable. But one needs careful, theoretical analysis to identify the contexts where these are likely to be beneficial.

4. *Early Theoretical Ideas*

Given the widespread prevalence of child labor in the last century, it is not

---

[15] For instance, Peter Jensen and Helena Nielsen (1997), Grootaert (1998), and Psacharopoulos (1997).

[16] A similar point has been made by Sarah Bachman (1995, p. 3), who observed that attempts to bar children from working in the manufacturing sector in Bangladesh have pushed some of them over to prostitution.

surprising that the origins of our contemporary mathematical models and theoretical constructs can be found, albeit in a much more primitive form, in the contributions of earlier writers such as Karl Marx, Alfred Marshall, and Arthur Pigou.

Marx, writing at a time when the incidence of child labor in factories was at a peak, had a lot to say on the subject. Focusing here on the theoretical ideas, it is interesting to note how Marx in *Capital* (Volume 1, chap. 15, sec. 3) virtually outlined a formal model of the cause of child labor. He first noted how, with the rise of new technology, in particular machinery, there arose scope for employing those "whose bodily development is incomplete, but whose limbs are all the more supple. The labor of women and children was, therefore, the first thing sought by capitalists who used machinery" (Marx 1867, p. 372).

The availability of machinery can, in an ideal world, create more time for leisure. But Marx noted that since the machinery was owned by one agent and labor by another, a diminished need for labor would tend to depress wages,[17] so much so that (1) it may be worthwhile for the capitalist to use labor liberally and (2) it may be necessary for workers to have their entire family work in order to make ends meet. Marx (1867, p. 373) writes: "[Machinery] thus depreciates [the man's] labor power . . . In order that the family may live four people must now, not only labor, but expend surplus-labor for the capitalist." This argument is very close to ideas that we pursue later, and can give rise to the possibility of multiple equilibria, as shown in Section 6.1.

Marx also noted the long-term debilitating consequences of child labor.[18] But it was Marshall who pursued this idea, to the point of sketching a dynamic argument. Marshall (1920, p. 620), with his characteristic fastidiousness, observed that children had labored even before the industrial revolution "but the moral and physical misery and disease caused by excessive work under bad conditions reached their highest point in the first quarter of the [nineteenth] century." He noted (p. 469) that "the most valuable of all capital is that invested in human beings."

Most interestingly, he showed awareness of the dynamics of these observations: "The less fully [the children's] faculties are developed, the less will they realize the importance of the faculties of their children, and the less will be their power of doing so. And conversely any change that awards to the workers of one generation better earnings, together with better opportunities of developing their best qualities, will increase the material and moral advantages which they have the power to offer to their children" (Marshall 1920, p. 468). Some of the features of this quote will be captured in a formal model in Section 6.4.

On policy, most early writers ranged from favoring a ban on child labor to placing severe restrictions on the quantity and quality of child labor. Pigou (1962), who favored a ban, was aware that a ban could cause poor families to dip below their subsistence level, and so argued that a ban should be coupled with social welfare being provided by the state to the neediest families. He did not tell us what his prescription would be if such social welfare was not forthcoming.

---

[17] Empirical investigations cast doubt on whether average wages did fall during this period. However, in certain sectors, such as the handloom, this was certainly the case (John Lyons 1989).

[18] On the matter of policy, Marx was against a total ban on child labor for the Europe of his time. He favored restrictions on working hours and compulsory education (Marx 1875).

On what theoretical grounds did these early writers support government intervention in this matter? As we shall see later more formally, there is a host of possible arguments, but for a long time the most popular has been that of "externalities." Keeping a child away from education may mean missing out on benefits for society at large which do not accrue to the parent who takes the decision. For one, the main benefit goes to the child. As Marshall (1920, p. 470) noted: "Whoever may incur the expense of investing capital in developing the abilities of the workman, those abilities will be the property of the workman himself: and thus the virtue of those who have aided him must remain for the greater part its own reward." John Stuart Mill also stressed the positive externality of education, arguing that for a parent not to educate the child is a breach of duty not only towards the child but "towards the members of the community generally, who are all liable to suffer seriously from the consequences of ignorance and want of education in their fellow citizens" (Mill 1848, p. 319). By extension, he concluded (p. 323): "Children, and young persons not yet arrived at maturity, should be protected . . . from being over-worked. Laboring for too many hours in the day, or on work beyond their strength, should not be permitted."

Externalities are such a well-known argument for intervention that it is often used too cavalierly by economists and noneconomists. It is frequently used as a facade when the real reasons are more self-serving. In the context of child labor, the externality argument needs to be made carefully for it to command attention. An excellent statement of this occurs in the recent work of Grootaert and Kanbur (1995). Grootaert and Kanbur consider the possibil-ity that the social returns to education may exceed private returns. So government intervention to direct children away from work and to the classroom may be desirable. The ideal policy for achieving this, according to them, is to bolster the returns to education. They consider a ban on child labor to be a second-best intervention.

An extreme case of externality arises in the model of Gupta (1998) in which there is a total bifurcation between agency and welfare, since parents and employers take the child employment decision entirely in their self-interest. The child is simply an instrument of their bargain. The model in section 5.2 may therefore be viewed as a model of extreme externality.

5. *Bargaining Models*

The formal analysis of child labor is closely related to the modeling of household behavior. The early ventures in this direction (for instance, Mark Rosenzweig and Robert Evenson 1977; Goldin 1979) were models of household decision-making, which tried to simultaneously explain decisions of consumption and child labor and, at times, also child schooling and fertility. The specifications were kept simple enough to allow for this greater generality and also to allow for empirical testing. Subsequent work moved away from this to allow for the possibility that a household's behavior is not determined by one benevolent dictator, but instead is the outcome of internal bargains and power struggle. Models involving bargaining can and have been used to explain child labor and the level of well-being of children, though by and large such efforts treat child labor not as the focus of analysis but a fallout of general household modeling. In this section, I present the main outline of these

models, focusing on and drawing out their implications for child labor.

Bargaining models of child labor may be classified into two distinct kinds, depending on who the agents involved in the bargain are. According to one view, the bargain occurs within the family, between the parent and the child. The other approach treats the employer and the parents of the child as the agents involved in bargaining.[19] These two models are the subject matter of the next two subsections, respectively.

5.1 *Intra-Household Bargaining*

The traditional model of the household, known as the *unitary model*, characterizes the household as a single unit of decision making (Becker 1964). This is a valid model if one person in the household happens to be a dictator or all persons have the same utility function.

There is, however, increasing evidence that a household's consumption pattern tends to change as the composition of who earns how much changes, even when the total earnings of the household are unchanged (see, for example, Duncan Thomas 1990; John Strauss and Thomas 1995; and Moehling 1995). This is usually taken to indicate that the household is not a single conflict-free unit of decision making but, instead, an area of bargaining, where a person's bargaining power depends on the resources one brings to the household and one's fallback options.[20]

A general representation of these ap-

proaches occurs in what is known as the *collective model* (Francois Bourguignon and Pierre-Andre Chiappori 1994). Moehling (1995) has adapted this model further by taking explicit account of the child. For a simple version of this model, we could think of the household as being characterized by one parent (agent 1) and one child (agent 2). Since I am here not interested in the demand functions for different products, I shall assume that there is only one good in the economy and x_i is the amount consumed by agent i. Let the unit of the good be chosen such that its price happens to be 1. As in Moehling's model, suppose each agent in the household is concerned about the consumption of all members of the household.[21] Let u_i be person i's utility function.

The household's utility function is a weighted average of u_1 and u_2 where the weight attached to the parent's utility, α, depends on the incomes of the parent and the child, denoted respectively by y_1 and y_2. In other words, in a household's utility function, who gets how much weight depends on who brings how much money.[22] Hence, in the collective model, the household's decision-problem is as follows.

$$\underset{\{x_1,x_2\}}{\text{Max}} \; \alpha(y_1,y_2)u_1(x_1,x_2)$$
$$+ [1 - \alpha(y_1,y_2)]u_2(x_1,x_2).$$
$$\text{subject to } x_1 + x_2 \leq y_1 + y_2.$$

It is assumed that

$$\frac{\partial \alpha}{\partial y_1} \geq 0, \frac{\partial \alpha}{\partial y_2} \leq 0, \frac{\partial u_1}{\partial x_1} > 0, \frac{\partial u_1}{\partial x_2} \geq 0,$$

[19] These studies, therefore, exclude the case of "street children" who live on their own and belong to no household as such. The present paper also does not address the problem of homeless children. This is, however, not a negligible category (see William Myers 1988).

[20] See, for instance, Marilyn Manser and Murray Brown 1980; Marjorie McElroy and Mary Horney 1981; Nancy Folbre 1986; Amartya Sen 1990; Martin Browning et al. 1994; Grootaert and Kanbur 1995; Christopher Udry 1996; and Bina Agarwal 1997.

[21] It is worth stressing that the important special case of this model is where each person is concerned about his own welfare, and the final household consumption and labor supply are entirely consequences of the power of different individuals.

[22] In this model the household allocation is always Pareto efficient. The empirical validity of this is not uncontested (see Udry 1996).

Many take y to be i's unearned income. I prefer not to do this for reasons explained below.

$$\frac{\partial u_2}{\partial x_1} \geq 0, \frac{\partial u_2}{\partial x_2} > 0 \text{ and } 0 \leq \alpha \leq 1.$$

Moehling estimates a closely-related model using household data from early twentieth-century urban America, and finds that working children receive a larger share of household resources than nonworking children.

This model can be taken further to explain a child's participation in the work force. To see this, note that, strictly speaking, members of a household consume not just goods and services but also leisure. For simplicity, assume that the adult always works. Let e be the work done by the child, where $e \, \varepsilon [0, 1]$. The child's consumption of leisure is, therefore, $1 - e$.

Given that each person's utility depends on x_1, x_2 and e, a natural extension of the above model is to think of the household as facing the following decision problem, which I shall call the "collective maximization problem":

$$\underset{x_1,x_2,e}{\text{Max}} \; \alpha(y_1,y_2)u_1(x_1,x_2,e)$$
$$+ [1 - \alpha(y_1,y_2)]u_2(x_1,x_2,e).$$
$$\text{subject to} \quad x_1 + x_2 \leq y_1 + y_2.$$

This is, however, a more complicated problem than appears at first sight, since the child's income, y_2, depends on the choice of e. Thus it is not clear that y_2 can be thought of as an exogenous variable.

There are two alternative routes that one can take from here. One way out of this is to treat α as a function of the price vector, as in Bourguignon and Chiappori (1994). Then, since the wage rate is a price, α will turn out to be a function of the wage rates of adults and children (w_1 and w_2) rather than y_1 and y_2. And of course the budget constraint will now be:

$$x_1 + x_2 \leq w_1 + ew_2,$$

keeping in mind that the adult always works full-time.

This gives us a straightforward optimization problem, which avoids the complication of simultaneity. The empirical plausibility of this approach, however, seems open to question. It implies that a person's bargaining power in the household depends not on the person's actual share of the household income but on the wage that one could earn, if one worked full-time. Sociological studies, on the other hand, suggest that a woman's bargaining power in the household is diminished if a woman does not do outside work (Nancy Riley 1997).

A second way out of this difficulty is one that rectifies this weakness and assumes that a person's power depends on how much income the person actually brings to the household budget. This is, however, technically more complicated. Note that in the collective maximization problem the decision maker is, effectively, an amalgam of the members of the household with the preference of each member receiving some weight. Once the child's effort (or, for that matter, anybody's effort) is thrown in as one of the variables over which a decision has to be reached, the weights that individuals receive (here captured by α and $1-\alpha$) depend on what decision gets taken. In other words, who the decision maker is depends in part on what the decision is. Hence, the collective decision problem cannot be thought of as a normal-form game, since in such a game the players or the decision makers are primitives. One direction that one can pursue is to take y_2 as exogenous and have the household decide on x_1, x_2 and e; and then check whether we recover the same y_2. If we do, then we have a "household equilibrium."

In order to do this, let us take a child's wage rate to be w; that is, a full unit of work by a child yields a wage of

w. If a child works for e units, his total income, y_2, is ew. It is assumed that, as far as the household is concerned, w is given exogenously. With y_1 and w given exogenously, we describe (x_1^*, x_2^*, e^*) to be a *household equilibrium* if (x_1^*, x_2^*, e^*) is the solution to the above collective maximization problem, with $y_2 = e^*w$.

This equilibrium is not necessarily unique, nor is it obvious that it always exists. The existence problem is best understood by converting the household's problem to a search for a fixed point of a correspondence.

Let $\Phi = [0,1] \rightarrow [0,1]$ be a correspondence defined as follows. Given any $e' \in [0,1]$, we can take $y_2 = e'w$ (recall w is given exogenously). Now solve the collective maximization problem taking y_2 to be $e'w$ (recall y_1 is given exogenously). All values of e that are a part of such a solution are the set $\Phi(e')$. This is what defines the correspondence Φ. It is now plain that a household equilibrium exists if and only if Φ has a fixed point.

Given that the maximand in the collective maximization problem need not be concave, Φ need not be convex-valued and we are not able to use Kakutani's fixed-point theorem. Indeed it is possible to construct reasonable examples where Φ has no fixed points. On the other hand, it is also possible to think of restrictions on the parameters which ensure that an equilibrium exists. One simple example of this is the textbook case of selfish individuals: Let us assume

$$u_1(x_1, x_2, e) = f_1(x_1)$$
$$u_2(x_1, x_2, e) = f_2(x_2) - c(e)$$

That is, the parent is interested in his own consumption, the child in the child's own consumption. It is worth emphasizing that this is still a collective model of the household, since the household's maximand continues to be a weighted average of the utilities of the members of the household. Hence, the allocation of resources continues to be Pareto efficient. Let us also, as is usual, assume, $f_1', f_2', c' > 0$, $f_1'', f_2'' < 0$, and $c'' > 0$.

These assumptions ensure that for every y_1 and y_2, there is a unique (x_1, x_2, e) which solves the collective maximization problem, and that the solution varies continuously with y_2. Thus, ignoring other variables, we can write $\Psi(y_1, y_2)$ to be the value of e which solves the maximization problem, given y_1 and y_2. Since for every $e \in [0, 1]$, $y_2 = ew$, we can define $\Phi(e) = \Psi(y_1, ew)$. Since Φ is a continuous function from $[0, 1]$ to $[0, 1]$, by Brouwer's fixed point theorem, there exists e^* such that

$$e^* = \Phi(e^*) = \Psi(y_1, e^*w) \qquad (1)$$

e^* is the amount of labor that the child will supply in equilibrium.

Note that e^* can be written as a function of y_1 and w, by using (1). Thus

$$e^* = e^*(y_1, w).$$

In other words, the child's labor supply depends on the adult wage (y_1) and child wage (w) that prevails on the market. It is possible to develop a more elaborate model with more exogenous variables. It will be interesting to draw out the empirical implications of such a model and put them to test. Another direction that can be pursued is to model the interaction between household members as a sequential game in which a player's power in period t depends on his income share in period t-1. Instead of pursuing this here, I shall instead move on now to discuss models that were developed explicitly to explain child labor. One such model is that of Gupta (1998).

5.2 *Extra-Household Bargaining*

Citing a survey work currently afoot in some villages of West Bengal, India, Gupta (1998) argues that a child has negligible bargaining power in the

household and is, effectively, an instrument for the parent's maximization effort. In addition, he assumes that parents are entirely selfish in the sense of being uninterested in the well-being of the children *per se*. While a parent owns his child's labor, he is unable to make the child work productively for want of complementary resources, such as land or cattle. He found that in West Bengal villages the bulk of child labor is directed to the maintenance of cattle. So for work the child has to go to an employer, who has the resources.

The bargaining that occurs in this model is between the parent and the employer over (i) the wage, w, that is to be paid for the child's work and (ii) the fraction, λ, of the wage that is to be paid in the form of food to the child. Gupta (1998) assumes that the parents spend the cash component of the wage entirely on themselves. I believe that this is empirically questionable, but let us go along with it as a simplifying assumption.

Using an efficiency wage argument, assume that the output, x, produced by a child laborer is a function of his consumption. So

$$x = x(\lambda w),$$

where $x(\lambda w) = 0$, for λw less than some positive number, b, and concave thereafter. That is, for all $\lambda w > b$, $x'(\lambda w) > 0$ and $x''(\lambda w) < 0$.

Let us assume that if the bargain fails, the parent and the employer earn Y_P and Y_E respectively. Hence, the threat point of the bargaining problem is given by (Y_P, Y_E). If the parent and the employer agree on (w, λ), their incomes are, respectively, $(1 - \lambda)w$ and $x(\lambda w) - w$.

Therefore, the Nash bargaining problem consists of solving the following problem:

$$\underset{\{w,\lambda\}}{\text{Max}} \, [(1 - \lambda)w - Y_P][x(\lambda w) - w - Y_E]$$

This gives us the first-order conditions:

$$[(1 - \lambda)w - Y_P]x'(\lambda w)w \\ - w[x(\lambda w) - w - Y_E] = 0$$

$$[(1 - \lambda)w - Y_P][x'(\lambda w)\lambda - 1] \\ + (1-\lambda)[x(\lambda w) - w - Y_E] = 0$$

By rearranging these we get:

$$x'(\lambda w) = 1 \qquad (2)$$

and

$$x(\lambda w) + \lambda w = 2w + (Y_E - Y_P) \qquad (3)$$

Since λw is, effectively, the child's wage, (2) says that the child's marginal product is set equal to 1. This is the standard result of efficiency wage. To see this, use v to denote a child's wage. Then the net income generated by a child is given by $x(v) - v$. If v is chosen to maximize this, we get $x'(v) = 1$, which is exactly what (2) is. In other words, in this model a child is paid a wage, λw, that maximizes net returns. The value of this is independent of the threat point. Once we know the value of λw, we can use (3) to solve for the value of w. This depends on Y_P and Y_E. As $(Y_E - Y_P)$ increases, w falls and λ increases, as is evident from (3).

It is now possible to derive comparative statics results by postulating how Y_E and Y_P get set and considering variations of this. Gupta (1998), for instance, considers the case where Y_E depends on the adult wage that prevails on the market. In particular, he assumes that Y_E falls as adult wage rises. This implies that as adult wage rises, the child's wage, w, will rise.

One can, however, hypothesize other explanations for Y_E and Y_P and derive other theories of how w will depend on the parameters of the model. What is interesting about this model is how sharply it contrasts with the model that we are about to encounter, one in which the parent is altruistically concerned

about the child's welfare. In the model just described, the child's welfare is nobody's concern. The child is valued in the same way as the goose that lays the golden eggs.

6. *Multiple Equilibria and Government Intervention*

What the early models seemed to overlook is that a labor market, where children are potential workers, will be prone to having more than one equilibrium, and if it did, then this would raise a variety of interesting policy questions. This is demonstrated in the model of Basu and Van (1998). It is worth asking why the model of Section 5.1 overlooked the possibility of multiple equilibria. Note that the collective maximization problem reduces to the unitary model of the household if (i) $u_1(x_1,x_2,e) = u_2(x_1,x_2,e)$, or (ii) $\alpha(y_1,y_2) = 1$, for all y_1,y_2, or (iii) $\alpha(y_1,y_2) = 0$, for all y_1,y_2. But in allowing for this generality, what the model glosses over are some natural restrictions on the utility function, which is the starting point of the model of Basu and Van (1998). The latter is based on the unitary model. That is, it assumes that (i), (ii), or (iii) is valid, but this is not its distinguishing mark. I would conjecture that the model's central results would remain valid even if we allowed for bargaining within the household. A simplified model of Basu and Van is presented in subsection 6.1. Subsections 6.2–6.4 discuss the relation between child labor and, respectively, social norms, adult unemployment, and dynamics.

6.1 *Model with Altruism*

I shall here demonstrate, following Basu and Van (1998) but using some very special assumptions, the possibility of multiple equilibria. The special assumptions are for reasons of convenience. The only two essential assumptions are the following:

Luxury axiom: A household would not send its children out to work if its income from non-child labor sources were sufficiently high.

Substitution axiom: Adult labor is a substitute for child labor, or more generally, adults can do what children do.

To give the simplest sketch of this model, let me strengthen these two assumptions to assert that (1) for every household i, there exists a critical wage, W_i, such that the household will send its children out to work if and only if the adult wage prevailing in the market is less than W_i; and (2) adult labor and child labor are perfect substitutes subject to an adult equivalence correction. Both these assumptions can be relaxed enormously without hurting the conclusions of the model. Let us define $\overline{W} \equiv \underset{i}{\mathrm{Max}}\, W_i$ and $\underline{W} \equiv \underset{i}{\mathrm{min}}\, W_i$.

Suppose that a child's labor is equivalent to γ units of an adult's labor, where $0 < \gamma < 1$. In other words, I am assuming that adult and child labor are perfect substitutes subject to an adult-equivalent scale correction of γ.[23] A more convenient way of thinking of this is as follows. Production depends on the total amount of labor used; and each adult, working all day, produces 1 unit of labor, whereas each child, working all day, produces γ units of labor.

---

[23] Admittedly this is a simplifying assumption. What is really needed is the assumption that adults *can* do what children do. This is contrary to the pervasive "nimble fingers" belief—that for some activities, such as carpet-weaving, children are essential. There is however very little empirical support for this belief (ILO 1996). One of the most careful examinations of this occurs in the study of India's carpet industry by Deborah Levison et al. (forthcoming). By collecting information on actual productivity—for instance, square inches knotted per hour—they reach the conclusion that for no activity are children essential. Adults can always replace them. This is not to deny that such substitution may cause costs to rise, since adult wages are typically higher.
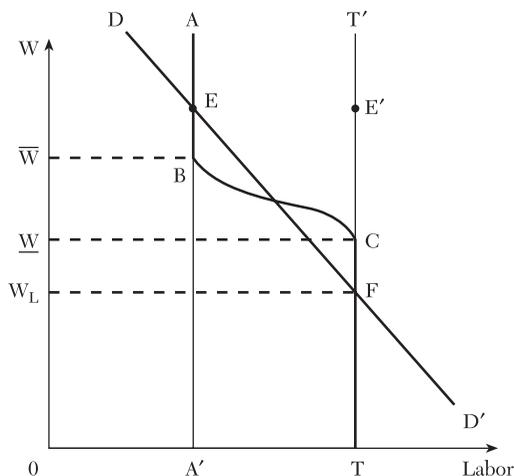
Figure 2.

In Figure 2, let the vertical axis represent adult wage (i.e. the wage paid to an adult for a full day's work). Consider a competitive model in which all agents are price takers. Let AA' be the supply curve of the aggregate adult labor in the economy. For simplicity we show it as perfectly inelastic. Next consider the total amount of "effective labor" that all the children *can* supply. If there are X children in the economy, this will be equal to γX. Add to the aggregate adult labor supply the effective labor that the children can potentially supply in the economy and draw another line representing this. Let $T'T$ be this new line. Thus $A'T$ is equal to γX, the total amount of labor available from the children in the economy. In other words, *if* the country had a law that everybody would always have to supply labor, *then* the aggregate supply curve of labor in the economy would indeed be $T'T$.

Now it is easy to figure out the actual, aggregate supply curve of labor. If the market (adult) wage is below $\underline{W}$, then all children are sent to work; so total labor supply is OT. If the market wage exceeds $\overline{W}$, no child is sent to

work; so total labor supply is OA'. As wage rises from $\underline{W}$ to $\overline{W}$ one household after another withdraws its children from the labor force; so the total supply of labor keeps decreasing, as shown by the curve CB. Hence the total supply of *all kinds of* labor (that is, adult plus child) plotted against alternative *adult* wages gives us the curve $ABCT$. Let me call this the "hybrid supply curve," which should serve as a reminder that it is not quite the standard supply curve.

Not only is this supply curve backward-bending but its composition keeps changing as we move along its contour. Along AB it consists of pure adult labor; as we move from B to C it includes more and more child labor; and from C to T it consists of all available labor in the economy.

The possibility of multiple equilibria is now transparent. I shall assume, without loss of generality, that whenever adult wage is W, child wage happens to be γW. Keeping this in mind, suppose the aggregate demand curve for labor in the economy is given by DD'. That is, DD' shows the total effective labor demanded by firms for every possible adult wage W. Then there are three equilibria.[24] Let us ignore the unstable one and focus on the ones depicted by E and F in Figure 2. If an economy is caught at point F, wages will be low (W_L for adults and γW_L for children) and children will be working. The same economy, however, can be in equilibrium at point E, where wages are high and children do not work.

If the economy is at equilibrium point F, there is scope for an interesting policy intervention, which in Basu and

[24] An important exception is a sufficiently open, small economy, where wage would be determined by world prices, and so the demand curve would be horizontal, thereby destroying the multiple equilibria result (Avinash Dixit 1998). Even in this case, however, there may be multiple equilibria in a dynamic sense as shown in section 6.4.

Van's paper is called a "benign intervention." Suppose child labor is banned. Then effectively, the supply curve of labor becomes AA'. So if demand conditions are unchanged, the economy will now settle at the only equilibrium, at E. What is interesting is that once the equilibrium settles at E, the law banning child labor is no longer needed (since E was anyway an equilibrium of the original economy). It is in this sense that the intervention is described as benign. After its initial effect, it goes dormant and can actually be removed without loss.[25]

If the demand curve intersects the supply curve only once and on the segment CT, then a ban on child labor may well cause a decline in welfare of the workers, including the child laborers.[26]

If this model were fitted into a Walrasian description of the entire economy, each equilibrium would be Pareto optimal. So between the equilibria depicted by E and F neither Pareto dominates the other. However, working-class households are necessarily better off at E. To see this, consider a point (call it E'), where wages are the same as at E but all children work. Clearly worker households are better off at E' than at F, since in both cases everybody works but in the former the wages are higher.

Next, since given the wages at E households prefer not to send the children to work, by revealed preference we know that E is superior to E'. Hence, by transitivity E is preferred to F.

The contestable assumption of this model is the luxury axiom, which takes for granted parental altruism towards the child. In the early nineteenth-century, when child labor took some of its worst forms in industrializing Europe, a standard critique of the British elite was that child labor was an outcome of parental callousness (see Nardinelli 1990, p. 94). There is counter-evidence, however, including from those who themselves worked as child laborers, that the parents sent their children out to work typically when they were compelled to do so by acute poverty (Anderson 1971; Vincent 1981).

Turning to more contemporary evidence, Neera Burra (1995) has reported evidence of parental callousness; and Gupta (1998) has cited sources which support this viewpoint (see also Parsons and Goldin 1989). The much discussed issue of discrimination against the female child in several developing regions, notably in northern India, suggests that the answer may also differ depending on whether we are talking of the male child or the female child.[27] In addition, a study by Alaka Basu (1993) of some slums outside New Delhi brings to light another perverse causation between adult wages and child labor. When the wages for female laborers rise, starting from a sufficiently low level, this often prompts the mother to take up work outside the home, which in turn means that she

---

[25] The model also is suggestive of the link between technology and child labor. If technology changes so that children become relatively less productive than adults (perhaps because of the rise of the use of the computer), then we could think of γ as falling. From Figure 2 it is clear that this would result in T moving left and the inferior equilibrium, where children work, vanishing.

[26] Arguing from a different perspective, Hanan Jacoby and Emmanuel Skoufias (1997, p. 331) reach a similar conclusion: " . . . our results suggest that efforts to expand educational opportunities for the poor [. . .] without an understanding of the economic risks and constraints they face may be met with only limited success. Moreover, compulsory schooling laws or laws against child labor, to the extent that they can be enforced in rural areas, could substantially lower household welfare."

[27] The source of this discrimination need not be the household. If job opportunities for females are limited, it may be a rational response of the household to first educate the boys before turning to the girls. In the context of adults, the more puzzling possibility of gender discrimination in the labor market originating from within the household is modeled elegantly by Patrick Francois (1998).

takes the daughter out of school in order to have her do the housework. It is arguable that if the mother's wage rises sufficiently, the daughter would get put back into school with household help now being hired from outside. This suggests an inverted-U relation between adult female wage and child labor, especially the labor of the female child.

A recent empirical test of the luxury axiom, by Ranjan Ray (forthcoming), suggests that the verdict is mixed. He uses data from Peru's *Living Standards Measurements Survey* 1994, and Pakistan's *Integrated Household Survey* 1991, to check if the luxury axiom is valid. For this test he constructs a dummy variable which takes a value of 1 for households with income below the poverty line and 0 otherwise, and then uses probit and logit models to test the importance of this variable on the household's decision to send its children to work. The estimated coefficients lend support for the luxury axiom in Peru but not in Pakistan. While these tests may be interesting in their own right, they do not really test the luxury axiom, because Ray identifies W_i entirely with the poverty line, whereas nowhere does the axiom suggest that this should be so. What does come out rather interestingly from Ray's paper is, as in Basu (1993), the differential response of child labor to changes in the mother's and the father's wages.

One of the best crafted empirical studies of child labor is Grootaert's (1998) work on Cote d'Ivoire. It is based on annual data collected for 1600 households over the years 1985 to 1988. Sorting out carefully various definitions, he goes on to use a sequential probit model to find the determinants of child labor. He corroborates that the characteristics of the parents matter and also that who has these characteristics, the father or the mother, matters. It is evi-

dent from his study that the very poor households often critically rely on the children's income, and he concludes that, *initially*, interventions should aim to make possible combining light work with schooling, instead of a sudden stoppage of child labor.

This is not the forum to settle this controversy but to pursue the consequences of alternative viewpoints. The extreme case in which parents have no altruism or commitment towards the children but treat them purely as labor-producing machines was modeled in Section 5.2. My own preference is for the altruistic model of this section, while admitting that it is best viewed as a polar characterization of reality. For a clearer conclusion we will have to wait for further econometric work.

6.2 *Norms*

With the idea of multiple equilibria in the core, there are several directions that one can pursue. Albert Hirschman[28] has rightly argued that the decision to send a child to work is partly a matter of social norm.[29] This may be made more precise by assuming that sending a child to work makes the parents incur a social stigma cost, c; and if many children work, then c is smaller. The latter captures the idea that while making a child work is socially frowned upon, the ferocity of the frown is greater if you live in a society where virtually no one but you sends a child to work. This can yield the result that if all parents send their children to work, it is worthwhile for each parent to send his child to work, and if no one sends their

[28] Personal communication to the author dated 15 February, 1995.

[29] "Social norm" has many interpretations (Basu 1998; Partha Dasgupta 1993). I use it here as a social influence that changes our preference. The relation between child labor and cultural norms has been discussed in the book by Gerry Rodgers and Guy Standing (1981), especially in chapter 1.

child to work, each parent may find it not worthwhile to send his child to work (because the social stigma would be too high). The argument here is analogous to the one used by Assar Lindbeck, Stan Nyberg, and Jorgen Weibull (1999)[30] to show how the number of people who are unemployed and live off social welfare can settle at very different values depending on which of the possible multiple equilibria is realized.

This is a simple point analytically but is probably of considerable practical importance in the context of child labor. Also this is an idea that can, potentially, be developed much more and used to address questions of policy.

6.3 *Distribution and Unemployment*

In the model of section 6.1, workers are assumed to be *ex ante* identical, and in the equilibrium that occurs they turn out to be *ex post* identical. A consequence of this is that the model is completely silent on questions of income distribution and unemployment. The literature has relatively little to offer on these topics. The distribution question is raised in a short theoretical paper by Kenneth Swinnerton and Carol Ann Rogers (forthcoming); there is little that is available on this empirically. On the other hand, the relation between adult unemployment and child labor has been the basis of some empirical investigation (see Goldin 1979; Patrick Horan and Peggy Hargis 1991; Michel Bonnet 1993; C. P. Chandrasekhar 1997); the hiatus here is in the theory. Modeling the relation theoretically is a large and interesting topic, but some initial steps towards it are easy to take using the model of section 6.1 above.[31] Before do-

ing so, I want to briefly recount Swinnerton and Rogers' argument.

Their paper begins with the observation that if a parent's decision to send the children to work depends on (among other things) the parent's income, then we should look at not just the parent's wage but also any profits that may accrue to the parents. So they move away from the polar assumption of Basu and Van's model by supposing that the firms are owned by a fraction λ of the workers. So for workers in this category, income equals wages plus a share of profits, while the remaining workers earn only wages. They then show that, if in an economy there exists a good equilibrium, then there does not exist an equilibrium in which the dividend-earning workers send their children to work. This directs the policy discussion to matters of distribution. Giving workers a share in profits turns out to be a method of curbing child labor. This is a valid argument, though the feasibility of such policy changes may be restricted for reasons of politics.

Turning to the subject of adult unemployment, let us suppose that there are N worker households and each household has one adult and m children. As before, child non-work is a luxury good and, in particular, for each household i there is a critical adult wage W_i such that if the adult wage rises above W_i, the household withdraws its children from working. Adults, on the other hand, always prefer to work, no matter what the wage. This immediately gives us the aggregate labor supply curve as in Figure 2.

As before, let us assume that one child manages to produce the equivalent of γ units of adult labor. Hence if the prevailing market child wage, W_c, happens to be equal to γW, where W is the prevailing market adult wage, then firms will be indifferent between employing

---

[30] For the use of similar assumptions, see Mark Granovetter (1978), and Timothy Besley and Stephen Coate (1992).
[31] A different model linking adult unemployment with child labor occurs in Gupta (1997).

adults and children. Let us focus on the case where $\gamma W = W_c$. I should clarify that I am not assuming W_c to be exogenously fixed. Rather I am trying to isolate an equilibrium in which W_c *happens to be* equal to γW.

Within the confines of this case, we can think of the total effective demand for labor to be a function of W. Let us denote such an aggregate demand function by $d(W)$. Let us assume that this is downward sloping and take DD' in Figure 2 as representing such a demand curve.

To study the impact of adult unemployment on child labor, we first need a model in which there can exist adult unemployment. The best way to develop such a model is to use a structure that can endogenously explain wage rigidities. I shall, however, for reasons of simplicity, stay away from such complications[32] and simply assume that adult wage is exogenously fixed at $W*$, where $W*$ is such that $d(W*) < N$. In other words, we are focusing on cases above point E in Figure 2. The questions are: How many adults will find employment? Will children be working and if so what will be the incidence of child labor?

In answering these questions I shall consider the case where $\gamma m < 1$ and $d(W*) - \gamma mN > 0$. This is merely a sufficient condition for the existence of an equilibrium in which $\gamma W* = W_c$. A fuller model will have to go beyond this and consider other cases as well, but the *logic* of the relation between child labor and adult unemployment comes out clearly even in this limited model.

Let us use E to denote the number of adults that will find employment. Since the total demand for labor is $d(W*)$, it follows that $d(W*) - E$ will be the amount of labor demanded from chil-

dren. In other words, the number of children demanded by the firms will be $[d(W*) - E]/\gamma$. Since child wages are not rigid, demand for child labor must be equal to supply of child labor. So what remains to be done is to determine the supply of child labor. Note that if only E adults find employment, $N - E$ households will be earning zero income from the adults. So these will be the households that will send the children out to work. Hence, if E adults find work, the supply of child labor will be given by $m(N - E)$. In other words, E is equilibrium adult employment if:

$$m(N - E) = [d(W*) - E]/\gamma.$$

To remind ourselves that the value of E depends on $W*$, let us write the solution of this equation as $E(W*)$. Evidently,

$$E(W*) = [d(W*) - \gamma mN]/(1 - \gamma m).$$

Since $d(.)$ is a downward-sloping function, it follows that as $W*$ rises, adult employment, $E(W*)$, will fall.

If we use $C(W*)$ to denote the number of children who find employment when adult wage is fixed at $W*$, then we have:

$$C(W*) = m[N - E(W*)]$$
$$= m[N - d(W*)]/(1 - \gamma m).$$

Given that we are considering the case where $\gamma m < 1$, it follows that $C(W*) > 0$. Further, as $W*$ rises, $C(W*)$ rises. Since a rise in $W*$ increases adult unemployment, a rise in adult unemployment is associated with an increased incidence of child labor.

This confirms intuition and empirical findings but also cautions us about the right policy intervention.[33] If market wages rise, we have good reason to believe that child labor will decline, but

---

[32] For a model of child labor and efficiency wage, see Garance Genicot (1998).

[33] The model also allows us to derive some theoretically puzzling results, such as how the abolition of a legal minimum wage can cause wages to rise. To see this, start from a minimum wage, $W*$, below point E in Figure 2 and derive the equilibrium as done above.

that does not mean that this impact on child labor can always be replicated by raising adult wages by fiat. If the adult labor market has oligopsonistic elements, a rise in the legal minimum wage can boost adult employment and cause a decline in child labor, but in competitive labor markets the consequence of raising the minimum wage can be ambiguous.

6.4 *Dynamics*

One big caveat in the large literature on child labor is the treatment of dynamics. Yet the dynamic consequences of child labor are likely to be large, since an increase in child labor frequently causes a decline in the acquisition of human capital. If a child is employed all through the day, it is likely that the child will remain uneducated and have low productivity as an adult.

While the analysis of the long-run consequences of child labor is almost totally ignored in the literature (Jean-Marie Baland and James Robinson 1998 being an exception), one can draw on some papers on human capital acquisition and its long-run consequences, a la Oded Galor and Joseph Zeira (1993), Abhijit Banerjee and Andrew Newman (1993) and Lars Ljungqvist (1993) to derive some hints for modeling the dynamics of child labor.[34] This is what I attempt here and in the process develop the idea of a "child labor trap." I use some strong assumptions to develop my argument but it should be possible to relax these.

Since my aim is to explain multiple equilibria in the long run, it cannot be criticized if I make an assumption that tilts the description of the single-period model away from multiple equilibria. Note that in Figure 2, if the demand

curve is sufficiently elastic, there will exist only one equilibrium in the single-period model. To ensure that this is the case, I shall assume that the demand for labor is perfectly elastic.

Consider an overlapping generations model in which each person lives for two periods, first as a child and then as an adult; and at the start of the second period gives birth to a child. As a child a person can either work or go to school (that is, acquire human capital). So if we denote a full day by 1 and a child works for a fraction e of the day, then the amount of human capital acquired by the child is $1 - e \equiv h$.

The productivity of an adult depends on the amount of human capital, h, he acquired as a child. If we think of L as the number of labor units produced by one adult, then what we are assuming is that

$$L_t = L(h_{t-1}), \quad L' > 0, L'' < 0.[35] \qquad (4)$$

Let us make the normalization assumption that $L(0) = 1$. In other words, the amount of labor produced by an unskilled adult is defined to be 1. That there is an inverse relation between child labor and the child's productivity in

---

[34] For an overlapping generations model of parental schooling decisions, with implications for child labor, see Gerhard Glomm (1997).

[35] So we are assuming that if a child works more, his productivity as an adult falls. We justify this by assuming that a child's nonworking time is spent on studying. Even without this assumption one can argue that child labor diminishes adult productivity. As Pigou (1920, p. 751) had noted, "Many forms of unskilled labor at present open to boys not merely fail to train, but positively untrain, their victims." Madhura Swaminathan's (1997) study of child labor in Gujarat, India, weakly confirms this. She found that, for boys, entering the labor force as a child lowered productivity when they became adults, though for girls there was no significant effect one way or the other. It is however noteworthy that in some special cases this relation tends to go the other way. The English cotton mills of the last century may be a case in point. D. A. Galbi (1997) has argued that the share of child labor in the mills fell during the early nineteenth century precisely because the earlier rise in child labor meant that, as these children grew up, there would be a cohort of more productive adult workers.

later life is also assumed by Parsons and Goldin (1989), though they do not pursue the long-run consequence of this assumption.

Let us use $\bar{V}$ to denote the wage of one unit of labor. If labor demand is perfectly elastic, this will be constant and so we take the wage rate to be fixed at $\bar{V}$. Hence, in period t, an adult who as a child, that is, in period $t-1$, had worked e_{t-1} amount, will have an income of

$$\bar{V}L(1 - e_{t-1}) \equiv W_t. \qquad (5)$$

As is the model of subsection 6.1, we assume that it is the parent who decides whether to send a child to work. Let us assume that there is a wage $\underline{W}$ such that, if adult income is below $\underline{W}$, the parent sends the child to work full time, that is $e = 1$. Let us also assume that there is a wage $\overline{W} > \underline{W}$ such that, if adult income exceeds $\overline{W}$, he does not send his child to work at all, that is, $e = 0$. Unlike in the model of subsection 6.1, we take all adults to be identical and assume that the child's labor is not a $0-1$ decision but monotonically varies with the parent's income. This may be summed up by assuming that the amount of work that a child is made to do in period t is a function of the parent's wage in period t:

$$e_t = e(W_t), \qquad (6)$$

such that $e(W) = 1$, for all $W \leq \underline{W}$; $e(W) = 0$ for all $W \geq \overline{W}$; and $e'(W) < 0$, for all $W \in (\underline{W}, \overline{W})$.

From (5) and (6) we get

$$e_t \equiv e(\bar{V}L(1 - e_{t-1})) \qquad (7)$$

which may be described in brief as

$$e_t \equiv \Phi(e_{t-1}). \qquad (8)$$

From the assumptions made above we know that Φ is upward sloping and bounded above at $e(\bar{V}L(0)) = e(\bar{V})$. In order to focus on the interesting case we consider an Φ which intersects the 45° line more than once. In the case illus-
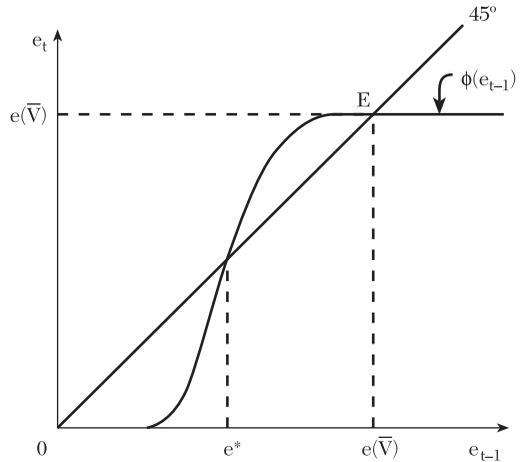

Figure 3.

trated in Figure 3, there are three steady-state equilibria, of which two are stable. These are depicted by points 0 and *E*. At *E*, a poor parent makes the child work full-time. The child acquires no skills and so as an adult earns very little and has to send his child, in turn, to work full-time. This equilibrium depicts what may be called a "child labor trap."[36] On the other hand 0 depicts an equilibrium where a child goes to school, earns adequately as an adult and so can and does send his child to school. It is a virtuous cycle.[37]

There is scope for fruitful intervention by government. If an economy is caught in a child labor trap, what is

[36] A different kind of trap has been modeled by Mukesh Eswaran (1996). In his framework the existence of the institution of child labor biases parents towards having more uneducated children rather than a few educated children. And this choice in turn perpetuates the institution of child labor.

[37] It is possible to argue that in addition to the fact that an educated parent is able to educate her child, the very fact of growing up in a household in which the adults are educated confers knowledge and therefore increased productivity on a child. This could render the better equilibrium even more dynamic than suggested by this model. For a discussion of the externalities of literacy within a household, see Basu and James Foster (1998).

needed is a large effort to educate one generation, and this can get the economy rolling towards the virtuous equilibrium without need for further action. D. P. Chaudhri (1997) has discussed several versions of "virtuous spirals" and instances of how child labor tends to decline rapidly once a "tipping point" is reached.

As is shown by Parsons and Goldin (1989), the sub-optimality of investment in education is closely-related to the availability of efficient capital markets (see, also, Jacoby and Skoufias 1997). There is also evidence from the field that the availability of credit on decent terms can rescue many from the perils of child labor, since in developing countries, such as India, a typical reason for a child to drop out of school is not chronic poverty but a temporary mishap for the household, such as the father losing a job or a sibling needing medical support.

The credit question comes up starkly in the model of Baland and Robinson (1998). Theirs is a two-period model of child labor in which inefficiency occurs despite parental altruism, because parents may run out of resources needed to educate the child. The only option then is to borrow against the child's future income, and this is typically not possible. This shows that to solve the problem of child labor one has to go beyond providing perfect capital markets. What is needed is the enforcement of intergenerational contracts, whereby what i borrows for i's child's education is paid back by the child when she grows up, by when i may be dead. But it is not clear that creating institutions for enforcing such contracts is desirable, since it will be open to the moral hazard of "inverse bequests," whereby a person borrows funds in the name of the child's education and leaves the child with a repayment burden.

Another related feature, which I do not model here but is important, is the fertility decision. We have in this paper treated the number of children as exogenously given. In reality, the number of children a family has is partly volitional, and the decision may well depend on whether children can find work (Mead Cain 1977; Rosenzweig and Evenson 1977; Eswaran 1996; Pranab Bardhan and Udry 1999). Cain's study of Bangladesh shows that not only do children contribute to household incomes, but a boy becomes a net producer by the age of twelve years, and after the age of fifteen years his cumulative contribution exceeds their cumulative consumption. Plainly, these are features that a proper dynamic model should be able to incorporate. There is need for such a model and the above outline should be viewed as motivation towards it.

7. *Sexual Harassment and Child Labor*

Corporal punishment and sexual exploitation have, at several stages of history, been closely associated with child labor. Commenting on Britain during the industrial revolution, Nardinelli (1982, p. 294) has observed how the use of violence was common against child laborers, though "by the middle of the 19th century it was seldom used for older workers."[38] In a model on the use of violence with special reference to child labor, Michael Chwe (1990) has tried to explain this asymmetric treatment of adults and children in terms of the lower reservation utility of the latter. Evidence of violence also cropped up repeatedly during the interviews

[38] Nardinelli argued that the use of violence was a mechanism for raising productivity, a claim that has not gone unchallenged (see Mary Mackinnon and Paul Johnson 1984, and Nardinelli 1984). For some contemporary accounts of coerced child labor, see Jonathan Silvers 1996.

conducted by the British parliamentary committee investigating child labor in 1832. For instance, a cotton spinner, Thomas Daniel, admitted that the child laborers "are always in terror; and . . . the reason of their being in a state of terror and fear is, that we are obliged to have our work done, and we are compelled to use the strap . . . " (*British Parliamentary Papers* 1968, p. 325).

In what follows I want to raise a different theoretical question concerning violence and sexual harassment. Consider first the case of adult labor. Is there a case for banning violence and sexual harassment when these occur as a consequence of voluntary contracting? I will argue that the answer is a conditional yes, and then try to show that the claim may be carried over to the context of child labor to construct a novel argument for banning child labor in certain situations. Though the theoretical claim applies to all kinds of violence, I illustrate it here with respect to sexual harassment. This argument goes to the core of the philosophical debate concerning the state's right to ban voluntary transactions between consenting individuals, such as the signing of self-enslavement contracts or trade in human organs or a child's decision to sell his labor. The best of the existing arguments are quite tenuous[39] and so this is a matter that deserves closer scrutiny.

Economists usually take the line that a voluntary contract between two agents that does not have negative externalities on uninvolved outsiders ought not to be banned. Let me call this the "principle of free contract." If we accept this principle, then it is not clear why sexual harassment in the work place should al-

ways be banned. Consider one kind of harassment which is *ex ante* voluntary. Suppose an entrepreneur advertises for workers, openly saying that he will pay a wage above the market rate but he reserves the right to sexually harass his employees. Therefore, if a worker joins this firm, it must be that she finds that the benefit outweighs the cost.

If we accept the principle of free contract, it now seems difficult to justify banning open sexual harassment of the kind just described. But I believe there is an argument that can be constructed which respects the principle of free contract, and yet may justify a ban.

Note that under normal assumptions the following is true: If harassment is allowed, then those workers who are especially strongly averse to harassment will be worse off because the market wage that they will be able to command will be lower than what it would be if no harassment were allowed by law. I call this the "harassment lemma," and begin by proving it.

Suppose that we have a market with two kinds of workers, with type-1 workers having a stronger aversion to sexual harassment than type-2 workers. For reasons of algebraic ease, let us assume that type 1's distaste for harassment is infinite (so they would rather be unemployed than face harassment), while type 2's distaste is zero. If the wage rate is W and there is no harassment, the aggregate supply of labor by type-i workers is $f_i(W)$. As usual, $f_i'(W) > 0$.

This is a competitive model; so workers and employers are wage-takers. Let me, for simplicity, assume that there is only one employer and he gets a satisfaction of $\theta(>0)$ from harassing each worker. The production function of the employer is given by $x = x(n)$, where $x' > 0, x'' < 0$, n is the number of workers and x the total output.

Let W_H be the wage for those who

[39] For useful discussions of this debate see David Ellerman (1992, chapter 9) and Michael Trebilcock (1993, chapter 4). For an outline of the debate on what constitutes sexual harassment, see Gillian Hadfield (1995).

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

$$x'(n_H + n_N) = W_N \qquad (9)$$

$$W_H = W_N + \theta \qquad (10)$$

Clearly, type-1 workers will sign N-contracts and type-2 workers will sign H-contracts. Hence, the total supply of workers for N-contracts will be $f_1(W_N)$ and the total supply for H-contracts will be $f_2(W_H)$. Therefore, using (9) and (10), we can say that W_N^* is an equilibrium if

$$x'(f_1(W_N^*) + f_2(W_N^* + \theta)) = W_N^*.$$

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

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

What the harassment lemma establishes is this. If we adhere to the principle of free contract, then even though we may have no reason for stopping finite pairs of individuals (an employer and an employee) from getting into harassment contracts, there may be good reason for adopting the *rule* that no harassment contracts should be allowed in the workplace. This is made possible by the fact that, in competition, the aggregate is not simply the sum of all atomistic acts.

Note that the harassment lemma does not provide sufficient reason for banning harassment, but simply shows that allowing contractual harassment cannot be justified on grounds of the principle of free contract, since allowing harassment typically has a negative externality on uninvolved individuals. Clearly, a negative externality cannot be a sufficient reason for disallowing any action. Otherwise we would have to say that no one should be allowed to work on days when there is a cricket match because those who like watching cricket will be adversely affected.

To establish a sufficiency criterion, we need to go beyond economics and identify human preferences which are "fundamental" in the sense that no one should have to pay a price for having such a preference. This may be a controversial list but very few people will deny that there are such "fundamental preferences," and also that not all preferences qualify as fundamental. In most societies the preference not to be sexually harassed would be considered fundamental. No one should have to pay a penalty for having such a preference. On the other hand, the preference for missing work when a cricket match is on would not be considered fundamental by most of us. You may of course have such a preference but you should be prepared to pay some price for it.

It is the harassment lemma coupled with the recognition that the preference not to be sexually harassed is fundamental that clinches the case for an outright ban on sexual harassment.

It is easy to see that the harassment lemma, as an abstract idea, carries over from the domain of sexual harassment to child labor, by assuming that households have different degrees of aversion to sending their children to work. For concreteness turn to the model of Section 6.1 and assume that there are two types of households, 1 and 2, where a type-i household is one which would send its children out to work if and only if adult wage drops to below w_i. Let us assume that $w_1 = -\infty$ (that is, type 1

households never send their children to work), whereas $w_2 = \infty$ (that is, type 2 households always send their children to work).

By using a diagrammatic technique similar to the one used in Figure 2, it is immediately obvious that the market wage rises if a ban on child labor is imposed. Conversely, if a ban on child labor is removed, wages must fall; and so type-1 households become worse off. This establishes the counterpart of the harassment lemma.

Therefore, not having a ban on child labor penalizes households that have a stronger preference not to send their children to work. Following the claims of the above subsection, this leads to a case for a ban on child labor if we consider a household's preference not to send its children to work to be a fundamental preference. To my mind this is not unambiguously fundamental or non-fundamental. It is plainly *more* fundamental than a person's preference for missing work during cricket matches and probably less so than a preference for not submitting to harassment. So, while the case is not automatic, this is a possible avenue for justifying legal action against child labor.

8. *International Labor Standards*

A topic closely related to the subject of child labor is that of "international labor standards" and the use of "social clauses" as a prerequisite for trade. For many years, overtly or covertly, people have argued the need to enforce some minimal standards of labor, concerning working conditions, duration of work, the level of wages, and so on.[40]

Laborers have often had to work in

appalling conditions for meager wages. So a part of the agitation for minimal international labor standards is indeed inspired by a genuine concern for the well-being of workers. But as is only to be expected in such situations, forces of protection and lobbies with their own interest in mind have taken up positions behind this banner. The presence of international organizations makes it now possible, what earlier would be infeasible, to bring multinational pressure to individual nations to comply with some minimal labor standards. In forums, such as the ILO, the GATT and now the WTO, the subject of labor standards or social clauses has been a live one (Jagdish Bhagwati 1995). Some industrialized nations have campaigned for the inclusion of social clauses in the WTO which would either deny nations that do not fulfil minimal labor standards membership in the WTO, or enable other nations to place a trade embargo on any nation that violates the standards.

One major area for setting international labor standards concerns child labor (see Gary Fields 1995; David Bloom and Waseem Noor 1996; Keith Maskus and Jill Holman 1996; Stephen Golub 1997; Drusilla Brown 1998). As an ultimate objective everybody agrees that children should not work, just as adults should not overwork and get underpaid. Given these objectives, what is the right policy response? Here answers have differed widely. One answer is that since one country's acquiescence to lower labor standards gives it trading advantages in labor-intensive goods, there should be multilateral sanctions against such a country; and social clauses should be used to deter such "illegitimate advantages" (see, for instance, Terry Collingsworth, William Goold, and Pharis Harvey 1994; and Frank Wilkinson 1994).

At the other end of the spectrum is

---

[40] See Steve Charnovitz (1987) and Srinivasan (1996) for discussion of the roots of the labor-standards movement. For a discussion of alternative interpretations of "labor standards" see Werner Sengenberger and Duncan Campbell (1994).

the argument that countries trade on the basis of their relative advantages, and for some countries the advantage lies in their cheap labor. To try to level these out through the use of multilateral threats is to practice protectionism, which is likely to hurt not just workers in the Third World but consumers in the developed nations as well. In particular, several economists have argued that a social clause in the WTO is not the right response to child labor and other problems of labor standards (Bhagwati 1995; Srinivasan 1996). Instead, Bhagwati (1995, p. 757) argues for "methods of suasion" and for the ILO to be the main international agency to strive towards better standards.

A variety of positions have also been taken *between* the two described above. Rodrik (1996), for instance, argues that, while one has to be aware that the "upward harmonization" of labor standards can rob poor nations of their comparative advantage in labor-intensive goods, it may be all right to use trade restrictions against nations that violate a widely held moral code in the importing country so as to safeguard domestic labor standards. He calls this a "social safeguard clause," and suggests (1) institutional mechanisms for ensuring that these are not misused by one nation against another and (2) a scheme for providing compensation (under certain circumstances) to developing countries that lose out as a consequence of such sanctions.[41]

To check on the impact of imposing international labor standards on developing nations (and to deduce which ones are worthwhile) it is important to have a suitable theoretical model. My interest here is in *child* labor standards.

[41] The idea of compensating developing nations for adopting higher labor standards was originally contained in Ron Ehrenberg (1994). See Krueger (1997) for discussion.

The theoretical modeling of labor standards is still in its nascency (see Bloom and Noor 1996; Maskus and Holman 1996; Srinivasan 1996). Of these, Maskus and Holman are most directly concerned with child labor standards. Their model is based on introducing the "demand for child labor standards" as an argument in the representative agent's Cobb-Douglas utility function. This makes some of the conclusions, such as the need for child labor standards, too direct a consequence of the assumptions of the model; and it also leaves no margin for the fact that people's attitude to child labor may embody a misunderstanding of the implications of child labor for child welfare.

It seems to me more valuable to analyze policy starting from a standard utility function, instead of one chosen specially for the occasion. In what follows we derive lessons for labor standards from a model which (i) does not introduce "labor standards" as a direct argument in the utility function and (ii) recognizes the interdependence of decisions between nations.

Consider the model of Section 6.1. Let us simplify it a little by supposing that all households are identical and at adult-wage $\overline{W}$ they draw their children out of the labor force. Let us also assume $\gamma = 1$. On the other hand, we complicate the model a little by assuming that while the aggregate demand for labor is given by AD in Figure 4 and aggregate supply by $BCFG$ (its strange shape is natural and was explained in Section 6.1), the demand and supply are evenly distributed over t regions, $R_1, \ldots, R_t$, of the economy. In other words, if there are aggregates of N consumers and n firms, each region has N/t consumers and n/t firms.

In other words, the demand curve AD is a horizontal summation of the demand of n identical firms and also the
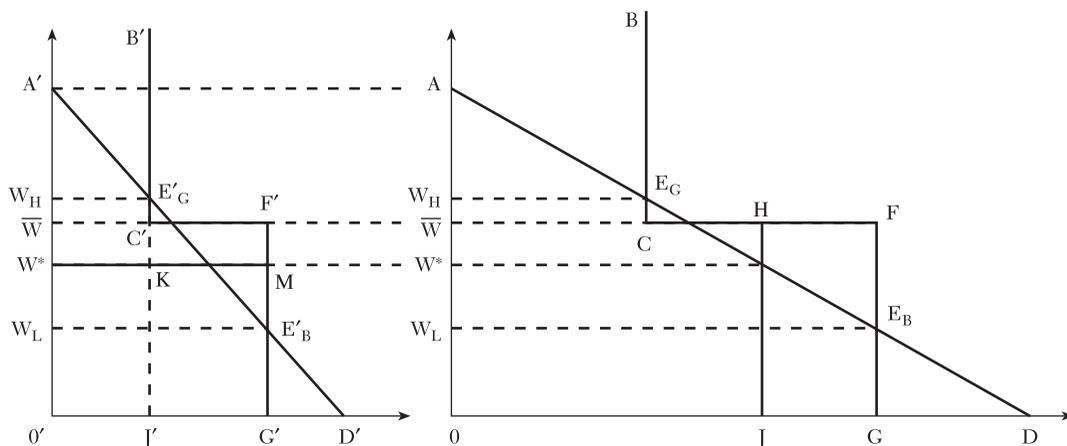
Figure 4.

horizontal summation of the demand curves in the t regions.

While we can think of $R_1, \ldots, R_t$ as different regions of a country, we can also think of these as t countries belonging to a global economy. We could think of these together as belonging to a "region" of the world. I shall assume that the world price of the good produced by this region is one and, thanks to free trade, nothing that happens in the region can change this price. Labor, on the other hand, is region specific. Workers cannot migrate from one country to another.

What we shall do is to study the impact of child labor laws on welfare with and without capital mobility. In this model I interpret capital mobility entirely in terms of the mobility of firms. In other words we shall consider two alternative scenarios: one where firms can freely move between the t countries (or regions), and another in which the firms are entirely country specific.

Suppose the economy is at the bad equilibrium, E_B. Wage is W_L; the total employment is OG. The left-hand panel of Figure 4 depicts what happens in each region. In each region employment is equal to $O'G' = (OG)/t$. The figure is drawn as if $t = 2$.

Consider first the case where firms are region specific. If a ban is imposed on child labor in only one country (the one shown in the left panel of Figure 4), then, for reasons given in Section 6.1, equilibrium will drift from E'_B to E'_G (in the left panel of Figure 4). In the case illustrated in Figure 4, workers in this region will be better off by the ban.

Now suppose firms are fully mobile. Once again consider a ban on child labor imposed only in one country (depicted in the left panel of Figure 4). This will imply that the total labor supply in these t countries will be $BCHJ$, where $HF = CF/t$, since child labor from one country is no longer available.[42] Hence equilibrium wage rises to W^*.

Let us see what the equilibrium looks like for each individual nation. Clearly, the nation that imposes the ban will be at a point like K, where wage is W^* and total employment is $O'J'$ (i.e. only adults are employed). All other nations are at a point such as M. This is caused by the flight of capital (in this case, firms) from the nation imposing the ban.

In this new equilibrium, the country imposing the ban will have to incur

[42] Note also that JG must be equal to $J'G'$.

large costs monitoring the ban because it is not in the self-interest of workers and employers to comply with the ban. In addition, the workers of this nation are likely to be worse off with the ban. This will be especially true if t is large (which will imply that W^* will be close to W_L).

Now suppose that through an international labor standards agreement all nations agree to impose a ban on child labor. There is now no flight of capital since one nation is as good as another. So the aggregate equilibrium shifts to E_G and each nation shifts from E_B' to E_G'. All workers are better off and the ban does not need to be monitored since in this new equilibrium wage is so high (at W_H) that parents do not *want* to send their children to work.

It is true that we get this extreme result by focusing on the case where the aggregate demand curve AD intersects the aggregate supply curve more than once. Nevertheless, what it illustrates is an important implication of the model of Section 6.1 for international labor standards.

There are contexts where, even though labor standards are undesirable for each nation behaving atomistically, they are worthwhile if the standards are coordinated across a large number of nations. Indeed, once this is achieved it may be in the self-interest of everybody to live by the standards.

One must add some notes of caution to the above proposition. First, the proposition must not be taken to detract from the claim that labor standards are often a front for protectionism. The proposition claims that it is *possible* for coordinated effort to benefit all. It does not say that this will always be the case. What the proposition highlights is the fact that coordinated effort is *better* than individual effort. Second, it is conceivable that once we

allow for the heterogeneity of nations, the case will be (when there is a case at all) for labor standards which *vary* across nations. Third, if we worked with a demand curve that was sufficiently low so that it intersects the aggregate supply curve of labor once and on the segment FG, we would find that even coordinated labor standards imposed on all nations will need monitoring (compliance being not in the self-interest of all individuals), though it will continue to be the case that it is better to have a coordinated effort rather than one imposed idiosyncratically on some nations.

9. *Conclusion*

The literature on child labor is an illustration of abundance and anarchy. Theoretical writings on the subject are relatively few, though one finds theoretical insights in many unexpected papers and books which may be otherwise purely empirical or descriptive. The empirical writings on child labor are numerous but they are usually not founded on any theory. By bringing together the main theoretical ideas, this survey hopes to encourage not just further theoretical research but empirical work which is analytically better founded.

Also evident from this survey is the fact that there is no unique prescription. Should child labor be banned outright? Should the WTO be given the responsibility of enforcing restrictions on child labor through the use of trade sanctions? Should there be a legal minimum wage for adults so as to make it unnecessary for parents to send their children to work? The answer depends on the context.

It was argued in this paper 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.

The main policy divide is between legal interventions and what may be called collaborative interventions, that is, public action which alters the economic environment such that parents of their own accord prefer to withdraw the children from the labor force. The availability of good schools, the provision of free meals, and efforts to bolster adult wages are examples of collaborative interventions. We have discussed examples and given arguments to show that such interventions are, in general, a desirable way of curbing child labor. However, many of these actions may not be feasible. There may not be money enough in the government's coffers to run better schools or to improve the infrastructure, which would result in higher adult wages.

In such circumstances, should government resort to legal action to restrict child labor? There seems to be some agreement that some minimal restrictions, such as children being prevented from working in hazardous occupations or under bonded labor conditions, are worth enforcing legally. It is true that one can always think of *some* circumstance where even such a minimal law will work to the detriment of the child. But, by and large, children being made to work in hazardous conditions is either an act of child abuse or ignorance on the part of the parents and the child, and so, in general, it is better to declare such action as illegal.

But what about a more general ban on child labor *per se*? The evidence and the theory that we studied in this paper suggest that there is no unconditional answer to this. There are circumstances where, even if such a total ban were feasible and costless to implement, it ought not to be implemented. To understand this one must realize that there are worse things that can happen to children than having to work. In very poor regions, the alternative to work may be to suffer acute hunger or starvation. Indeed, when child labor occurs as a mass phenomenon, it is likely that the alternative to work is very harsh, because even poor parents do not in general like to send their children to work if they can help it.

Curiously enough, despite this, there are circumstances where a total ban *may* be desirable from the point of view of the well-being of the children. This is because, whereas a single parent withdrawing the child from work cannot influence equilibrium wages, a large scale withdrawal of child labor can cause adult wages to rise so much that the working class household is better off. It was argued in this paper that this is unlikely to be true for very poor economies but may be valid for relatively better-off countries. Even so, one would need to do detailed empirical work to decide whether such a total ban is worthwhile. The interesting insight that theory gives us here is to tell us that it may be so and to give some hints about the type of economy where this is likely.

Another thing that we know is that, if a ban is deemed desirable, a good way to implement it is by making schooling compulsory. This is because a child's presence in school is easier to monitor than a child's abstention from work. It is true that schooling is compatible with a certain amount of work, since children can work before and after school; but it is a good way to prevent *full-time* work and of course is desirable in itself. It has, in fact, been argued by some that, in very poor countries, we should make it possible for children to combine school with work, instead of thinking of these as mutually exclusive activities.

The case for a ban on child labor in the export goods sector alone, which would be a natural concomitant of effort in industrialized nations to boycott

the import of goods made with child labor, is weaker, since this could result in children being diverted to less desirable or more hazardous work. In general, it is better to take economy-wide measures against child labor and, if there is to be a sector-specific ban, this should be based on the working conditions of that sector, rather than the destination of the goods.

This reservation carries over to certain kinds of international action, such as the imposition of minimal labor standards as a prerequisite for trade, since this results in the maintenance of standards only in the exports sector. In addition, international labor standards can cause trade distortions by failing to recognize the comparative advantages of different nations. The paper used some of the models of child labor to investigate the impact of international standards. It was found that one beneficial effect of such standards could be the help that they can provide to developing nations to make a coordinated improvement in their working conditions, without causing a flight of capital. The idea of international labor standards as an instrument of collusion among developing countries suggests news ways to think about this problem. The discussion here was brief and preliminary and simply points to directions for future research.

References

Addison, Tony; Sonia Bhalotra, Fiona Coulter, and Christopher Heady. 1997. "Child Labor in Pakistan and Ghana: A Comparative Study," mimeo, U. Warwick.

Agarwal, Bina. 1997. "'Bargaining' and Gender Relations: Within and Beyond the Household," *Feminist Econ.*, 3:1, pp. 1–51.

Anderson, Michael. 1971. *Family Structure in Nineteenth Century Lancashire*. Cambridge: Cambridge U. Press.

Angrist, Joshua and Alan Krueger. 1991. "Does Compulsory School Attendance Affect Schooling and Attendance?" *Quart. J. Econ.*, 106:4, pp. 979–1014.

Ashagrie, Kebebew. 1993. "Statistics on Child La-

bor," *Bul. Labor Statist.*, 3, International Labor Organization (ILO), Geneva.

_____. 1998. "Statistics on Child Labor and Hazardous Child Labor in Brief," mimeo, Bureau of Labor Statistics, ILO, Geneva.

Bachman, Sarah L. 1995. "Children at Work," *Commentary*, *San Jose Mercury News*, July 16.

Baland, Jean-Marie and James Robinson. 1998. "A Model of Child Labor," mimeo, U. Namur, Belgium.

Banerjee, Abhijit and Andrew Newman. 1993. "Occupational Choice and the Process of Development," *J. Polit. Econ.*, 101:2, pp. 274–98.

Bardhan, Pranab and Christopher Udry. 1999. *Development Microeconomics*. Oxford: Oxford U. Press.

Basu, Alaka Malwade. 1993. "Family Size and Child Welfare in an Urban Slum: Some Disadvantages of Being Poor but Modern," in *Fertility, Family Size and Structure*. Cynthia B. Lloyd, ed. NY: Population Council.

Basu, Kaushik. 1994. "The Poor Need Child Labor," *New York Times*, Nov. 29.

_____. 1998. "Social Norms and the Law," in *The New Palgrave Dictionary of Economics and the Law*. Peter Newman, ed. London: Macmillan.

Basu, Kaushik and James Foster. 1998. "On Measuring Literacy," *Econ. J.,* 108:451, pp. 1733–49.

Basu, Kaushik and Pham Hoang Van. 1998. "The Economics of Child Labor," *Amer. Econ. Rev.*, 88:3, pp. 412–27 .

Becker, Gary S. 1964. *Human Capital*. NY: Columbia U. Press.

Besley, Timothy and Stephen Coate. 1992. "Understanding Welfare Stigma: Taxpayer Resentment and Statistical Discrimination," *J. Public Econ.*, 48:2, pp. 165–83.

Bhagwati, Jagdish. 1995. "Trade Liberalization and 'Fair Trade' Demands: Addressing the Environment and Labor Standards Issues," *World Econ.*, 18:6, pp. 745–59.

Bhatty, Kiran et al. 1997. "Class Struggle," *India Today*, 22, Oct. 13, pp. 69–73.

Bloom, David and Waseem Noor. 1996. "Labor Standards and the Emerging World Economy," mimeo, Harvard U.

Bolin-Hort, Per. 1989. *Work, Family, and the State: Child Labor and the Organization of Production in the British Cotton Industry, 1780–1920*. Lund: Lund U. Press.

Bonnet, Michel. 1993. "Child Labor in Africa," *Int. Labor Rev.*, 132:3, pp. 371–89.

Bourguignon, Francois and Pierre-Andre Chiappori. 1994. "The Collective Approach to Household Behavior," in *The Measurement of Household Welfare*. Richard Blundell, Ian Preston, and Ian Walker, eds. Cambridge, UK: Cambridge U. Press.

British Parliamentary Papers. 1968. "Report from the Select Committee [1831–32] on the 'Bill to Regulate the Labor of Children in the Mills and Factories of the United Kingdom'," *Industrial Revolution: Children's Employment*, vol. 2. Shannon: Irish U. Press.

Brown, Drusilla. 1998. "A Transactions Cost Politics Analysis of International Child Labor Standards," mimeo, Tufts U.

Brown, Martin; Jens Christiansen, and Peter Philips. 1992. "The Decline of Child Labor in the US Fruit and Vegetable Canning Industry: Law or Economics," *Bus. Hist. Rev.*, 66:4, pp. 723–70.

Browning, Martin; Francois Bourguignon, Pierre-André Chiappori, and Valérie Lechene. 1994. "Income and Outcomes: A Structural Model of Intrahousehold Allocation," *J. Polit. Econ.*, 102:6, pp. 1067–96.

Burra, Neera. 1995. *Born to Work: Child Labor in India*. Delhi: Oxford U. Press.

Cain, Mead T. 1977. "The Economic Activities of Children in a Village in Bangladesh," *Population Devel. Rev.*, 3:3, pp. 201–27.

Cartwright, Kimberly and Harry A. Patrinos. 1998. "Child Labor in Urban Bolivia," in *The Policy Analysis of Child Labor: A Comparative Study*. Christiaan Grootaert and Harry A. Patrinos, eds. Manuscript, World Bank.

Chandrasekhar, C.P. 1997. "The Economic Consequences of the Abolition of Child Labor," *J. Peasant Stud.*, 24:3, pp. 137–79.

Charnovitz, Steve. 1987. "The Influence of International Labour Standards on the World Trading Regime: A Historical Review," *Int. Lab. Rev.*, 126:5, pp. 565–84.

Chaudhri, D. P. 1997. "A Policy Perspective on Child Labour in India with Pervasive Gender and Urban Bias in School Education," *Indian J. Labour Econ.*, 40:4, pp. 789–808.

Chwe, Michael Suk-Young. 1990. "Why Were Workers Whipped? Pain in a Principal-Agent Model," *Econ. J.*, 100:403, pp. 1109–21.

Collingsworth, Terry; William J. Goold, and Pharis J. Harvey. 1994. "Time for a New Global Deal," *Foreign Aff.*, 73:1, pp. 8–13.

Cunningham, Hugh. 1990. "The Employment and Unemployment of Children in England c. 1680–1851," *Past and Present*, 126, pp. 115–50.

———. 1996. "Combating Child Labor: The British Experience," in Cunningham and Viazzo 1996.

Cunningham, Hugh and Pier Paolo Viazzo, eds. 1996. *Child Labor in Historical Perspective, 1800–1985: Case Studies from Europe, Japan and Colombia*. Florence: UNICEF.

———. 1996a. "Some Issues in the Historical Study of Child Labor," in *Child Labor in Historical Perspective, 1800–1985: Case Studies from Europe, Japan and Colombia*. Hugh Cunningham and Pier Paolo Viazzo, eds. Florence: UNICEF.

Dasgupta, Partha. 1993. *An Inquiry into Well-Being and Destitution*. Oxford: Oxford U. Press.

De Herdt, Rene. 1996. "Child Labor in Belgium, 1800–1914," in *Child Labor in Historical Perspective, 1800–1985: Case Studies from Europe, Japan and Colombia*. Hugh Cunningham and Pier Paolo Viazzo, eds.

Dixit, Avinash. 1998. "Discussion of 'A Transactions Cost Politics Analysis of International Child Labor Standards'," mimeo, Princeton U.

Dreze, Jean and Haris Gazdar. 1996. "Uttar Pradesh: The Burden of Inertia," in *Indian Development: Selected Regional Perspectives*. Jean Dreze and Amartya Sen, eds. Oxford: Oxford U. Press.

Ehrenberg, Ronald G. 1994. *Labor Markets and Integrating National Economies*. Washington, DC: Brookings Institution.

Ellerman, David. 1992. *Property and Contract in Economics*. Cambridge, MA: Blackwell.

Eswaran, Mukesh. 1996. "Fertility, Literacy and the Institution of Child Labor," mimeo, U. British Columbia, Vancouver.

Fields, Gary S. 1995. "Labor Standards and International Trade," mimeo, OECD, Paris.

Folbre, Nancy. 1986. "Hearts and Spades: Paradigms of Household Economics," *World Devel.*, 14:2, pp. 245–55.

Francois, Patrick. 1998. "Gender Discrimination Without Gender Difference: Theory and Policy Responses," *J. Public Econ.*, 68:1, pp. 1–32.

Galbi, Douglas A. 1997. "Child Labor and the Division of Labor in the Early English Cotton Mills," *J. Population Econ.*, 10:4, pp. 357–75.

Galor, Oded and Joseph Zeira. 1993. "Income Distribution and Macroeconomics," *Rev. Econ. Stud.*, 60:1, pp. 35–52.

Genicot, Garance. 1998. "An Efficiency Wage Theory of Child Labor: Exploring the Implications of Some Ideas of Leibenstein and Marx." Econ. Dept. Working Paper #463, Cornell U.

Glomm, Gerhard. 1997. "Parental Choice of Human Capital Investment," *J. Devel. Econ.*, 53:1, pp. 99–114.

Goldin, Claudia D. 1979. "Household and Market Production of Families in a Late Nineteenth Century American Town," *Explor. Econ. Hist.*, 16:2, pp. 111–31.

Golub, Stephen S. 1997. "Are International Labor Standards Needed to Prevent Social Dumping?" *Finance Develop.*, 34:4, pp. 20–25.

Granovetter, Mark. 1978. "Threshold Models of Collective Behavior," *Amer. J. Soc.*, 83:6, pp. 1420–43.

Grootaert, Christiaan. 1998. "Child Labor in Cote d'Ivoire: Incidence and Determinants," in *The Policy Analysis of Child Labor: A Comparative Study.* Christiaan Grootaert and Harry Patrinos, eds. Manuscript, World Bank, Washington.

Grootaert, Christiaan and Ravi Kanbur. 1995. "Child Labour: An Economic Perspective," *Int. Lab. Rev.*, 134:2, 187–203.

Gupta, Manash R. 1997. "Unemployment of Adult Labor and the Supply of Child Labor: A Theoretical Analysis," mimeo, Jadavpur U., Calcutta.

———. Forthcoming. "Wage Determination of a Child Worker: A Theoretical Analysis," *Rev. Devel. Econ.*

Hadfield, Gillian K. 1995. "Rational Women: A Test for Sex-Based Harassment," *Cal. Law Rev.*, 83, pp. 1151–89, October.

Harkin, Sen. Tom. 1994. "Now Act to Ban the Products of Child Labor," letter to the editor, *New York Times*, December 5.

Horan, Patrick M. and Peggy G. Hargis. 1991. "Children's Work and Schooling in the Late Nineteenth Century Family Economy," *Amer. Soc. Rev.*, 56:5, pp. 583–96.

Horrell, Sara and Jane Humphries. 1995. "'The Exploitation of Little Children': Child Labor and the Family Economy in the Industrial Revolution," *Explor. Econ. Hist.*, 32:4, 485–516.

———. 1995a. "Women's Labor Force Participation and the Transition to the Male-Breadwinner Family, 1790–1865," *Econ. Hist. Rev.*, 48:1, pp. 89–117.

Hutchins, B.L. and A. Harrison. 1903. *A History of Factory Legislation*. London: P.S. King and Son. [References to 1966 ed. by London: Cass.]

ILO. 1995. *Child Labor in Nepal: An Overview and a Proposed Plan of Action*. Geneva: ILO.

———. 1996. *Child Labor: Targeting the Intolerable*. Geneva: ILO.

———. 1996a. *Economically Active Populations: Estimates and Projections*, 1950–2010. Geneva: ILO.

Jacoby, Hanan G. and Emmanuel Skoufias. 1997. "Risk, Financial Markets, and Human Capital in a Developing Country," *Rev. Econ. Stud.*, 64:3, pp. 311–35.

Jayaraj, D. and S. Subramanian. 1997. "Child Labor in Tamilnadu: A Preliminary Account of its Nature, Extent and Distribution," WP 151, Madras Institute of Development Studies, Chennai.

Jensen, Peter and Helena Skyt Nielsen. 1997. "Child Labor or School Attendance? Evidence from Zambia," *J. Population Econ.*, 10:4, 407–24.

Knutsson, Karl Eric. 1997. *Children: Noble Causes or Worthy Citizens?* Aldershot, UK: Ashgate Publishing.

Kothari, Smitu. 1983. "There's Blood on those Matchsticks: Child Labor in Sivakasi," *Econ. Polit. Weekly*, 18:27, pp. 1191–202.

Krueger, Alan. 1997. "International Labor Standards and Trade," in *Proceedings Annual World Bank Conference on Development Economics 1996*. Washington: World Bank.

Kruse, Douglas and Douglas Mahoney. 1998. "Illegal Child Labor in the United States: Prevalence and Characteristics," NBER, WP 6479.

Kulkarni, Manu. 1983. "Matchmaking Children of Sivakasi," *Econ. Polit. Weekly*, 18:43, pp. 1855–56.

Labenne, Sophie. 1995. "Determinants of Child Labor in India," Mimeo, U. Namur, Belgium.

Levison, Deborah et al. Forthcoming. "Is Child Labor Really Necessary in India's Carpet Industry?" in *Economics of Child Labor in Selected Industries of India*. Richard Anker et al., eds. New Delhi: Hindustan Publishers.

Levy, Victor. 1985. "Cropping Pattern, Mechanization, Child Labor, and Fertility Behavior in a Farming Economy: Rural Egypt," *Econ. Devel. Cult. Change*, 33:4, pp. 777–91.

Lindbeck, Assar; Stan Nyberg, and Jorgen Weibull. 1999. "Social Norms and Economic Incentives in the Welfare State," *Quart. J. Econ.*, 114:1, pp. 1–35.

Ljungqvist, Lars. 1993. "Economic Underdevelopment: The Case of a Missing Market for Human Capital," *J. Devel. Econ.*, 40:2, pp. 219–39.

Lyons, John. 1989. "Family Response to Economic Decline: Handloom Weavers in Early Nineteenth-Century Lancashire," *Res. Econ. Hist.*, 12, pp. 45–91.

Mackinnon, Mary and Paul Johnson. 1984. "The Case Against Productive Whipping," *Explor. Econ. Hist.*, 21:2, pp. 218–23.

Maharatna, Arup. 1997. "Children's Work Activities, Surplus Labor and Fertility: Case Study of Six Villages in Birbhum," *Econ. Polit. Weekly*, 32:7, pp. 363–69.

Manser, Marilyn and Murray Brown. 1980. "Marriage and Household Decision-Making: A Bargaining Analysis," *Int. Econ. Rev.*, 21:1, pp. 31–44.

Margo, Robert A. and T. Aldrich Finegan. 1996. "Compulsory Schooling Legislation and School Attendance in Turn of the Century America," *Econ. Letters*, 53:1, pp. 103–10.

Marshall, Alfred. 1920. *Principles of Economics*, 8th ed. London: Macmillan [Original pub. 1890].

Marx, Karl. 1867. *Capital: A Critique of Political Economy*. [References to 1954 ed., Moscow: Progress Publishers.]

———. 1875. *Critique of the Gotha Programme*.[References to 1938 English translation in Marx and Frederick Engels, *Selected Works*, Vol. II. NY: International Publishers.]

Maskus, Keith E. and Jill A. Holman. 1996. "The Economics of Child Labor Standards," mimeo, Econ. Dept., U. Colorado Boulder.

McElroy, Marjorie and Mary Jean Horney. 1981. "Nash-Bargained Household Decisions: Towards a Generalization of the Theory of Demand," *Int. Econ. Rev.*, 22:2, pp. 333–49.

McKelway, A. J. 1906. "Child Labor in the Southern Cotton Mills," *Annals Amer. Acad. Polit. Soc. Sci.*, 27:2, pp. 1–11.

Mill, John Stuart. 1848. *Principles of Political Economy*. [References to 1970 ed., Harmondsworth, UK: Penguin.]

Moehling, Carolyn M. 1995. "The Intrahousehold Allocation of Resources and the Participation of Children in Household Decision-Making: Evidence from Early Twentieth Century America," mimeo, Northwestern U.

———. 1998. "State Child Labor Laws and the Decline of Child Labor," mimeo, Ohio State U.

Myers, William. 1988. "Alternative Services for Street Children: The Brazilian Approach," in *Combating Child Labour*. Assefa Bequele and Jo Boyden, eds. Geneva: ILO.

Nardinelli, Clark. 1982. "Corporal Punishment and Children's Wages in Nineteenth-Century Britain," *Explor. Econ. Hist.*, 19:3, pp. 283–95.

———. 1984. "The Productivity of Corporal

Punishment: A Reply to Mackinnon and Johnson," *Explor. Econ. Hist.*, 21:2, pp. 224–28.

———. 1990. *Child Labor and the Industrial Revolution*. Bloomington: Indiana U. Press.

Parsons, Donald O. and Claudia Goldin. 1989. "Parental Altruism and Self-Interest: Child Labor Among Late Nineteenth-Century American Families," *Econ. Inquiry*, 27:4, pp. 637–59.

Patrinos, Harry A. and George Psacharopoulos. 1997. "Family Size, Schooling and Child Labor in Peru," *J. Population Econ.*, 10:4, pp. 387–405.

Pigou, Arthur C. 1920. *The Economics of Welfare.* [References to 1962 ed. London: Macmillan.]

Psacharopoulos, George. 1997. "Child Labor Versus Educational Attainment: Some Evidence from Latin America," *J. Population Econ.*, 10:4, pp. 377–86.

Ray, Ranjan. Forthcoming. "Analysis of Child Labor in Peru and Pakistan: A Comparative Study," *J. Population Econ.*

Riley, Nancy E. 1997. "Gender, Power, and Population Change," *Population Bul.*, 52:1, pp. 2–48.

Rodgers, Gerry and Guy Standing, eds. 1981. *Child Work, Poverty, and Underdevelopment.* Geneva: ILO.

Rodrik, Dani. 1996. "Labor Standards in International Trade: Do They Matter and What Do We Do about Them?" Policy Essay No. 20, Overseas Development Council, Washington, DC.

———. 1997. *Has Globalization Gone Too Far?* Washington, DC: Institute for Int. Economics.

Rosenzweig, Mark R. and Robert Evenson. 1977. "Fertility, Schooling and the Economic Contribution of Children in Rural India: An Econometric Analysis," *Econometrica*, 45:5, pp. 1065–79.

Saito, Osamu. 1996. "Children's Work, Industrialization and the Family Economy in Japan, 1872–1926," in *Child Labor in Historical Perspective, 1800–1985: Case Studies from Europe, Japan and Colombia.* Hugh Cunningham and Pier Paolo Viazzo, eds. Florence: UNICEF.

Scholliers, Peter. 1995. "Grown-ups, Boys and Girls in the Ghent Cotton Industry: The Voortman Mills, 1835–1914," *Social Hist.*, 20:2, pp. 201–18.

Sen, Amartya K. 1990. "Gender and Cooperative Conflict," in *Persistent Inequalities*. Irene Tinker, ed. NY: Oxford U. Press.

Sengenberger, Werner and Duncan Campbell, eds. 1994. *International Labor Standards and Economic Interdependence*. Geneva: Int. Institute for Labor Studies.

Silvers, Jonathan. 1996. "Child Labor in Pakistan," *The Atlantic Monthly*, February, pp. 79–92.

Srinivasan, T. N. 1996. "International Trade and Labor Standards from an Economic Perspective," in *Challenges to the New World Trade Organization*. Pitou van Dijck and Gerrit Faber, eds. The Hague: Kluwer Law International.

Strauss, John and Duncan Thomas. 1995. "Human Resources: Empirical Modeling of Household and Family Decisions," in *Handbook of Development Economics*, Vol. IIIA. Jere Behrman and T. N. Srinivasan, eds. Amsterdam: Elsevier.

Swaminathan, Madhura. 1997. "Do Child Workers Acquire Specialized Skills? A Case Study of Teenage Workers in Bhavnagar," *Indian J. Labor Econ.*, 40:4, pp. 829–39.

Swinnerton, Kenneth and Carol Ann Rogers. Forthcoming. "The Economics of Child Labor: Comment." *Amer. Econ. Rev.*

Thomas, Duncan. 1990. "Intra-Household Resource Allocation: An Inferential Approach," *J. Human Res.*, 25:4, pp. 635–64.

Trebilcock, Michael. 1993. *The Limits of Freedom of Contract*. Cambridge, MA: Harvard U. Press.

Udry, Christopher. 1996. "Gender, Agricultural Production and the Theory of the Household," *J. Polit. Econ.*, 104:5, pp. 1010–46.

UNICEF. 1994. *Children at Work*. Bangkok: UNICEF East Asia and Pacific Regional Office.

US Department of Labor. 1993. *Foreign Labor Trends: International Child Labor Problems*. Washington, DC: Bureau Int. Labor Affairs.

Vincent, David. 1981. *Bread, Knowledge and Freedom: A Study of Nineteenth-Century Working Class Autobiography*. London: Europa Publications.

Weiner, Myron. 1991. *The Child and the State in India: Child Labor and Education Policy in Comparative Perspective*. Princeton: Princeton U. Press.

———. 1996. "Child Labor in India: Putting Compulsory Primary Education on the Political Agenda," *Econ. Polit. Weekly*, 31:45–46, pp. 3007–14.

Wilkinson, Frank. 1994. "Equality, Efficiency and Economic Progress: The Case for Universally Applied Equitable Standards for Wages and Conditions of Work," in *International Labor Standards and Economic Interdependence*. Werner Sengenberger and Duncan Campbell, eds. Geneva: International Institute for Labor Studies.