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Child Labor Handbook

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Social
Protection
LABOR MARKETS, PENSIONS, SOCIAL ASSISTANCE
THE WORLD BANK

CHILD LABOR HANDBOOK

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Executive Summary

This survey is no more than an introduction to child labor issues, a fast expanding research and policy area. It deals with the many aspects of child labor, including its causes and effects as well as policies associated with it.

Child labor is as old as humanity – no age group was spared from the harsh survival effort in primitive societies. And child labor was not always necessary "bad" in the environment it operated. But as development accelerated and, in fact, the incidence of child labor declined, child labor has come to be considered increasingly an expression of poverty, both a cause and an effect of underdevelopment. The debate on and commitment to reduce and eliminate child labor gathered speed in the second half of the 20th century especially at the international level with the landmark Convention on the Rights of the Child (1989), the universal ratification of the ILO's Convention ... on the Elimination of All Forms of Harmful Child Labor (1998) and the universal adoption of the Millennium Development Goals (2000) of which many relate to children's education and health. If the admittedly partial bibliography of our survey is anywhere closer to reality, it shows that almost 80 percent of publications relating to child labor came in the 1990s of which a full one-quarter appeared in the third millennium.

The survey takes the reader from the definition and measurement of "child" and "labor" (our first chapter) to what we call the "pathology" of child labor, the extreme forms of child exploitation, the use of children in activities that are morally repugnant or dangerous to the child's health and even life. Between these two extremes, from the methodological aspects to the vulgar realities, we examine

- Why do children work?
- How failures in the capital markets affect child labor?
- What is the role of household income?
- How does child labor interplay with education?
- What is the effect of household structure on child labor?
- How does parental education affect child labor?
- What does the presence or absence of social security affect child labor?

- What other policies affect child labor
- How is the market for child labor determined?

Some topics receive a short treatment often reflecting the paucity of analysis or evidence given the "infant industry" nature of this part of economics. Others are covered in greater length only to produce ambiguous theoretical predictions and prima facie contradictory evidence.

Clearly this is work in progress. This is why we gave the sub-title "Version 2002" to this survey. Our hope is that the literature on this important topic will continue to mushroom, and increasing awareness and better design and execution of projects, programs and policies will contribute to the elimination of child labor. This has happened already. For example, there are practically no working children in Europe today though in the not too distant past the employment rates of children were as high there as they are in many of the developing countries today. The share of children who were working in Italy in 1950 was above the world average. In 1995 the world average stood at 13 percent but in Italy the figure was less than half of one percent. Child labor is an endangered species but, as long as it exists, it can endanger many children.

We very much hope not provide a more comprehensive, more in depth treatment of the subject in the future. More importantly, we hope to be able to be in a position to provide a more adequate menu of policy options than those covered in this volume. The complexity of the issue and the sporadic evaluations undertaken so far allow only for limited generalizations. Hopefully, by the time these generalizations become valid, child labor will no longer exist. Child labor should not be a development policy issue but should become the subject of economic history.

Policies Discouraging Child Labor

The analytics and arguments of many aspects of child labor are explain in some length in the main survey. No need to summarize here the many nuances of theoretical approaches studies or qualifications of empirical evaluations. But it might be useful to

provide the reader with a summary view of various policies and their established or suspected effects.

Two caveats are in order. First, child labor cannot be viewed in isolation from educational, health, fertility, and technological issues. Second, leaving aside extreme forms of exploitation, child labor is not necessarily an aberration but a rational household response to an adverse economic environment.

With this in mind, the following proposition receives consistent empirical support:

> Forbidding children to work or making school attendance compulsory *without changing the economic environment* may, if effectively enforced, leave children worse off.

If so, one can identify (indirect) policy measures which can change the economic environment in the desired direction and (direct) policy measures that remove children from the labor market. Taken together, these measures have the potential reduce child labor without compulsion or prohibition.

Indirect measures

- Providing schools close to communities reduces the incidence of child labor and increases household expenditure on the education of their children. It also reduces fertility and improves child nutrition.

- Universal income subsidies to parents are an expensive way of discouraging child labor because some of the subsidy will end up as adult consumption, and are counter-effective in families where children would otherwise study full time. Income subsidies targeted at poorer families, whose children are unlikely to attend school in the absence of policy interventions, are more cost-effective. Therefore, income redistribution could help to reduce child labor, encourage school attendance, and improve the nutritional status of children.

- Land redistribution could increase the incidence of child labor because it would increase the productivity of labor in households that receive additional land and reduce it in those from which land is taken away. This would increase the probability of work for children in lower-income households and reduce it for children in higher-income households where parents are unlikely to make their children work anyway.

- Policies that increase a child's chances of surviving into adulthood reduce the probability that a school-age child will work and increase the probability that the child will go to school. These policies also increase the consumption of school-age children and the amount spent by households on the education of each child who attends school.

- Increasing the education of women has positive but uneven effects on school attendance and child labor.

- The extension of old-age security and credit availability to poor parts of the community, primarily the rural poor, which is where most child labor comes from, reduces fertility and child labor and increases school attendance.

- Economic growth helps to reduce child labor, but policies fostering economic growth cannot be relied upon to reduce child labor in the short run.

Therefore, several of the policies that help to reduce child labor in the short run also have a beneficial long-term effect *via* higher growth. How large is the second effect? The evidence is not very clear cut but from some country specific results we tend to believe that income redistribution from the rich to the poor is more **powerful for reducing child labor** than a universal income rise. This is so because the income elasticity of child labor decreases as income increases. This suggests that growth without re-distribution may take too long to have a noticeable effect on child labor. Having said this, there are some spectacular cases of child labor decrease (for example, in Thailand in the 1980s and Viet Nam in the 1990s) as well as some promising ones where the Government is placing its weight behind the issue (such as In Brazil).

Direct measures

In addition to the general, rather indirect, policies discussed above, we selectively survey more direct ways of reducing child labor, for example, offering households direct payments conditional on the child not working and/or attending school. Even if school attendance is a condition for obtaining the payment, such payments differ from conventional scholarships in that their primary purpose is to discourage child labor and only secondarily to allow talented children or young people of modest means to obtain an education. While a scholarship is usually conditional on a high level of scholastic or academic performance, such conditionality is either absent or set at a very basic level in schemes that have the child's withdrawal from the labor force as their primary objective. What these schemes do, essentially, is "buy" a child's time. By way of example, we briefly describe three projects carried out respectively in Morocco (the *BAJ* program), Bangladesh (the *FFE* - Food-for-Education - program) and Mexico (the *Progresa* program).

The BAJ aims to increase access of the rural poor to basic social services, such as preventive and curative health care, maternal and neonatal care, and primary education. The BAJ has three features that distinguish it from similar social investment initiatives: it is targeted to the provinces that rank lowest in terms of poverty, has a multi-sector approach designed to exploit potential synergies, and decentralizes service delivery and decision making, holding provincial authorities responsible for the planning, implementation, and monitoring of the program.

The *FFE* promotes school attendance by "buying" children's time. Households participating in the program receive monthly food rations so long as they send their children to school. Potential participants are selected in two stages. First, central authorities choose areas on the basis of their degree of underdevelopment and, then, the local communities are then left to decide which of the households in their locality should participate in the program.

The *Progressa* subsidises education, health care, and nutrition in poor rural households and aims to reduce poverty and increase investment in human capital, thus breaking intergenerational poverty. It provides grants to poor families for children enrolled in school between the third grade of primary and the third grade of secondary school who do not miss more than a threshold number of school days in a single month.

With respect to the BAJ, the provinces that are covered by the program do not show significant overall gains in access to health facilities (as measured by clinic visits and medicine acquisition) or in school enrollment. However, an analysis of girls' school enrollment indicates that a majority of the provinces covered by the program experienced a significant improvement. The FFE program seems to have increased school attendance by about 16 percent but reduced child labor much less (by about 4 percent).

All these findings are subject to limitations. For example, the fact that schooling is not actually displacing work but leisure may be a natural assumption to make in the developed world but not necessarily in the impoverished developing world, especially in a rural context. Also, the interpretation of data is often blurred as a relatively large number of children are reportedly neither attending school nor going to work. It could be that the many (or even most) children who are affected by a program are those who fall into that category. In addition, as is well known, targeting is essential to these kinds of program but it often emerges that observable household characteristics are a very poor predictor of placement in the program. This could mean either that the community adopted criteria other than need to select households for the program or that observable characteristics are poor indicators of actual need.

In this respect we cannot but emphasize the need for monitoring and evaluation of various programs. This also includes adequate supervisory mechanisms. There is an understandable desire on the part of program financers to ensure that as much of the funds allocated to a program as possible should go to the intended beneficiaries. This is all very well, but it has to be understood that the success of a program, as of any other activity, is measured by the output not by the input. Spending 10 percent more, say, on buying children's time is no guarantee that child labor will decrease more than if the same amount of money were spent in other ways. Hypothetically speaking, better results might

be achieved if that extra 10 percent were used to increase the cost-effectiveness of existing expenditure.

It could happen, for example, that money is misspent on buying the time of children who would not work anyway or buying the time of boys who would otherwise help with the harvest rather than of girls at risk of ending up, say, in prostitution. It could also happen that parents send their children to school in order to qualify for the subsidy and then make their children work as much as possible outside school hours. If this were the case, child labor would not be reduced, and school attendance would not produce good educational results because the children would be exhausted to take advantage of it. Better results might be obtained by spending less for buying children's time and more on ensuring that the children selected are the right ones or that parents deliver on their side of the contract. Thus, there is a potential trade-off between resources that are directly distributed and resources that are used to increase the effectiveness of the program. In fact, an analysis of nearly 1,500 World Bank projects suggests the marginal benefit of program supervision tends to exceed the marginal cost.

Concluding remarks

The arguments and evidence that we have assembled in this *Handbook* suggest that child labor is not a problem that can be solved with slogans and ringing declarations. They also make it clear that child labor cuts across policy boundaries: health, education, labor market, capital market, social security, criminal law, international peace keeping, income growth, and distribution all have a bearing on child labor. Therefore, reducing child labor cannot be regarded as just another policy issue alongside others; it is only one dimension of many, possibly all, policies in the field of development.

Direct forms of intervention, based on the idea of "buying" children's time, obviously have an immediate effect, and are highly appropriate in crisis situations where children are at risk of ending up in physically, socially or morally hazardous situations – such as soldiers or prostitutes. In other situations, however, the long-term effect of such measures has yet to be proven. The evidence suggests that indirect forms of intervention, which ensure that it is no longer in the interests of parents to send their children to work, have

more certain and, above all, longer lasting effects. Measures that reduce child labor as a by-product of increased productivity of adults and social equity are particularly desirable and advisable. Among such measures that are particularly worthy of consideration, we have identified health policies that directly and indirectly reduce morbidity and mortality, educational policies that reduce the marginal cost of school attendance, and social security policies that reduce the demand for children as a form of investment. Many of these policies are conducive to economic growth, which is itself reduces child labor. However, growth alone is not the solution because it takes too long to have any effect child labor. Also, growth achieved by other types of policy may make matters a lot worse during the adjustment period.

This *Handbook* makes it clear that child labor, in all its forms, has common causes worldwide but that the efficacy of the same policy can differ substantially across countries and between rural and urban areas of the same country. Therefore, interventions should be based on a detailed knowledge of the characteristics of the target area.

Child Labor Handbook

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Introduction

What is child labor? The International Labor Office answers: any activity other than study or play, remunerated or unremunerated, carried out by a person under the age of 15. According to this definition, 78 million individuals in 1990, 8 percent of this age group, are engaged in child labor (see Table 1). Most of them are in Africa, South Asia, and Latin America, but they can also be found in the rich north of the world, for example, in US agriculture. This grand total includes comparatively harmless activities such as housework at one end but also extremely harmful ones like begging, thieving, prostitution, and soldiering at the other. In the middle, there is a continuum of work activities, characterized by varying degrees of harmfulness.

TABLE 1: CHILD LABOR IN THE WORLD

	Number of working children under 15 years of age (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)			

All forms of labor, even if morally and physically innocuous, take children's time away from schooling and homework and, thus, can have a cost in terms of foregone education. All except the most harmful types of labor can be a form of learning by doing. Leaving aside the worst abuses, therefore, they can constitute a valuable alternative or complement to formal education. Where children are under the control of their family of origin, their labor brings immediate benefits to the family as a whole. In some cases, it is

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the only way in which the child can receive any formal education at all or even to remain within the family. The issue is thus extremely complex. There are no simple solutions.

TABLE 2: LABOR PARTICIPATION RATES OF CHILDREN AGED 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
Lat. Am. & Carib..	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 (1996)
Note: Numbers for 2000 are estimates and numbers for 2010 are projections

These brief considerations set the agenda for what follows. In Chapter 1, we deal with observation and measurement issues. How does one go about identifying the different kinds of child labor? Which clues should one look for in order to establish the consequences of labor on the child's health, life expectancy, education, and so on?

In Chapters 2 and 3, we look for explanations of child labor. If children are still with their family of origin, the reasons why the children are working have to be traced back to parental decisions. If they are not, the causes go back to a parental decision to expel the child from the home, to the child's decision to leave the household, or to a catastrophic event that left the child without a family.

Chapters 4 to 8 provide empirical evidence of the factors affecting parental decisions in the great majority of cases where children are under parental control and at the consequences of these decisions for various aspects of the child's welfare. Throughout, we draw primarily on country studies for which we were directly responsible but also on the work of others.

Chapter 9 looks at the structure of child labor markets and at their interrelations with adult labor markets and with the economic system as a whole.

Chapter 10 examines the effects of different combinations of policies and tries to establish which policy is more appropriate in different circumstances.

Chapter 11 is dedicated to the pathology of child labor, in other words, those activities that can do no possible good to the child. The reason for treating these activities last is partly that the sources of information are different from those on which we draw in

the preceding chapters but also that the lessons learned from the analysis of non-pathological activities also apply to the pathological ones.

Finally, Chapter 12 draws the various threads together, and the Bibliography provides a guide to the literature on this increasingly but not yet extensively cultivated field.

Chapter 1

Identifying Child Labor and Measuring Child Welfare

How does one go about identifying the different kinds of child labor? Which clues should one look for in order to establish the consequences of labor on the child's health, life expectancy, education, and so on? A major source of information about children living with a family, not necessarily the one of origin, are household surveys. Children living on their own are a different story. If they are not institutionalized, information about them is inevitably sketchy. Apart from special studies, such as Chatterjee (1992), one has to rely on local authority estimates, often impressionistic, and on police or press reports.

1.1 How to get the information

One major source of information about children living with their families is household surveys. In some cases, these surveys have children as their primary objective; more commonly, they are multi-purpose investigations that happen to include questions about children. Good examples, widely used in the present handbook, are the NCAER (National Council for Applied Economic Research) survey of rural Indian households and the LSMS (Living Standard Measurement Study) surveys of Vietnam and Morocco. Well-aimed questions and the way in which the answer is obtained can elicit a great deal of information. It cannot be over-stressed that, given cost limitations, in-depth questioning and accurate reporting on a sensitive subject like the status of children should be given very high weight in designing the sample.

A general rule is that questions should be addressed to the household member who is most likely to give a well-informed answer. Thus, questions concerning fertility and child care are better addressed to the mother than to the father. Also, wherever possible (cost considerations here come to the fore), answers should be cross-checked with different household members or with independent sources. For example, information given by parents about school attendance should be cross-checked with the child or with the child's teacher. When the respondent tells the survey interviewer about children who

live with the family, the interviewer should actually see and count those children for verification purposes. With some plausible excuse, the interviewer should ask the parents to fetch the child. If the survey requires the child to be measured and weighed (more about this later), this should be done by or in the presence of the interviewer.

1.2 What age limits define a child?

Fixing the borderline between childhood and adulthood is a daunting task. Many aspects need to be considered: physical and psychological development, social norms, economic environment, and so on. To a certain extent, the borderline is endogenous while there is no doubt that a 6-year old is a child, a 14-year old may be regarded as a child if attending school and depending on parental support but may well be regarded as an adult if working for a living.

Little is gained by getting involved in this type of discussion. Therefore, we shall follow the approach (common to most of the analyses of child labor) of defining child labor as work performed by people between the age of 6 or 7 and 15 or 16. This time span coincides, more or less, with that of primary and middle-secondary education. Children below the age of 6 are unlikely to be capable of performing any useful work other than pathological activities like begging. Children older than the age at which children normally complete secondary education can no longer unarguably be considered a child.

1.3 How to establish a child's labor status

The child labor supply has many dimensions, and it is important to be clear about the kind of information that is needed to establish its extent and characteristics. The data collected should account in as much detail as possible for the child's entire day. At a minimum, it should make it possible to classify a child as working, attending school, or doing both. It should also provide a breakdown of his or her work activities, in the first place between work within the home or on the family farm or business and work outside the household. The nature of the work performed by the child should also be specified, not only to establish how damaging it might be but also for the sake of comparability. For example, performing household chores and looking after younger siblings is counted as work in some surveys but not in others, and it is sometimes difficult to distinguish domestic chores from work on the family farm. Ideally, one would also want information on the intensity of the work, because this, together with the number of hours dedicated to

5

it, is what determines whether the work is really in competition with formal education. Working conditions also influence the outcome of education.

Analyses of child labor and education that do not take these various dimensions into account can yield contradictory results. Here, too, it is essential that the interviewer cross-checks the information provided by parents with the child, maybe by indirect questioning (independent corroboration is unfortunately more difficult on the subject of work conditions than on the subject of school attendance). The length of the child's working day and the sector in which he or she is employed are obviously important pieces of information for evaluating the intensity of the work and the hazards to which the child is exposed. The former also helps analysts to evaluate how much the child's labor contributes to the household's income and to the household's welfare. The main problem, in this respect, is finding out how much time children spend performing household chores, as this is typically not asked about in surveys, except in those that contain a time budget module.

TABLE 3A: CHILD LABOR PARTICIPATION RATES IN RURAL INDIA, BY SECTOR, AGE, AND SEX (1994)

All	6	7	8	9	10	11	12	13	14	15	16
Agriculture	1.93	2.31	3.44	3.25	3.65	4.03	4.73	5.74	7.17	8.06	12.06
Non Agric.	1.02	0.88	1.44	1.35	1.64	1.67	2.28	2.26	2.82	3.11	4.39
Household	4.11	4.41	4.91	5.91	7.04	6.3	7.81	8.53	10.33	12.57	16.31
Total	7.06	7.6	9.79	10.51	12.33	12.0	14.82	16.53	20.32	23.74	32.76
Male	6	7	8	9	10	11	12	13	14	15	16
Agriculture	1.67	2.16	3.82	3.36	3.23	4.27	5.19	5.81	7.83	9.05	13.31
Non Agric.	0.82	0.80	1.38	1.49	1.47	1.82	2.47	2.43	3.59	3.96	6.12
Household	4.52	4.20	4.46	4.26	5.26	5.40	6.35	5.55	6.40	5.43	6.56
Total	7.01	7.16	9.66	9.11	9.96	11.49	14.01	13.79	17.82	18.44	25.99
Female	6	7	8	9	10	11	12	13	14	15	16
Agriculture	2.22	2.45	3.01	3.13	4.13	3.77	4.20	5.67	6.41	6.78	10.45
Non Agric.	1.25	0.97	1.51	1.19	1.84	1.51	2.05	2.08	1.93	2.01	2.19
Household	3.66	4.63	5.42	7.67	9.05	7.28	9.51	11.86	14.85	21.73	28.79
Total	7.13	8.05	9.94	11.99	15.02	12.56	15.76	19.61	23.19	30.52	41.43

As an example of the kind of information that a household survey can provide, we show in Table 3A, the age profile of children's labor in the already mentioned NCAER

survey of rural India. For children of any age, the place where they are most frequently reported to be employed is in the household itself. Leaving this information out would result in a serious underestimation of the work commitment of children, particularly of girls.

Table 3B, based on the 1991 and 1998 LSMS surveys, gives similar information for Morocco. Here, "family help " is the child's most frequent form of work (curiously, it becomes predominantly female only in the second of the two surveys). The percentage of Moroccan children engaged in this activity is much larger than that of rural Indian children engaged in household work, but this is only because "family help" does not just include household work. It also includes all cases in which the child works for his or her own parents and does not receive a wage. This is an example of the ambiguities and comparability problems that arise in measuring and categorizing child labor.

TABLE 3B: EMPLOYMENT DISTRIBUTION OF WORKING CHILDREN IN MOROCCO (%)

	1991		
	TOTAL	MALE	FEMALE
Wage workers	11.1	9.8	12.7
Family help	84.1	82.4	85.9
Apprentices	3.7	6.3	0.8
	1998		
	TOTAL	MALE	FEMALE
Wage workers	14.3	14.3	14.3
Family help	76.8	72.4	81.8
Apprentices	6.3	9.9	2.3

*Figures subject to missing values

In many developing countries, a number of children are reported as doing nothing (in other words, as neither working, nor attending school). These groups of children can sometimes be relatively large (20 percent or more of the age group in rural India or in the whole of Morocco, for example) and require careful scrutiny. Three alternative interpretations of this "idle" condition are possible.

First, these children may really be doing nothing. Project officials in developing countries maintain that some children are not sent to school (maybe for lack of money or because there is no school sufficiently close to home) and cannot be usefully employed in productive activities. This is certainly possible, but it is not always true.

Second, parents may report their children as being idle even though in fact they are actually working, either (at best) because work by children under a certain age is forbidden or (at worst) because their children are engaged in illegal or dangerous

7

activities. In extreme cases, the child might not even be in the household any more — having even been sold.

Third, parents may have misinterpreted the question, and reported a child as not working simply because he or she is not doing so at the time of the interview, although he or she may work (perhaps even intensely) at other times of the year.

Another area where misreporting can be a problem is household chores. For example, in the Morocco survey that has already been mentioned, the questionnaire only asked whether the child works or not. If the answer was negative, no further questions were asked. In cases such as this, it is most likely that those children who were reported as neither attending school nor working actually performed household chores. In the India survey, by contrast, the questionnaire asked about the activities performed by each household member, including help with domestic chores. It is thus more difficult to be confident that the children reported as neither going to school nor working were doing household chores.

By making the questionnaire unambiguous and cross-checking the answers as far as possible, survey designers can thus eliminate or drastically reduce the incidence of apparent idleness and make it easier to measure and analyze actual idleness (with all attendant hazards). It must be kept in mind that children who neither attend school nor engage in any verifiable activity are not visible to the wider community and, thus, may be more exposed to physical and moral risks. In extreme cases, they may even have been expelled from the family. This is why it is important, as already indicated, that children should be actually seen and counted by the interviewer. Where the condition of children is the primary objective of the survey, accuracy of information should take precedence over all other considerations. Tables 4A, 4B, and 4C illustrate the point by showing the distribution of children by work/study category and by sex in India, Vietnam, and Morocco.

TABLE 4A: WORK/STUDY STATUS OF CHILDREN IN INDIA BY SEX (%), 1994

	Boys	Girls	All
Work only	7.9	13.2	10.4
Neither work nor study	20.5	29.7	24.9
Study only	66.7	53.7	60.5
Work and study	4.9	3.3	4.1

According to the NCAER survey of rural India (Table 4A), nearly two-thirds of all children (but just over half of girls) attend school. A majority of children (over 60 percent) only studies but does not work. The second largest category (25 percent) is that of children reported as doing nothing. The rest of them only work (about 10 percent) or attend school and work at the same time (less than 5 percent). Despite the inclusion of domestic chores in the work category, girls are still more likely to be reported as doing nothing than boys.

The enrollment rate is substantially higher, more than 90 percent, in the Vietnam surveys (Table 4B). Boys are more likely to go to school than girls, but gender differences are not as large as in India and decrease between 1993 and 1998. Between those two dates, the number of children studying full time sharply increased. For children of primary-school age, this change was associated with a reduction in the number of those who were working and attending school at the same time. In the older age range, the increase in the number of children studying full time was at the expense of those only working as well as of those both working and studying.

TABLE 4B: WORK/STUDY STATUS OF CHILDREN IN VIETNAM BY SEX (%)

	1993		1998	
	Boys	Girls	Boys	Girls
School and work	23.9	20.7	17.1	15.4
School only	64.3	60.5	75.7	75.1
Work only	9.8	14.8	5.3	6.6
Neither work nor study	2.1	4.1	1.6	2.9

In Morocco (Table 4C), by contrast, the number of children working and attending school at the same time is negligible. The share of "idle" children is higher than in India, but the Moroccan figure probably includes a large proportion of children, especially girls, who are actually engaged in household work. It is interesting to observe that the increase in school attendance between 1991 and 1998 came mainly from a reduction in the "idleness" rate.

TABLE4C: WORK/STUDY STATUS OF CHILDREN IN MOROCCO BY SEX (%)

	1991		1998	
	Boys	Girls	Boys	Girls
School and work	0.2	0.1	1.1	0.4
School only	68.3	48.1	72.2	59.3
Work only	18.1	15.9	13.9	13.5
Neither school nor work	13.2	35.8	12.7	26.7

The Moroccan data also contain large gender and regional differences. Table 5 shows that child labor participation is much higher in rural than in urban areas. Gender differences, substantial everywhere, are particularly large in rural areas. In 1991, only a quarter of rural girls, as opposed to more than half of rural boys and nearly 80 percent of urban girls, attended school. In 1998, schooling increased substantially for all, especially for girls in rural areas, but both gender and regional differentials remained large.

TABLE 5: WORK/STUDY STATUS OF CHILDREN IN MOROCCO BY SEX AND AREA

1991	Urban		Rural	
	Boys	Girls	Boys	Girls
School and work	0.1	0.1	0.2	0.2
School only	86.3	79.3	56.3	25.7
Work only	4.9	4.3	27.1	24.2
Neither school nor work	8.6	16.3	16.5	49.9
1998				
School and work	0.4	0.1	1.9	0.8
School only	87.5	81.5	56.9	37.5
Work only	5.6	3.5	22.3	23.4
Neither school nor work	6.6	14.9	18.8	38.4

The intensity of work performed is an important indicator of the potential dangers of child labor, in terms of both school achievement and/or health hazards. Some data sets contain information on the number of hours worked, and this makes it possible to construct some measure of work intensity. Table 6 illustrates this point using data from the Vietnam LSMS surveys.

TABLE 6: HOURS OF WORK SUPPLIED IN VIETNAM (WEEKLY AVERAGES)

	Adults	Children (all)	Children working only	Children working and attending school
1993	33	21	28	16
1998	33	17	22	11

In 1993, working children supplied an average of 21 hours per week,[2] just over 60 percent of the adult average. However, the labor supply of "work only" children (in other words, of children who did not attend school) -- 28 hours -- was about 90 percent of the

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[2] Assuming 50 working weeks per year.

adult average. "Work and study" children supplied substantially fewer hours. In 1998, the number of hours supplied by children was about 30 percent lower than in 1993. While it is easy to interpret the reduction in the hours supplied by "work and study" children as a shift towards human capital investment, the reduction in the hours worked by "work only" children may be due to a change in the age or gender composition of the labor supply or in the type of employment in which the children were engaged.

TABLE 7: HOURS WORKED BY CHILDREN IN VIETNAM AS PERCENTAGE OF HOURS WORKED BY ADULTS BY FORM OF EMPLOYMENT (WEEKLY AVERAGES)

	All sectors	Family farm	Family business	Wage employment
1993	10.6	12.5	5.8	3.6
1998	1.8	2.2	1.9	1.6

In the absence of reliable earnings or productivity measures, the importance of child labor for family income is captured by the ratio of work hours supplied by children to work hours supplied by adults. As Table 7 shows in the case Vietnam, in 1993, child labor was almost 11 percent of adult labor.[3] The share of child labor, while low in the wage employment sector, was substantially higher among the self-employed, particularly in farming where it amounted to about 13 percent of the hours supplied by adults. Between 1993 and 1998, there was a dramatic fall in the child/adult labor ratio (with child labor at less than 2 percent of adult labor), especially in farm self-employment (from 12 to 2 percent).

1.4 Measuring children's welfare

Child labor may be regarded as an ill in itself, but it can also be evaluated also in terms of its effects on children's welfare. We shall be concerned primarily with the material aspects of welfare (such as life and health expectancy and future earning capacity). Other dimensions of welfare, related to the child's "capabilities" and with the concept of "freedom", pose problems of measurement that have hardly been dealt with until now, by researchers of the subject.

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[3] The ratio was computed considering the total adult labor supply. Had we considered only households with working children, the ratio would have obviously been higher.

In the case of children, even material welfare is difficult to evaluate. In the absence of information on the allocation of consumption among household members, overall household income or consumption is not a reliable predictor of the material welfare of its individual members, particularly of weaker ones like children. Especially in developing countries, one comes across situations where resources are very unequally allocated between adults and children and between males and females within a given household. Even direct questioning about intra-household allocation of food and other resources might not elicit truthful or, at any rate, sufficiently accurate responses. Indirect indicators are, therefore, needed to evaluate even food intake.[4] *Only* indirect indicators can be used when trying to measure capabilities in a broader sense.

The child's current health status is of primary importance in any definition of welfare. Information on past morbidity is sometimes gathered in surveys. The NCAER India survey, for example, has a separate questionnaire seeking detailed information about the incidence of various kinds of symptoms and what actions were consequently taken to alleviate them. Life and morbidity expectancy are other obvious candidates. Indeed, the probability of survival (or its complement, the probability of death) is arguably the best composite indicator of economic success or failure (Sen, 1995).

The probability of surviving into the next stage of life (school age or adulthood as the case may be) is not directly observable, but various predictors, based on simple height and weight measurement, have been developed in the biometric literature (see, for example, de Onis and Habicht, 1996). Unless the survey provides retroactive information about the child's height and weight, however, knowing the child's present and past health status does not allow one to establish a link between these outcomes and the said measurements using the data provided by the survey itself. To establish that link, one would need to have a set of longitudinal data, following a panel of individuals through time. Such data are often collected in developed countries, but the conclusions that can be drawn from developed country data[5] are generally not applicable to developing countries.

Tables 8-9 show how an indicator of nutritional status, body mass (weight divided by height squared), varies with the work/study status of the child in the India survey. Body mass is a predictor of the child's probability of survival to, and health status in,

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[4] Anthropometric indices, based on simple height and weight measurement, provide useful information on nutritional status. For an example of how they can be used to infer living standards and the effects of policy, see Ismail and Micklewright (1997) and Cigno, Rosati, and Tzannatos (2000).

[5] See, for example, Fogel (1993) and Waaler (1984).

subsequent stages of life.[6] Looking at the raw data, we cannot say that working children fare worse than children who attend school. Working girls up to the age of 10 and working boys up to the age of 7 have higher body mass than their contemporaries who attend school (children who work and attend school at the same time fare worst of all). At higher ages, there is no clear pattern.[7]

TABLE 8: BODY MASS* BY AGE AND WORK/STUDY STATUS IN RURAL INDIA (BOYS)

STATUS/AGE	6	7	8	9	10	11	12
Work Only	15.74	15.30	15.02	14.41	15.64	15.39	16.13
Study Only	14.87	14.88	15.19	14.99	15.26	15.41	15.54
Work and Study	14.50	14.35	14.62	14.70	14.83	15.36	15.53
Neither Work nor Study	15.20	14.99	15.16	15.39	15.41	15.24	15.91

*Weight/height squared.

TABLE 9: BODY MASS BY AGE AND WORK/STUDY STATUS IN RURAL INDIA (GIRLS)

STATUS/AGE	6	7	8	9	10	11	12
Work Only	15.30	15.64	14.79	15.11	15.24	15.04	15.49
Study Only	14.82	14.66	14.78	14.71	14.85	15.08	15.63
Work and Study	14.77	14.43	15.05	13.95	14.64	15.02	15.43
Neither Work nor Study	14.80	15.75	14.91	15.09	15.05	15.41	15.40

The raw data reported in these tables do not reveal obvious differences in the nutritional status of boys and girls. Econometric analysis (Cigno, Rosati, and Tzannatos, 2000) reveals, however, that the body mass of girls is systematically lower than that of boys when all other factors are held constant.[8] More to the point, these data refer to school-age girls, in other words, to girls whose families valued them sufficiently to give them the resources necessary to survive to that age. There is ample evidence, on the other hand, that in some parts of the developing world the proportion of women to men is lower

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[6] See, for example, de Onis and Habicht (1996), Klasen (1996), and Waaler (1984). Fogel (1993) argues that weight and height enter separately into the determination of the survival probability, so that the same body-mass ratio could be associated with different survival rates. Indeed, Fogel and Waaler report evidence that the relationship between survival and body mass has a reverse-U shape where adults in developed countries are concerned. Given the age-range we are considering, however, and the fact that practically all of the children in our sample are undernourished by western standards, we may reasonably take the relationship to be upward-sloping throughout in our case.

[7] Of course, a child engaged in energetic forms of work is likely to have a higher ratio of muscle to fat and, thus, to weigh more than a non-working contemporary with the same body volume. Also, a child born with more muscle is more likely to be selected for energetic work activities (Dasgupta, 1997). On the other hand, other things being equal, a working child needs more food to reach any given body volume. It thus seems unlikely that, of two children with the same sex, age, and body mass, the one who works will have received less nutrition than the one who does not.

[8] For evidence from West Africa, see Haddad and Hoddinott (1994).

than demography would lead one to expect. This imbalance, present also in the Indian survey from which Tables 5 and 6 are drawn, is symptomatic of excess female (compared to male) mortality due to infanticide and to undernourishment in the crucial early stages of life.[9]

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[9] See Sen (1989), Coale (1991), and Klasen (1996).

Chapter 2

Why Do Children Work?

Most children are under the control of their own parents or, at any rate, of their family of origin. Therefore, their welfare cannot be regarded in isolation from that of their parents and other relatives. Even if the child was expelled from his or her family of origin or ran away from it, his or her present condition can be traced back to parental decisions (it makes little difference whether the child jumped or was pushed). The situation when a child leaves a family because of some catastrophic event is different. For example, large numbers of African children are, or are expected to become, orphans as a result of wars, famines, and the AIDS epidemic.

We will discuss children who are on their own for such external, catastrophic reasons in Chapter 11. In the present chapter and in the next, we will be concerned with the way in which parents make their decisions and how these affect children. What we really mean in asking why do children work is why do parents make them work. At this stage, we do not go into the issue of the balance of power among father, mother, and other adult family members, but we are aware that these people may have differing and possibly contradictory objectives. A change in the balance of power in favor of the mother, for example, is thought to benefit children ("women's agency").[10]

2.1 The structure of household decisions

Households have multiple objectives. For a start, as mentioned at the beginning of the last chapter, material consumption is not the only dimension of welfare. Other factors, such as health, "freedom", and so on also affect the happiness or satisfaction of each household. Moreover, the household faces a problem of inter-temporal resource allocation; the decisions it makes today will influence the quantity of resources available to it in the future. This is particularly relevant in the case of child labor, where the choice

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[10] For empirical evidence, see Haddad and Hoddinott (1994) and Hoddinott and Haddad (1995). For the theoretical argument, see Manser and Brown (1980). Eswaran (2001), however, argues that, while

is not only between consumption and other activities today but also between present and future consumption.

We may assume that parents care about the present and future well-being of their children. However, as they care also about their own well-being, this does not imply that parents will do everything in their power to foster their children's interests. Their decisions will be a compromise between ultimately conflicting objectives. Indeed, many aspects of parental behavior cannot be fully explained by the alternative (and, on the face of it, opposite) hypothesis that parents are totally self-interested, and that they expend resources on in their offspring only because they get some direct return from that expenditure.[11]

For example, there is ample evidence that pension coverage discourages fertility.[12] Taken together with evidence that aging parents receive support from their grown-up children,[13] this phenomenon is consistent with the hypothesis that parents regard having children as a way to re-allocate their resources over their own lifecycle. In other words, if the parents invest in their children's welfare, their children will look after the parents when they are old. Of course, this attitude is most likely to prevail in situations where capital markets are not sufficiently developed to provide a viable alternative to filial support (more about this in the next chapter). However, the need for offspring to support their elderly parents can still be relevant even when capital markets are well developed, because the market does not offer perfect substitutes for some of the services provided by one's own children. A remarkable finding of recent research is that, even in the highly developed economies of North America, Western Europe, and Japan, household saving and fertility behavior is consistent with the hypothesis that children are regarded by their parents as a kind of capital asset.[14]

In practice, it is not very helpful to dwell on whether parental motivations are altruistic or egoistic. What matters is how much value parents put on resources invested in their children, not whether this evaluation reflects love or simply the expectation of a share in the fruits of the investment. Parental decisions concern, essentially, the

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benefiting children generally, female empowerment could have negative effects on the survival probability of *female* children.
[11] See Cigno (1993) and Rosati (1996).
[12] Among others, Nugent and Gillaspy (1983), Entwisle and Winegarden (1984), and Cigno and Rosati (1992, 1996).
[13] For example, Cigno, Giannelli, and Rosati (1998).
[14] Cigno and Rosati, (1992, 1996, 1997).

allocation of resources among alternative uses, in particular the use of each household member's own time, the distribution of income over time and across household members, and the number of births. All these decisions are interrelated and cannot be studied in isolation.

Two points have to be kept in mind where fertility decisions are concerned. The first is that parents cannot determine the number and timing of births with certainty. The second is that parents are not so much interested in the number of births as in the number of children who will survive into adulthood. By one set of actions (frequency of sexual intercourse, adoption of contraceptive or fertility-inducing practices, and so on), parents then condition the probability distribution of fertility outcomes. By another (the health care and nutrition that they give to the child), they condition each child's probability distribution of survival to each subsequent stage of life.[15] Both sets of actions also affect, directly or indirectly, the lifetime morbidity prospects of surviving children.[16]

The complexity of the household problem does not permit us to draw simple schematizations. Even intuitively appealing ones can be highly misleading. Consider, for example, the "children first" implicit or explicit assumption, often made in child labor analyses. In a nutshell, this is what is assumed. Parents are concerned about their children's welfare. In all circumstances, children are better off if they go to school than if they go to work. Hence, parents will send their children out to work only if the household's income falls below a certain critical level. Even if this were a correct representation of parental preferences (in other words, if it were true that parents put their children's interests before their own, come what may), the approach would still be flawed because it implies that it is necessarily better for the child to go to school and have a subsistence level of consumption than not to go to school and enjoy a higher level of consumption. This is far from necessarily being the case in general.

Consider the following example. Suppose that a child is working. Suppose that his or her wage rate rises enough to bring household income above the critical threshold. The children-first approach implies that the child's labor supply should be reduced until household income is back to the critical level. This is not necessarily in the child's best interest: the extra income could buy the child more food or, if s/he goes to school, more educational material. Indeed, if the child does go to school, better nutrition would

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[15] See Cigno (1998) and Cigno and Pinal (2001).

[16] Not only nutrition and health care, but also birth spacing is relevant in this respect

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improve his or her educational performance. Up to a point, child labor could thus help, rather than hinder, human capital accumulation.[17] The child's extra income could also buy more maternal attention by reducing the amount of time his or her mother has to spend working. In that case, another response to the wage rise might be to reduce the mother's, rather than the child's, labor supply, so that the mother could spend more time with her child(ren).

There are thus no short cuts. One needs to recognize that parents attach weight to their own and to each of their children's lifetime consumption stream. The weights attached to each of these consumption streams and the rate at which the future is discounted may vary from household to household, depending on the parents' altruism and foresight or on their ability to appropriate part of their children's future incomes.

We define children's consumption to include not only food and clothes but also medical care. We exclude educational inputs, which we regard as an investment and consider as a separate item. Strictly speaking, health expenditures also should be treated as an investment. So should nutrition, because the amount of food consumed in the pre-school period is known to have a positive effect on the probability that the child will survive to school age and, more generally, on his or her current and future health prospects. As it is difficult to separate these long-term effects from the more immediate ones, however, we keep health expenditure in with current consumption, and look for links between this and health/survival probabilities. The amount that a person is able to earn, as an adult, is positively related to that person's health (dependent on past consumption) and personal skills (dependent on human capital). Therefore, saying that parents give weight to each of their children's lifetime consumption streams is equivalent to saying that they care about how much their children consume today and about the size of the stock of health and human capital that they will carry into adult life.

Human capital is partly a reflection of native talent and partly the fruit of education. The second part is "produced" with time (which includes not only school attendance but also homework) and other educational inputs (books, tuition fees, and writing materials but also travel to school). The opportunity cost of the time that the child spends being educated is equal to the child's wage rate and/or the child's marginal product in the family farm or business. Assuming this to be constant, the marginal cost of human capital is constant up to the point where the child's time is fully devoted to

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[17] Alternatively, one child's work can become another child's (his/her younger sibling's) education.

education. From that point onward, the marginal cost rises, as more and more has to be spent on educational inputs, in combination with a fixed time endowment, to provide the child with an extra unit of human capital.

2.2 Fertility choice and decisions concerning pre-school children

Parents decide whether to have an additional child and how much to spend on the new child until he or she reaches school age under conditions of uncertainty about whether the child will live to school age. For any given set of environmental and hereditary conditions, the child's survival probability will be positively conditioned by health-enhancing public policies (sanitation, mass immunization, and so on), which parents take as given, but also by the amount that the child consumes between birth and school age,[18] which is decided by the parents. Therefore, a child's chances of living until he or she reaches school age depend not only on external conditions but also on actions taken by the child's own parents. It is open to debate whether, in choosing their fertility behavior and allocating consumption to their children, parents are actually aware that their decisions will affect the probability of those children surviving and take account of how their children's time will be allocated between study and work if they do reach school age. Empirical evidence[19] suggests that parents behave as if they were aware of the consequences of their actions, and that is all that matters for our purposes.

Combined with random events, these parental decisions determine the number of births in the family and the consumption levels of pre-school children. Under plausible conditions,[20] direct health-enhancing policies (such as public expenditure on health and sanitation etc, or rise in the price of the goods consumed by pre-school children) would reduce fertility and raise the consumption of pre-school children if public expenditure is a net complement for pre-school child consumption or raise fertility and reduce pre-school child consumption if it is a net substitute. If it is a net complement, fertility and infant mortality move in the same direction, which is what the empirical evidence seems to suggest.

In conclusion, the household takes the following, strictly interrelated decisions simultaneously: how many births to procure; the consumption level of pre-school children; the consumption, labor supply, and time and money spent on educating school-

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[18] This, remember, is defined to include medical care as well as nutrition.
[19] For example, Cigno and Pinal (2001).
[20] See Cigno (1998).

age children; and the consumption of adult household members. Reviewing the different ways in which child labor and welfare can be influenced by changes in economic circumstances and policy actions will help us to understand the complexity of the decision process as well as highlight policy options. We will see that important changes may be due to events that are not so "close" to the variable(s) of interest.

2.3 Decisions concerning school-age children

Parents decide how to allocate the time of their school-age children and how much to spend on each of them with the aim of achieving as far as possible their objectives (which, remember, include the well-being of the children), subject to the family budget constraint. Different types of solution are possible.

Figure 1
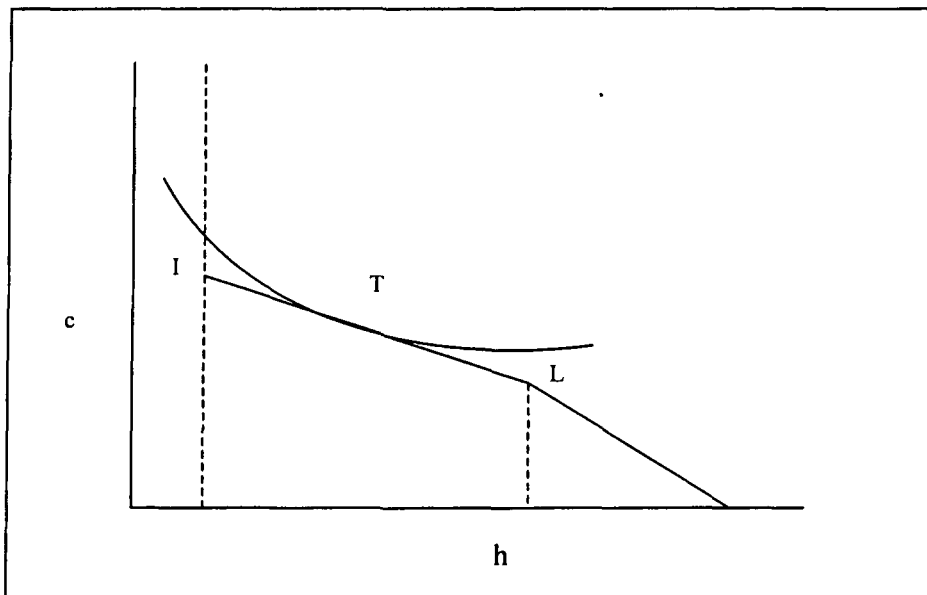
The first type of solution occurs when the marginal cost of human capital is higher than the maximum that parents are willing to pay.[21] If this is the case, the child is made to work full time. The second type of solution arises when the marginal cost of human capital is lower than the minimum, below which parents want their children to study full time. If that is the case, the child does not work at all. In between these extremes, we have a third type of solution, where parents invest the child's time and expend other

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[21] This willingness to pay takes into account the likely return to the educational investment.

household resources to the point where the marginal cost of human capital is equal to the price that parents are subjectively willing to pay (the amount of consumption that they are willing to give up, in order to endow the child with one more unit of human capital). If this occurs, the child works and studies at the same time. If parents send their children to school at all, they also have to bear the educational costs such as tuition fees and the cost of books.

The possibilities are illustrated in Figure 1, where the vertical axis measures the amount consumed by a school-age child, c, and the horizontal axis the amount of human capital, h, with which he or she have upon entering adult life. The broken line through points I and L is the production frontier, representing all the possible outcomes of (efficient) household decisions. Its slope is equal to the marginal cost of human capital. The line is truncated at point I to indicate that parents cannot push the child's stock of human capital below a certain minimum ("natural talent"). The first type of solution, where the child works full time, is represented by point I. The second, where the child's time is fully occupied in education, can be at L or at any point to the right of it (to the right of L, parents spend money for the child's education over and above the necessary minimum). The third type of solution, where the child works and attends school at the same time, can be anywhere between I and L. The choice depends on parental preferences, represented by a map of indifference curves,[22] such as the convex-to-the-origin curve through point T, as well as on resource restrictions (reflected in the production frontier). In the figure, parents choose point T. This is a situation in which the child goes to school, thus ending up with more human capital than he or she was born with, but also works, thus consuming more, given the limitations imposed by the household budget constraint, than if he or she studied full time.

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[22] Each of these curves is a locus of points that give parents the same satisfaction.

Chapter 3

Child Labor and the Capital Market

We have reasoned, so far, as if education were the only means of transferring resources from the present to the future. If a capital market exists, however, parents can buy assets in addition or as an alternative to having children and investing in their education. These assets may be financial instruments, such as stocks and bonds, but in a developing country they are more likely to be real assets, such as land and cattle, or personal credit. As it widens the range of possible choices open to parents, the availability of these alternative vehicles of inter-temporal reallocation raises the household's wealth. It does not necessarily follow, however, that children will be better off. Irrespective of whether parents are animated by love of their children or by self-interest, the availability of an alternative raises the opportunity costs of raising children and implicitly or explicitly lending to them. Whether the net effect of a wealth increase and the substitution of capital for human capital is favorable or unfavorable to children depends on many factors including the value that parents attach to the resources transferred to their children (see last chapter). In what follows, we limit our analysis to the situation in which parents have a given number of children[23] and face the choice between investing in their children's human capital or in other assets.

3.1 The role of the capital market

Let us allow for the possibility that a capital market exists. Suppose that the assets traded in such a market earn a fixed return, represented by the interest factor r.[24] Parents can then choose between two different ways of providing for their children's and/or their own future: schooling and asset accumulation. Suppose, for the sake of argument, that are indifferent between endowing their adult children with tangible assets or with human

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[23] See Cigno (1993) for a more general analysis where would-be parents decide on the number of children to have and Rosati (1996) for the introduction of differential risks of human and non-human capital investments.

[24] Considering variable returns would not change the conclusion, so long as the return on the asset did not fall more rapidly than the return to education.

capital of the same market value.[25] If the returns offered by the capital market are higher than the returns to schooling, then the parents will not send the child to school at all, even if the marginal cost of human capital happens to be no higher than the maximum that his or her parents would be willing to pay. The child will then work full time, and the income generated by him or her will be used partly to increase the household's current consumption and partly to buy assets. This will make both the parents and the children[26] better off than they would otherwise be.

A more general case is presented in Figure 2. The vertical axis measures the returns to education, h', and to the capital asset, r. The horizontal axis measures time devoted to education, e. Given that the return to education[27] declines as the amount of schooling increases, then a situation like that described in Figure 2 can occur. In the absence of credit rationing,[28] parents will invest in the human capital of their children up to the point where the return to education equals to the interest rate, e^* in our figure. Thereafter, they will invest any additional resources in the capital market. Point C, for example, represents a situation where an increase in household income would increase the transfers that parents wish to make to their children, but such transfers would take the form of capital assets. In such a case, child labor would not be affected by an exogenous rise in household income. This goes to show that money hand-outs do not necessarily reduce child labor. Conversely, if money were taken away from the parents, then they would reduce their transfers to their children. In doing so, they would move to a point to the left of C. If the reduction in income were small, this would have no effect on child labor. If the reduction were large enough, however, they could end up somewhere to the left of point B, where child labor is higher.

3.2   The consequences of credit rationing.

Low returns to education are often regarded as one of the main reasons for households investing little in their children's schooling. There are, however, situations in which child labor can exceed its efficient level even if the returns to education are

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[25] Suppose, in other words, that parents do not derive pleasure from the mere fact that a child of theirs is educated, irrespective of his or her earning capacity. Were it not so, earning potential would underestimate the demand for education.

[26] Provided that, like their parents, they are indifferent about the choice between education and a tangible asset with the same expected monetary value.

[27] The return to education is the reciprocal of the marginal cost of education (the slope of the production frontier) that, as shown in Figure 1, increases with the amount of time spent in education.

[28] For a more detailed discussion of this point, see Rosati (1999)

Figure 2
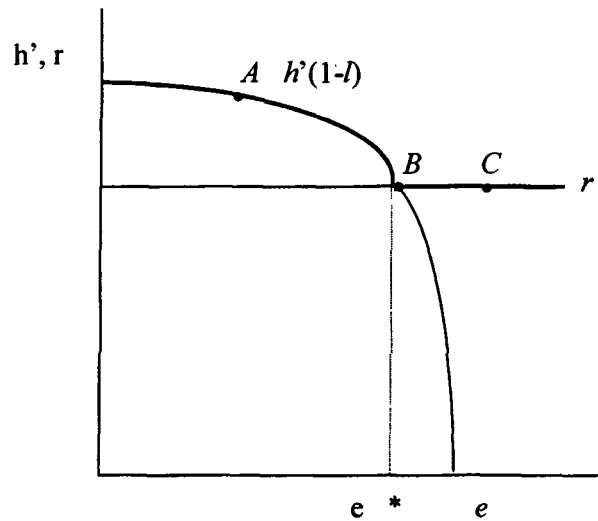
relatively high. Indeed, if returns to education were high enough, parents might be willing to invest in the human capital of their children as a way of increasing the welfare of the family as a whole, not just that of the children themselves.

Consider the following scenario. In the relevant range, returns to education are higher than the interest rate. If parents could borrow against their children's future incomes, they would then be willing to invest more in their education. As this is generally not possible, however, parents will stop short of the efficient level of human capital investment, in other words, the level which equals the (marginal) returns to education to the interest factor. Figure 3 helps to clarify the point.

The curve through points A and B gives us another view of the production frontier. The vertical axis now measures the child's future income, Y_k, (which may or may not coincide with his or her human capital). The horizontal axis measures the parents' current consumption, C_p. The frontier shows how the parents' current consumption is reduced if the child's future income is increased because the parents invest in the child's education (thus reducing the child's work). The frontier's concavity implies decreasing returns to education. In the absence of a capital market or if the household were credit-rationed, parents would choose point A.[29] At that point, the amount of current consumption that parents are willing to give up in order to increase the child's future income is equal to the

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[29] The convex-to-the-origin curve, U_1, is the locus of points that gives parents the same satisfaction as point A.

return to education. If they were allowed to borrow from the capital market, however, parents would choose point C (the straight line through points B and C has slope r).[30]

Figure 3
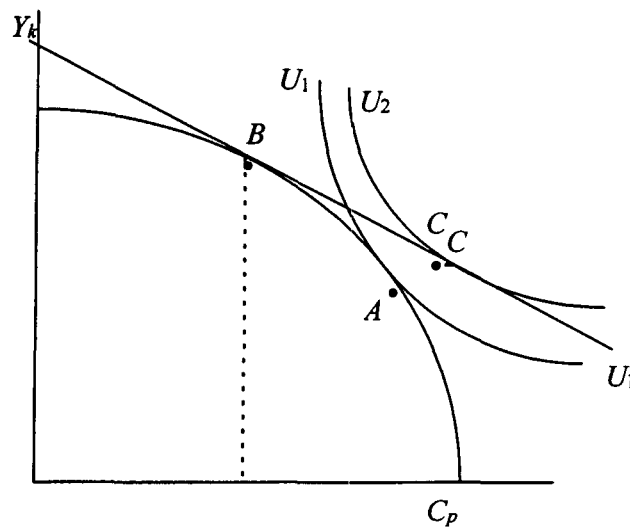
Point C is obviously better than A because both C_p and Y_k are higher. At that point, the returns to education and returns to capital are equalized: that is the efficient outcome. At A, parents are under-investing in their children's education. The inability to borrow against the child's future income, however, makes it impossible to move from the inefficient equilibrium at A to the efficient one at C. Therefore, since households may be rationed in the credit market, high returns to education may not be sufficient to guarantee a reduction of child labor.

What kinds of policy measures might then help the economy away from the inefficient equilibrium and thus help to reduce child labor? Two broad categories of policy are of particular interest: policies that prompt intergenerational transfers of resources and policies that aim to allow the younger generation to "borrow" against their own future income. The main example of the first kind of policy is social security. The introduction, or extension, of a pay-as-you-go social security system represents a transfer from the young to the older generation. Such a transfer (not feasible through the market)

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[30] This point is also made by Ranjan (1999, 2001),

could help to bring the economy closer to the efficient level of human capital investment, thereby reducing the supply of child work.

An example of the second type of policy is a government loan guarantee program. Since capital market imperfections and moral hazard problems limit the possibility of borrowing against future earnings, income-contingent loans are increasingly used, or being proposed, in developed countries as a way of financing tertiary education.[31] Some suggest governments or international agencies could help to establish a market where children, or their parents, could borrow against their future education-enhanced earnings.

Governments of developing countries may wish to explore the idea of extending such measures to lower levels of education. Although these policies may not be applicable to primary education, it may be feasible to introduce such a loan scheme for secondary education. In developing countries, where only a very small minority of students reach university, secondary education is indeed a major gateway to a rewarding career. In view of evidence that parents' decisions to send their children to primary schools are positively affected by the presence of a nearby secondary school, a loan scheme for secondary education may also increase participation in primary education.[32]

3.3 Differences among siblings

Until now, we have assumed that all children belonging to the same household are identical and that parents show equal concern for all of them. If that is the case, parents who are not credit-constrained will invest in the education of each child until the rate of return to education equals the return to capital investment. While continuing to assume that parents are equally concerned about each of their children, we will now briefly discuss the consequences for child labor and education of innate differences among siblings.

If children belonging to the same family have different expected returns to education, it is efficient from the household's point of view to invest differently in their education. The children whose returns from education are expected to be higher will, therefore, study more and work less than their siblings for whom the parents have lower expectations. Such a behavior does not necessarily imply, however, that the children who are working today will necessarily fare worse tomorrow than their siblings who attend school. The household can compensate for differences in earnings due to differences in

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[31] Baland and Robinson (2000)

education by means of wealth transfers (*inter-vivos* gifts, or bequests) calculated to iron out income differences among siblings.[33]

For that to be the case, however, the household must have sufficient resources, and parents must be sufficiently concerned about the welfare of their children to invest efficiently and then use transfers to redistribute resources among them. If this is not the case, then the future welfare of children is clearly not independent of the amount of schooling that they get. Relatively poor credit-constrained households do not have the means to finance the education of their children up to the efficient point and to compensate them for any earnings differentials. In poor households, therefore, children who are working today are more likely to be worse off tomorrow than their siblings who attend school. Moreover, working children will have lower expected returns to education, either because of an innate lack of ability or because of unfavorable labor market conditions.[34]

This mechanism can explain large gender differences even in the absence of gender biases in the parent's preferences. If returns to education are expected to be lower for girls, girls are more likely than boys to work (inside or outside the household). If more girls than boys work, many women enter adult life with lower human capital than that of men, and fewer of them will earn a good wage or work for a wage at all, thereby confirming the expectation that education for women is a bad investment.[35] Moreover, girls coming from poor families are even more likely to have a low level of income when adults because of lower compensatory transfers from their parents.

The general considerations examined in this and the preceding chapter provide us with a framework within which to examine the effects of various policies and household characteristics on child labor and child welfare.

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[32] Lavy (1996) and Cigno, Rosati, and Tzannatos (2000)
[33] See Becker and Tomes (1976).
[34] See Behrman (1997).
[35] See Cigno (1991).

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Chapter 4

Household Income

With this chapter, we start to examine the empirical evidence regarding the effects of various factors, beginning with household income, likely to affect the decision to make a child to work and other aspects of a child's welfare. As we will see, income is an important consideration, but things are more complicated than one might think.

4.1 Effects on child labor and education

If investment in the human capital of the children represents the only way of transferring resources to the future, an exogenous increase in current income will reduce child labor, as the household will have more resources available for consumption today and human capital investment will make it possible to increase the child's future consumption. In practice, this implies that higher income is associated with a lower probability that a child will work full time and a higher probability that a child will study full time. The probability that a child will both work and attend school can either increase or decrease depending on how his or her time was allocated initially. We have seen, however, that if the capital market offers attractive alternatives to human capital investment, an increase in income will make no difference to child labor.

If it is not true that the only way to transfer resources to children for future consumption is through human capital investment, parents will invest in the human capital of their offspring only to the point where the return to education is equal to the return to capital. Beyond that point, households will make any further transfer of resources from current to future consumption through the capital market. In this more realistic scenario, the link between children's labor supply and income becomes looser, especially in the case of richer households. This implies that the relationship between household income and child labor supply is likely to be non-linear, with larger elasticity at lower levels of income and lower elasticity at higher ones.

Child labor is often and rightly associated with poverty. Tables 10 A to E illustrate the point by showing the distribution of children by work status and household income in

the NCAER survey of rural India and in the LSMS surveys of Vietnam and Morocco. It is clear from these tables that children belonging to households with higher incomes are less likely to work, whether full or part time (and are less likely to be reported as doing nothing). However, the effects of household income on child labor are very difficult to measure correctly and are often overestimated.

Obviously, we cannot use the income generated by child labor to explain child labor as most children do not work for a wage but in the family farm or business. Thus, estimating the contribution of these children to the output of the family business is very difficult. Therefore, we must measure household income net of children's earnings or productivity, which is also not easy to do. Later, we shall describe the attempts that we made in a number of studies. Even more difficult is the task of assigning a monetary value to household chores performed by children. Note that what should be calculated is not how much the household would have to pay a domestic servant for the services provided by children (which are usually excluded from the definition of income anyway), but the labor market value of the adult time freed due to the household chores performed by the children. Correctly estimating the effect of income on child labor, therefore, requires special statistical techniques.[36]

TABLE 10A: WORK/STUDY STATUS OF CHILDREN BY INCOME QUINTILE IN INDIA, 1994

INCOME	1	2	3	4	5
Work Only	12.2	10.1	7.1	6.0	4.6
Neither Work nor Study	29.9	22	18.0	16.9	13.0
Study Only	53.6	63.7	70.9	72.4	78.5
Work and Study	4.2	4.0	3.9	4.5	3.7

TABLE 10B: CHILD LABOR FORCE PARTICIPATION AND ENROLLMENT RATES BY EXPENDITURE QUINTILE IN VIETNAM (1993)

Expenditure quintile	Lowest	2	3	4	5
School and work	27.8	26.6	26.0	21.0	12.6
School only	51.5	56.3	58.6	63.3	77.3
Work only	16.3	14.3	11.8	13.5	7.6
Neither school nor work	4.3	2.8	3.6	2.2	2.5

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[36] See Rosati and Tzannatos (2000), Bhalotra (2000), and references therein.

TABLE 10C: CHILD LABOR PARTICIPATION AND ENROLLMENT RATES BY EXPENDITURE QUINTILE IN VIETNAM (1998)

Expenditure quintile	Lowest	2	3	4	5
School and work	20.7	22.7	18.9	14.7	8.0
School only	66.2	67.8	72.6	78.5	88.3
Work only	10.2	6.8	6.9	4.5	1.5
Neither school nor work	2.5	2.6	1.6	2.3	2.2

TABLE 10D: CHILD LABOR FORCE PARTICIPATION AND SCHOOL ENROLLMENT RATES BY EXPENDITURE QUINTILE IN MOROCCO (1991)

	1	2	3	4	5
School only	40.2	49.1	51.6	69.7	80.1
Work only	21.1	21.8	17.7	14.3	10.1
Neither school nor work	38.5	28.7	30.3	15.7	9.6

TABLE 10E: CHILD LABOR FORCE PARTICIPATION AND SCHOOL ENROLMENT RATES BY EXPENDITURE QUINTILE IN MOROCCO (1998)

	1	2	3	4	5
School only	44.2	57.5	66.2	76.6	85.3
Work only	20.1	16.7	14.1	10.6	6.8
Neither school nor work	34.3	25.5	18.8	11.6	7.1

In many empirical studies, by contrast, income or other measures of the resources available to the household are used as explanatory variables of child labor. The income variables are not always significant in the statistical sense. Where significant, their estimated effect on child labor is usually negative. In a series of studies carried out in India, Morocco, and Vietnam, we found that household income or expenditure has a significantly negative effect on child labor but that the relationship is highly non-linear. The negative effect of household income on child labor supply tends to be smaller, the higher the level of income. In Vietnam, for example, we find that the effect of household income on child labor in households in the lowest income quintile is 10 times larger than for households belonging to the highest income quintile.[37] While consistent with the theory, this is seldom discussed in empirical studies.

4.2 Effects on nutrition and health care

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[37] Edmonds (2001) also finds a highly non-linear relationship between household income and child labor.

We have already discussed the problems involved in measuring health status. While attention has been given in the literature to the determinants of the health of children (as measured by different indicators of mortality or morbidity), there is little evidence on the relationship between child labor and child health. In their study of rural India, Cigno, Rosati, and Tzannatos (2000) detect a positive association between body mass and child labor. To some extent, this may be due to the fact that stronger children are sent to work. Assuming, however, that work uses more calories than studying does, the finding still implies that working children are fed better than non-working ones. To our knowledge, no other study has dealt with this problem, and the question needs further investigation. Unfortunately, however, many household surveys do not report composite health indicators, like weight and height, so do not provide the information necessary for analyzing the relationship between child labor and health. As pointed out in Chapter 1, this kind of information should be gathered for a number of different reasons, and it is important that any measuring should be done by or in the presence of the interviewer.

Both the study on rural India and the numerous studies that have concentrated on child health show a positive association between household income and the health status of children. There is some evidence that stock measures of child health (for example, height) are positively affected by measures of long-term resources (for example, permanent income or wealth rather than current income). While these effects are statistically significant, their magnitudes are typically fairly small. Shorter-term measures of income have an even weaker impact on the child's stock of health. By contrast, shorter-term measures of health (for example, weight given height) are more responsive to current income but not to permanent income. However, these findings are far from universal. The fact that there are mixed empirical results regarding the effects of resources on health outcomes should not come as a surprise given the difficulty of measurement.

4.3 Income redistribution

The elasticity of child labor supply to household resources is relatively small. For example, an increase in income in the range of 10 to 20 percent tends to have a small effect on child labor supply. We have just seen that health also appears to react weakly to a change in household resources. This is somehow in contrast with evidence that child labor supply is substantially smaller in those households that belong in the higher income

quintiles and that individuals who belong to richer households enjoy better health. While low income seems to be associated with relatively higher child labor supply, changes in income do not seem to generate large reductions in the child labor supply. How are we to explain this apparent paradox, that poverty is associated with child labor and school attendance, but income subsidies are likely to produce only relatively small effects?

Part of the answer is that income differences are very large in developing countries. The income of the poor can be many times smaller than that of the not-so-poor. Hence, even relatively large changes in income are not sufficient to modify the position of the poor substantially. This implies that very large transfers would be required to significantly alter the situation. However, transfers of such a magnitude are not economically or politically feasible. It also implies that income growth can be seen as a "cure" for child labor only in the medium to long term. Hence, income re-distribution and growth appear to be poor policies for promoting human capital accumulation and bringing to an end the more damaging forms of child labor.

We find that, taking the level of income as given, there is a large set of variables, including the availability of school and health facilities, that influences parental decisions about child labor. It is, therefore, possible to change these decisions and to influence children's welfare without recourse to large-scale income re-distribution. Obviously, other forms of policy also imply some degree of re-distribution. They can be preferable to straightforward income re-distribution, if they are more indirect and, therefore, less visible. Furthermore, they can be partially financed, in the medium term, by the additional growth that they themselves generate. While large-scale income re-distribution (for example, through sharply progressive income taxation) has efficiency costs, under certain conditions state provision of school and health facilities will enhance productivity and, thus, growth. Last but not least, providing facilities to all, even if not everybody uses them, may be politically more acceptable than income re-distribution.

On this issue, Swinnerton and Rogers (1999) provide an extention of Basu's and Van's analysis and develop the theoretical result that for countries that are rich enough to have a "good" equilibrium, redistribution can in theory eliminate child labor. However, redistribution in very poor countries, even if it *could* be carried on in a nondistortionary way, could *increase* child labor. The reason is that if a country is sufficiently poor, then spreading out a small "pie" more equally will push more families below the poverty threshold at which they begin to send children to the labor market. Some empirical work

supports this conclusion (by showing that for countries below some critical level of GDP the marginal effect on child labor of increasing inequality is *negative* while for countries above that threshold it is positive). This is another reason why redistribution may be an ineffective policy for reducing child labor.

Chapter 5

Children's Education

The availability, cost and returns to education constitute another important category of factors likely to affect decisions regarding the allocation of household resources, including the time of children. We shall see that it affects child work, schooling and nutrition. In a very indirect way, it also affects fertility.

5.1 Direct returns to education

Expected returns to investment in human capital[38] are a crucial determinant of household decisions concerning child labor. Unfortunately, however, it is extremely difficult to measure returns to education. The most commonly used procedure for doing so by estimating a simple relationship between earnings and years of education, the so-called Mincerian equation,[39] is subject to many limitations.[40] Where developing countries in general and rural communities in particular are concerned, there is an additional problem. Returns to education may be very different for the minority of the labor force that works for a formal wage than for those who belong to a rural household or who are self-employed. For all these reasons, measuring the returns to education in farming, particularly on family farms, is very difficult.[41]

Using estimated returns to education to explain children's time allocation is even more problematic. One should measure not only the average expected return in each type of employment but also what kind of employment the household expects the child to be able to find. For these reasons, (expected) returns to education are usually omitted in child work estimates. Even if not included in the estimated equations, however, returns to education offer useful insights. For example, in the case of Vietnam, the part of the 1992-

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[38] For a global overview, see Psacharopoulos (1994).

[39] The idea goes back to Becker (1964), but the implementation is in Mincer (1974).

[40] It is beyond the scope of this Handbook to discuss in detail issues concerning the estimation of returns to education. The reader should be warned, however, that results based on OLS estimates might be biased. Thus, it may be necessary to correct for selection bias and to use Instrumental Variable methods.

[41] A discussion of these problems and an attempt to estimate returns to education in the farming sector of Vietnam can be found in Rosati and Tzannatos (2000).

1998 reduction in child labor that cannot be explained by the other variables can be attributed to the increase in returns to education that occurred during this period.

5.2 Indirect returns to education

Investing in the children's future incomes, in other words, sending them to school rather than to work, has important implications for fertility and infant mortality. In their study of rural India, Cigno, Rosati, and Tzannatos (2000) find that, the higher the probability that a child will work when of school age, the higher the probability that his or her parents will have an additional birth. This positive and statistically very significant connection between fertility and probability of work suggests that parents may be looking for an extra source of income, or for an extra pair of arms, rather than for the sheer joy of parenthood. It thus reinforces the point made at the beginning of Chapter 2, that parental decisions are a compromise between different objectives.

There is, on the other hand, a well-established positive correlation between fertility and infant mortality: children born in high-fertility households or high-fertility countries[42] are less likely to survive to school age and then to adulthood. Although the probability of survival was not directly measured in the India study to which we are referring, such a relationship is consistent with its findings. Since lower fertility is associated, in the same study, with a higher probability of attending school and with higher educational expenditure if the child does go to school, this implies a negative association between fertility and human capital investment and between infant mortality and human capital investment. This is consistent with the finding of Rosenzweig and Schultz (1982) that expected employment opportunities for women have a positive impact on the survival chances of female children.

The explanation can be traced back to the theoretical discussion in Chapters 2 and 3.[43] The variables (prices, wages, productivity, and so on) that condition the decision to send a child to work rather than to school are by –and large the same ones that make it cheaper for a couple to achieve the optimum family size by giving birth to many children but investing little in the survival of each child that is born rather than giving birth to fewer children but doing more to help each one survive. Although it may be misleading

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[42] See, for example, Chowdhury (1988). On the other hand, high child mortality rates may induce high fertility rates (the "replacement" argument) though this effect is far from certain (Tzannatos and Symons, 1989).

[43] See also Cigno (1998) and Cigno and Pinal (2001).

to talk of lower fertility and lower infant mortality under the heading of returns (albeit indirect ones) to education, it is nevertheless worth noting that policies aimed at encouraging schooling, or discouraging child labor, have the desirable side-effect of encouraging responsible parenthood and alleviating infant mortality (in particular among girls).

5.3 Costs and quality of education

5.3.1 School fees and educational material

Education can have both direct and indirect costs. The direct costs include school fees, uniforms, required school materials, and so on. The indirect costs are represented mainly by the opportunity cost of time and by the cost of transportation to the nearest school. It is important to distinguish between the (exogenous) costs of education and (endogenous) expenditures on education. The (exogenous) costs basically represent the price for education. The (endogenous) expenditures are determined, together with all the other choices, by the household. How a rise in the price of education affects the decision to send children to work or to school is not as obvious as one might think. Since both fertility and child labor are endogenous (in other words, the result of household choices), the effect of a change in the price of education on child labor supply depends also on the effect this has on fertility. When the price of schooling increases, the cost of having an extra child increases too. The optimal mix between the number (quantity) of children and the level of welfare (quality of life) that a household can offer to each child depends on the relative marginal costs of the quality and quantity of children. These relative marginal costs depend, among other things, on how much the household already spends on the current consumption and education of each child. Hence, the net effect of a change in the price of schooling on child labor supply depends not only on how fertility decisions are affected by this price but also on the existing level of educational expenditure (which, in turn, depends on the starting levels of all the other variables, including the price of education). Thus, for example, a reduction in the price of education may increase child labor if there is a large (positive) response in fertility.

For any given number of children, a decrease in the direct cost of education will reduce the price of the future consumption of children, and will thus increase schooling at the expense of child labor. However, as education costs decrease, the unit cost of children

also decreases, while the desired number of children increases. As this increase in the number of children will put pressure on resources, parents may then transform some future consumption into current consumption by raising the labor supply of their children.

There is another interesting policy issue here. When average school attendance is very low, the cost of each child is likely to be low (the cost of each child is given by the child's consumption, plus the expenditure for education net of any contribution made by the child to household income). An increase in schooling costs, in such a situation, is likely to be associated in the medium run, with an increase in fertility. When school attendance is (relatively) high, cost sharing might promote higher investments in human capital and contribute to fertility decline. An increase in education costs might then reduce fertility and favor a further increase of schooling. In short, in countries where school attendance is very low, policy intervention should be aimed at reducing the cost of schooling to encourage school enrolment. In countries where school attendance is already relatively high, the introduction of a limited subsidy might promote higher investment by families in human capital and favor fertility decline. This effect would be stronger if revenues from cost sharing were used to increase school quality and, therefore, the returns to human capital.

The available empirical evidence seems to confirm the implications of the preceding discussion. In Vietnam, where school attendance is relatively high, tuition fees appear to *reduce* the probability of children working (Rosati and Tzannatos, 2000). Similar results have been observed in Colombia and Peru (Ilahi, 1999). In Morocco, on the other hand, tuition costs have a negative effect on school attendance (Rosati, 2000). As the enrollment rate in Morocco is low in comparison with the other countries mentioned, this finding is consistent with the theoretical argument. It should be remembered, however, that higher tuition costs might also be an indicator that the school is of a high quality. Hence, a positive effect of these costs on school attendance might also be interpreted as the effect of perceived quality on household schooling decisions.

5.3.2 School availability, distance from school, and school grades

The availability of schools and how far they are located from household's residence enter into the determination of the indirect cost of education. Since, as it is often argued, returns to primary education are generally low, parents might be more willing to send their children to primary school if they know that there is a secondary

school in the area. Hence, school availability might also be a proxy for the return to education. Since school accessibility is an important policy issue *per se*, however, we shall keep this discussion separate from that of the direct costs of education.

In India, Morocco and Vietnam, school availability significantly affects household decisions about child labor. In India, the probability that a child will study full time increases with the presence of a school in the village and with the grade of education that the school offers (Cigno, Rosati, and Tzannatos, 2000). The fact that having a higher-grade school in the village raises the probability of a child attending not only that grade of school but also the lower grades confirms that school availability does influence household decisions *via* the expected returns to education.[44] In Vietnam, school availability increases the probability of a child attending school and working, relative to the chance of attending school without working but does not affect the chance that he or she will only work (Rosati and Tzannatos, 2000). Distance, by contrast, does not have a significant effect on the decision to let a child attend school. In Morocco, school availability has a strongly positive influence on the school enrollment of rural children (Rosati, 2000).

These effects are all in the expected direction but differ qualitatively and quantitatively from country to country. In Vietnam, school availability reduces child labor only marginally. It seems mainly to make it easier for children to attend school and work at the same time. In the other two countries, by contrast, school availability does reduce the probability that a child will work and increases the probability that he or she will attend school full time. In India, for example, a simulation has shown that putting a secondary school in every village would increase the probability that a child will study full time by about three percentage points and would reduce the probability that a child will work and attend school at the same time by the same amount. These effects appear to be even stronger in Morocco, where providing every village with a primary school would increase the enrollment rate by more than six percentage points.

It is obviously very difficult to compare results in such different economies. What is clear, however, is that the effectiveness of various policies depends on the characteristics of the economy in question. In general, we can say that, as predicted by the

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[44] To verify the validity of this inference, Cigno, Rosati, and Tzannatos (2000) re-estimated the model for children aged 6 to 15 using two separate dummies, one for the presence of a primary school and the other for the presence of a higher-level school. Since the coefficients of both these dummies have positive sign, the interpretation seems legitimate.

theory, in countries where school attendance (investment in the quality of children) is relatively high, proximity to a school may favor the combination of schooling with work. On the other hand, in countries where school enrollment is relatively low, proximity to a school will reduce child labor and favor fulltime education.

5.3.3 School quality

There are good *a priori* reasons to expect that the quality of the school mattersin the household's decision about how best to use children's time. Indeed, the effect of school quality can be rationalized within our interpretative framework in terms of the cost of education or, equivalently, of returns to education. Higher school quality implies that the same level of human capital can be accumulated in less time, thus reducing the overall cost of education. Alternatively, for a given amount of time spent at school, higher school quality creates more human capital, thus increasing the returns to time spent in education.

It is not obvious, however, how school quality should be measured, and few labor force surveys have even attempted to collect this kind of information. In addition, there is an endogeneity problem since people with more education may have attended better quality schools. It is important, therefore, to treat school choice as endogenous.

There is hardly any evidence on the relationship between school quality, school attendance, and child labor.[45] Some information on this matter comes from studies that analyze the determinants of wages. These studies show that school quality, particularly teacher/pupil ratios, is positively associated with returns to education. This seems to point towards an intensive investment in schooling, but not enough information has yet been gathered on this issue.

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[45] Exceptions are Schultz (1997) and Dreze and Kingdom (2000).

Chapter 6

Household Structure

A household's demographic composition is an important determinant of its decisions about children's school enrollment and work. The way in which this variable influences these decisions is a combination of substitution and income effects. In this chapter, we examine these effects in each of the three countries - India, Morocco, and Vietnam, for which we have first-hand information. For the reasons indicated in Chapter 2, it seems reasonable to categorize household members into three groups: adults, school-age children, and pre-school children.

6.1 India

For rural India, Cigno, Rosati, and Tzannatos (2000) find that an increase in total household size reduces the probability that a school-age child will work at all and makes it more likely that the work will be part-time. With the number of children (up to the age of 16) controlled for, this is the same as saying that the number of adults in the household reduces the probability of a child working. This is a labor productivity effect: the greater the number of adults working on a given piece of land, the lower the return to getting another child to work on it.

The number of pre-school children raises the probability that a school-age child will "work only" relative to the probability that the child will "study only" but has no significant effect on the probability that he or she will both "work and study."[46] Given that pre-school children are too young to work and that an increase in their number is thus equivalent to a lump-sum reduction in full income (an income-dilution effect), this finding is consistent with the theoretical prediction that a lump-sum increase in full income raises the probability of full-time work, lowers that of full-time study, and has an ambiguous effect on that of part-time work.

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[46] Patrinos and Psacharopooulos (1997) find the same in Peru.

The number of school-age children increases the probability that a child in that same age range will "work only" or "work and study," but the effect on the probability of "work only" is not as large as that of the number of pre-school children.

6.2 Vietnam

For Vietnam, Rosati and Tzannatos (2000) report that an increase in the number of adults in the household reduces the probability that a school-age child will work. As both income and land size were held constant, this is most likely to be the result of the decline in the labor productivity on children labor supply. On the other hand, an increase in the number of siblings, both of pre-school and school age, increases the probability that a child will have to work. This could be either an income effect (as expenditures might not capture all of the income effects) or a productivity effect (if there are fewer adults in the household, the marginal productivity of child labor increases in the majority of households that are self-employed).

6.3 Morocco

For Morocco, Rosati (2000) finds that family structure influences decisions differently depending on where the household is located. In urban areas, where most people are not farmers, the effects associated with household composition are most likely to be income effects. In households that contain large numbers of pre-school children (and holding total household size constant), girls are less likely to attend school than boys, while the probability that they will work or perform household chores is higher. For boys, the number of school age siblings raises the probability that they will have to work, while it does not modify the probability that they will be "idle" (see Chapter 1). As school-age children have a lower earning capacity than adults, it is likely that, in households where relatively more school age children are present, some of these children might be sent to work (remember that we are holding the total number of household members constant). The different effects of household structure on boys and girls reflect, most likely, gender specialization within the household.

In rural areas, where most people are farmers, the effects of household composition are linked to the returns to work in the agricultural sector. For a given level of fixed factors (land and capital), the productivity of child labor decreases as the number of adults present in the household increases. This is reflected in the negative effect that this variable has on the probability of working or being "idle." On the other hand, the

number of siblings tends to reduce the probability of a child attending school. Gender differences are also strong. The presence of siblings increases the probability that male children will be sent to work, while it does not affect their chances of being idle. For girls, who are more likely than boys to be involved in household chores, the number of siblings makes both "working only" and "neither going to school or working" more likely. Moreover, for girls, the presence of younger siblings has a greater effect than the presence of school-age siblings. This is due to the mother-substitute role often assigned to girls in households' division of labor.

Chapter 7

Parents' Education

Among the factors affecting parental decisions is also the level of education of the parents. Since that is, in turn, the result of decisions taken by the parents' own parents, it is clear that the consequences of education decisions extend beyond the direct beneficiary of that decision.

7.1 Effects on schooling and child labor

In general, children of better educated parents are more likely to attend school and less likely to work part or full time than the children of less educated parents. It is not wise to attribute these effects to preference-shaping selection (in other words, all other things being equal, more educated parents are likely to have a greater inclination for education), or information. With household income controlled for, the effect of parents' education should not capture income effects. However, as the variables used to measure income are subject to measurement error, it is still possible that some of what appears to be the effect of parents' education is actually the effect of income. Here too, the data show substantial differences between countries but also some common patterns.

In rural India, the mother's level of education appears to have an influence on the parents' decision to make a child work or study (Cigno, Rosati, and Tzannatos, 2000). Children whose mothers have less than a primary education are more likely to work full time and less likely to study full time than other children. Children whose mothers have more than a primary education are less likely to work and study and more likely to study full time than other children. By contrast, the father's education does not appear to have a significant influence.

In Vietnam, children with more educated parents are less likely to work full time than other children (Rosati and Tzannatos, 2000).

In Morocco, the effect of parents' education depends on where the family lives (Rosati, 2000). In urban areas, the number of years of formal education received by the father reduces the probability that his sons will "work only" or "work and study" and that

his daughters will "work only" or "neither work nor study" (see Chapter 1 again). The mother's education does not appear to have any significant effect. In rural areas, the father's years of formal education increase the probability that his children will attend school. The mother's formal education has no significant effect. However, parents' religious education has a significantly negative effect on the probability of girls working or performing household chores. Religious education appears, therefore, to benefit girls in the household. In a country where the gender issue is so relevant for child labor, this finding has interesting policy implications.

A possible explanation of these findings is that education confers greater weight (moral authority or, if education translates into income, bargaining power) on the mother in family decisions. If, as some assume, mothers spend more time caring for their children than fathers do, the mother's education tends to have a positive effect on the welfare of her children (Folbre, 1986 and Eswaran, 2001). Given the trade-off between education and current consumption (see Chapter 2), however, this does not necessarily mean that children of more educated mothers are more likely to go to school. Indeed, depending on circumstances, caring mothers might insist on their children working, and on using the additional income to improve their children's nutrition rather than on education.

Another possible explanation has to do with the fact that education increases the probability that the mother will find outside employment and, thus, that her children will be called upon to substitute for her in the home (Basu, 1993). That is particularly true of girls who, if they do work, are likely to do so within the home (looking after younger siblings or in some other way substituting for their mothers in the performance of domestic chores).[47]

Yet another possibility is that the mother's time is an input into the education (production of human capital) of their children, and that the mother's own level of education raises the productivity of this input. According to this argument (Behrman et al, 1999), the mother's own level of education raises the demand for her services as a home tutor rather than as a market laborer and, thus, raises the return to the time that her children spend in education.

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[47] "If working women do leave their children behind at home, they are put in the custody of an older sibling, often a daughter aged five or six years old who is barely able to take care of herself. These young girls fall into a demanding routine of child-care and housework very quickly, becoming housekeepers at a very young age and are robbed of the chance to attend school" (Chatterjee, 1992).

Finally, more educated parents might have a better knowledge of the returns to education and/or be in a position to help their children to exploit the earning potential acquired through education. In this case, the parents' education would be a proxy for the effect of the returns to education. The possible coexistence of some or all of these mechanisms may explain the effect of the mother's education on the probability that her children will go to school but also the fact that this effect is not as pervasive as sometimes assumed. In India, as we saw, the probability of children working full time was not affected by their parents having at least completed primary education and the probability of them working part time was not affected by their parents having less than a completed primary education.

7.2 Effects on health

Parents education, particularly the mother's, seems to be an important determinant of child health. Indeed, there appears to be a strongly negative association between the mother's education and infant or child mortality. Strauss and Thomas (1995) find significant positive effects of maternal education on a series of inputs into child health. Many different explanations have been put forward for these statistical regularities, based on the assumption that education affects human capital outcomes either by raising the efficiency with which inputs are used or by increasing the allocative efficiency of input use.

Obviously, parents' education also reflects the resources available to the household and local conditions. Even taking these factors into account, however, the effect of parents' education persists and that of the mother's education is often significantly larger than that of the father's education. However, after controlling for household income and resources and for location and environmental conditions, Cigno, Rosati, and Tzannatos (2000) find no evidence in the India survey that parents' education affects the body mass (which, as already explained, is a predictor of health and survival probability, as well as a measure of nutritional status) of their school-age children.

Chapter 8

Social Security

We have looked at the way the government can affect child labor and child welfare through educational and health policies. There is another form of government intervention, however, apparently unrelated to children, which has a powerful influence on household decisions concerning children: old-age security.

8.1 Effects on fertility and saving

There is much long-standing empirical evidence that public pension systems, or any other mechanism for providing old-age security that does not rely on filial support, reduce fertility. Chernichovsky (1982), Nugent and Gillaspy (1983), Entwisle and Winegarden (1984), and Jensen (1990) all find evidence that pension coverage reduces fertility in developing countries. Cigno and Rosati (1992, 1996) find that the same is true in developed countries. This effect is quite powerful: Cigno and Rosati (1992) estimate that more than three-quarters of the fertility reduction in Italy between 1930 and 1985 was attributable to the extension of pension coverage.

These empirical findings are consistent with the proposition (see Chapter 2) that parental decisions cannot be entirely explained by altruistic considerations (the "children first" hypothesis). They are consistent, in particular, with the idea (the "old-age security" hypothesis) that parents see children as a kind of capital asset, expected to provide a stream of payments and personal services in old age.[48]

Consistent with the old-age security hypothesis, Caldwell (1967) reports that a significant proportion of Ghanian parents gave old-age security as a motive for having children. Ridker (1980) reports a substantial fall in fertility among women participating in a no-birth bonus scheme in three Indian tea estates. Chernichovsky (1982) reports evidence from an Indian village that, while income received when parents are

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[48] See Leibenstein (1957), Cigno (1993), and Rosati (1996).

economically active (at the stage in the lifecycle when they make investments) has a positive effect on fertility, expected retirement income has a negative effect.

The "asset" characteristic of children is confirmed by the finding of Cigno and Rosati (1992) that the development of financial markets in Italy between 1930 and 1985 was another important determinant of the fall in Italian fertility. If parents saw their children as a direct source of happiness rather than as an alternative to financial assets, the expansion of trade opportunities made possible by the development of financial markets would have had a *positive* wealth-effect on fertility. This interpretation is further supported by the finding of Cigno and Rosati (1992, 1996, 1997) that, in Western Europe, Japan, and the USA, social security coverage has a positive effect on household saving when the social security deficit and other forms of public intergenerational transfers are controlled for. This finding runs counter to conventional wisdom that social security is inimical to growth.[49] A more chilling sort of evidence of the "asset" nature of children is reported in Chapter 11, where we discuss children sold as slaves.

8.2 Implications for child labor and economic growth

Social security benefits help to reduce child labor in three ways. First, by reducing fertility, they reduce the pool of existing children from which child labor is supplied. In addition to this direct effect, there are two indirect effects, one short term and the other long term. The short-term effect comes from a change in household strategy towards having fewer children but making greater investments in them and expecting higher returns. Thus, the switch to a low-fertility strategy induced by social security is likely to reduce child labor because a greater proportion of children will be sent to school.

The long-term effect comes though economic growth. Despite the associated increase in life expectancy (as parents spend more on each child), the reduction in fertility is likely to slow down population growth. Combined with higher savings, this implies a gradual increase in the capital/labor ratio and in per capita income. Higher per capita income will relax the household budget constraint, thus increasing the probability that children will be sent to school. Higher capital/labor ration will lead to less use of labor generally as a relative labor scarcity bids up real wage rates and to less use of unskilled

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[49] This comes from the prediction of conventional life-cycle theory that forced saving in the form of social security taxes displaces voluntary saving. Cigno (1993) argues, by contrast, that social security displaces intra-family transfer arrangements rather than asset accumulation. Early evidence that social security has a negative effect on saving is vitiated by the failure to control for the social security deficit and to take account of endogenous fertility changes (see Cigno and Rosati 1992, 1996).

(including child) labor in particular, as greater capital intensity makes production techniques more sophisticated.

Of course, social security is not the only the policy that helps growth. Indeed, several of the policies that have beneficial effects on child labor (such as public investments in health and education) are also conducive to growth. However, since the sustainable rate of per capita income growth is equal to the difference between capital and population growth, growth effects are particularly worth mentioning in connection with social security, which increases capital accumulation *and* reduces population growth.

The increase in saving induced by social security will also help the development of financial markets. This is beneficial in two ways: first, because it makes it easier for firms to finance their capital investments and is thus conducive to growth and second, because it makes it easier for children, or their parents, to borrow against their future earnings. This, as we pointed out in Chapter 3, increases the probability that a child will go to school and encourages investment in human capital, which is as important as ordinary capital for economic growth. Either directly or indirectly through its effect on growth, the induced development of financial markets will thus tend to reinforce the beneficial effects of social security on child labor.

Chapter 9

The Market for Child Labor

We have seen that parental decisions concerning child labor are affected by many considerations, including the wage rate that the child could earn on the labor market, or the implicit wage he or she could earn working for his or her own parents. We have not concerned ourselves with the market mechanisms, demand and supply, that determine these wage rates. We come to that in the present chapter.

9.1 The demand for child labor

Analysts have devoted little attention to the demand for child labor, either from the theoretical or from the empirical point of view. It is often suggested that the advantages of child labor are that children are less expensive to employ than adults, children are easier to control, and it is easier to get them to work hard. However, none of these propositions has found solid empirical support until now.

The demand for children to work in the family farm, or family enterprise, is not easy to measure. This is not only because of the problem of measuring the value of the child's (as of anyone else's) marginal contribution to production but also because the household is at the same time both a buyer and a seller of child labor. What we can observe is the amount of child labor that the household as a supplier of services sells to itself as a producer of final goods. A possible way to evaluate this is to extend the approach of Baker (1965) on the allocation of family members' time by using time as an input in family farming or other productive activities. Levy (1985) followed this approach in his analysis of child labor in Egypt. The demand for waged child labor should be easier to estimate, but there is hardly any evidence on the subject.

In future, data for compiling the first type of estimate could be obtained by extending household surveys to include (input and output) information on the family business.[50] Data for the second type of estimates could be obtained by surveying firms rather than households. However, both kinds of data are likely to be fraught with

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[50] Some data set do contain this kind of information

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problems of measurement and of deliberate misreporting (especially where the illegal employment of children is concerned).

9.2. How wages, productivity, and technological change affect the demand for child labor

With so few children overtly working in the formal labor market, information on child wage rates is often too sparse to be of much use. Given the number of household members, however, an increase in the amount of land owned or rented by a farming household raises the marginal product of labor in general and of child labor in particular. Household survey data on land size may be used to get indirect information on the effect of the child wage rate on parental decisions affecting the child. Since the marginal product of children (mainly girls) employed in domestic chores and the wage rate of children (mainly boys) working in the labor market must be at least as high as the marginal product of own-farm work, land size can be taken as indicator of the opportunity cost of children's time spent in education.

The theoretical considerations that we dealt with in Chapter 2 lead us to expect that, other things being equal (in other words, holding constant, among other things, total household income), children belonging to farming households with relatively more land are *more* likely to work because their services are more valuable. Consistent with this theory, Cigno, Rosati, and Tzannatos (2000) and Rosenzweig and Everson (1977) find that, in Indian rural households, land size does increase the probability that a child will work (relative to not working at all) and make it more probable that they will work full rather than part time.

Technological change influences both the demand for, and the supply of, child labor. For example, if new technologies, like mechanization, or the use of fertilizers and improved strains are introduced in agriculture, more skilled manpower is required. The demand for unskilled labor in general and child labor in particular is then likely to fall. At the same time, the returns to education are likely to increase as a reflection of the higher demand for skilled labor. This will reduce the supply of child labor. The combined effect of reduced willingness to supply child work and reduced willingness to employ unskilled workers is likely to be a reduction in the use of children for productive activities.

Rosenzweig and Wolpin (1982) report indirect evidence that, in rural India, the Green Revolution increased the demand for child education and reduced the supply of child labor. Other evidence relating to Egypt (Levy, 1985) confirms that production

technology is an important determinant of the demand for child labor. Farming households that use more capital-intensive production technologies use less of their children's time for work, have fewer children, and invest more in their education and welfare.

9.3 International labor standards

International conventions or unilateral legislation by powerful trading nations[51] that prohibit the importation of goods produced with the work of children ("labor standards") are likely to affect the demand for child labor. By closing certain lucrative markets, the imposition of such standards shifts the demand for child labor downwards, reduces the equilibrium wage rate for child labor, and triggers a substitution towards adult labor (Basu, 1999). If it is not accompanied by measures in support of the countries where child labor is employed, however, labor standards amount to trade sanctions. As they reduce the welfare of the target countries, particularly the welfare of the poorest families from which most child labor springs, the effect on child labor is then ambiguous. On the one hand, the adult wage rate will rise relative to the child wage rate, thus making it more advantageous for households to supply adult rather than child labor. On the other hand, in households close to the subsistence level, the rise in the adult wage rate may not be enough to compensate for the income reduction caused by the fall in the child wage rate. If adults are already working full time, the outcome might then be an increase rather than a decrease in child labor. As we saw in Chapter 4, a reduction in household income increases the probability that a child will be made work.

9.4 Would a ban on child labor work?

From a theoretical point of view, child and adult labor are just two factors of production. The standard analysis of factors markets thus applies. Basu and Van (1998) get more specific results under the hypothesis: (i) that child and adult labor are perfectly substitutable in production (in other words, an hour of child work is equivalent to a given fraction of an hour of adult work) and (ii) that, provided their income is sufficiently high, parents will not send their children to work.[52] Under these and some other technical assumptions, Basu and Van are able to show that the economy is likely to have a multiplicity of possible equilibrium positions. In particular, they show the theoretical

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[51] An example is the "Child Labor Deterrence Act" in the US.
[52] They assume, in other words, that non-working children are a kind of luxury good.

possibility that there are two stable equilibria, one characterized by the presence, side by side, of child and adult labor and the other in which only adult labor is employed. In the first type of equilibrium, (adult and child) wage rates are low, and in the second, (adult) wage rates are high. This theoretical finding has an interesting policy implication ("benign intervention" as the authors call it).

As we saw in Chapter 2, for any given set of prices and wage rates, households (or, more precisely, the people within them who make the decisions) choose how to allocate their resources, particularly how to allocate the time of their members between work and other activities. If the children of the household work, it then means that sending children to work is in the household's (though not necessarily in the children's) best interest. Thus, a successfully enforced ban on child labor would make households worse off. Parents would consequently connive with employers to elude the ban, with the result that public resources would have to be diverted from productive uses to try to enforce the ban and private resources to try to elude it. If we take prices and wages as given, it is thus clear that prohibition could have a very large cost in terms of resource misallocation and a very low benefit in terms of reducing child labor.

This objection to the use of prohibition would disappear if, as Basu and Van maintain, there is an alternative stable equilibrium with higher adult wage rates in which it is not in any household's interest to send their children to work. If this were the case, then the ban would be self-enforcing, in the sense that nobody would have an interest in trying to return to a low-wage equilibrium with child labor. Put more simply, the effect of a ban on child labor would be to make adult labor much scarcer, and thus the adult equilibrium wage rate much higher. As a result, households would be at least as well off supplying only adult labor as supplying adult and child labor in the alternative equilibrium. The problem with this theoretical proposition, attractive though it may seem, is that it may not apply in practice.

What becomes clear from the studies at which we are looking, only a minority (often a very small one) of working children receives a wage. Most working children are employed, in one way or another, by their own parents. Even when working outside the family home or outside the family farm or business, children may be supplying their services to a neighbor under some reciprocal arrangement negotiated by their own parents. This being the case, it would be rather risky to proceed on the assumption that such a variety of intra and inter-family arrangements can be modeled *as if* we were

dealing with a set of perfectly competitive markets where independent agents buy and sell labor anonymously at an established equilibrium wage rate. The very fact that, in most of the developing world, child labor is either not banned or persists despite legal prohibition[53] constitutes *prima facie* evidence that things are not so simple.

Similar theoretical arguments in favor of compulsion and similar reasons for being cautious about its practicability relate to the possible existence of alternative growth paths. Using appropriate assumptions, it is generally possible to invent a model economy with two alternative equilibrium growth paths, one characterized by low capital, low human capital, and low income per head and by the employment of child labor, and the other characterized by high capital, high human capital, and high income per head and no child labor. If both paths are stable, the first constitutes a kind of poverty trap, a low-development equilibrium from which it is only possible to escape by concerted action. The theory of economic growth and economic development is full of such traps. Their implication is that a drastic policy measure, such as the prohibition of child labor, which makes the persistence of the existing low-development growth pattern unfeasible, will automatically put the economy on a course that will eventually turn into the more desirable growth path. Such a policy is advocated in Dessy (2000).

The objection to the poverty trap argument is similar to the objection that applies to the multiple labor market equilibrium argument. Having established the theoretical possibility that a more desirable alternative exists and that such an alternative is stable is not the same as having established that such an alternative exists in the real world. Furthermore, if what we are talking about is dynamic equilibria (in other words, *tendential* growth paths), there is the additional problem that transformation into the preferred growth paths may take a very long time, maybe several generations. Also, since the generations caught in the transition from one growth pattern to another would typically be worse off than if the policy were not enacted, this raises the question of whether the policy is defensible on equity grounds and of where to find the resources for compensating those who suffer from it.

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[53] In India "... the Child Labour (Prohibition and Regulation) Act of 1986 ... in effect admits the reality that child labour is a socioeconomic problem, and one that is unlikely to disappear in the face of legislation" (Chatterjee, 1992). "Morocco made education compulsory in 1963. But, 40 years on, the Ministry of Education admits that 2.5m children are out school" (*The Economist*, 7-13 October, 2000).

Chapter 10

Discouraging Child Labor

So far we have talked mostly of why there is child labor, and what its consequences and correlates are. We now concentrate on what can be done about it.

10.1 General principles

The studies discussed in detail in this Handbook and the many others cited tend to agree on two general points. One is that child labor cannot be viewed in isolation from educational, health, fertility, and technological issues. The other is that, leaving aside extreme forms of exploitation, which will be addressed in the next chapter, child labor should not be regarded as an aberration but rather as a rational household response to an adverse economic environment.[54] Beyond that, the following proposition receives consistent empirical support:

(i) Forbidding children to work or making school attendance compulsory without changing the economic environment would, if effectively enforced, leave not only parents but also children worse off.

By definition, anything that prevents an adult person from doing what he or she would otherwise do makes that person worse off. Parents, therefore, would suffer from a ban on child labor and would consequently be tempted to evade it. Matters are less clear-cut where the children themselves are concerned. All of the studies that directly address the issue report that children working full time tend to have better nutritional status than children who study and that children who attend school and work at the same time fare worst of all. Therefore, the policy would have an ambiguous effect on the welfare of children, who would end up with possibly more human capital but probably poorer health, and a negative effect on the welfare of their parents, who would be forced to depart from what they regard as their optimal choices.

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[54] This, remember, is true irrespective of whether parents are moved by altruistic or selfish motivations (see Chapter 2).

Therefore, prohibiting child labor or making school attendance compulsory without changing the economic environment that makes child work in the interest of the parents and possibly even of the child is difficult to enforce.[55] As we pointed out in Chapter 9, the modest reduction in child labor that would result from such policies would have a large cost in terms of resources diverted from productive uses to policy enforcement on the one hand and evasion on the other.[56] Indeed, restrictions on the legal employment of child labor, in situations where poverty is widespread, have an even larger cost. They push children out of the formal into the informal sector (Chatterjee, 1992) where wage rates are lower and children are exposed to greater risks than in the formal sector.[57] In extreme cases, the effect of these restrictions is to push children out of their families onto the streets. We shall look at the consequences of this in the next chapter.

In the next two sections, we identify a number of direct policy measures that remove children from the labor market and some indirect policy measures that aim to change the economic environment in the desired direction. Taken together, these measures have the potential reduce child labor without compulsion or prohibition. The last two sections examine ways of checking that this potential is realized.

10.2 Indirect measures

We now examine a range of policies that, although not directly aimed at reducing child labor, have that effect in practice. Our propositions stem from the theoretical discussion contained in Chapters 2 and 3 and are strongly supported by the empirical studies reviewed in subsequent chapters. Therefore, we illustrate our policy prescriptions with numerical results from the three countries that we have studied in some depth -- India, Morocco, and Vietnam.

Table 11, drawn from Cigno, Rosati, and Tzannatos (2000), shows the estimated effects of small variations in the observed levels of certain policy variables on the use of time by school-age children in rural India. Table 12, drawn from the same study, shows the simulated effects of more radical policy changes, consisting of increasing a policy

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[55] "A legislative solution, in the opinion of many Indian experts, is neither practical nor capable of achieving its purpose" (Chatterjee, 1992).

[56] These propositions do not take into account the theoretical possibility that a ban on child labor or compulsory education would trigger a switch to a new (static or dynamic) equilibrium, where nobody would have an interest in supplying or employing child labor, so that prohibition or compulsion would no longer be required. For the reasons put forward in the last chapter, such arguments must be regarded with the utmost caution at the present state of knowledge.

[57] As one aid worker put it, referring to Morocco, "if they can't send them to work, they will send them to beg." (*The Economist*, 7-13 October, 2000).

variable from the minimum to the maximum value found in the sample. Table 13, based on Rosati and Tzannatos (2000), does the same for Vietnam. Tables 14 A and B, based on Rosati (2000), simulate the effects of a range of educational, health, and re-distributive policies for Morocco.

(ii) Providing schools close to communities reduces the incidence of child labor and increases household expenditure on the education of their children. It also reduces fertility and improves child nutrition.

There is empirical evidence that the availability of a school near to the place of residence encourages school attendance and discourages child labor. However, according to many studies of Latin America and the Indian sub-continent,[58] the effect of providing local schools is to induce children who would otherwise work full time to attend school and work at the same time rather than to study full time.

TABLE 11: MARGINAL EFFECTS OF CERTAIN VARIABLES ON TIME ALLOCATION IN RURAL INDIA

	Work Only	Work and Study	Study Only
Poverty	-0.52	-0.78	1.30
Tenure	-0.99	-0.06	1.04
Land Size	1.25	1.11	-1.29
Type of School Available	-0.12	-1.08	1.20
Mother's Education (Primary)	-0.07	10.09	-10.02
Mother's Education (Secondary)	-2.43	3.14	-0.72
Mother's Education (Tertiary)	-3.70	-3.53	7.23

*Change in probability (percentage points) due to a unit change of the variable in the first column

Table 11 shows that, in rural India, providing a middle school in a village where there is currently only a primary school[59] would reduce the probability that a school-age child works by 1.2 percentage points. Table 12 shows that a more radical improvement, increasing provision from nothing to secondary level, would raise the probability of full-time school attendance by 3.6 percentage points, mainly because of the reduction in the number of children that both work and attend school.

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[58] For example, Patrinos and Psacharopoulos (1997) and Ravallion and Wodon (2000).

[59] Keep in mind that nearly all of the villages in the NCAER survey (95 percent) have at least a primary school and that providing a higher grade of school reinforces the demand for the lower grades of education (see Chapter 5).

TABLE 12: SIMULATED CHANGES IN PROBABILITY OF CERTAIN POLICIES ON TIME ALLOCATION IN RURAL INDIA

	Work Only	Work and Study	Study Only
Reducing poverty	-1.56	-2.36	3.92
Distributing land	0.71	4.88	-5.59
Providing primary and Middle school	-0.36	-3.26	3.62
Reducing infant mortality	-3.47	-6.81	10.28

TABLE 13: SIMULATED IN THE SCHOOL/WORK PROBABILITIES DUE TO CHANGES IN KEY VARIABLES IN VIETNAM (1998)

Changes in the probability of:	Income	Household size	Siblings Age 0-5	Siblings Age 6	Education Father	Education Mother	Tuition	Land
School only	0.74	1.10	-0.79	-2.11	0.69	0.42	0.11	-0.17
School and work	-0.12	-0.26	-0.29	1.43	-0.36	0.22	-0.14	0.18
Work only	-0.51	-0.86	1.39	0.82	-0.25	-0.47	0.03	0.01
Neither school nor work	-0.11	0.01	-0.31	-0.13	-0.08	-0.17	0.00	-0.02

Table 14A reports on a similar policy experiment for rural areas of Morocco, where school facilities are limited. Making a primary school available in every village ("duar") would increase school attendance by about 3 percentage points for boys but by more than 7 points for girls. The boys who would start attending school would come mainly from the pool of those who are currently working. The girls would come mainly from the pool of those reported as being "idle" but who, in the case of Morocco, are almost certainly performing household chores.

TABLE 14A: SIMULATED CHANGE IN SCHOOL/WORK STATUS IF SCHOOL AVAILABILITY INCREASED IN RURAL AREAS IN MOROCCO

	Observed		If Primary school in every locality	
	Boys	Girls	Boys	Girls
School only	56.9	37.5	62.7	44.1
Work only	22.3	23.4	19.9	21.0
Neither school nor work	18.8	38.4	17.4	34.4

These effects are very important not only in themselves but also because, as we saw in earlier chapters, the presence of a school nearby and the consequent reduction in the probability that a school-age child will work will induce parents to give birth to fewer children and to take better care of each child who is born. Furthermore, households will spend more on the education of every school-age child who attends

school. Therefore, providing schools affects much more than education; it increases school attendance but also reduces child work (the two, remember, are not mutually exclusive) and is likely to reduce morbidity and mortality throughout the lifecycle.

(iii) Universal income subsidies to parents are an expensive way of discouraging child labor because some of the subsidy will end up as adult consumption, and are counter-effective in families where children would otherwise study full time. Income subsidies targeted at poorer families, whose children are unlikely to attend school in the absence of policy interventions, are more cost-effective. Therefore, income redistribution could help to reduce child labor, encourage school attendance, and improve the nutritional status of children.

The India study divides the sample into two parts: households below (42 percent of the NCAER sample) and above (58 percent) an expert-defined poverty line. Each part is then divided into a lower and an upper segment. Table 11 showed that moving a household up a segment would have a very modest effect on the probability that a child belonging to that household will stop working or attend school. Table 12 shows that even lifting the household from the lower segment below the poverty line to the upper segment above the poverty line would reduce the probability that a child works by only a modest 4 percent and increase the probability that the child would attend school (either part or full time) by just 1.6 percentage points. However, the probability of studying full time would increase by nearly 4 percentage points.

We obtained similar results for Vietnam (Table 13), where a 10 percent increase in household income would increase the probability of a child attending school by only 0.7 percentage points. It is interesting that the largest part of the change would be due to a reduction in the number of "working only" children. In other words, the policy would encourage mainly part-time rather than full-time education.

For Morocco, we carried out the following policy experiment. Since subsidies must be financed through taxation, we simulated the effects of income re-distribution rather than the effect of an income increase *per se*. Table 14B shows the estimated changes in the use of children's time due to a re-distribution of income from the upper to the lower income quintile. It is assumed that 10 percent of the income of the households belonging to the higher income quintile is taxed away and that this revenue is distributed to the households belonging to the lower income quintile. One effect of this policy is to

increase the enrollment rate. However, due to the previously mentioned non-linearity of the relationship between income and child labor supply, the effects are far from large -- the overall enrollment rate increases by less than 1 percent. This helps to make the point that income subsidies are a very costly way of dealing with the child labor problem.

TABLE 14B: EFFECTS OF CERTAIN POLICIES IN MOROCCO

	Urban		Rural	
	Boys	Girls	Boys	Girls
(a) Observed				
School only	87.5	81.5	56.9	37.5
Work only	5.6	3.5	22.3	23.4
Neither school nor work	6.6	14.9	18.8	38.4
b) After fertility reduction				
School only	86.6	81.1	59.2	42.4
Work only	4.7	3.1	20.0	19.8
Neither school nor work	8.6	15.7	20.1	37.7
c) After income re-distribution				
School only	87.8	81.9	59.0	38.5
Work only	5.4	3.4	23.2	24.0
Neither school nor work	6.04	14.3	36.0	37.1
d) After income growth				
School only	88.4	82.2	57.8	38.3
Work only	5.3	3.8	22.8	23.9
Neither school nor work	6.1	37.3	17.4	37.2

(iv) Land redistribution could increase the incidence of child labor because it would increase the productivity of labor in households that receive additional land and reduce it in those from which land is taken away. This would increase the probability of work for children in lower-income households and reduce it for children in higher-income households where parents are unlikely to make their children work anyway.

As we saw in Chapter 9, giving more land to a farming household would, other things being equal, increase the probability that the children belonging to that household will work rather than study because the marginal value of their labor would rise. Table 11 showed that, for the average household in rural India, bringing the quantity of land up one class (on a 5-point scale going from zero to "large") would increase the probability that a school-age child belonging to that household works by 1.4 percentage points. The probability of school attendance falls hardly at all but that of full-time study becomes 1.3 percent lower. Table 12 shows that giving a "large" farm to a formerly landless household (and taxing the household at the same time, so as to keep its income unchanged) would

increase the probability that a child in that household will work, either part or full time, by nearly 6 percentage points.

For Vietnam, Table 13 shows that the probability of a child working increases with the size of the cultivable land utilized by the household.

(v) Policies that increase a child's chances of surviving into adulthood reduce the probability that a school-age child will work and increase the probability that the child will go to school. These policies also increase the consumption of school-age children and the amount spent by households on the education of each child who attends school

In the India study, the effects of policies affecting the health status and thus the life expectancy of a child (such as mass immunization and the supply of safe drinking water) are captured by the village-level survival rate. These local survival rates also reflect climatic conditions and the effects of parental actions (private expenditures on health, nutrition, standards of hygiene, and so on) aimed at ensuring the survival of *their own* children. Changes in these survival rates, however, may be taken to reflect the direct and indirect effects of policy changes. Under the heading "reducing infant mortality," Table 12 reports the effects of increasing the infant survival rate from the minimum encountered in the sample, 60 percent, to the maximum, 100 percent. These can be interpreted as the ultimate effects[60] of enacting measures in the fields of public heath, sanitation, and so on, such that children who receive from their parents the average amount of nutrition and health care are certain to live at least until the age of six. Adopting such a policy would reduce the probability that a school-age child would be made to work by more than 10 percent and would increase the probability that the child would study full time by the same amount.

Thus, just as the effects of educational policies extend beyond the education sector, so the effects of health policies extend beyond health. Policies such as mass immunization, supplying safe drinking water, and so on reduce the probability that a child will work and increase the probability that a child will be sent to school. Indeed, these side effects of public health policy appear to be significant. The reason, as we have seen, is that, when mortality rates are low, parents have an incentive to spend more not only on the education of their children who attend school but also on their nutrition.

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[60] Taking into account the way in which parents respond to the policy by changing the level of their own effort (in providing nutrition, medical care, and so on.) to ensure the survival of their own children. For a theoretical analysis of the interaction between private and public action in this context, see Cigno (1998).

Thus, the policy reduces morbidity and mortality not only directly but also indirectly by secondary parental actions.

(vi) Increasing the education of women has positive but uneven effects on school attendance and child labor.

In general, the education of women is a powerful engine of progress. In rural India, however, the effects of a mother's level of education on the school enrolment and labor participation of her school-age children are somewhat mixed. Table 11 shows that increasing the mother's education from less than completed to completed primary schooling would reduce the probability of her children working by almost 9 percentage points and increase the probability that they would study full time by the same percentage. Increasing her education from primary to middle-school level would reduce the probability that her children would work by over 7 percentage points. As explained in Chapter 7, the reason for this uneven pattern may be that the mother's education affects household decisions about the allocation of her children's time in several different and, in some respects, conflicting ways. The father's education has no effect at all.

In Vietnam (Table 13), the father's education affects the decision to make a child study full time. The mother's education, on the other hand, reduces the probability that a child will study full time but increases the probability that a child will work and study at the same time. This is probably due to the fact that, in Vietnam, women with higher education are more likely to find work outside the household than in other developing countries. As we have already observed, an increase in the mother's level of education thus raises the demand for child labor to substitute for the mother's time.

(vii) The extension of old-age security and credit availability to poor parts of the community, primarily the rural poor, which is where most child labor comes from, reduces fertility and child labor and increases school attendance.

We saw, in Chapter 8, that pension coverage is a powerful disincentive to have children, especially for the most disadvantaged parents, who have no alternative means (in other words, savings) of providing for their own old age. We also saw, in Chapter 3, that credit rationing is an important cause of educational under-investment. By reducing the number of children, particularly in those households that are more likely to supply child labor, old age security thus reduces the pool from which child labor is recruited. Credit facilities reduce the fraction of this pool that becomes child labor.

In order to give a quantitative assessment of the effects of social security on child labor, we simulated, for Morocco, what would happen if a family reduced their total number of children by one.[61] Table 14B shows that this would increase school attendance, especially among girls, and reduce child labor. Consistent with our earlier remarks, we found that the increase in female enrollment came mainly from a reduction in the number of girls reportedly doing nothing (but in reality performing household chores by our reckoning). As well as increasing the overall enrollment rate, a reduction in fertility would thus tend to reduce the educational gender gap.

(viii) *Economic growth helps to reduce child labor, but policies fostering economic growth cannot be relied upon to reduce child labor in the short run.*

Growth-enhancing policies increase the capital/output ratio and thus wage rates. However, as has been seen in middle-income countries like Brazil, India, and Thailand, without redistribution, and without policies specifically aimed at making it disadvantageous for parents to send their children to work, a country would have to reach a very high level of development before market forces alone could eliminate child labor. As Chatterjee (1992) remarks, child labor, once prevalent in developed countries, was gradually reduced and eventually eliminated there by the process of industrialization, but the same is not happening in today's developing countries.

We have looked at a number of growth-enhancing policies. An unconventional policy, based on the findings of Cigno and Rosati (1992, 1996, 1997), consists of introducing old-age social security or extending its coverage to poor families. By slowing down population growth and stimulating household saving,[62] this policy would have a positive effect on capital accumulation and thus on real per capita income growth. A conventional policy consists of improving capital markets. This too, however, is facilitated by the increase in household saving triggered by social security. As we saw in Chapter 3, easier credit would help to reduce child labor not only indirectly through the

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[61] In order to relate these effects to a hypothetical increase in the proportion of households covered by social security or in the level of coverage (the size of the pension), we would need an estimate of the effect of social security on fertility in Morocco. This we do not have. However, we know from a wide range of cross-country and single country studies (see Chapter 10) that, where it was estimated, this effect turned out to be substantial. It is realistic to assume that the fertility reduction hypothesized in these simulations could be achieved by extending social security from its present level to the whole population.

[62] Recall that, contrary to conventional wisdom, compulsory saving in the form of social security contributions tends to crowd out intra-family transfers rather than voluntary saving. See Chapter 8 and Cigno (1993).

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relative price and wage effects associated with growth but also directly by relaxing the liquidity constraint on educational investment.

The introduction of improved technology also helps growth. If the new technology increases the demand for skilled labor (as in the case of the so-called Green Revolution), this makes it more advantageous for parents to have fewer children and to invest more in the education of the children that they do have. However, some degree of direct or indirect re-distribution is needed to allow the poorest families to break out of the high-fertility, low human-capital vicious circle. If redistribution is in the form of free or subsidized health and educational facilities, this further strengthens the positive effect on fertility and school attendance.

Therefore, several of the policies that help to reduce child labor in the short run also have a beneficial long-term effect *via* higher growth. How large is the second effect? To answer this question, we simulated, for Morocco, the effects of a 10 percent increase in income (expenditure) for all households. Table 14B shows that these effects are very small, much smaller than those of income re-distribution. The explanation is simply that, because the income elasticity of child labor decreases as income increases, income redistribution from the rich to the poor has a more powerful effect on reducing child labour than a universal income increase. This suggests that growth without re-distribution would take too long, maybe many generations, to have a noticeable effect on child labor. However, our simulation exercise underestimates (we cannot say by how much) the effects of growth, because it does not take account of the associated relative price and wage rate changes.

10.3 Direct measures

A more direct way of reducing child labor is to offer households direct payments conditional on the child not working and/or attending school. Even if school attendance is a condition for obtaining the payment, such payments differ from conventional scholarships in that their primary purpose is to discourage child labor and only secondarily to allow talented children or young people of modest means to obtain an education. While a scholarship is usually conditional on a high level of scholastic or academic performance, such conditionality is either absent or set at a very basic level in schemes that have the child's withdrawal from the labor force as their primary objective. What these schemes do, essentially, is "buy" a child's time. By way of example, we

briefly describe three projects carried out respectively in Morocco, Bangladesh, and Mexico.

The BAJ Program in Morocco. In 1996, the World Bank began financing Morocco's Social Priorities Program, known by its Arabic acronym BAJ. A similar program was implemented in Bangladesh. The mission of BAJ programs is to increase access of the rural poor to basic social services, such as preventive and curative health care, maternal and neonatal care, and primary education. The BAJ has three features that distinguish it from other social investment initiatives in Morocco and elsewhere. First, in order to reach the rural poor, BAJ resources[63] are targeted to the provinces that rank lowest in an objective poverty scale. Second, it has a multi-sector approach, designed to exploit potential synergies, for example, between health and educational policies. That is highly commendable because, as all the evidence reported in the preceding chapters indicates, there are important spillovers, for example from education into health and *vice versa.* Third, the BAJ decentralizes service delivery and decision making, holding provincial authorities responsible for the planning, implementation, and monitoring of the program.

The FFE in Bangladesh. This program aims to promote school attendance by "buying" children's time. Households participating in the program receive monthly food rations so long as they send their children to school. Between 1991 and 1998, 2.2 million children (13 percent of total national school enrollment) were participating in the program. Potential participants are selected in two stages. Central administration chooses a number of areas on the basis of their degree of underdevelopment. The local community is then left to decide, on the basis of locally available information, which of the households located in the target areas should be allowed to participate in the program.

Mexico's Progresa Program. Initiated in 1997, this program subsidises education, health care, and nutrition in poor rural households. Its aim is to reduce poverty and increase investment in human capital, thus breaking intergenerational poverty. Progresa covers 2.6 million families, about 80 percent of the population in extreme poverty in rural areas. It provides grants to poor families for each child under the age of 18 who is enrolled in school between the third grade of primary and the third grade of secondary school. The grants are higher for higher grades and are slightly higher for girls than for

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[63] The program does not actually provide additional funding but rather "protects" the portion of provincial budgets devoted to activities promoted by the BAJ.

boys. For a child in the third year of secondary school, the grant is equal to 46 percent of the average earnings of an agricultural worker. Families of children who missed more than 15 percent of school days in a month do not receive the grant for that month. Progresa has pushed up enrolment at all school levels, with the largest effect (17 percent) having been on the transition from sixth grade to the first year of secondary school (the point at which, traditionally, most children drop out of school).

Unlike the policies examined in the previous section that reduce child labor by increasing human capital, health, income, and so on, these measures have no major effect other than that of removing children from the labor force. Even education cannot be assumed to be greatly improved by these programs, because these grants, unlike conventional scholarships, are conditional on school attendance rather than performance. The question then arises, even more than for the policies discussed in the last section, whether the benefit is substantial enough to justify the cost. The costs, it must be kept in mind, include not only payments made to the parents and the cost of administering the scheme but also the loss of the product of child labor.[64] Some possible answers to this question are discussed in the next section.

10.4 Program evaluation

In order to measure the effectiveness of a program, it is essential to distinguish between changes resulting from the program itself and those that are the consequences of changes in other variables. If the objective is to reduce child labor, one needs information on child labor both before and after the implementation of the program. Furthermore, the program should be designed as an experiment, selecting the areas or groups exposed to "treatment" in a way that will make it possible to apply standard statistical techniques for establishing the effect of the treatment. However, only rarely are the areas or groups chosen according to a strict experimental control plan. Political considerations and the (perfectly understandable) desire to concentrate effort on those groups in the greatest need conflict with the aim of being able to measure the effects of the intervention. Where the program is a pilot study specifically designed to ascertain whether it would be worth extending the scheme to a wider population, these considerations should take second place to the aim of making it possible to evaluate the program's effects.

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[64] We are referring, of course, to the output of children employed in legitimate production activities, *not* in begging, soldiering, or prostitution.

Nevertheless, where the intervention is not designed as a proper experiment, various devices can be used to try and extract some information about its effectiveness. For example, one may exploit the fact that only some areas are included in the program or that the program started at different dates in different areas in order to try to identify the effects of the intervention. The exercise may be vitiated, however, by the fact that the areas to be "treated" were not chosen at random and that the selection criteria may not be observable by the analyst. That is known as the "endogenous placement" problem. If the areas where the program is implemented have characteristics that are not observable by the researcher, the statistical results may be biased because the selection criteria are not taken into consideration in making the estimates. One of these unobserved characteristics may be the presence or absence of a powerful political lobby, and another could be the ability of those in charge of implementing the program, which may vary from area to area. Biases in the results can be avoided by using appropriate econometric techniques.[65]

We now go on to examine two attempts at evaluating the effects of programs that aim to reduce child labor or increase school attendance. One of these attempts concerns one of the BAJ programs. Jacobi (2000) used a variety of statistical techniques[66] to estimate the effects of the Morocco program.[67] His main finding is that the provinces that are covered by the BAJ program do not show significant overall gains in access to health facilities (as measured by clinic visits and medicine acquisition) or in school enrollment. However, a more detailed analysis of girls' school enrollment indicates that a majority of the provinces covered by the program experienced a significant improvement. These gender effects are obscured in the aggregate results as the BAJ provinces that have been positively affected by the program are included with those that did not experience any improvement.

The Food-for-Education (FFE) program in rural Bangladesh has been analyzed in Ravallion and Wodon (2000).[68] Their results seem to indicate that the program increases school attendance by about 16 percent but reduces child labor much less (by about 4 percent). These findings need to be qualified. First of all, Ravallion and Wodon

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[65] For example, fixed or random effects estimators.

[66] Fixed and random-effect estimates, finite-mixture models, and so on.

[67] The empirical analysis is based on refinements of the basic differences-in-differences approach. The most important refinement consists in allowing for heterogeneous program effects at the province level.

[68] The strategy followed by Ravallion and Wodon for dealing with the endogenous placements problem exploits the two-tier process employed in selecting participants for the program to identify a valid instrument.

hypothesize that schooling is not actually displacing work but leisure. This may be a natural assumption to make in the developed world but not necessarily in the impoverished developing world, especially in a rural context. Second, the authors do not examine what happens to the relatively large number of children who are reportedly neither attending school nor going to work (see the discussion in Chapter 1). It could be that the children most affected by the program are those who fall into that category.[69] For example, this seems to have been the case in Morocco, where the increase in the availability of schools increased child enrollment mainly by reducing the number of children who were "idle."

There is another aspect of the Bangladesh study that, although not discussed by the authors, conveys relevant information. As is well known, targeting is essential to these kinds of program. From the estimates presented by Ravallion and Wodon, it emerges that observable household characteristics are a very poor predictor of placement in the program. This could mean either that the community adopted criteria other than need to select households for the program or that observable characteristics are poor indicators of actual need. Both these alternatives are, for obvious reasons, disturbing. A third, less harmful, interpretation is that all the households located in FFE areas are so close to being in need that, in view of measurement errors, observable characteristics cannot be used to distinguish among them.

10.5 Program supervision

Another important issue in the design of a program, whether this has to do with child labor reduction or with anything else, is how much of the budget should be allocated to supervision. There is an understandable desire on the part of program financers to ensure that as much of the funds allocated to a program as possible should go to the intended beneficiaries. Indeed, as recalled in Kilby (2000), there is increasing political pressure by donor countries, to minimize administration in the cost of international agencies' programs. This is all very well, but it has to be understood that the success of a program, as of any other activity, is measured by the output not by the input. Spending 10 percent more, say, on buying children's time is no guarantee that child labor will decrease more than if the same amount of money were spent in other ways. Hypothetically

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[69] On the issue of children who are apparently idle, see also Cigno, Rosati, and Tzannatos (2000) and Rosati (2000).

speaking, better results might be achieved if that extra 10 percent were used to increase the cost-effectiveness of existing expenditure.

It could happen, for example, that money is misspent on buying the time of children who would not work anyway or help with the harvest rather than of girls at risk of ending up as prostitutes (more about this in the next chapter). It could also happen that parents send their children to school in order to qualify for the subsidy and then make their children work as much as possible outside school hours. If this were the case, child labor would not be reduced, and school attendance would not produce good educational results because the children would be too tired and sleepy to take advantage of it. Better results might be obtained by spending less for buying children's time and more on ensuring that the children selected are the right ones or that parents deliver on their side of the contract. Thus, there is a potential trade-off between resources that are directly distributed and resources that are used to increase the effectiveness of the program.

After analyzing 1,426 World Bank projects completed between 1981 and 1991, Kilby (2000) concludes that the marginal benefit of program supervision tends to exceed the marginal cost.[70] He estimates that, with the sample average of 20 staff-weeks of annual supervision, the economic rate of return to a project is nearly 16 percent. Increasing the annual supervision rate to 30 weeks would increase that rate of return to nearly 17 percent. Given the size of the portfolio, even a small improvement would yield large benefits in absolute terms.[71] Hence, additional resources should be spent on supervision rather than on direct expenditure. Although Kilby's analysis concerns lending programs, there is no *a priori* reason for believing that the same is not true of programs aimed at reducing child labor or of any other type of program. Here too, properly designed experiments are needed to evaluate the effectiveness of money spent on supervision.

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[70] In the majority of cases, there is a greater than 97.5 percent likelihood that the marginal benefit of supervision exceeds the marginal cost.

[71] Kilby estimates that adding 1 percent to the economic rate of return of this portfolio of projects would raise benefits, in present value terms, by $248 million.

Chapter 11

The Pathology of Child Labor

We have deliberately kept away, until now, from discussing extreme forms of child exploitation: the use of children in activities that are either morally repugnant or dangerous to the child's health and even life. Our motivation for treating them separately is threefold.

First, household surveys, the main source of information on which the preceding discussion has been based, tells us little or nothing on the matter, because child abuse is hardly likely to be reported to an interviewer.[72] We suspect that some of the children involved in objectionable activities may be hidden in the category of those reported as neither working nor attending school, but most of the children at risk will simply not be reported. Therefore, the estimates and analyses of child labor that we have cited or referred to up until now refer, essentially, to non-pathological activities. Documentation of pathological activities is ample but inevitably sketchy and impossible to analyze statistically.

Second, when talking of pathological activities such as prostitution, begging, or soldiering, it is not possible to weigh the benefits of child "work" (to the parents or to the children themselves) against the costs, as if we were talking of cattle minding or of helping with household chores. Where pathological activities are concerned, the costs cannot be measured against any benefits. No trading-off of nutrition against education, of present against future consumption, can bring one to conclude that extreme child exploitation is, all in all, something one can live with.

Third, many (again, no firm information is available) of the children exposed to the worst forms of exploitation have broken their links with their families of origin,[73] either "willingly" (by running away) or unwillingly (by being abandoned, orphaned, displaced, or sold). Obviously, the actions of these children cannot be explained within a household decision making framework.

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[72] But in Chapter 1, we have indicated ways in which a survey can be organized to find out more about this matter.

[73] "A percentage of working youth are runaways living by their own wits. While there is no national count due to the floating character of their lifestyle, there are an estimated 100,000 homeless street children in Delhi alone, one out of every five of the city's working children." (Chatterjee, 1992)

Nonetheless, *some* of the mechanisms that generate such pathological activities are not fundamentally different from those that explain child labor generally. It is thus helpful to have first examined the other, more acceptable, forms of child work, for which statistical analyses are available. Furthermore, where a child is separated from his or her family of origin not because of some external event but as a result of parental action,[74] what we already know about household decisions will come in handy for understanding how that happened and what can be done to prevent it from happening in the future.

11.1 Children for hire

Strictly speaking, any labor relation is a rental contract: the object of the transaction is not the laborer but the laborer's services. The difference where a child is concerned is that the seller is not the laborer but the laborer's parents. While, in the case of an adult, it may be presumed that the deal, however unequal, leaves the laborer better off otherwise he or she would not have entered into it, no such presumption can be made in the case of a child. Recent reports put the number of child maids in Morocco at around 1 million. Employers pay parents around $14 a month for each child. The American State Department estimates the number of child prostitutes in Casablanca alone to be more than 10,000 (*The Economist*, 7-13 October, 2000). Bales (1999) reports evidence of teenage girls rented out for sexual purposes for the price of a few bottles of beer in parts of Brazil and Thailand but also in India, Pakistan, and Mauritania. In other cases, children have been observed doing extremely hard and, in some cases, dangerous kinds of work like mining or making fireworks. Similar stories can be heard in other parts of the developing world.

As we pointed out in Chapter 2, in disposing of their children's time, parents may take into account the effect that this will have on the child's welfare, but they will also take into account the effect on their own well being and on that of any other household member. If parents attach little or no weight to the child's welfare, the child may be pushed into morally or physically damaging occupations, the benefits of which accrue not to the child but to the rest of the family. However, even parents who have their child's

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[74] " Few children run away unless home life becomes untenable. Abuse in the family as a motivating factor is corroborated by social workers and researchers" (Chatterjee, 1992).

best interest at heart may be driven to such excesses if the alternative is starvation for all members of the family.[75]

What causes such a dismal state of affairs? The answer is primarily that, in some parts of the world, the fact that population growth is running ahead of capital accumulation has driven real wage rates to extremely low levels. Where people are cheap, there is always somebody willing to pay a little over the odds, and somebody willing to supply, or have his children supply, services that will put his, or their, moral or physical health seriously at risk.

11.2 Children for sale

Unlike a labor relation, slavery makes one person the property of another. Bales (1999) argues that, far from disappearing, slavery has not only persisted but actually increased in recent decades in less developed parts of the world and that the new slavery is, in some ways, worse than that of the ancient world, of the American colonies before Wilberforce, or of the US South before the civil war. Being legal and openly practiced, the old slavery was, in fact, subject to a minimum of public regulation and social control. Modern slavery, by contrast, is clandestine, and thus free from any legal or humanitarian constraint.[76]

Slavery applies to adults as well as children, but it may be prevalent, and it is certainly more odious, where children are concerned. There are essentially three mechanisms through which a child can be enslaved. One is abduction.

In some parts of the world, from Sub-Saharan Africa to ex-Yugoslavia, where wars have produced a breakdown of law and order and have displaced large numbers of people, and where killings and epidemics have combined to produce scores of orphans, young children and adolescents are snatched from their villages or refugee camps or just rounded up after becoming separated from their families. They will re-surface in sweatshops or begging at street corners if they are lucky, as boy soldiers or child prostitutes if they are less lucky. Others will die, drowned off or suffocated in sealed containers during long overland transfers, as their masters try to smuggle them into the

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[75] In this respect, the theoretical predictions of the "altruistic" model do not differ substantively from those of the "egoistic" model of parental behavior. The more the parents love a child, the better the child fares in any given set of material circumstances, but the costs and benefits accruing to the parents matter anyway.

[76] While, in the old slavery, a slave could at least expect to be fed and housed in old age, a new slave faces the prospect of being discarded when no longer useful.

lucrative markets of Western Europe. Episodes of this kind are reported almost daily in the media.

The second avenue into slavery is debt. Where earnings are so low as to barely reach subsistence, there is no way that a family can accumulate precautionary reserves or save enough to pay back a debt. Falling into debt, maybe because of some catastrophic event such as a serious illness or a very bad crop, means that the family has to deliver itself into the hands of a creditor.[77] In India and Pakistan, entire families, children included, work as bonded laborers in agriculture, mining, and industry. Those children will never see the inside of a school in their lives. In Chapter 3, we talked of credit market imperfections as a possible cause of under-investment in education. Here, we are looking at that problem in its most severe form.

The third possibility is that the child is sold by his or her own parents. Bales talks of Indian bondsmen selling their daughters to redeem a debt. However, parents may resort to selling their children even in the absence of a debt. Why? We saw, in Chapter 2, that parents face three orders of uncertainty: one relating to how many children are actually born; two relating to how many of them will survive to an age where they can be either employed to produce immediate income or educated in the hope that they will produce higher incomes in the future; and three, (an uncertainty on which we did not dwell) relating to the economic environment faced by parents. In the same way that infanticide, particularly of girls, is a crude way of coping with the consequences of the first type of uncertainty, so selling children, particularly girls, into slavery is a crude form of coping with the consequences of the second and the third kinds of uncertainty. If parents find themselves with too many children, or with too many children of the wrong sex,[78] they will sell some. In extreme cases, they may sell a child not to remedy an error but to buy a voluptuary good.[79]

It may be argued, from a child's point of view, that there is little practical difference between being rented out and being sold (in a sense, between being exploited by one's own parents or by someone else). However, surely, being removed from familiar

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[77] Subsistence farmers cannot usually get credit from regular financial institutions. Their creditors are more likely to be local landowners or professional moneylenders who have alternative means of pressing their credit.

[78] The two are connected. A father may find himself with too many children *because* he is looking for a son; see Seidl (1995).

[79] Such cases, where a child is raised for pretty much the same reason as a calf, are documented in Bales (1999).

surrounding is worse for the child in a majority of cases, also because the worst abuses are likely to be perpetrated away from the parents' (and their neighbors') eyes.

From the parent's point of view, the advantage of selling, rather than renting, a child is twofold. First, if the child is sold outright, the payment comes in a lump sum, and that is important if the sale is motivated by the need to pay back a debt or by the desire to buy a durable. Second, the payment is certain, which is an important consideration if the child is to be taken a long way away from home and there is thus no guarantee that the child, or the child's employer, would remit the money home for the many years to come. Crudely put, selling the child secures the present value of a stream of uncertain rental payments.

11.3 What to do

All of the policies that would be useful for reducing child labor in general (see Chapter 10) are also helpful for fighting the more extreme forms of child exploitation. Policies aimed at reducing extreme poverty and at ensuring that making children work is no longer essential for the family's survival and no longer more advantageous than sending them to school will also help to reduce the number of children sold or rented out by their own parents. Such policies might include introducing or extending social security, improving the education, health, and credit sectors, redistributing income, and "buying" children's time.

This does not take care of the problem of children abducted in crisis areas after a breakdown of law and order or in countries with corruptible police and judiciary. Here, the solution is to be found at the international political level. As we remarked earlier, international agencies make loans and grants conditional on adopting appropriate budgetary policies (often involving great hardship for the population in the transition phase before any benefit is felt) or on reducing the production of coca leaves or poppy seeds. It is difficult to see why it should not be possible to make international loans or grants conditional on the enactment and effective enforcement of basic child protection legislation. By discouraging the sale of children or of their services (shifting the supply schedule inwards), these policies would raise the equilibrium price of, and reduce the size of the market for, child slaves and child labor.

Further results can be obtained by discouraging prospective buyers (shifting the demand schedule downwards). Prospective buyers are essentially of three kinds. There

are enterprises using children inhumanely for the production of otherwise unobjectionable commodities (mineral ore, agricultural produce, footballs, carpets, matchboxes, and so on). Here, the problem is not dissimilar from the need to reduce child employment in general. International labor standards that forbid the importation of goods made with child labor may well help if applied in conjunction with increased financial support to the countries from which the goods originate (see Chapter 9). Second, there are warlords who use children as soldiers. The problem in this case goes beyond child protection. The solution lies with international diplomacy and international peacekeeping efforts to put military chieftains out of business.

Finally, there is the demand for sexual services. Demand tends to come from the richer members of society within the developing countries in question, but also increasingly from "sexual tourism".[80] In India, domestic income growth without notable reductions in income disparity and sexual tourism elsewhere, have fuelled the demand for prostitutes in general. The AIDS epidemic has greatly increased the demand for child prostitutes in particular, as very young girls are thought less likely to be infected. Sexual tourism keeps the market buoyant in certain countries, where prostitution, even when practiced by children, is apparently acceptable by society at large and thus is conducted more or less in the open. Western countries are trying to stop sexual tourism originating from their shores by enacting legislation that allows sexual offences against minors to be prosecuted even when those offences are committed abroad. There are media reports of increased police activism against prostitution in India. Trade sanctions and diplomatic pressure could be applied to the countries (both of the origin and the destination of sexual tourism) that have not been sufficiently sensitive to the issue.[81]

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[80] (Bales, 1999).

[81] As usual, however, trade sanctions are easier to apply against poor countries, than against rich ones.

Chapter 12

Conclusion

The arguments and evidence that we have assembled in this *Handbook* make it clear that child labor is not a problem that can be solved with slogans and ringing declarations. They also make it clear that child labor cuts across policy boundaries: health, education, labor market, capital market, social security, criminal law, international peace keeping, income growth, and distribution all have a bearing on child labor. Therefore, reducing child labor cannot be regarded as just another policy issue alongside others; it is a dimension of many, possibly all, policies in the field of development. Finally, this *Handbook* makes it clear that child labor, in all its forms, has common causes worldwide but that the efficacy of the same policy can differ substantially across countries and between rural and urban areas of the same country. Therefore, any intervention should be based on a detailed knowledge of the characteristics of the target area.

While emotionally appealing (and intellectually defensible under certain assumptions), a ban on child labor and/or compulsory school attendance may reduce rather improve welfare. Above all, it is very difficult to enforce. As India's 1983-84 Labour Ministry report neatly put it, "[d]espite the provisions of restrictive labour laws, the practice of child labour continues unabated because the exploitation of children is of financial advantage to employers and an economic compulsion to parents." Matters are not very different in some other parts of the developing world. Worst of all, the effect of prohibiting the employment of children is rather like that of prohibiting the sale of liquor or drugs. Instead of getting rid of the problem, it pushes it underground where it becomes the province of the criminal classes. In the case of child labor, what this means is that children who are not allowed by law to work in farms or factories end up as barbers, cobblers, street vendors, waiters or, worse, beggars and prostitutes. A UNICEF study on the plight of the urban child in India remarked, for example, that "[t]he number of minors in the formal sector has shown a declining trend due to various laws curbing child labour ... But the spread of urban poverty has pushed a large number of children into the

informal workforce. For too many families, there is no alternative to sending their children out to work." [82]

International measures such as banning the importation of goods produced by child labor or sanctions against countries that do not pass laws against sexual tourism or the exploitation of children can be helpful because they cause the demand for child labor to decline. Like trade sanctions, however, such measures harm the countries to which they are directed and particularly the poorer strata of society, which is where child labor originates. The UNICEF study quoted above reports a Commerce Ministry official in New Delhi as asserting: "If children were not employed by the carpet industry, India could not effectively compete with Pakistan or Iran." UNICEF's Morocco director is reported as saying that the handicraft sector (Morocco's second largest employer and a major tourism attraction, Morocco's main source of hard currency) would have been crippled if Morocco had applied a UNICEF program in which carpets carry child-free certificates.[83] Therefore, "labor standards" and international sanctions may risk making the problem worse rather than better unless they are accompanied by some form of compensation.

Direct forms of intervention, based on the idea of "buying" children's time, obviously have an immediate effect, and are highly appropriate in crisis situations where children are at risk of ending up as soldiers or prostitutes. In other situations, however, the long-term effect of such measures has yet to be proven. The evidence suggests that indirect forms of intervention, which ensure that it is no longer in the interest of parents to send their children to work, have more certain and, above all, longer lasting effects. Measures that reduce child labor as a by-product of increased productivity and social equity are particularly desirable and advisable. Among the measures that are particularly worthy of consideration, we have identified health policies that directly and indirectly reduce morbidity and mortality, educational policies that reduce the marginal cost of school attendance, and social security policies that reduce the demand for children as a form of investment. Many of these policies are conducive to economic growth, which itself reduces child labor. However, growth alone is not the solution because it takes too long to have any effect child labor. Also, growth achieved by other types of policy may make matters a lot worth during the adjustment period.

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[82] (Chatterjee, 1992)

[83] (*The Economist*, 7-13 October, 2000).

Finally, we have stressed the importance of obtaining data on children at risk and have suggested ways of eliciting the required information through child-focused household surveys within other data-gathering exercises. We have also pointed out the importance of project supervision and have stressed the necessity of designing programs in such a way that their effectiveness can be statistically evaluated.

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Summary Findings

This survey is an introduction to child labor issues, a fast expanding research and policy area. It deals with the many aspects of child labor, including its causes and effects as well as policies associated with it. The survey takes the reader from the definition and measurement of "child" and "labor" to what we call the "pathology" of child labor, the extreme forms of child exploitation, the use of children in activities that are morally repugnant or dangerous to the child's health and even life. Between these two extremes, from the methodological aspects to the vulgar realities, this survey examines:

- Why do children work?
- How failures in the capital markets affect child labor?
- What is the role of household income?
- How does child labor interplay with education?
- What is the effect of household structure on child labor?
- How does parental education affect child labor?
- What does the presence or absence of social security affect child labor?
- What other policies affect child labor
- How is the market for child labor determined?

HUMAN DEVELOPMENT NETWORK