

Child Labor, Human Capital, and the Role of Parental Power in Poor Households*

Dipankar Purkayastha**

This paper uses a modified neoclassical household model that incorporates parental power and demonstrates that only under certain conditions, anti-child labor laws that effectively reduce a child's wage, may improve a child's welfare. In an alternative two period model it is shown that if the household borrowing constraint is stringent, sanctions may conditionally improve human capital of the child. Sanctions therefore can not be recommended as a general policy.

I. Introduction

It is believed that as many as 250 million child workers work in the less developed countries.¹ There are many case studies that show the inhumane and gruesome conditions under which many malnourished children, often less than eight and nine years old, must work as semi-slaves to pay off their parents' debts. Whether children in subsistence households should be allowed to contribute to family income and increase the family's opportunity set, or whether such work constitutes a fundamental intrahousehold allocation failure is an issue that is exciting not only for its policy implications, but also for our understanding of the mechanism of intrahousehold distribution of resources in poor as well as in richer households.²

Although there is a voluminous literature³ on child labor in social and cultural discourses, surprisingly, conventional economic theory has precious little to say about this phenomenon.⁴ This is in complete contrast to the sentiment in the media today.⁵ The US Department of

* I would like to thank David Wong and an anonymous referee for their valuable suggestions. All remaining errors are my responsibility.

** Department of Economics, California State University, Fullerton, California, USA 92834.

1. See The Wall Street Journal (November 12, 1996), and ILO (*World of Work*, June/July 1996).

2. Fyfe (1989) analyzes the problem of child labor in present day United States and Europe.

3. See the surveys by the US Department of Labor (1995), Weiner (1991) and Fyfe (1989).

4. See, however, the papers by Rodgers and Standing (1981), Rosenzweig (1981), Behrman (1994), Kanbur and Grootaert (1995), and Basu and Van (forthcoming).

5. Beginning from the *Rugmark* movement that discourages child labor in the carpet industry, and the AFL/CIO's war against the unfair labor standards in the LDCs, to the Harkin Bill in the US that discourages child-labor-intensive-exports from developing countries, Western consumers are generally aware of child labor as a possible reason for trade sanctions. Many scholars of international law have also focused on this problem. It has been alleged that some U.S. retailers sell products made by child labor in various third world countries. The murder of Iqbal Masih, the Pakistani boy who was a bonded child worker and a spokesperson for the child workers, drew much attention in the Western Press. The U.S. National Labor Committee now wants a "No Sweat" tag attached to all child labor free merchandise (Los Angeles Times, May 30, 1996). See also the papers by Ehrenberg (1995), Hyndman (1989), and Kelleher (1994). Whether the poor countries enjoy an unfair advantage in trade

Labor Report and other studies show that (1) Child labor often leads to adverse work-related health effects on children who often become permanently disabled when they grow up, and (2) Child labor inevitably reduces schooling and consequently slows down the formation of human capital in an LDC.⁶ Similarly, many studies show that children's education suffer as a result of work and great many authors have recommended a compulsory schooling legislation to prevent child labor.⁷

Do sanctions and anti-child labor laws improve a working child's health, human capital and welfare in general? Are child-labor laws first-best or second-best interventions? While the theoretical literature is rich in intrahousehold relations between the husband and the wife, not much research has been done on the relation between the parents and the children. This paper attempts to shed light in this area and proposes a modified model of intrahousehold resource allocation based on *parental power*. In Section II, a one period model of child labor is presented where the focus is on child health. In an efficiency wage framework, this model explores the conditions under which a child's health may improve as a result of sanctions. In Section III, a two period model of child labor is presented where the focus is on child's education. The conditions under which sanctions will improve child's education is analyzed. The basic message of these two sections is that the sanctions have, at best, ambiguous effects on a child's welfare.

II. An Economic Theory of Child Labor

In Becker-type models, in the course of growth, the cost of children rises, fertility falls, child quality rises and the family reaches a higher level of utility.⁸ If children are also workers, it will reduce the parents' cost of children, and will therefore reduce the quality and increase the quantity of children desired by a household. If the government intervenes to discourage child labor, in the long run, fertility should fall and the "quality" of children should increase,

against the richer countries and whether such "social dumping" is a subject of GATT/WTO tribunal is a hotly debated issue. See Ehrenberg (1995:379).

6. For example, a number of studies describe the unhealthy environment in which children must work in the Indian glassware industry (Burra (1995), Chapter 3). Cases of bronchitis, eye problems, burns and chronic asthma are common among the children who work in this industry and seventy six percent of them suffer form tuberculosis (Ehrenberg (1995)). ILO estimates that about half of Pakistan's 50,000 bonded child workers in the carpet weaving industry would fall victims of disease and malnutrition and would never reach the age of twelve. A UNICEF study clarifies why child health is an integral part of the child labor issue: "A growing body of research indicates that, because of anatomical differences between children and adults, child workers ar considerably more vulnerable to workplace health hazards. Age seems to be an important factor in the effect of toxic chemicals, and children exposed to them early tend to become ill or disabled much more quickly than do adults with similar exposure. Children are more susceptible to thermal stress and environmental temperature change, and are more sensitive to ionizing radiation. They are also more vulnerable to carcinogens, and, if exposed to them, the probability of their developing cancer is greater than that of adults having equal exposure. Furthermore, children who work are more likely than adults to suffer occupational injuries owing to inattention, fatigue, poor judgement, insufficient knowledge of work process, and the fact that equipment, machinery and tools used are designed for adults." (Bequele and Myres (1995)).

7. See Weiner (1991) and the references therein.

8. Becker and Tomes (1976), Becker and Lewis (1973).

but the family ends up at a lower level of utility as its choice set shrinks. Based purely on neoclassical models, therefore restrictions on child labor cannot be beneficial for current generation of children.⁹

Becker-type models can and have been used to study the behavior of child labor supply at the micro level. Some micro level studies find that if child wages fall, supply of child labor for market work falls and a shift from child to adult male labor probably increases the school enrollment ratios for children.¹⁰ But most empirical and theoretical works have been concerned with household *time allocation* and somewhat surprisingly economists have not taken up the issue of the effect of child labor on the child's health. Yet, this is a fundamental concern of many descriptive studies.¹¹ Our first task, therefore, is to introduce health as an endogenous variable in the household models.¹²

1. An Efficiency Wage Model

In a subsistence economy where malnutrition is widespread, it is reasonable to assume that higher human resources including food consumption will increase one's work effort. In this case a benevolent household dictator will allocate resources such that the household maximizes its full income. This process is modeled below.

Consider a subsistence household that maximizes joint household utility subject to a household income constraint. There are two types of goods: a child-specific good (C) and an adult-specific good (A). Goods C and A are baskets of goods that determine welfare levels of the children and the adults respectively. More specifically, each of these baskets

9. From the employer's point of view, domestic anti-child labor policies and trade sanctions will clearly increase the cost of hiring child worker because a bribe now has to be paid to hire such workers if the covert operation has to be concealed from the public eye. It is thus reasonable to assume that overall demand for child labor will fall in the country, and given that income effects are not strong, it will reduce the wage and the quantity of labor supplied by the working child.
10. See Rosenzweig (1981). He notes that the availability of schools in the area is a very significant factor in affecting the school enrollment ratio.
11. See Bequele and Myres (1995).
12. It should be noted that the neoclassical models have been criticized for the "dictatorial" nature of the household utility function (for a survey see Behrman (1994)). An alternative, the "bargaining" model of household, considers two separate utility functions of the husband and the wife and studies the outcomes of a cooperative game between the two partners. A partner's minimum utility depends on his or her threat point which includes single-individual's reservation utility from marital dissolution and unearned income of the partners. The conceptual problem of applying this model to the case of child labor is obvious: can we assign a separate utility function for the child? More importantly, how would a child bargain with the parent, given the child's complete dependence on the parent on almost all intrafamily issues? Clearly the threat point of a child is close to zero and it is not clear how we can apply the bargaining models to understand the intrahousehold aspects of child-labor. Kanbur and Grootaert (1995) suggest that there may be a mother-child versus patriarch-father nexus and perhaps bargaining can be viewed as an interaction between these two groups. But there is no systematic study in this area. Since the bargaining models do not offer a promising avenue to resolve this issue, we must fall back on the neoclassical model and deal with the apparent irreconcilability of the theory with the data. Indeed, most economists who have not had a closer look at the sociological and anthropological studies on child health will be surprised by the stylized fact that child health may go down as family income increases (Shah and Cantwell (1985)).

combines food, and other commodities including the health-goods that ensure home and workplace safety of a person. For example, the child-specific good C may consist of protein-rich foods (essential for a child's physical and mental development, lack of which is a major cause of childhood malnourishment in the third world), and equipments such as masks, gloves, safer machinery and emergency provisions that may prevent a child from home and workplace injury.¹³ Of course, there may be many common elements between C and A , but we ignore this for the purpose of this paper and assume that C and A are exclusive commodities.¹⁴ A commodity that represents "common family-consumption-goods" as an element of the family utility function can easily be included as part of a more general model.

Assume that the household assigns weights to consumption of adults and children according to the social norm. The household utility function is thus:

$$U = U(A, C) \equiv \alpha_1 A + \alpha_2 C, \quad \alpha_1, \alpha_2 > 0. \quad (2.1)$$

This formulation of the family utility function greatly simplifies the algebra and is used mainly as a benchmark case. If the family utility function exhibits changing marginal rates of substitution, in addition to the health parameters below, a family's *cultural preferences* (i.e., properties of U) will play a significant role in the family's decision to send the child to work.

An increase in household consumption of C increases the child's well-being and with an appeal to the efficiency wage literature assume that it also increases the child's work effort (in terms of "effective labor"). Similarly, an increase in household consumption of A would also increase the well-being and effective labor of the adult in the labor market. The effective labor functions are given by:

$$L_a = \phi(A) \varkappa H, \quad \phi'(A) > 0, \quad \phi''(A) < 0, \quad \varkappa > 1, \quad (2.2)$$

$$L_c = \theta(C)H, \quad \theta'(C) > 0, \quad \theta''(C) < 0, \quad (2.3)$$

where L_a is the number of effective labor units supplied by the adult, and L_c is the number of effective labor units supplied by the child. The indexes $\phi(A)$ and $\theta(C)$ are determined biologically. The parameter H is the health endowment of the child, and the parameter \varkappa shows the current proportional difference between a child's health and an adult's health in so far as H affects the effective units of labor in the labor market. It is instructive to think of " A " and " C " as human resource investments for the adults and the children respectively (this issue is taken up again in Section III). Let W_a and W_c denote the parent's

13. Some of these protective goods are supposed to be supplied by the employer, but conceptually these goods can also be supplied by the parents.

14. For empirical and theoretical purposes, it has been shown that the separability of children's consumption and their parents' consumption is a necessary assumption. See Gronau (1991) and Behrman, Pollak and Taubman (1995).

market wage and the child's market wage respectively and let P_a and P_c stand for prices of A and C . The family budget constraint is thus:

$$P_a A + P_c C = W_a L_a + W_c L_c. \quad (2.4)$$

The allocation mechanism for such a household is straight forward: Maximization of (2.1) with respect to A and C and subject to (2.4) yields:

$$\alpha_2 / (P_c - W_c \phi'(C)H) = \alpha_1 / (P_a - W_a \phi'(A)wH). \quad (2.5)$$

Equation (2.5) says that marginal utility per dollar of net cost is equalized for each good.¹⁵ If the family's preference for adult consumption rises (α_1 rises), consumption of A must rise and/or consumption of C must fall,¹⁶ but a higher W_c cannot hurt the child-worker. This is the essence of neoclassical position taken by Bhagwati (1995) and others who treat child labor as a "cultural value" related argument and are critical of the issue of social dumping and the endorsement of a common international "Fair Labor Standard" that outlaws child labor in international trade.¹⁷ A more elaborate neoclassical model of household resource allocation with or without efficiency wages can be constructed with basically the same result.¹⁸ It is difficult to interpret the social and anthropological observations (that support child labor restrictions) based on the neoclassical model above.

15. Note that if (2.6) is omitted, from (2.1) - (2.4), in general (2.1) may not have a maximum since a rise in A will increase income which can be used to finance the purchase of more C , which in turn increases the family income. This possibility of unbounded utility can be ruled out if we assume the Inada condition that as $A \rightarrow 0$, $\text{Lim } \phi'(A) = \infty$ and as $C \rightarrow \infty$, $\text{Lim } \phi'(C) = 0$. Then we can get a finite interval in which a maximum will exist. The neoclassical model can be modified in other ways to ensure the existence of a maximum.
16. In their study of Guatemalan households Engle and Nieves (1993) hypothesized that food was distributed within the household according to the "needs" or according to the "contributions" of the members. They found that the Contribution Rule was a better predictor of food distribution pattern in their sample. Rosenzweig and Schultz (1982) in their study of rural India find that the parents' investments in children reinforce the genetic traits of productivity. Children who are expected to be more economically productive receive a larger share of family resources. Our model is consistent with this hypothesis. A model of endogenous health for the Indonesian case is also found in Pitt and Rosenzweig (1990).
17. "Many feel that children's work is unavoidable in the face of poverty and that the alternative to it is starvation which is a greater calamity, and that eliminating child labor would then be like voting to eliminate abortion without worrying about the needs of the children that are then born." - Bhagwati (1995), p.755.
18. For example, Rosenzweig (1981) constructs a model with the child's work-time, school time and leisure built in. Rosenzweig finds that the effect of an increase in parental or child wages on time allocation theoretically has ambiguous signs, but empirically for his sample he finds that a rise in adult male wage raises children's school enrollment ratios and reduces employment for both boys and girls. A rise in adult female wage has the same effect except that it increases the employment of boys, and reduces school enrollment for both boys and girls. An explanation of this phenomenon is that girl's work and adult female work are substitutable, and as the adult females work more, girls leave school and paid employment and take over household chores while their brothers increase their time in the paid workforce.

2. Parental Power

Let us now take a closer look at the neoclassical assumptions and examine it in the context of third world reality. Solution (2.5) assumes that contributions of the household members are voluntary and the members have no individual “property rights” over their income within the family. All members contribute their incomes to the common family pot and a benevolent dictator makes the allocation. The original idea came from the economics of marriage: a family allocation must be Pareto superior for both the partners, or else the marriage itself could not have been a viable contract. But the economics of child labor has to be different from the economics of marriage. A child does not have a “threat point” that married partners have. A moment’s reflection will make it clear that since the working children do not have the freedom to opt out of the family contract, and since generally, the child can not “divorce” the parents, the question of parental power and parental coercion cannot be shoved under the rug for too long.

It is clear from the literature on child labor that parental power is pervasive. Children often work to pay off their parents’ debts incurred long time ago before the children themselves were born.¹⁹ If the child wage goes up, it is conceivable that additional wages may be used to pay off part of the debt; i.e., consumption of “A” will go up more than proportionately. The literature is full of anecdotes that describe predicament of the children who work to provide dowry for their siblings, to buy medicine for their ailing parents, or to pay for rituals that must be performed during births, marriages and deaths in the family.²⁰ These considerations suggest that in addition to Equation (2.4), the parents have *social command* over their child’s income.²¹ Just like a government, the household maximizes a pre-defined utility function and imposes optimal taxes and subsidies on the child’s income. The child does not have property rights over what he or she earns. The parents determine how much of the child’s income will be used for acquisition of the child’s human capital. This paper assumes that the parental power is manifested as an implicit intrahousehold transfer:

$$(W_c - R)L_c = P_c C, \quad (2.6)$$

19. “Bonded labor persists, in part, because of the considerable sums of money needed even by the poor to celebrate weddings and festivals or to repay government loans. Children become a commodity in this process. Parents have an absolute power over their children, which makes it possible for children to be pledged chattel-like to pay off debts.” - Fyfe (1989), p.76. Fyfe also agrees that the issue of parental power is a very sensitive and difficult area: “Parents can reduce their own work burdens through the use of their children’s work,” p.73.
20. In Iran boys of the poor parents enlist in the army to help their parents financially. If the children die, parents receive a cash sum and martyr’s card which give the parents the right to reduced prices for certain goods and priority in the labor market (Fyfe (1989), p.85).
21. Even in the Western countries there is evidence of parental power. In a study of late nineteenth century industrial families Parsons and Goldin (1989) found that nonaltruistic behavior by parents was pervasive. The same theme is echoed in macroeconomic literature dealing with government debt where the current parents’ generation are shown to be leaving a tax liability for today’s children (Kotlikoff and Gokhale (1994)). It is possible that the tremendous increase in schooling in the U.S. may be the result of advanced industrial technologies which had little use of child labor and may have nothing to do with parental altruism. Edwards (1978) shows that the U.S. compulsory schooling legislation was a consequence rather than the cause of a decline in child labor.

where R is the transfer of income from the child to the parent.²² Equations (2.4) and (2.6) can be combined to get

$$W_2 L_2 + R L_c = P_2 A, \quad (2.7)$$

which says that good A is purchased with the income of the adults, plus with the income of the children who must forego part of their income to buy goods for their parents. The household maximizes (2.1) with respect to A and C , subject to (2.2), (2.3), (2.4) and (2.6). This yields the optimal value of R .

$$R = [\alpha_2/\alpha_1](W_2 \phi'(A) mH - P_2)/\theta'(C)H. \quad (2.8)$$

Interestingly, the second order condition for a maximum can be utilized to show that, if a maximum exists, R must be a *negative* number!²³ In other words, from Equations (2.6) and (2.7) parents actually *subsidize* the children's goods and it supports the findings of the various case studies that show that a child's wage may be insufficient for self-sustenance. Notice also that a low $\theta'(C)$ will increase the resource transfer. The parent must rationally utilize the child's health. If the parent earns a low wage, it is better to subsidize C to maximize household utility. To see this more clearly, rewrite (2.8) as

$$\alpha_2/(-R\theta'(C)H) = \alpha_1/(P_2 - \phi'(A) mH). \quad (2.9)$$

The household's marginal utility of transfer of income from the parent to the child for a dollar's worth of child's efficiency unit must be equal to the marginal utility per dollar of net cost of A . In other words, the net benefit of the parental subsidy, on the margin, should equal the cost of the adult-good.

We can now investigate the effects of a child labor law on this household. Totally differentiating Equation (2.8) it can be shown $dC/dW_2 < 0$ when $(W_2 \theta'(C)H - P_2) > 0$. This means that in subsistence economies, child welfare may decline even with an increase in child wages when child health effects are strong ($\theta'(C)$ is large) and a parental transfer to the child exists. As child wage increases, the parents weigh the marginal benefit of purchasing an additional unit of A and the "cost" of purchasing more C to take advantage of higher child wages. The parents now have an incentive to buy more good A even if consumption

22. If the employer increases the child's safety in the workplace, this amounts to an increase in W_2 . Conceptually, it is easier if we convert workplace "safety" into an equivalent monetary value. It is assumed that the employers in the third world do not provide adequate safety to the working children simply because they do not want to increase their wages at the equilibrium level of efficiency.

23. The second order condition for a maximum requires that: $m > P_2 \theta''(C)/W_2 H(\phi'(A)\theta''(C) + (\alpha_2/\alpha_1)\phi''(A))$. It is therefore necessary to assume that m is sufficiently "large". A sufficient condition for a maximum is also obtained if we assume that $\theta''(C) \geq 0$, $\phi''(A) < 0$. This assumption is not too restrictive, because it is reasonable to assume that children may well exhibit nondecreasing returns to food and adults have decreasing returns to food. In either case R becomes a negative number.

of C reduces, because the *marginal value* of the child's efficiency unit, $W_c \theta'(C)H$, need not fall.

Proposition 1: If we assume that children have high health effects and receive a transfer from their parents, the theory above suggests that in general the effect of a lower child-wage on child health is ambiguous, but a child's health status (and consumption) may increase conditionally (when $W_c \theta'(C)H - P_c > 0$). This special case supports the popular belief that child labor is harmful and sanction may be an appropriate policy.

A policy that attempts to discourage child labor by imposing a penalty on the employees who hire children will effectively reduce the child's wage, but will also be costly to implement and will generate usual distortionary inefficiencies. Given that by Proposition 1 the policy also has uncertain effects on a child's health and safety, child labor sanctions can not be recommended as a general policy. The next section takes up the case of the child's education. This requires a two period model to allow for a gestation period of human capital formation in the form of schooling.

III. A Two Period Model

This section proposes a simple alternative model of child labor with two periods. While investment in health and safety may have fairly quick results, expenditure on education is necessarily a long term investment. The following model relaxes the assumption of efficiency wage and incorporates a household borrowing constraint. The wages are determined by human capital stock of each worker. The model is thus driven by parental choice of human capital investment in the child. The parents gain in the current period if the child works and does not go to school, but they lose in the next period (when the parents become seniors and retire and depend on child's income) as the child earns less with less human capital. Again, the model shows that sanctions increase the child's human capital only as a special case where severe borrowing constraints exist.

Suppose now that the child has a total time endowment of 1 and can spend this time at work or at school. Time spent in school increases human capital. Assume that the opportunity cost of going to school is child wages from work, but there is no other direct cost of schooling. The parent also has a time endowment of 1 which is spent entirely on work for wages, but the parent gets to decide the amount of human capital that the child should have.

As in the last section, the child-wage is given by W_c and the adult wage is W_a . These are now interpreted as wages adjusted for human capital. W_a is higher than W_c for three reasons. First, note that an adult automatically acquires a certain type of human capital (maturity, common sense, intelligence etc.) which is higher than that of a child. Market pays a premium for this human capital. Using the child's endowment of human capital as a benchmark, this maturity premium is written as δH where H is again the human capital endowment of the child ($\delta > 1$). Second, an adult may have acquired human capital when he or she was a child. Assume that human capital is a linear function of schooling and

let h denote hours of schooling. The wage premium of an adult with h units of schooling is thus hH . Finally, consider the effect of domestic child labor laws and international sanctions on the employers. These laws will make it harder and costlier for an employer to hire a child who must forego schooling to go to work, which effectively increases the market's valuation of schooling. There is thus an additional premium g , that the law or the social environment imposes on the market which is the third component of adult wages. Thus an adult's wage is given by:

$$W_a = (\delta + h + gh)HW_c. \quad (3.1)$$

If $g = 0$, it means that there are no child labor laws, as the adult workers receive only human capital adjusted wages $W_a = (\delta + h)HW_c$. National and international sanctions will increase the cost of hiring children, or equivalently will increase g .

Since everyone has one unit time endowment, from the discussion above it follows that if the child goes to school for h hours, and works for the rest of the time, the child's wage will be $(1-h)HW_c$. In the first period, assume that the parent has a historically determined human capital wH ($w > 1$), where $w = \delta^* + h^* + g^*h^*$ represents historical values of δ , h and g), thus the total family wage in the first period is $[(1-h)H + wH]W_c$.

Let A , C and S respectively denote consumption of the adults, the children, and the future consumption of current adults (seniors) who retire when their children become adults. As argued in the last section, a child does not have the decision making power, and the adult must determine the amount of human capital investment in the child. The adult essentially maximizes over two periods: for the current period as an adult and the future period as a senior. If β is a subjective discount factor, the aggregate consumption of the adult is given by²⁴

$$Z \equiv \ln A + \beta \ln S. \quad (3.2)$$

Assume also that a borrowing constraint exists and a family can not borrow more than B times its current income. Assuming that this constraint is binding²⁵:

$$C + A = B[(1-h)H + wH]W_c, \quad B \geq 1. \quad (3.3)$$

Next, consider the social environment where customarily the working child must transfer part of his or her income for the exclusive consumption of the parents. Let this ratio be ϕ . Similarly the parents must transfer a proportion q of their income for the exclusive consumption of the child. The net income transfer to the child is thus given by:

24. This is a special case of constant relative risk aversion of utility and is extensively used in the endogenous growth literature. See Romer (1996, p.72-75).

25. The idea and the implications of borrowing constraints are based on De Gregorio (1996).

$$R^* = q\omega HW_c - \beta(1-h)HW_c. \quad (3.4)$$

In a two period model, adults have a life time budget constraint given by:

$$A + [S/(1+r)] = \beta(1-h)HW_c + \beta[(\delta + h + g'h)HW_c/(1+r)] + (1-q)\omega HW_c, \quad (3.5)$$

where r is the rate of interest. In Equation (3.5) we have also assumed for simplicity that when the children grow up to be adults, they continue to give a proportion β of their income to their non-working parents (now seniors). Notice that this formulation is not substantively different from the last section. Since the parents have control over h , for given values of β and q , they can effectively change the transfer of lifetime income to or from the child. The variable h thus plays a role similar to R in the last section.

Turning now to the maximizing problem, the adults would maximize (3.2) with respect to h , A , and S subject to (3.3) and (3.5). This exercise yields the optimizing value of h

$$h = [(1+\omega)(B + \Omega(B + \beta\Omega)) - \beta - (\beta\delta/(1+r)) - (1-q)\omega] / [(B + \beta(B + \beta\Omega)) + \beta\Omega], \quad (3.6)$$

where $\Omega = (1+g)/(1+r) - 1 > 0$.²⁶

A child labor sanction effectively raises g . It can be shown that in general the sign of dh/dg is ambiguous. The sign of dh/dg is positive if and only if $\beta(1+\delta/(1+r)) + (1-q)\omega > (1+\omega)B$.

Proposition 2: Human rights sanctions may increase h in countries where there is a severe borrowing constraint (B is close to 1) and where parental social control over the child's income is high (β is high) and parental altruism is low (q is low).

Intuitively, this means that if the sanctions increase the market's valuation of schooling, the parents will increase the child's schooling, if a large part of the child's future wage belongs to the parents and if other borrowing opportunities are limited. *Since investment in h is a like saving to parents, a credit market restriction increases saving as in Modigliani-type life-cycle models.* Note that dh/dB is positive. This means that if an increase in the child's human capital is the objective, an increased opportunity for household borrowing turns out to be a more effective policy tool.

Do the parents still subsidize the children in this two period framework? From Equation (3.5) we find that a net transfer to the child exists if, $h > 1 - (q\omega/\beta)$. Since h increases with B , a net positive transfer to the child will always exist if B is sufficiently high. Note that if borrowing constraints are low, h can be increased by increasing B , which will also increase the transfer to the child.

26. This is the case when the constraint (3.3) is binding. See De Gregorio (1996).

Thus a policy that attempts to discourage child labor by imposing a penalty on employees who hire children with inadequate schooling will be costly to implement and will generate usual distortionary inefficiencies. Given that by proposition 2 this policy also has uncertain effects on child's education, it is again not possible to recommend child labor sanction as a general policy. A policy that removes credit market distortions (increases B) has more predictable effects: it increases λ unambiguously.

IV. Concluding Comments

The models in Section II and III show that both sides on the child labor debate should avoid making hasty generalizations. The neoclassical economists who ignore the role of parental power and selfishness may be wrong in assuming that a higher family income is always a "good" thing for the child. On the other hand, the sociologists, the legal scholars and the journalists who recommend a severe restriction on child labor should also realize that their recommendation can be justified only as a special case where parental power is pervasive in a credit constrained economy or where the health and safety effects are strong.

A rigorous test of the hypothesis of parental power and the consequent implications of child labor laws can only be carried out at the micro level where the effects of such laws on the child workers' health, education and general well-being need to be studied. Unfortunately, the data for such a test are not easily available. To measure the effects of sanctions it would be necessary to collect data on children's health proxies (weight-for-height, height-for-age, morbidity, etc.), and data on education proxies (school enrollments, time spent at school, etc.). These data need to be classified by *working status of the children*. In addition, we also need income and credit data for households directly affected by child labor laws. Micro level survey data are generally not available in this format.

Much needs to be done on the empirical side of the child labor issue. The theoretical results of this paper however point out that the issue of parental power and parent-child relationship should be an important area for future research in development economics.

References

- Basu, K., and P.H. Van, "The Economics of Child Labor," *American Economic Review*, Forthcoming.
- Becker, G., and Lewis (1973), "On the Interaction Between the Quantity and Quality of Children," *Journal of Political Economy*, 81(4), S279-288.
- Becker, G., and N. Tomes (1976), "Child Endowments and the Quantity and Quality of Children," *Journal of Political Economy*, 84, S143-162.
- Behrman, J.R. (1994), "Intra-family Distribution in Developing Countries," *The Pakistan Development Review*, 33(3), Autumn, 253-296.
- Behrman, J.R., R.A. Pollak, and P. Taubman (1995), *From Parent to Child: Intrahousehold Allocations and Intergenerational Relations in the United States*, Chicago: University of Chicago Press.
- Bequele A., and W.E. Myres (1995), *First Things First in Child Labor: Eliminating Work Detrimental to Children*, Geneva: UNICEF and ILO.
- Bhagwati, J. (1995), "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental and Labour Standards Issues," *The World Economy*, 18(6), November, 745-759.
- Burra, N. (1995), *Born to Work: Child Labour in India*, Delhi: Oxford University Press.
- De Gregorio, J. (1996), "Borrowing Constraints, Human Capital Accumulation, and Growth," *Journal of Monetary Economics*, 37, 49-71.
- Edwards, L.N. (1978), "An Empirical Analysis of Compulsory Schooling Legislation, 1940-1960," *The Journal of Law and Economics*, 21(1), April, 203-222.
- Ehrenberg, D. (1995), "The Labor Link: Applying the International Trading System to Enforce Violations of Forced and Child Labor," *Yale Journal of International Law*, 20, 361-417.
- Engle, P.L., and I. Nieves (1993), "Intra-Household Food Distribution Among Guatemalan Families in Supplementary Feeding Program; Behavior Patterns," *Social Science and Medicine*, 36, 1605-1612.
- Fyfe, A. (1989), *Child Labour*, Cambridge: Polity Press.
- Gronau, R. (1991), "The Intrafamily Allocation of Goods - How to Separate the Adult from the Child," *Journal of Labor Economics*, 9(3), 207-235.
- Hyndman, P. (1989), "The Exploitation of Child Workers in South and South-east Asia," in *Nordic Journal of International Law*, 58, 1989, 94-109.
- Kanbur, R., and C. Grootaert (1995), "Child Labour: An Economic Perspective," *International Labour Review*, 134(2), 187-203.
- Kelleher, J. (1994), "The Child Labor Deterrence Act: American Unilateralism and the GATT," *Minnesota Journal of Global Trade*, 3, Spring, 161-194.
- Kotlikoff, L.J., and J. Gokhale (1994), "Passing the Generational Buck," *The Public Interest*, 114, Winter, 73-81.
- Parsons, D.O., and C. Goldin (1989), "Parental Altruism and Self-Interest: Child Labor Among Late Nineteenth-Century American Families," *Economic Inquiry*, 27, October, 637-659.

- Pitt, M.M., and M.R. Rosenzweig (1990), "Estimating the Intrahousehold Incidence of Illness: Child Health and Gender-Inequality in the Allocation of Time," *International Economic Review*, 31(4), November, 969-989.
- Rodgers, G., and G. Standing (1981), eds., *Childwork, Poverty and Underdevelopment*, International Labor Office, Geneva: ILO.
- Romer, D. (1996), *Advanced Macroeconomics*, McGraw Hill Company.
- Rosenzweig, M.R. (1981), "Household and Non-household Activities of Youths: Issues of Modelling, Data and Estimation Strategies," in *Childwork, Poverty and Underdevelopment*, eds. by Rodgers, Gerry and Guy Standing.
- Rosenzweig, M.R., and T. Paul Schultz (1982), "Market Opportunities, Genetic Endowments, and Intrafamily Resource Distribution: Child Survival in Rural India," *American Economic Review*, 72(4), September, 803-815.
- Shah, R.M., and N. Cantwell (1985), eds., *Child Labor: Threat to Health and Development*, Geneva: Defence for Children International.
- US Department of Labor (1994), *Foreign Labor Trends: International Child Labor Study*, FLT 95-5.
- US Department of Labor (1995), *By The Sweat & Toil of Children: The Use of Child Labor in U.S. Agricultural Imports and Forced and Bonded Child Labor*, Bureau of International Labor Affairs.
- Weiner, M. (1991), *The Child and the State in India*, Princeton: Princeton Univ. Press.