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CHILD LABOR

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Abstract

Child labor exists because it is the best response people can find in intolerable circumstances. Poverty and child labor are mutually reinforcing: because their parents are poor, children must work and not attend school, and then grow up poor. Child labor has two important special features. First, when financial markets are imperfect, the separation in time between the immediate benefits and long-delayed costs of sending children to work lead to too much child labor. Second, the costs and benefits of child labor are borne by different people. Targeted subsidies for school attendance are very effective in reducing child labor because they successfully address both of these problems.

Keywords: child labor, human capital, household economics

JEL classification codes: J24, O15

1. Introduction

Child labor is an insidious evil. Leaving aside pathological cases of child abuse and abandonment, it exists because it is the best response people can come up with to intolerable circumstances. It is particularly dangerous because it involves the sacrifice of a child's future welfare in exchange for immediate benefit, and difficult to combat because it involves questions of agency and power within households.

The primary cost of child labor is the associated reduction in investment in the child's human capital, which occurs chiefly because child labor interferes with schooling. Not all work by children has this effect; I exclude such work from consideration in this essay and define child labor as the sacrifice of the future welfare of the child in exchange for additional current income. Although there are important challenges associated with empirically distinguishing child labor from the unproblematic light work that is an important component of rearing a child, we will see below that it is possible to design programs that specifically target child labor.

Many economists argue that child labor is a symptom of poverty and that its reduction can most effectively by accomplished through the alleviation of poverty. It is surely correct that child labor is a symptom of poverty: rarely do well-off parents sacrifice their children's education by sending them to work. However, child labor is also a cause of future poverty, so direct measures to move children from work into school can make an important contribution to poverty alleviation and to development in general.

In order to construct effective policies to address the problem of child labor, it is necessary to understand the circumstances that lead parents to send their children to work. That is the purpose of

this essay. I make no attempt to survey the economic literature on child labor; Basu (1999) already provides an excellent review.

In section 2, I briefly describe some of the main features of child labor in developing countries. Poverty and child labor are mutually reinforcing: because their parents are poor, children must work and therefore remain out of school. As a consequence, these children grow up to be poor as adults and the cycle continues. In section 3, I discuss the first of two features of child labor that give it a central place in a vicious cycle of poverty. This is the fact that the primary costs of child labor are realized so far in the future. When financial markets are poorly developed, the separation in time between the immediate benefits and long-delayed costs of sending children to work can result in too much child labor. The second feature is that the costs and benefits of child labor are not only separated in time; they are borne by different people. The agency problems that arise as a consequence are discussed in section 4. Finally, section 5 concludes with a discussion of the implications of the analysis for the design of policies to combat child labor.

2. Patterns of child labor

The ILO (2002) estimates that about 210 million children between the ages of 5 and 14 were working in 2000, about half of them working full-time. That implies that approximately ten percent of the world's children were working full-time. At the same time, UNESCO estimates that about one of every five primary school-aged children were not enrolled in school. The absolute numbers of children working are largest in Asia, but the incidence of child labor seems to be highest in Africa: the ILO estimates that about one-third of children are economically active in Africa, about one-sixth working

full-time.

Child labor is overwhelmingly a rural and agricultural phenomenon. For example, in Pakistan, 70% of working children are employed in agriculture (Pakistan FBS, 1996). Boys are more likely to work than girls, and older children are much more likely to be employed than their younger siblings (Grootaert and Patrinos,1999).

Our concern is with child labor that involves the sacrifice of future welfare of the child in exchange for a current benefit for the household. This is clearly the notion that motivates most of the policy concern over child labor, and lies behind the ILO convention No. 138. The benefits to the household of sending a child to work are the wages of that child (or, equivalently, the increased production on the family farm), and the reduced education expenditures from not sending her to school. The primary costs of child labor are the lower future earnings of the child when she enters the adult labor market with lower educational attainment. In addition, there is very strong evidence of important non-market returns to education in home production and child rearing. The sacrifice of these returns should also be counted as a cost of child labor. Finally, there are benefits to education and thus costs to child labor that extend beyond the immediate family. Educated co-workers may improve the productivity of everyone, and a well-educated populace provides a vital foundation for a vibrant society. These externalities should also be counted as part of the cost of child labor, but I will for the most part ignore them in this essay. The primary thrust of my argument is that there are reasons to expect child labor to be "too high" among poor families in developing countries, even ignoring the externalities associated with education. Taking them into account would only strength the argument.

There are certain well-established empirical regularities about child labor that should inform our

discussion. First, it is clear that child labor overwhelmingly reflects the poverty of the households in which the children live. Fallon and Tzannatos (1998) review a variety of studies that indicate a strongly negative relationship between the incidence of child labor and household income, but note that this relationship is less marked in more affluent developing countries. Ray (2000) finds a strong negative correlation between household income and child labor, and a positive relationship between household income and school enrollment in Pakistan, but no such relationship in Peru.

It is important to note that the strong empirical evidence that child labor declines and school enrollment increases with household income does not imply that increases in wages necessarily reduce child labor. Wages of adults and children tend to move together, and an increase in child wages induces a substitution effect that tends to increase the incidence of child labor. This substitution effect, if sufficiently strong, could outweigh the effect of increasing real income. For example, Kruger (2002) shows that child labor increases and school attendance decreases as coffee prices increase in Brazil. In contrast, Edmonds and Pavcnik (2002) show that in Vietnam, increases in rice prices were strongly associated with declines in child labor.

It is also clear that child labor has important detrimental effects on schooling attainment and thus on the future income of children. As already noted, not all work by children has this effect. Ideally, such benign work by children (occasional light work on the family farm, or limited household work) is excluded from data collection on child labor. An important question to resolve is the extent of work by children that does have the consequence of interfering with schooling and thus future earnings. How many of the ILO's 210 million working children are sacrificing their education? This is inherently a difficult question to answer, because child labor and school enrollment are chosen simultaneously,

complicating any causal interpretation of correlations that can be observed. However, the existing evidence is strong. For example, Psacharopoulos (1997) shows much lower educational attainment by children who work in Venezuela and Boliva. Using a very different methodology, Boozer and Suri (2001) find similar results for child labor and school attendance in Ghana.

Households that are very poor are much more likely to send their children to work, and child labor contributes to poverty in the next generation by reducing schooling attainment. This circular pattern of positive feedback between poverty and child labor may lead to a vicious cycle of poverty, in which the descendants of the poor remain poor because they were poorly educated. This cycle can be the foundation of a classical 'poverty trap'. However, if the cycle can be broken the same positive circular causation can contribute to a take-off into sustained growth. If schooling attainments can be improved, then the next generation's income is higher and their children can in turn become yet better educated. It is essential, therefore, to understand the specific mechanisms that can trap people in the awful equilibrium of persistent poverty, excessive child labor and low education over generations.

The crucial mechanisms are: first, an inability to seize advantageous long-run investments in children's human capital because of credit market constraints; and second, problems of agency within households. These two mechanisms operate simultaneously and can interact in important ways.

3. Imperfect financial markets, child labor and investment in human capital

I begin by abstracting from any problems associated with agency and assume that parents fully internalize the costs of sending their children to work. From the point of view of society, what is the appropriate level of child labor? Suppose, to start, that the costs of working and benefits of schooling

are entirely private, that is, they are limited to the increased productivity and therefore income of better-educated adults. This implies that we are ignoring the externalities for the rest of society of well-educated individuals. The costs of additional child labor are the lower wages that the child receives when she grows up less well-educated because she worked as a child. These costs are realized in the far future, so for cost-benefit analysis we calculate the present discounted value of these costs. For a given absolute cost, a higher interest rate implies a lower present discounted value of the cost. The benefit of child labor is the current wage earned by the child (and the reduced cost of schooling). These benefits are realized immediately, so no discounting is required.

From a social point of view, it is efficient to increase child labor and reduce schooling up to the point at which the present discounted value of future costs of additional child labor are just balanced by the current benefit to the household of that additional child labor. It need not be the case that the socially efficient level of child labor is zero; this will depend upon the productivity of child labor, the degree to which schooling improves future productivity, and the interest rate at which future earnings are discounted.

If financial markets operate smoothly and there are no issues of agency, this is precisely the calculus that will guide the decisions of parents as they make decisions regarding work and school for their children. Even if parents are poor, perfect credit markets permit them to borrow to finance the education their children, confident in their ability to repay the loan out of the increased earnings of their well-educated adult children. These private decisions will be socially optimal.

Obviously, if there are externalities associated with education, then these will not be fully taken into account by parents as they invest in their children's education and thus from a social point of view

the level of child labor will be too high, and the level of schooling too low. The existence of these externalities is an important element in the traditional argument for subsidization of education and public schooling.

Even if these externalities are unimportant, financial markets are not sufficiently well-developed to support the optimal calculus described in the first three paragraphs of this section. A parent who is unable to smoothly transfer income from the far future into the present by borrowing will choose too high a level of child labor. Consider a very simple example, in which the parent can borrow, but only at an interest rate that is higher than is relevant for social decision making. This would occur, for example, if the parent can only borrow from a monopolistic moneylender. At this higher interest rate, the present discounted value to the household of the future costs of child labor are lower than they are to society as a whole, and so the child works more and attains a lower level of schooling.

This reasoning holds *a fortiori* when the parents have no or only constrained access to credit. In this case the parents trade off the (far) future costs of child labor against the immediate benefit of child labor to the household, without the possibility of easing that trade-off by transferring resources from the future. If the household is too poor, the value of the immediate return from the child working trumps the future higher wages the child could earn if she stayed in school, and the child is sent to work.[1]

There is little doubt that inadequate access to financial markets is a barrier to investment in education and a force pushing the children of many poor households into the labor market. Some of

[1]Ranjan (1999, 2001) and Baland and Robinson (2000) provide superb and simple theoretical models of the relationship between imperfect financial markets and child labor.

the more persuasive evidence comes from a series of studies that document the sensitivity of both school attendance and child labor to purely transitory income shocks afflicting the household. To understand the importance of this evidence, consider a hypothetical household engaged in farming in a developing country. Like all farmers, this family is subject to random, transitory shocks that affect its income (think of shocks like a localized flood). An important consequence of well-developed financial markets is that this family's decisions regarding the education and labor force participation of its children would be entirely unaffected by the realization of such transitory shocks. The present discounted value of the future costs of child labor are unaffected by any temporary production shock. The immediate benefits are unaffected as well, as long the shock is sufficiently localized that the wage for child labor does not change.[2] Therefore, if this family has access to smoothly-operating credit markets, it will simply borrow (or dissave) to maintain its base level of consumption despite the adverse shock, and the schooling and child labor status of its children would remain unchanged.

This conclusion obviously no longer holds when the family cannot borrow and does not hold savings over the long term. Now, faced with an adverse transitory shock, a poor household is forced into a stark choice: maintain the schooling enrollment of the children and face a decline in an already inadequate level of consumption, or try and protect the family's current living standard by relying on increased child labor. Jacoby and Skoufias (1997) find that school attendance drops among the children of households facing transitory income shocks in a sample of Indian farm households. Beegle,

[2]When the wage *does* change, the substitution effect might dominate the income effect and child labor might decrease. Boozer and Suri (2002) show that agricultural shocks which decrease the productivity of labor are associated with declines in child labor and increases in school attendance in Ghana.

Dehejia and Gatti (2002) find that children work more in Tanzanian households which are subject to temporary adverse income shocks, and that this sensitivity is greater for poorer households with fewer assets that can serve as collateral.

Edmonds (2002) shows that there is a dramatic decline in child labor and an increase in school attendance when a member of the household becomes eligible for the sizable South African government-funded cash pension. This is particularly striking evidence, because Edmonds compares children in households which contain someone who will begin receiving the pension in a few years with children in households with a member who is now receiving the pension. It is only upon the actual receipt of the pension that the children are withdrawn from the labor force and school attendance improves. Credit markets are sufficiently imperfect that the near future resources associated with the receipt of the pension are not transferred to the present to permit higher current investment in the education of the household's children.

Child labor can be seen as the draconian choice made by poor households faced with severely limited options. Even if the parents are fully altruistic towards their children, in the sense that they treat the future costs to the children of current child labor symmetrically with current benefits to the household, poorly-functioning financial markets can induce too much child labor and too little schooling. The benefits of child labor are realized immediately. Without access to credit markets, poor households may find it too difficult to sacrifice these immediate benefits to reduce the far future costs associated with child labor. It bears emphasizing that this is not a consequence of impatience or an unwillingness on the part of poor households to plan for the future, rather it is a reflection of poverty and inadequate access to capital markets.

4. Agency

Decisions regarding child labor and schooling are generally made by parents. This raises issues of agency, because decisions are being made by individuals who do not necessarily themselves experience the full implications of these decisions. Even if parents are altruistic towards their children – and surely this is the case for the vast majority of families – issues of bargaining and negotiation within households, and the difficulty of making commitments that bind over generations may make it difficult to achieve optimally low levels of child labor.

First, consider a case in which agency causes no deviation from the socially efficient levels of child labor and schooling, in the spirit of the classic 'rotten kid' theorem of Becker (1974). Suppose that the parent feels altruistic towards the child, in the sense that the parent's welfare increases when the child's welfare increases, and that the parent has access to perfect financial markets. In addition, suppose that the parent expects to leave a positive bequest to the child. In this case, the parent will choose to set the level of child labor to the socially optimum level, as described in section 3. The argument is quite simple: the parent would like to help the child achieve a particular level of welfare, and the parent has two instruments available to do so: the parent chooses the amount of child labor (and thus determines the level of schooling for the child), and the parent can give the child a bequest. The parent will choose the minimal cost means of achieving any given level of child welfare; to do otherwise would waste resources that could be used to achieve higher welfare for the child, the parent, or both. If the parent chose a level of child labor greater than is socially optimal, he would be wasting resources. He could reduce child labor a bit, reduce the future bequest left to the child to compensate, and have money left over to increase everyone's welfare. Therefore, a parent who cares about the welfare of his

child *and* who plans to leave a positive bequest to that child would ensure that the child's labor force participation matches the socially efficient level.

However, suppose that the parent plans to leave no bequest. This is mostly likely to occur in a poor family, most particularly in a family in which the parent's generation is especially poor relative to future generations. Child labor in this circumstance will be inefficiently high and schooling attainment too low, because once bequests have been reduced to zero this is the only instrument available to the parents to transfer resources from the next generation to support current welfare (Baland and Robinson (2000)). A potential way to reduce child labor would be for the parent to borrow to finance current consumption, with the child committing herself to pay back the loan from her future higher earnings. However, such intergenerational contracts are not enforceable.

Therefore, even when financial markets operate perfectly smoothly and parents are altruistic towards their children, agency problems can induce too much child labor and too little investment in education. The source of the problem is that poor parents who plan to leave no bequest to their children use child labor to support the current consumption of the household.

Agency problems become even more salient when they occur in the typical environment of imperfect financial markets. If the household cannot borrow (and does not plan to save), then decisions regarding child labor and educational investments cannot be made by balancing the current financial gain and discounted future financial cost of child labor. Instead, decisions are made by balancing *subjective* welfare costs and benefits. Parents balance the benefit in terms of current welfare of increasing child labor (and reducing schooling) against the current subjective cost of the child's future reduced welfare.

The immediate question, of course, is *whose* subjective welfare determines the child's

education and labor force participation? The two parents might hold divergent views about these costs and benefits. In fact, there is mounting evidence that this is so, and that these divergent opinions can have important effects on child welfare.

Until fairly recently, economists have ignored issues of agency within households, relying on what has come to be called the "unitary household model". This model assumes that the choices made in households can be treated as if they were made by a single individual. There was never much of a theoretical justification for this assumption; it was made for convenience, driven by the fact that empirical data (particularly data on consumption) tends to come in household-sized chunks.

An important implication of the unitary household model is that income is pooled. Whether extra income comes from the husband or the wife is irrelevant for decisions regarding expenditure or investment in children, it's all just extra income for the household. When this implication is examined using data, it is almost universally rejected. For example, Duflo (2000) finds that the nutrition of girls is dramatically improved when their grandmothers receive old-age pensions in South Africa, but is entirely unaffected when the pension is received by their grandfathers. This and much additional evidence implies that the unitary household model is an inappropriate building block for thinking about decisions within the household regarding investment in their children. Parents may have divergent preferences regarding such investments, so that shifts in bargaining power within the household could have important effects on child labor.

Economists are far from a general understanding of intrahousehold bargaining processes. In fact, the dominant successor model to the unitary household model is deliberately agnostic regarding

these negotiations, assuming only that the household efficiently uses all the resources available to it.[3] However, some general patterns have emerged from a fairly lengthy sequence of empirical studies. In particular, researchers have found that extra income in the hands of mothers is associated with higher levels of investment in child human capital (see Haddad, Hoddinott and Alderman, 1997).

5. Lessons for policies that can move children from work to school

Child labor should be understood as the consequence of people coping with extreme circumstances. It is a result of current poverty, and a cause of continued poverty for the children who sacrifice their education in order to work. It is a particularly insidious problem because its primary costs are long-delayed and realized by the child, while the benefits are immediate and directly affect decision-makers within the household.

We know that the ultimate instrument for the elimination of excess child labor is the alleviation of poverty. The evidence is indisputable: child labor as a mass phenomenon disappears when the population moves out of poverty. While this is a sure solution, we're not willing to wait.

The obvious response is an outright ban of the practice of child labor. The first difficulty is that it is by no means clear that developing country governments have tools available to enforce such a ban. The task would be extremely difficult, because most child labor is in agriculture, much of it on family farms. Where bans have been imposed, it is not clear that they have been effective. Moehling (1999)

[3]This is the collective household model, as in Chiappori (1988). Even this minimal assumption is somewhat controversial. I found evidence against it in Burkina Faso (Udry, 1996) and, with Duflo, in Côte d'Ivoire(Duflo and Udry, 2000).

shows that there is little evidence that child labor laws contributed to the dramatic decline in child labor in the 19th century United States. This decline was driven instead by changes in technology, immigration and the rise in the real wage.

Even if governments could effectively ban child labor, the consequences could be dire for those poor households (and their children) who are resorting to child labor out of desperation. These children are working to help the household make ends meet. An effective ban on child labor would make these households and these children worse off. Therefore any legal restrictions on child labor in developing countries should be focused on the most odious of forms of child labor, including working under hazardous conditions or as bonded laborers.

A closely related issue is developed-country trade policy. Many have argued for an international labor standards policy that requires the elimination of child labor for access to developed country markets.[4] In some cases, this argument is simply a smoke-screen providing cover for standard-issue protectionism. However, it is often motivated by a genuine concern for the welfare of children in developing countries. If this is indeed the motivation, the implementation of trade sanctions to enforce an international standard against the use of child labor is likely to have perverse consequences. Except in unusual cases, which are discussed in Basu (1999, section 8), sanctions would make the families of child workers worse off. Effective sanctions will generally have the effect of lowering the wage of child workers. Those who remain in the labor force are worse off because they are paid less, while the families of those who stop working are worse off if child labor is a means of

[4]Brown (2000) provides a very useful review of the large literature on this topic.

coping with desperate poverty. Trade sanctions are a particularly inappropriate tool for dealing with the challenge of child labor.

In fact, there is some evidence that successful engagement in world markets may be an effective instrument for reducing child labor. At the beginning of the 1990's, about 80 percent of child labor in Vietnam was in agriculture. As Vietnam eliminated barriers to trade in rice over the 1990s, the domestic rice price rose by almost one-third, thus improving the living standards of much of the farming population. Edmonds and Pavcnik (2002) show that these increased prices are associated with strong declines in child labor. Child labor declined by approximately a third over the period; Edmonds and Pavcnik attribute half of the decline to the rise in rice prices. In the right circumstances, trade can be a powerful positive force.

We have seen that dysfunctional financial markets are an important cause of child labor. Child labor would be dramatically reduced if parents could finance their children's exit from the labor force and entry into schooling from the increased future earnings of the child. Unfortunately, extremely well-functioning credit markets are required to make this kind of transaction feasible. The lag between the investment in child education and the return to that investment in the adult labor market is measured in decades, not months. There is little immediate prospect for improvements in financial markets accessible to the poor in developing countries of the order of magnitude required for such long term transactions.

How, then, to reduce child labor?

The most effective way to draw children out of damaging work is to encourage school attendance. One way of doing so would be to improve school quality, and therefore increase the gain

to attending school. Handa (2002), for example, argues that school enrollment in Mozambique is quite sensitive to the number of trained teachers. This is an important tool that is available to reduce child labor. However, it has the significant disadvantage of influencing outcomes in the distant future, when the higher quality of schooling leads to higher wages as an adult. The influence of these changes in future outcomes on current decisions regarding work and schooling is scaled down by credit constraints and agency problems.

The most promising tool yet developed for reducing child labor is a targeted subsidy to families sending their children to school. In such a program, a grant is provided to the family of any child who is enrolled in school. The particular value of this intervention is that it addresses the root causes of child labor. It overcomes the problems associated with imperfect or nonexistent financial markets by balancing the current cost of moving a child out of the labor force and into school with a current grant. It addresses the main agency problem by providing current resources, thus reducing the importance of intergenerational transfers. For *a priori* reasons, then, we can expect subsidies for school enrollment to be a useful tool in the effort to reduce child labor.

The flagship program of this type is the innovative Progressa poverty program in Mexico (the name of the program has recently been changed to 'Opportunidades'). Progressa provides mothers of enrolled students in rural Mexico with grants that have a value slightly less than the wage that would be earned by the child were she working full-time. With remarkable foresight, the Progressa program was introduced (in 1998) in a randomized sequence. This randomization, combined with systematic data collection, makes it possible to measure with great confidence the impact of the program on both school enrollment and child labor force participation. Schultz (2001) estimates that the program has

resulted in an increase in schooling of about two-thirds of a year (off a baseline attainment of 6.8 years), and that child labor correspondingly falls. The most dramatic effects are for secondary school girls, whose broad labor force participation is estimated to drop by almost fifty percentage points upon enrollment in school.[5]

The Food-For-Education program in rural Bangladesh is similar in spirit to the Mexican Progressa program. The monthly payment is smaller; 15 to 25 percent of average monthly earnings for working children. Nevetheless, Ravallion and Wodon (1999) estimate that the FFE program moved primary school enrollment from approximately 75% to over 90%. Child labor force participation dropped as well (by about 30% for boys and by about 20% for girls).

Child labor can effectively be reduced by subsidies for school enrollment. This tool dominates alternatives because it addresses directly the tragic circumstances that impel families to send their children to work instead of school. An effective subsidy program is not unreasonably expensive because the costs are tied to the low wages earned by child workers. Therefore, while more careful cost-benefit analyses should be completed on an urgent basis, the expansion of targeted education subsidies into areas of developing countries with high rates of child labor force participation is an extremely promising strategy.

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[5]Preliminary cost-benefit analysis of the Progressa program by Schultz (2001) indicates a real rate of return of approximately 8%. The costs of the program are relatively easy to measure; Schultz limits the benefit calculation to the private market return to education. If there are important externalities or non-market returns to schooling, this is an underestimate.

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