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Child Labor in the Global Economy

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Popular opinion in high-income countries often seems to hold that child labor in developing countries is nearly always a form of child abuse, in which children work in hazardous conditions in run-down factories for callous businesses. There have been recent attempts to combat child labor by lowering employment opportunities for children through harmonized international child labor standards and by consumer boycotts of products produced by child laborers. The U. S. Congress has repeatedly considered legislation that would prohibit imports into the United States of all products made with child labor. Under threat of such sanctions, export oriented garment factories in Bangladesh released more that 10,000 child workers under the age of 14 in the mid-1990s. More recently, the U. S. House of Representatives has deliberated the "Child Labor Elimination Act" that would impose general trade sanctions, deny all financial assistance, and mandate U. S. opposition to multilateral credits to 62 developing countries with a high incidence of child labor. This threat is implicit in a 2002 act of the U. S. Congress that mandated a study by the Department of Labor's Bureau of International Labor Affairs about the relationship between military and education spending in countries with a high incidence of child labor.

But in fact, the broad term “child labor” covers a considerable diversity between and within countries in the types of activities in which children participate. Fortunately, abhorrent images of children chained in factories or forced into prostitution stand out for their relative rarity. Most working children are at home, helping their family by assisting in the family business or farm and with domestic work. This paper begins by quantifying the extent and main characteristics of child labor. It then considers the evidence on a range of issues about child labor. Fundamentally, child labor is a symptom of poverty. Low income and poor institutions are driving forces behind the prevalence of child labor worldwide. As a result, some economic events or policies can have ambiguous effects on child labor; for example, a country that experiences an increase in labor demand, perhaps because of globalization, may experience

greater demand for both adult and child labor. However, the greater demand for adult labor can raise family incomes in a way that tends to reduce child labor. The final section assesses the policy options to reduce worldwide child labor. While some children work in circumstances so hideous as to command immediate attention, development is the best overall cure for child labor. However, historical growth rates suggest that reducing child labor through improvements in living standards alone will take time. If a more rapid reduction in the general incidence of child labor is a policy goal, improving educational systems and providing financial incentives to poor families to send children to school may be more palpable solutions to the child labor problem than punitive measures designed to prevent children from earning income.

What is Child Labor?

Estimating the number of children working around the world is a difficult task. Most working children live in low-income countries. These countries often lack reliable data on many aspects of their labor market. Even more difficult, some policy-makers have until recently defined "child labor" as economic activities that are deleterious to the well-being of children. There are some situations where it is hard to imagine how an activity could not be harmful to the child (forced prostitution, child soldiers), but as we will discuss, these activities are very rare. Most working children participate in activities that can be harmful or beneficial for the child, depending on the circumstances of the activity, and ultimately, the impact of child labor on the well-being of the child depends on the counterfactual of what the child would be doing in the absence of work.

Thus, rather than assuming that all child labor is by definition harmful to children, it is more useful to define child labor as including *all aspects* of child work, and then study the effects of that work. Recent policy documents have taken this broad approach, often identifying

certain occupations such as prostitution, stone quarrying, and rag picking as "hazardous" or "exploitive" and monitoring them separately.[1] Article 4 of International Labor Convention 182 on the worst forms of child labor establishes this precedent by encouraging countries to decide for themselves what specific activities need to be tracked and targeted independently for policy while allowing for a more general definition of child labor.

Survey Evidence on Child Labor

The ILO's Statistical Information and Monitoring Program on Child Labor (SIMPOC) most recently estimated that 211 million children or 18 percent of children 5-14 are economically active worldwide (ILO, 2002). A child is defined as economically active if he or she works for wages (cash or in-kind), works in the family farm in the production and processing of primary products, works in family enterprises that are making primary products for the market, barter, or own consumption, or is unemployed and looking for these types of work. The academic literature also uses the phrase "market work" to refer to these activities (with the exception of unemployment).[2] The estimated 211 million economically active children correspond to 18 percent of the world's population of 5-14 year olds. 60 percent of these working children are in Asia, and 52 percent are boys. While 23 percent of economically active children are believed to be in Sub-Saharan Africa, participation rates are highest there with an estimated 30 percent of

[1] One exception to this standard is the ILO's (2002) global counts estimates which define an economically active child as a child laborer if she is under 12 and economically active for 1 or more hours per week, 12-14 and working more than 14 hours per week or 1 or more hour per week in activities that are "hazardous by nature or circumstance," and if she is 15-17 and works in "unconditional work forms of child labor" (trafficked children, children in bondage or forced labor, armed conflict, prostitution, pornography, illicit activities).

[2] Cross-country estimates of economic activity rates are also available from the International Labor Organization's LABORSTA database http://laborsta.ilo.org/. In theory, the labor force in this data includes all wage workers, employers, own-account workers, members of producer cooperatives, unpaid family workers, apprentices, members of the armed forces, and the unemployed. These LABORSTA estimates of economic activity rates are generally believed to understate the extent of economic activity, because data on work inside the household (even market work) are often not collected. Moreover, although the LABORSTA data are available over time, very few low-income countries have multiple data sources on child labor over time. Much of the intertemporal variation in child labor in the LABORSTA data is thus driven by the imputations and adjustments done for LABORSTA rather than independent observations on child labor. As a result, we do not view the LABORSTA data as useful for analyzing changes in child labor over time.

children 5-14 working. Most economically active children are in low-income countries, but SIMPOC estimates that 4 percent of children are working in transition economies and 2 percent work in what it terms "developed" economies.

These SIMPOC counts are based wherever possible on existing household based survey data. These data are typically collected in three different types of surveys. Labor force surveys, especially child labor force surveys often assisted by SIMPOC, collect detailed information on the different types of work in which children participate. However, they usually do not provide information about time in school and studying, or other aspects of the household. Multi-purpose household surveys often offer greater details about the child's family environment at the expense of sample size and detail about the activities performed by children. Population censuses typically offer little detail about the activities of children and the activities of the family, but their large sample sizes are useful for identifying smaller population groups.

These data sources are increasingly becoming available to researchers and hold considerable promise for improving our understanding of why and how children work.[3] However, the data are in general frustratingly incomplete. Information on the domestic activities of children is unusual, and detailed data on time in school and time studying is generally not available. Moreover, a high fraction of children report neither attending school nor working in market or domestic work, and these so-called "idle" children are not well understood. Thus, in the available data, it is very hard to establish what children would do in the absence of participation in a particular type of work, and therefore very difficult to evaluate the consequences of work for children.

[3] The Understanding Children's Work Project at <http://www.ucw-project.org> maintains a searchable database of datasets with basic child labor information. Many datasets with detailed child labor questions are publicly available. Several SIMPOC child labor surveys are available in English at <http://www.ilo.org/public/english/standards/ipec/simpoc/microdata/index.htm>. Multi-purpose household surveys conducted under the Living Standards Measurement Surveys of the World Bank are available at <http://www.worldbank.org/lsms/>. Other household survey projects with child labor information such as the most recent Indonesian Family Life Survey available at <http://www.rand.org/labor/FLS/IFLS/> and UNICEF's Multiple Indicator Cluster Surveys (MICS) available at <http://www.childinfo.org/MICS2/MICSDataSet.htm> are freely available.

Who Employs Children?

Contrary to popular perception in high income countries, most working children are employed by their parents rather than in manufacturing establishments or other forms of wage employment. In 2000 and 2001, UNICEF coordinated detailed household surveys with virtually identical questionnaires in 36 low income countries as a part of UNICEF's End of Decade Assessment. Table 1 tabulates participation rates in market work and domestic work for 124 million children from these 36 countries. Of the 25 percent of children ages 5-14 that participates in market work, few work outside of their own household. Less than 3 percent of children age 5-14 work outside of their household for pay, and this work for pay is actually more common in rural settings than in urban centers where manufacturing is generally located. In addition, 6 percent of children participate in unpaid work for someone outside of the child's household. We suspect that most of these children are involved in unpaid labor exchanges where neighboring families help one another in their business or farm, but these unpaid workers may also be children who are paid in-kind with meals or food (the questionnaire is unclear), or the work relationship may involve apprenticeships, children fostered out (that is, receiving food and board with another family in exchange for work), children held in bondage (that is, where the child's family has received a cash payment or bond that the child must work off), and children who work in their school. The minimal incidence of wage employment in these UNICEF surveys concords with other datasets from countries as diverse as India, Nepal, South Africa, and Vietnam, where it is unusual to find more than 3 percent of children 5-14 working outside of the household for pay. Even in urban Bangladesh, where much attention has been paid to child labor in the garment industry, a 2002 child labor survey found only 1.2 percent of children 5-14 working as paid employees. In contrast, 20.8 percent of children 5-14 in countries surveyed by UNICEF work in their family business or farm. Participation rates in this category are highest in rural areas, but 14.8 percent of urban children 5-14 work in a family business or farm.

Most economically active adults in low income countries work in agriculture (FAO 2004). Most children work side by side with their parents. Thus, most economically active children are employed in agriculture. Consider the findings of a particularly well regarded and detailed labor force survey conducted in Nepal in 1999 (Central Bureau of Statistics 2000). 85 percent of economically active children are in agriculture in Nepal. The domestic service industry is the next largest employer, with roughly 10 percent of economically active children, while manufacturing accounts for only about 1 percent of economically active children. Although we are not aware of any global estimates of the distribution of working children by industry, agriculture is the dominant sector of employment in nearly every example that the authors have encountered. For example: in Cambodia , 73 percent of economically active children are in agriculture in 2001; Ethiopia, 89 percent in 2001; Guatemala, 63 percent in 2000; Kenya, 77 percent in 1998; Morocco, 84 percent in 2000; Pakistan, 67 percent in 1996; Vietnam 92 percent in 1998; and Yemen, 92 percent in 1998.[4] Children perform a variety of tasks in agriculture. At young ages, they can be effective in caring for animals and in tasks such as weeding that do not require a developed physical stature.

The help children offer their families is not limited to market work - a majority of children also performs domestic duties within their own household. Table 1 suggests that almost 65 percent of children age 5-14 report working in domestic work. Altogether, then, 68 percent of children 5-14 report working in either market work or domestic work. The participation rates are especially high among older children age 10-14, girls, and children in rural areas. Children, particularly older ones, devote substantial time to work. 32 percent of children 10-14 report working 20 or more hours per week; over 10 percent working more than 40 hours per week. Girls are more likely to work long hours than are boys (largely because of the additional

[4] The only exception that we are aware of is that a 2000 Department of Labor study claims that only 39 percent of economically active children 10-14 in Indonesia work in agriculture in 1993.

domestic work performed by girls in most cultures), and the prevalence of all types of work, including over 40 hours per week, is higher in rural areas than in urban areas.

It has been sometimes argued that for a child to work outside of the household is fundamentally different and likely to be more hazardous than when a child works inside the household – especially when the work is domestic in nature. This is not obvious as work outside of the household is typically more visible. Moreover, a number of researchers have emphasized that a decision to exclude domestic duties in the analysis of child labor can be misleading. Consider the example of the average 14-year-old girl living in rural Nepal. She works about 35 hours per week. She spends 19 hours of that time in market work, largely in agriculture for her family, and 9 hours helping her family with domestic work including cooking, cleaning, caretaking, shopping, and minor repairs on home items. She does not work for pay. Her remaining work time is divided among an array of activities, but gathering firewood and collecting water are two of her more time- and physically-intensive obligations. Her domestic duties create time tradeoffs that are very similar to her time spent working in agriculture for her family.

Indeed, there is often a substitution pattern between market and domestic work; for example, if a parent leaves the household to work for a local employer, a child may take over many household roles like collecting wood and water, tending to animals, preparing foods and meals, or caring for family members. This substitution pattern between hours worked in market and domestic work is, for example, evident in the data in Vietnam and Nepal for children working extreme hours in either category of work (Edmonds 2003). In addition, for most children who do not work extreme hours in either market or domestic work, hours in each type of work are positively correlated (the correlation coefficient is 0. 2 in both the Nepal and Vietnam data). Moreover, domestic work is at least as likely as market work to trade off with schooling as shown by evidence from Egypt (Assaad et al, 2003), Mexico (Levison et al, 2001), and Peru

(Levison and Moe, 1998), and as discussed in the next section. Thus, any analysis of child labor should consider work outside of the child's household, work inside of the child's household in market work, and domestic work. Unfortunately, few surveys collect data on domestic work, so in practice it is often neglected by official statistics and econometric studies.

Allocating Time between Work and School

Many working children attend school and the average hours worked by a typical child worker are not necessarily incompatible with schooling. Table 2 shows how total hours of work are related to different types of work and to school attendance using the same UNICEF data as Table 1. Children are grouped into rows based on whether they participate in indicated activities. Thus, the first row contains average total hours worked in the last week for children that participate in market work. Children that participate in market work devote on average 26 hours per week to work. Children that work in the family farm/business or work outside the household in unpaid market work tend to work similar hours (27 hours per week on average). Working outside the household for wages is associated with slightly more total hours worked for older children. Children working in domestic work also spend considerable time working, at 16 hours per week. The fact that total hours worked for children active in domestic work is lower than for children active in market work should not lead one to conclude that domestic work is insignificant. On average, a majority of the total hours worked by children active in market work is actually time spent in domestic work. Overall, a working child devotes on average 16 hours per week to working, but working children that are older, female, or live in rural areas work on average longer hours.

Though time devoted to work is considerable, it is not necessarily incompatible with schooling attendance. Reported school attendance rates in this UNICEF data only drop below 50 percent on average for children working more than 40 hours per week. However, children who

attend school, spend less time working than children who do not attend school. 73 percent of children who attend school work. The bottom two rows show that children who attend school work 10.7 hours per week on average, below the average 11.6 hours worked by children 5-14 that do not attend school. Differences in hours worked are especially pronounced among older children ages 10-14, with older children who do not attend school working almost 10 hours more than those in school.

In fact, most children that work attend school. The top part of table 3 reports school attendance for children 5-14 in the UNICEF surveys. Overall, almost 70 percent of children ages 5-14 attend school and attendance rates are particularly high for older children, boys, and children in urban areas. School attendance varies by work status. The middle part of table 3 reports school attendance conditional on work status. Almost 74 percent of working children 5-14 attend school. Children that do not work are actually about 14 percentage points less likely to attend school, but this mostly reflects lower school attendance among younger non-working children. Among older children 10-14, school attendance is slightly lower for the group that works.

What do 30 percent of children 5-14 that do not attend school do? The bottom part of table 3 summarizes participation rates of children that do not attend school in various activities. Less than 5 percent of these children participate in market work alone. Participation in domestic work without schooling or market work is much more common - 32 percent of children 5-14 that do not attend school participate in domestic work alone. Thus ignoring domestic work within the child's own household will cause researchers to miss one of the largest segments of children that do not attend school. Interestingly, almost 42 percent of the children that do not attend school also do not work. These so called “idle” children are predominately younger. They may largely be children too young to start school or work, but little is known about how their apparent idle status should be considered.

Even though most working children attend school, there may still be substantive consequences of work for schooling attainment. Time spent working takes away from study, play, and sleep and might undermine the effectiveness of the classroom for child workers that attend school. That said, it is at least possible that some working children may also be learning valuable skills, accumulating experience, bringing in resources, establishing independence, supporting their family, paying for their schooling, developing a sense of effectiveness, and enhancing their self-confidence – even if such effects are potentially difficult to capture in the data. Overall, though, deciphering whether work impacts schooling attendance, performance, or attainment depends on knowing what children would do if they were not working, and this is a major challenge for research.

Several studies have documented a negative correlation between working and grade advancement, years of completed education, and test scores (Orazem and Gunnarsson, 2004; Psacharopoulos, 1997). For example, with data from 12 Latin American countries, Orazem and Gunnarsson (2004) find that third and fourth graders who attend school but never work in market or domestic work perform 28 percent better on mathematics tests and 19 percent better on language tests than children who attend school and work. However, the negative correlations might reflect that low performing students tend to engage in work rather than that work creates low performing students. Studies such as Boozer and Sari (2001) and Beegle et al (2004) that try to address the endogeneity of child labor also find a negative association between child labor and educational attainment. For example, Beegle et al (2004) examine the status of young adults in Vietnam five years after they are observed working and attending school. They find that a one standard deviation increase in hours worked for children attending school is associated with a 35 percent decrease in educational attainment 5 years later. Hence, even though most working children attend school, work may still have substantive consequences for schooling attainment.

Hazardous forms of child labor

The patterns of child labor described above come from large-scale household surveys. The advantage of these surveys is that they are randomized so that it is possible to use them for inference about the scope of child labor in a country. However, some relatively rare forms of child labor are difficult to identify in household surveys. For these difficult to monitor forms of child labor, the ILO and interested organizations conduct specialized surveys that interview only those individuals engaged in the activity. It is a challenge to use these surveys to understand why children are engaged in relatively rare activities, but they are useful for estimating the incidence of some of the most hazardous forms of child labor.

The ILO's SIMPOC estimates that a total of 8.4 million children are involved in child trafficking, in forced or bonded labor, are soldiers, are prostitutes or involved in pornography, or participate in illicit activities (ILO, 2002). 68 percent of these children are in bonded or forced labor. The reasons why children participate in hazardous forms of child labor have been given ample theoretical consideration, but systematic empirical evidence is scarce. An open research question is whether the determinants of participation in these hazardous activities that are universally condemned differ from the forces that drive young children to work on their family farm or in domestic duties.

It is also important to remember that children can face hazards in the most common kinds of labor, too. Especially as children get older, they become active in all aspects of agriculture, and it is not unusual to see reports of injuries in operating farm machinery in child labor surveys. The self-reported injury rate from child labor surveys of children working in agriculture is actually higher, at 12 percent, than 9 percent level in manufacturing (Ashagrie, 1997). Agriculture can also be hazardous for children because of exposure to dangerous chemicals such as chemical herbicides or pesticides, exposure to heat or weather, repetitive work injuries, and threats posed by animals, reptiles, insects, parasites, and some plants. Recent research has

emphasized not only the physical threats of child labor (O'Donnell, Doorslaer, and Rosati, 2004), but also the psychosocial consequences for children of especially hard work (Woodhead, 2004).

Obviously, there is considerable scope for improvement in the basic data on the extent and circumstances of child labor. What is clear is that most working children are at home, helping their family in the family business or farm and with domestic work. The question of when child labor merits separate policy attention is still largely unresolved. However, one fundamental fact about child labor that emerges from the research discussed in the next section is that when families improve their economic status so that they no longer need children to work, they are quick to move children out of work. This observation, more than anything else, emphasizes the general undesirability of the high levels of child labor around the world today and the need to consider child labor in the formulation of development policy.

Economic Conditions and Policies that affect Child Labor

Since the seminal work of T.W. Schultz (1960), economists generally consider child labor in the context of the family's welfare optimization problem. Families take into account their valuation of child time in its various possible uses and allocate it accordingly. Thus, factors that raise the relative return to schooling may discourage child labor while increases in the child's wages or the family's valuation of the child's wages may encourage it. While one often sees assertions that child labor is solely determined by cultural norms, the vast literature on how child labor responds to changes in the child's economic environment suggests otherwise. Norms and traditions certainly play a role. For example, decisions about how to allocate child time are often made by a parent. This gives rise to an agency problem, because the parent may not fully internalize all of the returns or benefits of how child time is allocated. Norms will influence the extent of the agency problem. For instance, in cultures where girls depart the family but boys

stay and support the parents, the parent perceives a greater return to investing in the boy. This in turn makes investment in boys more profitable, and girls accordingly may work more. However, even with these norms, a vast body of research suggests that various aspects of poverty are of primal importance in understanding why children work.

Evidence on three facets of poverty is particularly compelling. First, child labor seems to decline dramatically with improvements in household living standards. Some of the evidence from household responses to trade liberalization is particularly interesting here. Despite rising employment opportunities for children, we observe declines in child labor as family incomes rise with trade. Second, child labor seems to be highly responsive to unexpected changes in the family's economic environment. Difficulty in transferring income over time (through saving or borrowing) is a common correlate of poverty, and research from several countries suggests that credit constraints and financial market imperfections increase the number of children who have to work. Third, poor local institutions such as ineffective or expensive schools associated with poverty may leave children with few sensible options other than work. We describe the evidence on how these three facets of poverty affect child labor in this section.

The Role of Living Standards

Improvements in family incomes may affect child labor in four ways. First, child labor itself may be a bad in the family's welfare function. Thus, as incomes improve, the family chooses to have children work less. This idea is central in Basu and Van's (1998) seminal paper where children only work when the family cannot meet its subsistence needs. Second, with diminishing marginal utility of income, the value of the marginal contribution of the child's income decreases. Third, higher family incomes may facilitate the purchase of substitutes for child labor that may potentially lower the return to child labor within the household. For example, a washboard, fertilizer spreader or a combine harvester may replace child labor within

the home. Fourth, the child's productivity in other activities such as schooling might improve because the family might be able to afford better inputs to schooling such as school fees, textbooks, and uniforms.

The cross-country data on living standards and child labor suggests a strong connection between the two. Figure 1 plots the ILO's LABORSTA estimates of economic activity rates for children 10-14 against estimates of real GDP per capita (using purchasing power parity exchange rates) from the Penn World Tables 6. 1. Each country observation is pictured as a circle where the size of the circle represents the size of the country's population between ages 10 and 14. While child labor is pervasive in poor economies such as Ethiopia and Nepal, child labor is unusual in a country wealthier than Gabon with a GDP per capita of $8,400. The curve in Figure 1 is from the regression of a country's economic activity rate for children on a third order polynomial in GDP per capita (to allow a non-linear relationship). The regression curve shown here is weighted by the population of children aged 10-14 in each country, but the unweighted regression curve is nearly identical. With this specification, variation in GDP per capita explains 73 percent of the variation in the economic activity rates of children.

Countries differ in many ways that may be associated with child labor and GDP per capita. Hence, the relationship in Figure 1 cannot be interpreted as causal. There are two types of within-country studies on the link between poverty and child labor that try to answer the question of what happens to child labor as income improves: those that look across different households at a point in time, and those that look at the same households in two different time periods. In general, researchers that compare poor households to rich households at a single point in time in a country find mixed evidence of a link between poverty and child labor. Poor households differ from rich households in many ways that might be associated with child labor and disentangling these omitted factors from the underlying causal relationship is difficult. It is

conceivable, for example, that poorer households may live in areas with few employment opportunities or that poor households may lack capital, like tools or livestock that make work more productive. In this case, at a single point in time, researchers could observe more child labor in wealthier families. This seems especially likely if researchers only focus on the types of work that are strongly correlated with living in a relatively well-off location (like wage work).

Studies tracking families over time almost universally find large declines in child labor with substantive changes in family incomes. For example, in tracking children over a three-year period in rural Tanzania, Beegle et al. (2003) find that children tend to work when households experience unexpectedly poor harvest, and that children stop working when households recover from the bad harvest. Yang (2004) examines how Philippine households with overseas workers responded to the 1997 Asian financial crisis. Remittance income increased in households whose overseas worker experienced more favorable exchange rate movements. Consequently, children in households with increased remittance income from abroad devoted less time to work and increased school attendance.

Let us consider in more detail the evidence on the relationship between poverty and child labor based on data from an elaborate survey project that tracked child labor and living standards in over 3,000 Vietnamese households between 1993 and 1998. Figure 2 plots participation rates in market work (defined as participation in wage work, work on the family farm, or work in a household business) for children 6-15 against household per capita expenditure. The top line in Figure 2, which compares households at different levels of per capita expenditure in 1993, suggests a strong negative correlation between household living standards and child labor. For households below the 1993 poverty line, participation of children in market work exceeds 30 percent. From 1993 to 1998, real expenditure per capita increased by more than 50 percent for

the poorest 10 percent of the population. For Vietnam overall, the incidence of poverty declined 36 percent.

The bottom curve in Figure 2 pictures the relationship between participation in market work in 1998 and household's per capita expenditure in 1993. Thus, for each point on the per capita expenditure distribution in 1993, child labor participation rates are pictured for the same households in 1993 and 1998. Participation rates drop substantially, with the largest declines in child labor occurring in households in the neighborhood of the poverty line in 1993. Indeed, over 80 percent of the decline in child labor occurring in households that exit poverty between 1993 and 1998 can be explained by improvements in household living standards (Edmonds, 2005).

Some of the most compelling evidence on the relationship between child labor and improvements in family living standards comes from how child labor responds to changes in trade policy. A common argument in the child labor literature is that foreign trade (and globalization in general) increases child labor by increasing the demand for goods produced by children. Consequently, many advocate trade sanctions by high-income countries on exports of goods from poor countries produced by child labor as a way to reduce child labor. A similar idea is implicit in consumer boycotts of products produced by child labor. Consumers who do not wish to consume goods produced by child labor can do so by purchasing products labeled as "child labor free" at a premium. Visible examples of such policies include RUGMARK-approved hand knotted rugs and "FIFA approved" soccer balls. However, economic theory suggests that the connection from expanded trade to child labor is ambiguous. After all, if expanded trade increases the incomes of parents, households may use the greater wealth to reduce child labor. In fact, Edmonds and Pavcnik (2004b) consider the cross-country data on child labor and openness to trade. They find that countries that trade more have less, rather than

more child labor, and that this association is driven entirely by the strong association between trade and income.

Individual level data that directly compares the effects of rising employment opportunities associated with increasing trade to the effects of changes in family income is relatively rare. Edmonds and Pavcnik (2004a) find declines in child labor during an episode of liberalization of rice markets in Vietnam. Between 1993 and 1998, Vietnam phased out quotas that restricted the export of rice and eliminated constraints on the trade of rice within the country. During this period, the average real price of ordinary rice increased by almost 30 percent. In Vietnam, 70 percent of households produce rice and rice production is the largest employer of both children and adults. In fact, 26 percent of children 6-15 worked in agriculture (likely largely in rice production) and many more helped in the processing of rice or helped with household tasks that enabled parents to work in rice production. Moreover, rice accounts on average for 29 percent of the household budget.

The study uses the intertemporal and spatial variation in rice prices within Vietnam to consider potential effects of trade-induced price changes on child labor. Liberalization of rice markets appears to be associated with higher wages paid to both children and to adults. However, despite increased earning opportunities, Edmonds and Pavcnik (2004a) find that rice price increases can account for 45 percent of the decline in child labor that occurs in rural Vietnam in the 1990s. Children in households that are large net rice producers experience the largest declines in child labor, while child labor actually increases with rice price increases in households that are large consumers of rice. Land and labor are the two primary inputs into rice production, and overall both are sufficiently equally distributed in Vietnam that most households are well positioned to enjoy the additional income stemming from this trade liberalization.

Of course, it is possible that a growth in trade could have opposite effects when the income gains are not distributed to those whose employment opportunities are rising. For

example, Kruger (2004) observes that during the coffee boom of the mid-1990s in Nicaragua, there is an overall increase in child labor that is especially large in poor households in coffee producing areas. One explanation for her findings is that because of the concentration of land in coffee (and the resulting market power in local labor markets), poor laborers have received increases in income that are minor compared to the growth in labor demand, and hence child labor has increased. Thus, it is not inevitable that a growth in trade and employment opportunities will increase child labor, nor is it inevitable that such growth will decrease child labor either. The data, however, is clear on one point: significant increases in family income are ceteris paribus strongly associated with reductions in child labor.

Credit Market Imperfections

Impoverished families may choose to have their children work, because they need the child's economic contribution to the household income or because that is the most sensible use of the child's time given the opportunities available to the child. Child labor seems particularly tragic when a child is compelled to work because of his family's need when the family would rather not have the child work given its environment. Several theoretical studies emphasize that if credit markets allowed households to borrow against future earnings, child labor could be much reduced (Baland and Robinson, 2000; Ranjan, 2001). Note that there is a somewhat distinct literature considering whether educational decisions in high income countries are influenced by an inability to borrow against the returns to a college education. The main focus of attention in the developing country - child labor context is whether families can manage resources to in effect borrow against the next crop-cycle (or pay period).

Three recent studies with individual level data suggest that financial market imperfections that limit a household's ability to borrow may cause a greater number of children to work. In rural Tanzania, households increase child labor to mitigate the consequences of large

crop losses (Beegle et al 2003). In urban Brazil, when male household heads enter unemployment, their children are more likely to work and less likely to advance in school (Duryea et al 2003). These studies are consistent with credit market imperfection coupled with insurance failures, but it is difficult to exclude permanent income effects and changes in the value of child time as explanations for their findings. To isolate the credit channel, Edmonds (2004) compares child labor and schooling in black South African households that are about to receive a large anticipated cash transfer to child labor and schooling in households already receiving the cash. These two types of households have similar permanent income, but differ in cash on hand. He finds that child labor declines and schooling increases substantially when households begin receiving the anticipated income, which suggests that household access to credit is weak. These findings suggest that the credit and financial market imperfections associated with poverty are an important contributor to child labor.

In fact, problems with access to credit may be one of the most important reasons we observe children in bondage. The UN (1998) estimates that some 20 million people around the world are held in debt-bondage, and the ILO (2002) argues that nearly 30 percent of these bonded laborers are children. A child enters bondage when he or his parent takes out a debt from an employer against his future earnings. The bonded serves the creditor-master until his debt is repaid. However, because the bonded laborer is not free to negotiate the terms of his employment after initial contracting, it can be very difficult for the worker to repay his debt and exit bondage. Often debts are inheritable. Edmonds and Sharma (2004) examine one debt-bondage system in the plains of Nepal and argue that the inheritability of the debt, coupled with a general insecurity in property rights over the indentured, makes debt-bondage particularly pernicious. With more developed credit markets, there would be little reason for children or their parents to ever consent to bondage in the first place.

Education Reform

Credit market imperfections can cause children to work even when work is not optimal given the family's external environment, but the family's external environment also influences whether and how much a child works. While we have already discussed the importance of the return to work for child labor, the return to other uses of the child's time, especially schooling, can also play a role in the child labor decision. Poverty often coexists with inadequate local institutions such as schools. When the alternatives to working are expensive or of poor quality, work may be the best use of a child's time. Although child labor might be compatible with school attendance, this does not preclude the family's schooling environment from influencing child labor.

One reason why families might choose not to send children to school is low perceived returns to attending school, and there is some evidence that child labor can be reduced by improving the incentive for households to send children to school. For example, Foster and Rosenzweig (2004) argue that school construction accompanying the green revolution in India facilitated increased schooling and decreased child labor. A number of countries have adopted policies designed to discourage child labor and increase schooling by lowering the cost of schooling via educational subsidies.[5] Examples of such programs include PETI and Bolsa Escola in Brazil, the Mid-day meals program in India, and the Progresa program in Mexico. The Progresa program is particularly important because many countries are emulating it. The most relevant aspect of Progresa in the present context is that the transfers to poor households contain

[5] A related set of empirical studies, not directly linked to child labor, suggest a direct link between schooling costs and school attendance. For example, there are recent reports of dramatic increases in school enrollment with initiatives to eliminate school fees (Kremer, 2003). In Kenya, Kremer et al (1997) evaluate a randomized intervention providing uniforms to students who would otherwise need to pay for uniforms. After five years, students with the free uniforms had completed 15 percent more schooling. Indirect schooling costs, such as the costs associated with accessing schooling, may also be important. For example, Duflo (2001) finds a large increase in schooling attainment accompanying a school construction program in Indonesia which would have lowered the commuting costs of schooling dramatically.

additional cash incentives for schooling. These incentives increase with age of the child, to compensate the household for the older child's greater opportunity cost of schooling. These programs can influence child labor through lowering the costs of schooling and raising family income. The evaluation data on Progresa is extremely encouraging. Schultz (2004) finds a significant reduction in wage and market work associated with eligibility for Progresa. He also projects a two-thirds of a year rise in schooling attainment (over a baseline level of 6. 8 years) associated with the program. Of course, these schooling incentives might have larger effects on schooling than on child labor, depending on the program and the economic context, as Ravallion and Wodon (2000) found in their evaluation of Bangladesh's Food for Education program which pays students in rice for attending school. But setting differences in these programs aside, these studies suggest a strong connection between child labor decisions and the return to sending the child to school.

As such, improving the quality of education, in a way that raises the return to education, might also provide an incentive to reduce the quantity of child labor. When schools are bad, there is likely little return to education and households will not choose to educate their children. Formal studies of the link between child labor and school quality are conspicuously absent, but there is ample evidence of a strong link between school quality and school attendance. For example, Case and Yogo (1999) use variation in school quality for blacks in apartheid South Africa to study the link between pupil-teacher ratio, the returns to schooling, and school attendance. A decline in the pupil-teacher ratio by 10 students is associated with a 2 percent increase in the return to education and an additional 0.6 years of completed schooling. Foster and Rozensweig (1996) examine how the schooling of children responds to changes in the returns to education in Green Revolution India. With economic growth and advances in technology, the economic return to education appears to have increased dramatically, and

households are more likely to give up present consumption to capture the benefit of education for their children.

A variety of evidence suggests that making education more attractive can be used as a policy tool to reduce child labor. Thus, policies which seek to reduce the costs of schooling, increase school quality, or improve the market return to education all have the power to reduce child labor.

Policy Implications

Child labor is pervasive across low income countries, as children help their parents on the family farm or business and in domestic work. Images of children forced into prostitution, fighting as soldiers, or enslaved capture the popular imagination, but these hideous working conditions are rare. Of course, their rarity does not diminish the case for immediate, carefully targeted policy against these worst forms of child labor. But what should be done about the general incidence of child labor? Perhaps the strongest case for the need for direct attention to the types of child labor that pervade the low income world is made by poor families themselves. By their behavior, these families reveal that they do not want their children to be working: child labor declines very rapidly as families become richer and their dependence on the income of children decreases.

Economic development that raises the incomes of the poor is the best way to reduce child labor around the world. But this process may take a long time. If we were to take the cross-country relationship between per capital income and child labor presented earlier in Figure 1 seriously as a forecast of what will happen to economic activity rates as countries grow richer -- which it clearly is not -- we could compute how economic growth will reduce child labor in the future. Based on the relationship in Figure 1 and historically average rates of growth of GDP per

capita of 1. 7 percent (Besley and Burgess 2003), the economic activity rates of children should decline by 20 percent by 2015 and almost 50 percent by 2050. If economic development is to be accompanied by policies aimed directly at child labor, what types of national and international policies might be most effective?

Direct policy tools like bans on child labor or requirements that children attend school, however politically appealing, are of doubtful effect. First, enforcement is difficult. Developing countries often lack resources to enforce child labor bans, especially when most children work for their parents on family farms. Noncompliance with compulsory schooling laws continues to be a large problem in today's developing world (Krueger, 1997; Brown 2001).

Second, there is no guarantee that such policies will alter local labor markets in a way that increases family income, and thus an economic incentive for children to work will remain. The case for prohibitions on child labor is often framed as a multiple equilibrium problem. For example, in Basu and Van (1998) child labor persists because child labor depresses adult wages, making child labor necessary. Punitive measures may actually increase child labor. For example, Basu (2003) shows that fining firms in violation of the child labor laws might actually increase child labor. The fines raise the expected cost of employing children, so that firms only find it profitable to employ children at lower wages, and more children are required to work to cover a family's subsistence needs. Moreover, bans on child labor in the real world typically apply only to certain relatively small kinds of child labor, like working for pay in a factory, rather than large categories like child laborers employed by their parents or children in unpaid domestic work. It is difficult to imagine that real-world labor market regulation can affect enough of the child labor market to have general equilibrium effects on wages as required in Basu and Van (1998). For example, the high profile ban on child labor in Bangladesh involved mainly children working for pay in the garment industry. This ban allegedly affected the employment of 10,000 children, which corresponds to a tenth of one percent of economically

active children in Bangladesh. Thus, although a legal ban *might* reduce child labor, this outcome is not guaranteed, especially when labor can easily substitute inside the household and thereby outside of the reach of labor laws. Without large general equilibrium effects on wages, the loss of a child's income, however small, might hurt the working child as well as her siblings. Third, policies that keep children from working in one type of job might push children into non-exporting sectors or even into worse forms of child labor (in the Bangladesh case, anecdotes abound about children leaving garment factories for prostitution or work in stone queries). That said, scientific evidence on what happens to children displaced from formal work is essentially nonexistent even in the most publicized prohibitions on the employment of children owing to the threat of sanctions, like the Bangladeshi garment industry and Pakistani soccer balls (Elliott and Freeman, 2003, pp. 112-115).

Empirical evidence on the effectiveness of child labor bans is scarce and draws mainly on the historical experiences of developed countries. Several careful empirical studies exploit variation in the implementation of the child labor and compulsory schooling laws across the U.S. states to examine whether these legislative measures were the driving force behind the drastic declines in child labor at the turn of the 20th century and increases in secondary school enrollment and educational attainment between 1910 and 1940. Moehling (1999), for example, finds little evidence that minimum age laws for manufacturing employment implemented between 1880 and 1910 contributed to the decline in child labor during this period. Several other U.S. studies suggest that some later child labor and compulsory schooling laws affected high school enrollment rates and subsequent educational attainment, but these legislative measures can explain at most 5 percent of the increase in high school enrollment and subsequent educational attainment between 1910 and 1939 (Goldin and Katz, 2003).

Might trade-related pressure help to reduce child labor? The U.S. government has repeatedly considered restricting trade or trade preferences for countries where child labor is

endemic.[6] At the international level, some advocate for the World Trade Organization or the International Labor Organization to oversee harmonized child labor standards, with violators to be punished via trade sanctions.[7] At the consumer level, boycotts of products produced by child labor and more generally anti-sweatshop activism have become popular. Such campaigns seek to pressure multinational producers of high profile brand name products to improve their labor practices.

Although these trade policies have highlighted the issue of child labor on the political agenda, there are several problems in using them in practice. First, if these policies lead to trade sanctions which reduce average family income, they could potentially increase the incidence of child labor. On the other hand, if the sanctions are only implemented very rarely, then they will not be a credible threat. Second, the recent history of trade sanctions aimed to promote broader political change does not suggest much optimism about their efficacy (Elliott and Freeman, 2003). Third, it's not clear what specific action the trade pressures should be seeking to create. For example, preventing children from working in one high-profile job may do nothing more than force children to change employers – perhaps for the worse. Attempts to require bans on child labor or compulsory school attendance are subject to the problems above. Fourth, it is difficult to distinguish whether these measures reflect genuine interest in the well-being of children in poor countries or whether they are just a palatable excuse for protectionism. Overall, it is difficult to make a strong case for trade policy or consumer boycotts as an effective tool to combat child labor. Consumer activism has brought the problem of child labor into the spotlight,

[6] The U. S. government, for example, passed in a 1997 amendment to the 1930 Tariff Act that prohibits imports of goods produced by forced or indentured child labor. Although the bill is yet to pass, the Child Labor Deterrence Act, aims to go further and to prohibit all imports of products into the U. S. that are manufactured by child labor. Also, under the Generalized System of Preferences (GSP), the United States can withdraw a poor country's eligibility for trade preferences based on the country's poor record in child labor practices (and other worker's rights). Finally, the 2000 Trade and Development Act restricts eligibility for trade benefits to countries that the Secretary of Labor certifies as showing progress towards eliminating the worst forms of child labor.

[7] Abolition of child labor is one of the ILO's four core labor standards that some view should be respected by all nations regardless of their level of economic development. Discussion of international labor standards is beyond the scope of this paper and is covered in Basu (1999), Brown (2001), and Elliott and Freeman (2003).

but we are not aware of any systematic empirical evidence of the effectiveness of consumer activism in reducing child labor. It seems a blunt tool that is unlikely to reach the typical child laborer who helps her parents on the family farm and in domestic chores.

Policies targeted at improving school infrastructure and reducing the cost of schooling provide the most promising way to reduce child labor. These initiatives might work best when combined with conditional cash transfers programs for households that send children to school, such as Food for Education in Bangladesh and Progresa in Mexico. Such programs have been successful in increasing school attendance, which ameliorates one of the concerns about child labor, and there is some evidence that these policies have, to a lesser extent, also reduced child labor. One great advantage of this type of positive program to indirectly discourage child labor through increasing schooling is that it addresses the agency problems and difficulty in monitoring that plague many other methods of attempting to reduce child labor. For example, though bans on child labor or laws for compulsory schooling can be difficult to enforce in, say, rural areas of low-income countries, linking a cash payment to the family to school attendance is much more practical.

International donors have been active in supporting similar positive initiatives that recognize the interconnection of poverty and child labor. While these programs appear promising, formal and independent evaluation of programs designed to help ameliorate child labor remains unusual. This unfortunate absence of evaluation work significantly limits our knowledge about the effectiveness of interventions aimed at child labor and prevents any learning from these experiences to design more effective policies concerning child labor. Whether anything other than economic development is an effective, long-term solution to the widespread incidence of child labor is an open question.

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References

Ashagrie, Kebebew. 1997. *Statistics on working children and hazardous child labour in brief.* Geneva: International Labor Office.

Assaad, Ragui, Levison, Deborah, and Zibani, Nadia. 2003. *The effect of child work on schooling in Egypt*. Minneapolis MN: University of Minnesota Manuscript.

Baland, Jean-Marie, and James A. Robinson. 2000. "Is Child Labor Inefficient?" *Journal of Political Economy*. August, 108(4), 663-79.

Basu, Kaushik. 1999. "Child Labor: Cause, Consequence, and Cure, with Remarks on International Labor Standards." *Journal of Economic Literature*. 37(3), 1083-119.

Basu, Kaushik. 2003. "Policy Dilemmas for Controlling Child Labor," *CAE Working Paper* #03-17. Ithaca NY: Cornell University.

Basu, Kaushik, and Pham Hoang Van. 1998. "The Economics of Child Labor." *American Economic Review*, 88(3), 412-27.

Beegle, Kathleen, Rajeev H. Dehejia, and Roberta Gatti. 2003. "Child Labor, Crop Shocks, and Credit Constraints." NBER Working Paper 10088. Cambridge, Mass.: National Bureau of Economic Research.

Beegle, Kathleen, Rajeev H. Dehejia, and Roberta Gatti. 2004. *The Education, Labor Market, and Health Consequences of Child Labor*. New York: Columbia University Manuscript.

Besley, Timothy and Burgess, Robin. 2003. "Halving Global Poverty." *Journal of Economic Perspectives*. 17(3), 3-22.

Boozer, Micheal, and Tanveet Suri. 2001. *Child Labor and Schooling Decisions in Ghana*. New Haven, CT: Yale University Manuscript.

Brown, Drusilla. 2001. Labor Standards: Where Do They Belong on the International Trade Agenda?" *Journal of Economic Perspectives* 15, 89-112.

Case, Anne and Yogo, Motohiro. 1999. "Does School Quality Matter? Returns to Education and the Characteristics of Schools in South Africa," *NBER Working Paper 7399*.

Central Bureau of Statistics. 2000. *Report On The Nepal Labour Force Survey* 1998/99. Kathmandu: National Planning Commission Secretariat of His Majesty's Government.

Duflo, Esther. 2001. "Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment," *American Economic Review* 91(4), 795-813.

Duryea, Suzanne, Lam, David, and Levison, Deborah. 2003. "Effects of Economic Shocks on Children's Employment and Schooling in Brazil." *Population Studies Center Research Report 03-541*, December. Ann Arbor, MI: University of Michigan.

Edmonds, Eric. 2003. "Child Labor in South Asia," *OECD Social, Employment and Migration Working Papers* No. 5. Paris: OECD.

Edmonds, Eric. 2004. "Does Illiquidity Alter Child Labor and Schooling Decisions? Evidence from Household Responses to Anticipated Cash Transfers in South Africa," *NBER Working Paper #10265*, February 2004. Cambridge MA: National Bureau of Economic Research.

Edmonds, Eric. 2005. "Does Child Labor Decline with Improving Economic Status?" *The Journal of Human Resources,* forthcoming, Winter.

Edmonds, Eric and Pavcnik, Nina. 2004a. "The Effect of Trade Liberalization on Child Labor", *Journal of International Economics*, forthcoming.

Edmonds, Eric and Pavcnik, Nina. 2004b. "International Trade and Child Labor: Cross-Country Evidence," *NBER Working Paper* 10317. Cambridge MA: National Bureau of Economic Research.

Edmonds, Eric and Sharma, Salil. 2004. *Is investment in human capital influenced by property rights? Evidence from families vulnerable to bondage*. Hanover NH: Dartmouth College Manuscript.

Elliot, Kimberly Ann and Freeman, Richard B. 2003. *Can Labor Standards Improve Under Globalization?* Washington, DC: Institute for International Economics.

Food and Agricultural Organization (2004): "Population and Labor Force Indicators," in *The State of Food and Agriculture 2003-2004*. Food and Agricultural Organization of the United Nations: Rome.

Foster, Andrew and Rosenzweig, Mark. 1996. "Technical Change and Human Capital Returns and Investments: Evidence from the Green Revolution," *American Economic Review*, 86, 4, September, 931-953.

Foster, Andrew. and Rosenzweig, Mark. 2004. "Technological Change and the Distribution of Schooling: Evidence from Green Revolution India," *Journal of Development Economics* 74(1), 87-112.

General Statistical Office. 1994. *Vietnam Living Standards Survey 1992-93*. Ha Noi, Vietnam.

General Statistical Office. 1999. *Vietnam Living Standards Survey, 1998*. Hanoi: Government of Vietnam.

Goldin, Claudia and Katz, Larry. 2003. "Mass Secondary Schooling and the State: The Role of State Compulsion in the High School Movement." *NBER Working Paper* 10075. Cambridge MA: National Bureau of Economic Research.

International Labour Organization. 2002. *Every Child Counts: New Global Estimates on Child Labour*. ILO: Geneva.

Kremer, Micheal. 2003. "Randomized Evaluations of Educational Programs in Developing Countries: Some Lessons." *American Economic Review Papers and Proceedings.* 93(2), 102-115.

Kremer, Micheal, Moulin, Sylvie, Myatt, David, and Namunyu, Robert. 1997. *The Quality-Quantity Tradeoff in Education: Evidence from a Prospective Evaluation in Kenya*. Cambridge MA: Harvard University Manuscript.

Krueger, Alan. 1997. "International Labor Standards and Trade," in Michael Bruno and Boris Pleskovic (eds.) *Annual World Bank Conference on Development Economics, 1996* (Washington, D.C.: The World Bank, 1997), pp. 281-302.

Kruger, Diana. 2004. "Child labor and schooling during a Coffee Sector Boom: Nicaragua 1993 - 1998", in: *Trabjo Infantil: Teoría y Evidencia desde Latinoamerica*, Luis F. Lopez Calva, ed., Mexico, D.F.: Fondo de Cultura Económica de México, Forthcoming.

Levison, Deborah and Moe, Karine. 1998. "Household Work as a Deterrent to Schooling: An Analysis of Adolescent Girls in Peru." *Journal of Developing Areas*. 32 (Spring), 339-356.

Levison, Deborah, Moe, Karine, and Knaul, Felicia. 2001. "Youth Education and Work in Mexico." *World Development.* 29(1), 167-188.

Moehling, Carolyn. 1999. "State Child Labor Laws and the Decline of Child Labor." *Explorations in Economic History*, 36, 72-106.

O'Donnell, Owen, Doorslaer, Eddy van, and Rosati, Furio. 2004. "Health Effects of Child Work: Evidence from Rural Vietnam," *Journal of Population Economics*, forthcoming.

Orazem, Peter and Gunnarsson, L. Victoria. 2004. "Child Labour, School Attendance, and Performance: A Review." *Iowa State Department of Economics Working Paper #04001*. Ames IA: Iowa State University.

Psacharopoulos, George. 1997. "Child labor versus education attainment: Some Evidence from Latin America," *Journal of Population Economics* 10, 377-386.

Ranjan, Priya. 2001. "Credit Constraints and the Phenomenon of Child Labor." *Journal of Development Economics*. 64(1): 81-102.

Ravallion, Martin and Quentin Wodon. 2000. "Does Child Labor Displace Schooling? Evidence on Behavioural Responses to an Enrollment Subsidy" *Economic Journal* 110 (March), C158-C175.

Schultz, T. Paul. 2004. "School Subsidies for the Poor: Evaluating the Mexican Progresa Poverty Program," *Journal of Development Economics* 74(1). 199-250.

Schultz, Theodore W. 1960. "Capital Formation by Education." *Journal of Political Economy*. December, 571-583.

United Nations Working Group on Contemporary Forms of Slavery. 1998. *Debt Bondage*. United Nations Economic and Social Council, Commission on Human Rights, Sub-Commission on Prevention of Discrimination and protection of Minorities, Working Group on Contemporary Forms of Slavery, 23rd Session: Geneva.

Woodhead, Martin 2004. *Psychosocial impacts of child work: a framework for research, monitoring, and intervention*. Florence: Understanding Children's Work.

Yang, Dean. 2004. *Remittances and Human Capital Investments: Child Schooling and Child Labor in the Origin Households of Oversees Filipino Workers.* Ann Arbor: University of Michigan Manuscript.

Table 1: Participation Rates in Various Activities for 124 Million Children 5-14 from 36 Countries in 2000

	All Children	Age		Gender		Location	
	5-14	5-9	10-14	Male	Female	Urban	Rural
Market Work (MAR)	25.0	15.3	35.2	26.6	23.3	18.9	30.5
Paid	2.4	1.0	4.0	2.8	2.0	2.2	2.5
Unpaid	5.8	4.4	7.3	5.6	5.9	4.0	7.3
Family	20.8	12.4	29.7	22.4	19.1	14.8	26.2
Domestic Work (DOM)	64.6	50.8	79.2	59.3	69.9	60.7	67.4
Any Work (MAR+DOM)	68.4	53.5	84.3	64.8	72.1	64.1	71.7
20 or more hours per week	20.7	10.3	31.8	19.4	22.1	14.1	26.4
40 or more hours per week	6.4	2.7	10.3	6.1	6.7	3.6	8.8

Notes: Each cell contains participation rates in indicated activity in the last week. Children may participate in multiple activities. *Paid* refers to children who worked outside of their household for wages in the last week. *Unpaid* refers to children who worked outside of their household in the last week without pay. *Family* refers to children that worked in their family business or farm in the last week. *Market work* indicates that that the child participated in paid, unpaid, or family work. *Domestic work* indicates that the child participated in household chores in her own household in the last week. *Any work* indicates that the child participated in market work or domestic work in the last week. UNICEF's summary statistics available at <http://www.childinfo.org> report a higher incidence of unpaid work outside of the child's household. The discrepancy may owe to a missed change in coding in the Angolan and Kenyan data and shows up as a slightly higher incidence of working children in UNICEF summary statistics than those presented.

Source: Authors' calculations from UNICEF Multiple Indicator Cluster Survey End of Decade Assessment microdata: http://www.childinfo.org/MICS2/MICSDataSet.htm. Countries included: Albania, Angola, Azerbaijan, Bolivia, Bosnia and Herzegovina, Burundi, Cameroon, Central African Republic, Chad, Comoros, Cote d'Ivoire, Democratic Republic of Congo, Dominican Republic, Gambia, Guinea Bissau, Guyana, Kenya, Lao People's Democratic Republic, Lesotho, Madagascar, Moldova, Mongolia, Niger, Philippines, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Sudan, Swaziland, Tajikistan, Togo, Trinidad and Tobago, Uzbekistan, Venezuela, and Vietnam. Individual country means are weighted to reflect survey design and are weighted by 5-14 population totals in computing cross-country means. Population 5-14 estimates are from http://esa.un.org/unpp/index.asp?panel=2, medium variant, 2000.

Table 2: Total Hours Worked in Last Week (Conditional on row activity) for 124 Million Children 5-14 from 36 Countries in 2000

	All Children	Age		Gender		Location	
	5-14	5-9	10-14	Male	Female	Urban	Rural
Market Work (MAR)	26.1	21.1	28.5	25.3	27.1	21.7	28.3
Paid	30.9	21.0	33.5	30.0	32.2	27.3	33.6
Unpaid	26.9	20.9	30.6	26.3	27.4	20.6	29.6
Family	27.2	22.6	29.2	26.3	28.3	22.3	29.2
Domestic Work (DOM)	15.8	11.6	18.6	15.4	16.1	12.4	18.5
Any Work (MAR+DOM)	16.1	11.9	18.9	15.9	16.2	12.8	18.6
Schooling Status							
Not Attend School	11.6	6.3	23.7	10.3	12.9	8.0	13.4
Attend School	10.7	6.4	14.1	10.3	11.1	8.2	13.3

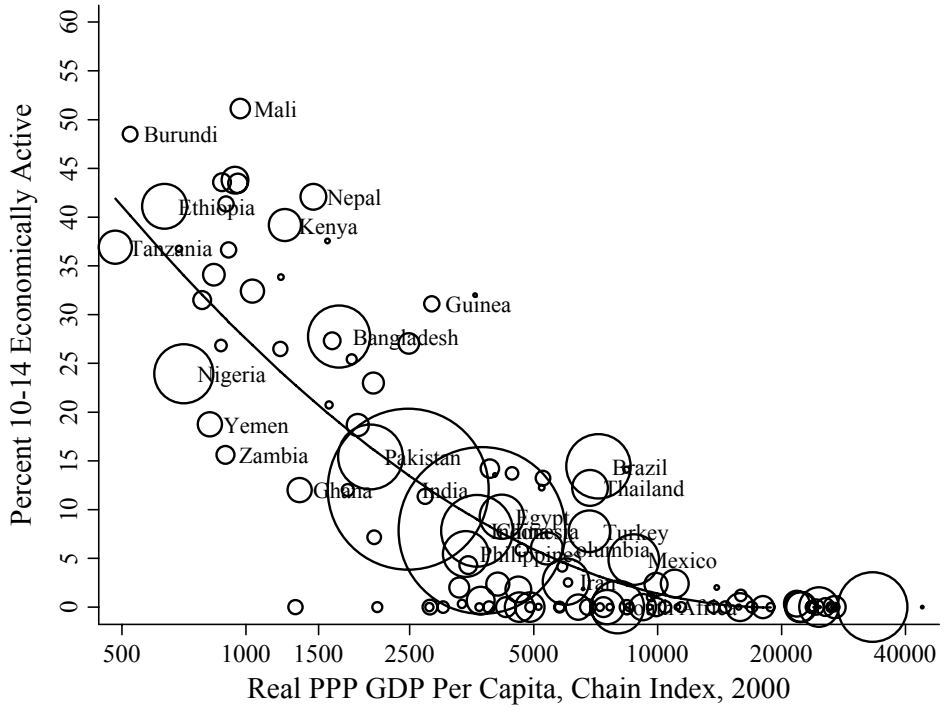
Notes: Each cell contains total hours worked (in both market and domestic work) in the last week for individuals that report participating in the indicated (row) activity. Children may participate in multiple activities. See Table 2 for row descriptions. Additional content in this table: *Attends school* indicates that the child attended school during the last year. Source: Authors' calculations from UNICEF Multiple Indicator Cluster Survey End of Decade Assessment microdata. See Table 1 for description.

Table 3: Work and Schooling Status for 124 Million Children 5-14 from 36 Countries in 2000

	All Children	Age		Gender		Location	
	5-14	5-9	10-14	Male	Female	Urban	Rural
Attend School	69.5	58.9	80.8	70.7	68.3	75.1	63.9
Attendance Rates Conditional on							
Any Work	73.9	64.1	80.6	75.7	72.3	80.1	68.3
Not Work	60.0	52.9	82.2	61.6	57.8	64.9	52.8
Conditional on Non Attendance							
Domestic Only	32.0	30.8	34.9	27.1	36.6	31.8	32.0
Market Only	4.5	2.8	8.3	6.3	2.7	4.9	4.3
Both Market and Domestic	22.0	13.1	42.2	20.3	23.5	12.8	26.6
Not Work	41.5	53.3	14.6	46.2	37.1	50.6	37.1

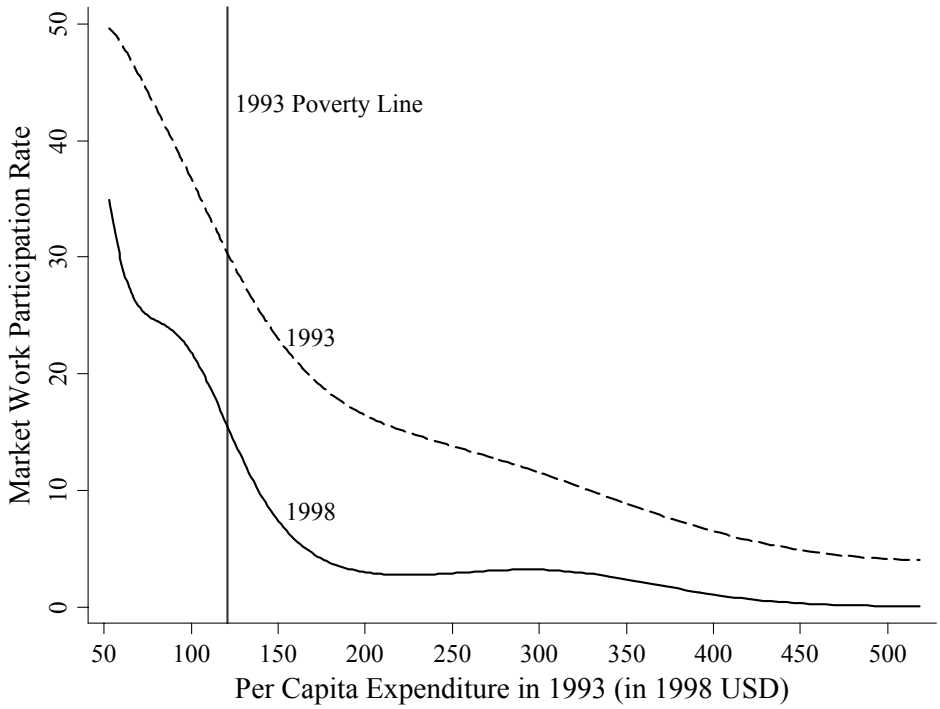
Notes: The first row contains school attendance rates by column group. All rows listed under "Attendance Rates Conditional on:" restrict the population to children whose labor status is in the indicated category (works in any type of work, does not work). The rows listed under "conditional on non attendance" restrict the sample to children that do not attend school. These non-attenders are then divided into 4 categories: works only in domestic work, works only in market work, works in domestic and market work, and does not work. Thus all 4 rows under the "conditional on non-attendance" row sum to 100 (with some rounding error). 1. Source: Authors' calculations from UNICEF Multiple Indicator Cluster Survey End of Decade Assessment microdata. See Table 1 for description.

Figure 1: The Relationship between Economic Status and Economic Activity, 2000



Source: Economic Activity for 2000 from LABORSTA (http://laborsta.ilo.org), GDP per capita from Penn World Tables 6.1, and Population aged 10-14 weights from UNStat.

Figure 2: Living Standard Improvements and Child Labor in Vietnam in the 1990s



Source: General Statistical Office (1994, 1999): Vietnam Living Standards Survey, Rural Panel, 1993 & 1998