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**Can Non-Formal Education Keep Working Children in
School? A Case Study from Punjab, India**

by

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ABSTRACT

This paper analyzes the effectiveness of non-formal schools for working children in Jalandhar, Punjab, India, in mainstreaming child laborers into the formal education system through incentivised, informal schooling. Using a family fixed effects model and sibling data as an equivalent population comparison group, I find that the non-formal schools effectively provide an alternative to formal primary education and also show high success rates of mainstreaming and maintaining children into post-primary education relative to the control group. I find that the children within the non-formal schools are 40.47-50.07% more likely to still be studying relative to the sibling-inclusive control group, and have on average a 3.45 years less of a gap in educational attainment.

I conclude that the child labor schools are serving a useful function in helping poor children attend school, regardless of their labor status. The policy implications explored suggest that aspects of the techniques used in the non-formal schools should be applied more broadly to the formal schooling system, including eliminating hidden costs of schooling, accommodating to poor and working children, and increasing teacher accountability.

Keywords: child labor, India, non-formal schooling, nonformal education, NFE, informal credit markets, Rotary International, Jalandhar, Punjab, National Child Labour Project Act,. Child Labour Project School

JEL Classification No.: I21, I29

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Chapter 1: Introduction

In recent decades, child labor has shifted from a matter of regional and perhaps national concern to one of vigorous international debate and consequences. With increasing global trade, consumers in western countries are demanding not only low prices for consumer goods produced in developing countries but also assurance that these goods are produced under acceptable norms of human rights and standards. Child labor in potentially dangerous industries such as producing sporting goods and, garments, or mining, is generally considered hazardous or unsafe and thus unacceptable under international norms. Despite this, in 1995, at least 120 million children between the ages of five and fourteen were working full-time worldwide (ILO 1996; Ashagrie 1998).

Child labor in India is a particularly complicated problem because it incorporates issues of labor rights, education policy, and enforcement issues. There are social pressures involved with the parents' decision to allow their child to work, caste issues, class issues, and socioeconomic disparity that forces a hard decision on families to make between the marginal benefit of their children earning money now versus continuing schooling to make more money later. To make the issue even more complex, over 90% of child labor is informal—for example, children working at home helping their parents who undertake contract work from the formal factories, thus making legal sanctions difficult.³

Although India has committed itself to combatting child labor since the its independence, in practice enforcement has proven difficult (Sharma 2001). Article 24 of the Indian constitution states that "no child below the age of fourteen years shall be employed to work in any factory or mine or employed in any hazardous employment" (Jain 1985). The Government also implemented the Child Labor Act in 1986. The purpose of this Act is to

³ based on International Labor Organization (ILO) estimates from 2006.

"prohibit the employment of children who have not completed their 14th year in specified hazardous occupations and processes" (Narayan 1988).

In August 1994, the Indian Prime Minister Narasimha Rao announced his proposal for the "Elimination of Child Labor Programme," which pledged to end child labor for two million children in hazardous industries as defined in the Child Labor Act of 1986, by the year 2000. The program revolves around an incentive for children to quit their work and enter non-formal schooling: a 100-rupee (Rs) payment (about US \$2) per month as well as one meal a day for attending school (Human Rights Watch 1996). While India has committed in writing to eliminating child labor, some argue that the approach India is taking is too difficult, slow, and complicated.

The stated goals of Non-Formal Education (NFE) initiatives for working children in India is to "strike a balance between the acknowledged importance of universal basic education, regardless of socio-economic status, and necessity in a poor household to earn for the family" (Basu 2001). In other words, schools like these make it possible for children to work *and* attend school. The schools hold classes in the afternoon, after regular school hours, to allow the children to work at home in the morning and evening, and attend school in the afternoon. The students receive supplemental nutrition in the form of a snack in addition to a small stipend equivalent to about five cents per day. Special attention is given to overall health and wellness of the child, including biannual de-worming treatment and annual eye examinations. This assortment of benefits, in addition to the high quality of the schools themselves, serve as incentive for the parents to forego some of a child's income and send the children to school after they have contributed some work. State governments run a major portion of NFEs, and often use non-governmental organizations (NGOs), (or private

voluntary organizations, PVOs, in the Indian nomenclature) to manage them (Antriep 2001). Some argue that NFEs are immoral, because they operate under the assumption that it is not possible to simply enact policy to eradicate child labor. On the other hand, the Indian government maintains that these alternative schools are a practical means to ensure that working children get an education. Furthermore, the end goal of the government initiative is to mainstream the children back into the formal schooling system. The term “mainstream” refers to getting children from alternative schools to successfully transition to the public, government-run schooling system once they reach a certain age.

I examine the efficacy of one such example of “non-formal education” for children in Jalandhar, Punjab, India. In the city of Jalandhar, the schools were nicknamed Child Labour Project Schools (CLPS). The question I address is, “How effective are the CLPS for working children in Punjab, India in providing an alternative to formal primary education?”

Whereas the literature on child labor and the efficacy of non-formal education deals with the economic implications of the child labor market, the need for a stronger formal education system, and how to incorporate NFEs into formal education systems, very little work has examined the effectiveness of alternative schools in India in reducing child labor. The question as to whether these non-formal schools actually succeed at moving children away from labor towards regular schools remains unexamined. This project will be a step towards filling this gap and finding answers to the question of effectiveness within seven of the Jalandhar, Punjab schools.

A family fixed effects model is employed to measure the effectiveness of the schools. Children who attended NFE schools, the “treatment” group, are compared to those who did not attend. There are two variations of this comparison. The first model presented uses the

sibling peers of the treated children as the control group. The assumption in the model is that the educational attainment of a sibling is an accurate measure of “what if” the treatment child had not been treated. This type of model, known as a within-family fixed effects model, provides a situation in which key variables that are typically strongly correlated with the educational attainment of a child, such as household income, mother’s education level, and father’s education level, are all controlled for. The second model is similar, but uses a slightly different approach to defining the control group. Sibling data is still used, but only the subset of siblings for which the NFEs were not in existence when they were attending primary school. Since the NFEs were created in 2000, any sibling with an age gap of six years or more was a part of this group. Essentially this second version is set up like a natural experiment that uses exogenous timing to define the treatment and control population.

The results indicate that the NFE project is in fact an effective model of educating poor, working children, and elements of their approach ought to be applied to the formal schooling system as well. The results also illumionate discussion on serious policy implications and also implications for further research into the topic of NFEs and child labor.

Chapter 2: Review of the Literature

The topic of non-formal primary education schools lies at the intersection of child labor and education policy. Thus in order to provide an effective backdrop to the research, it is necessary to explore both. Rather than exclusively looking at literature on child labor, it is equally important to explore literature on non-formal, or informal education, and how such types of education can be deemed substitutes for formal primary schooling. The existing literature on the question of how effective non-formal education schools in Punjab can be separated into four sub-categories: 1) defining child labor 2) theories behind why child labor exists, 3) appropriate policies to mitigate child labor, and 4) whether non-formal education is an effective method for mainstreaming child laborers into the schooling system.

The impetus for my research stems from a gap in the literature in (4). This paper makes a contribution to the body of knowledge regarding the effectiveness of alternative schooling models such as non-formal education systems and provides a basis for appropriate policy interventions.

I. What is Child Labor and Why is it a Problem?

The short answer to this question is that we don't really know, and we're not really sure it is.

Child labor exists in many different forms, situations, and locations, and tens of millions of children worldwide start working at a young age. Child labor is most concentrated in Asia and Africa, which together account for more than 90 percent of total child employment (Siddiqi 1998). Asia is led by India which has 44 million child laborers -- the largest child workforce in the world. Recent years have witnessed a growing international concern about child labor, especially in regard to developing countries where

the phenomenon is overly concentrated (Boyden & Myers 1995). Child labor thus far has proven extremely resistant and difficult to control in developing countries for a number of reasons. Thus, the necessity has emerged to complement traditional strategies with others adapted to developing-country realities.

There is debate within the literature and policy realm as to how one defines child labor. No international legal document defines the concept of child labor (Cox 1999). Without any official standard for what qualifies as child labor and what does not, often NGOs and international organizations are often left to create their own set of standards and definitions. For example, Cox (1999) proposes the definition as “a denial of the child’s right to education and of opportunity to reach full physical and psychological development.” The International Labor Organization (ILO) defines child labor as work that deprives children of their childhood, their potential and their dignity, and work that is harmful to physical and mental development. In contrast, a case study of Child Labor in Punjab, India, defines a working child as any person engaged in economic activity at less than fourteen years of age (Sharma 2001). Not only do definitions range from quantitative to qualitative, but they also vary in the type of employment they include and the level of risk entailed in the work.

Not only is there disagreement on how to define child labor, but there is also disagreement on whether child labor ought to be banned. In the earlier centuries, child labor was thought of as a way of life (Sharma 2001). There were no debates whether children should or should not play a role in the economy. What is so fundamentally wrong with children contributing to the labor force? Many point to the list of potential harms—detrimental effects on health and physical development, being exposed to hazardous working conditions, becoming easy targets for abuse and exploitation, and missing out on education

opportunities (Cox 1999). Recently, though, many organizations and international institutions have deviated from a zero tolerance stance to a more nuanced position. For example, UNICEF maintains that some work may in fact promote or enhance a child's development without interfering with school, recreation, or rest. Amongst these definitions, there also exists increasing recognition that not all child labor is harmful. UNICEF characterizes only specific types of child labor as harmful, and even includes within their definition that "to treat all work by children as equally unacceptable is to confuse and trivialize the issue and to make it more difficult to end abuses" (Sharma 2001).

Child labor first became controversial in the 18th century when children were recruited for industrial production in Britain. Several Parliamentary investigations in the early 19th century focused on the working conditions of children in British mines and textile mills, and ultimately resulted in the Education Act of 1918 aimed at removing all younger children from the labor force. Today, there are three important policies in place related to child labor. First, the ILO Minimum Age Convention 138 (1973) obliged ILO member states to ensure that no child is employed full-time below the age of compulsory schooling. Second, the 1989 Convention on the Rights of the Child (CRC) created the first comprehensive human rights treaty for children guaranteeing the right to be protected from economic exploitation. It is the most widely ratified human rights treaty today. Third and finally, the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Declaration on Education for All in 1990 created a framework for ensuring that all children receive basic education as a fundamental right. Interestingly, all three of these major treaties share the common thread that they incorporate education policy within their child labor policy. The issue of child labor is framed within the context of education as if education

were a solution to the child labor problem. Later I will evaluate this notion of using education as a weapon against child labor, and the extent to which this method has proven effective.

II. Why Child Labor Exists

Some view child labor as an example of a “principal-agent” interaction problem. In such a scenario, the principal (parent) wants to introduce the agent (child) to some action that is costly to the agent. In this case, the child wants the parent to invest in the child’s education, in which the long-term benefits are more for the child than for the parent. This principal-agent scenario is exacerbated in situations of poverty where a child’s contributions can be irreplaceable – whether it is in cash, in kind, or by freeing other household members for productive work (Boyden 1995).

Other more basic explanations of the existence of child labor characterize the phenomenon as simply a substitution effect. Levison argues that child labor is simply labor in which children are substituting for adult work (1998). Against this theory is the idea that children have a comparative advantage in some occupations over others, and thus many agriculture and factory jobs can only be performed by children. This idea has been termed “nimble fingers” by Cox in reference to children rag pickers hired for the dexterity of their hands in sorting through trash (1999). Others view child labor as a symptom of poverty, so that child *non-work* is actually considered a luxury good (Edmonds 2001). Another approach to explaining child labor looks at supply-side determinants. By observing the impact of a marginal increase in household income using a multinomial logit model, Juhyun Jeong finds that household income is not a dominant determinant of child labor at all (2005). Jeon’s

findings imply that child labor is not a demand-driven, market-necessitated phenomenon, but rather driven by supply-side factors such as the child's or family's own personal preference.

Another proposed explanation for why child labor exists is that poor households are particularly vulnerable to major ebbs and flows in their month-to-month income, and thus rely on supplemental income from the child to smooth the shocks. The underlying assumption is that poverty encompasses not just one's current socio-economic status, but changes or shocks to one's socioeconomic status (Glewwe 1997). Glewwe's hypothesis examines fluctuations in family income as the main contributor to poverty, or essentially, re-defining poverty as not just a *level* of income and assets, but *fluctuations* in that level over time. The three factors that cause these fluctuations are (1) the level of interdependence within the larger economy, (2) less diversified household income, and (3) less stable employment. The implication is that successfully getting working children into school will depend on not only incentivising the school system to attract child laborers, but also decreasing the vulnerability of their families to macroeconomic shocks.

III. Appropriate Policies to Mitigate Child Labor

Though restrictions on child labor exist in most nations, many children do work. The International Labor Office reports that children work the longest hours and are the worst paid of all laborers worldwide (Siddiqi 1998). This opens the gate to another literature surrounding the question of what types of child labor policies are appropriate and effective.

One recent study published by the World Bank on the global child labor problem concludes that a well-meaning but poorly designed child labor policy can actually hinder efforts at dealing with poverty in which these laboring children live (Basu 2003). Thus, by

not choosing effective child labor policy, a country runs the risk of worsening the problem it is trying to fix.

Furthermore, children's incomes represent a large portion of household income. It is not clear whether banning child labor is the welfare-maximizing decision. A study by the ILO Bureau of Statistics finds that "Children's work was considered essential to maintaining the economic level of households," including the child's wage contributions, help in household chores, and looking after siblings (Mehra-Kerpelman 1996). In some cases, the study found that a child's income accounted for 34 percent to 37 percent of the total household income. A tension exists between the desire to ban child labor as an unacceptable form of production and the acknowledgement that children's incomes critically contribute to family welfare.

The decision whether to ban child labor is made by individual governments but is often indirectly regulated by international trade. Through the perspective of the GATT and the WTO, Staiger and Bagwell find that child labor standards can be used as a bargaining tool for terms of trade (2000). The implication is that labor standards can be used as incentives and disincentives for investors and exporters. But, often, governments are ineffective at implementing child labor policies because the majority of child work is in the informal sector of the economy (Cox 1999). Tanaka's model endogenously explains that taxes fuel spending on schools, and transitively also fuel a household's decision to educate a child. The model implies that the decision for schooling can be directly influenced by the tax rate (2003). Increased tax rates improve the quality of schools, and thus make going to school a more enticing option.

IV. Education as a Weapon Against Child Labor: Non-Formal Schooling Model

The Indian government's model of non-formal education (NFE) for working children is an attempt to strike a compromise between the need for children to work and contribute to family income and the government's commitment to universal basic education. Indeed, many in India see non-formal education as "an alternative route for achieving universalization of primary education for school-age populations" (Shukla 2004).

Unfortunately, there has been little done to study the effectiveness of NFEs in improving the educational attainment of working children. This lack of research is due to a lack of data that exists specifically on child labor-targeted NFE schools. Also, there has been no systematic attempt to collect data on such schools, such that the information that does exist is limited to a few centrally sponsored innovative NFE schools and not specifically related to child labor NFE schools. Also, the data does not cover the NFE schools run by the private sector and NGOs that actually play the most prominent role in child labor schools. As a result, no studies have dealt with the effectiveness of the child labor NFE schools.

It is also important to understand the motivations of the parents (and children) to engage in labor instead of schooling. Marx's labor theory of value (LTV) is often cited in child labor literature as a means of evaluating choices the parents make between work and schooling for their child (Narayan 1988). The fundamental argument is that prices are determined by costs of production and, in the labor-intensive goods, labor costs are the predominant cost of production. Often for the children, there may exist a higher short-term marginal benefit from working than from going to school. This could be caused by a number of factors: higher value placed on short-term gains (income) by poor families over the potential long-term gains from education; inability of poor families to bear the cost of

schooling (textbooks, transportation); poor quality of government schools; and social and cultural barriers to schooling. There is thus a need to understand through empirical research which of these factors are important in the parents' decision.

Second, there is the question of the effectiveness of NFE schools themselves. The parents of working children need to see these schools as providing value to alter their preference for labor over schooling. The NFE schools could contribute to a shift in the parents' preferences by allowing older, illiterate non-school age children to "catch up" with their peers, thus facilitating their entry into normal schools after grade five. Or, by providing free or subsidized books, mid-day meals, school uniforms, and a stipend, the NFE schools could effectively reduce the opportunity cost to the parent. However, there is a lack of consensus in the academic community on the contribution of NFE towards universal education. The dearth of existing literature could be due to multiple reasons: the lack of central control of non-formal education schools, the novelty of NFE programs, and the controversy surrounding the existence of NFEs, making them a touchy topic.

The controversial aspect of the NFE model is that such schools that not only acknowledge the existence of child labor, but actually pay students a substitute wage for attending. Some argue that by settling for anything other than zero tolerance against child labor, any effort to get children out of the work force is undermined by NFE schooling programs. Others argue that paying children to attend school is unethical.

Of the few evaluation studies of NFE programs that do exist, one presented evidence from an NFE study showing that the success of non-formal education programs depends on, to a large extent, an efficient *formal* education system (Antriep 2001). It is only then that children who transition from the alternative school sector would be retained in formal

schools. This result leads to the interesting question of whether funding should be allocated to improve NFEs or the formal education system at large.

Another existing study, currently one of the leading models for standards of evaluation, examines Non-Formal Education and other alternative approaches to basic education in Africa (Thompson 2001). Thompson counts an NFE school or system as a “successful experience” based on the criteria that it provides access to educational opportunities, demonstrates the capacity for innovation in facilitating learning, acts as a link between the school and the community, and contributes to the achievement of the goals of education for all.

Chapter 3: Methodology

The research question at hand is how effective non-formal education primary school systems in Punjab, India are at mainstreaming working children into the formal schooling system, and presumably as a second-order effect, out of child labor. In order to effectively address this research question, the first step is to define how to measure effectiveness. I measure effectiveness by (1) the schools' ability to attract and keep working children in the non-formal education schools, and (2) the schools' ability to mainstream the children into the regular, formal education system after grade five.

First, I will describe the conceptual framework of how the research question will be evaluated, followed by a discussion of the data collected and variables measured.

I. Conceptual Framework

The conceptual idea of this research design is to isolate the impact of the NFE program by comparing empirically the educational attainment of a group of students who attended the non-formal education primary schools with a group of students who did not. Ideally, the study would assign children randomly to NFE schools and to regular schools and compare their educational outcomes. For ethical and other reasons, though, randomization was not possible. This conceptual framework strives to simulate a situation as close as possible to randomized assignment. In order to achieve that effect, I compare the educational outcomes of NFE children with the siblings of NFE children. Using sibling data is a technique employed that controls for a lot of within-family variables that are typically correlated with educational attainment. Loosely based on Geronimus & Sanders (1992)⁴ and Griliches (1979), the idea is to control for unmeasured family background heterogeneity by

⁴ In Geronimus & Sanders (Quarterly Journal of Economics, November 1992), the authors compare sisters who timed their first births at different ages in order to isolate the effects of teen motherhood on individuals.

comparing the educational outcomes of siblings who attended the non-formal education schools with those who did not. Since both the treatment child and the sibling child are from the same family, this means that these two observations will be similar in many ways: the same household income level, mothers with the same level of education, and any other family-specific effects that we would otherwise worry about. The assumption is that the sibling comparison group will be comprised of children who did not attend the non-formal education schools, but were *equally likely to have attended* since at least one of their proximate age siblings did.

Within the use of sibling comparison data, two different versions, or models, are depicted. They vary slightly in the way in which the control group of children is defined, and as a result, by their measure of outcome. The first model is a regression showing the likelihood that NFE school attendees are still studying relative to same-age sibling, non-NFE school attendees:

$$\text{Model \#1: } \textit{StillInSchool}_t = \alpha + \beta_1 \textit{ChildLaborSchool}_t + X_t + e_t$$

Where *StillInSchool* is the binary measure of outcome, *ChildLaborSchool* represents whether the child attended the non-formal education school (hence is a member of the treatment group), and *X* is a vector of controls that includes within-family fixed effects, gender, and age. All observations are indexed to time *t*, which represents the point in time at which the data were collected.⁵ The importance of accounting for within-family fixed effects is that it normalizes for a variety of household characteristics, most importantly household income level. The link between income level and educational attainment has been shown to be strong and positive (Griliches 1972). Perhaps equally important is a family's values

⁵ Data is normalized to August 1, 2006 which is when the household survey collection was completed.

concerning educational attainment, which is also captured using family fixed effects. Family fixed effects also inherently mean that the mother's education level is held constant between comparisons, which has been shown to be the single strongest indicator of a child's educational attainment (Baker & Stevenson 1987). I also control for age and gender to address the concern that there may exist a birth order bias within a family's likelihood to educate some children over others, or similarly, a family may have a propensity to educate female children more or less than male children.

The above fixed effects model is very close to achieving the desired definition of children who did not go to the non-formal schools, but were equally likely to have gone. Still, though, one might be concerned that individual-level characteristics of the child not captured by the family fixed effects model, such as the child's individual intelligence, motivation, or test performance. If in fact there do exist individual-level differences between the NFE child and his/her siblings, these difference are potentially biasing the results. Thus, using a slight re-definition of the control group in the second model outlined below, I introduce another intricacy to deal with this validity threat and get a step closer to randomization.

The second model re-defines the control group. Rather than using children of the same age as the treatment group that did not attend the NFE schools, I instead make use of the natural experiment set up by the timing of the NFE schools. The NFE schools in Jalandhar, Punjab did not begin until August 2000. Thus, any siblings that were of the proper primary schooling age prior to 2000 did not have the option to attend the NFE schools because they did not yet exist. This use of exogenous timing to naturally create a treatment and control group is an established economic methodology, defined as "random treatments

that have arisen serendipitously.”⁶ Thus this second-order model is the closest possible empirical estimate for isolating the effect of the NFE schools on educational attainment short of randomization.

$$\text{Model \#2: } (IdealLastClass - LastClass)_t = \alpha + \beta_1 Treat_t + X_t + e_t$$

The model also uses a different outcome measure, because using the old outcome measure would no longer work.⁷ So instead, returning to my own definition of “efficacy,” not only is it important for the schools to keep the children in school, but it is equally important to narrow the gap in ultimate educational attainment. In other words, children should go to school until grade ten, as mandated by the Indian government. The new measure of outcome I employ is the differential between the last class the child is supposed to have obtained at his or her age and the actual last class obtained. The treatment group is defined as students who attended the child labor schools, and the control group is now defined by siblings who did not have the option to attend the child labor schools, *but were likely to have done so had they been in existence*. The underlying assumption is that within a single family, controlling for gender and age, the family would not treat their children differently. Again, the fixed effects, represented by X, include age, gender, and family fixed effects. The family fixed effects allow for intra-family comparisons in educational attainment between siblings rather than absolute comparisons between children from different families. Again, inherently within family fixed effects, mother’s education level,

⁶ Found in Rosenberg & Wolpin’s critique of natural experiments, p.828 (*Journal of Economic Literature*, 2000)

⁷ Measuring whether a child is still in school relies on both the control and the treatment group having the same mean age. Now that the control group is 6 years older than the treatment group, I cannot use “still in school” as my measure of outcome.

father's education level, household income, and family values towards education are all controlled for.

But, there is still one outstanding problem that could potentially create an upward bias on the results of Model #2. Since educational attainment rates are being compared between groups of six years age difference, it is possible that any significant results are simply capturing trends over time in increased enrollment rates in post-primary school. In order to reconcile and account for this possibility, I examine state-level data on gross enrollment rates that provide context to the results.

II. Data

The data come from fieldwork conducted June 2006 – August 2006 by a team I led of five data collectors, funded through a Stanford Chappell-Lougee Research Grant.⁸

Within the city of Jalandhar, there exist 27 non-formal education schools, dubbed Child Labour Project Schools (CLPS). Each school is funded by national Indian education initiative funds, and run locally by a non-governmental organization (NGO). The particular NGO that joined the data collection team, Rotary International, oversees seven of the 27 Jalandhar schools. Data from these seven schools is an effective random sampling of all of the Jalandhar schools because (1) schools are randomly assigned to various NGOs and these particular seven were all under the auspices of the same NGO, and (2) the seven schools represent an eclectic mix geographically of various parts of the city, including a contrast between more industrialized areas and more rural areas.

The Child Labour Project Schools (CLPS) in Jalandhar, Punjab, the name for the particular type of NFE school we sampled, aim to bring back to school out-of-school

⁸ The Chappell-Lougee Scholarships are monetary grants designed for Stanford undergraduate sophomores pursuing in-depth research projects in the humanities, arts, or social sciences.

working children who have had either no formal schooling at all or only minimal schooling. The CLPS aim to help these children complete primary education (five years) within a three-year period and have them take the fifth-grade Punjab Board examination. An additional CLPS goal is to have the children continue to attend normal public schools after completing the fifth grade at CLPS. The original impetus for funding the Child Labour Project Schools stemmed from a grant received by the Sporting Goods Federation of India, out of recognition that their industry and population of workers included children as young as age three working informally to manufacture sporting goods. In the particular region of Jalandhar, soccer ball stitching was most prevalent work done by children. Since the initial grant money, the schools have expanded their mission to capturing all working children, regardless of their industry.

Within the seven schools, quantitative survey data was collected in June 2006 on:

- current students of the Child Labour Project Schools (see *Appendix A*)
- former students of the Child Labour Project Schools who continued with their studies (see *Appendix B*)
- former students of the Child Labour Project Schools who did not continue with their studies (see *Appendix B*).

The survey data includes information on the occupations of the parents and the child, marks received in school, basic family information, and future plans. Furthermore, after the first two surveys were collected from a population of 389 child laborers, supplemental data was collected in August 2006 in order to obtain educational information on the siblings of the CLPS students. The impetus for collecting detailed sibling data was so the sibling educational attainment information could effectively be used as a counterfactual, or

equivalent population, for the treatment group. (*See more details in Conceptual Framework*).

In addition to sibling data, the research team also used the opportunity to collect more data on monthly household income and major illnesses in the family (*see Appendix C*).

In addition to quantitative survey data, qualitative interview-based data were also collected among a random subset of 36 families out of the sample of 389. The purpose of the qualitative interviews was to understand the reasons and circumstances behind the quantitative results. For the purpose of the study of NFE efficacy, success is a binary result. To supplement my research of NFE's efficacy, or, the extent to which NFE child labor schools are successful in having working children continue with basic education after they complete fifth grade, qualitatively the interviews served to understand the contributory economic and social factors that can explain the decision of children and their parents to continue or not to continue with further basic education. This blending of quantitative and qualitative data, also known as mixed methods research, has been recognized in recent years as an effective way to "bridge the schism between quantitative and qualitative data" (Onwuegbuzie & Leech 2004).

Specifically, the qualitative interviews focused on three main issues: family perceptions about the value of NFE schools, what factors played a dominant role in the decision to continue schooling, and the perception of the benefits of education more broadly. A different set of questions were asked depending on whether the former CLPS student was still studying or not still studying (*see Appendix D*). In accordance with Internal Review Board (IRB) protocol, an oral consent form (*see Appendix E*) was administered prior to conducting the interviews.

III. Variables Measured

Table 1 describes the variables extracted from quantitative survey data. Note that not all variables have data for both the treatment and control group, thus some are purely for the purpose of descriptive statistics.

Table 1: Description of Variables

Main Child Variable (Treatment Group)	Sibling Equivalent Variables (Control Group)	Description of Variable
id	id	A unique ID for each family or household (1-389)
motherocc	motherocc	Mother's occupation (0-18, see code in Table 2)
fatherocc	fatherocc	Father's occupation (0-18, see code in Table 2)
majorillnesses	majorillnesses	description of major illnesses in family (stored as a text string)
age0	age1, age2, age3, age4, age5, age6 (age1-6)	Age of child (as of August 1, 2006)
gender0	gender1-6	Gender (1=male, 0=female)
childlaborschool0	childlaborschool1-6	Attended child labor school? (1=y, 0=n)
stillinschool0	stillinschool1-6	Still in school? (1=y, 0=n)
working0	working1-6	Is the child currently working? (1=y, 0=n)
lastclass0	lastclass1-6	Last grade completed (0-12) note: for 0= no longer studying
Stillstudying0	Stillstudying1-6	Is the child currently enrolled in any school? (1=yes, 0=no)
Idealclass0	Idealclass1-6	The grade level appropriate to the child's age to which the Indian government deems the child should be enrolled. (Capped at grade 10)
Childocc		Occupation of the child (0-18, see code in Table 2)
Priorschool		Did the student have prior schooling before attending CLPS? 1=yes, 0=no

Priorlevel		If the student did receive prior schooling, to what grade level did he/she receive schooling?
Hrswork		The number of hours per week the child works
Gradyear		Year of graduation from the CLPS. (e.g. 2005, 2006). 0 = did not graduate
Marks		How is the student performing in school? (1=top 10% of class, 2=middle 50% of class, 3=bottom 40% of class)

Chapter 4: Results and Discussion

The research question at hand is how effective the Child Labour Project Schools (CLPS) have been at (1) attracting and maintaining working children in the CLPS program through completion of grade five, and (2) the schools' ability to mainstream the children to the regular public school system after grade five. Within these two ultimate research questions, I also answer other sub-questions that pertain indirectly or directly to the outcomes and provide more context for the results. For example, I explore whether there exists any link between the type of work a child is engaged in and that child's likelihood of continuing schooling.

This chapter is divided into two sections: (I) Descriptive Statistics and (II) Empirical Results. The first section aims at providing a picture of the data and scenario being observed. I describe gender differences, test score dichotomies, and labor sector differences within the population and how these differences correlate with the outcome measurement. The second section focuses on the results of the two empirical models presented in Chapter 3. Overall, the data show a positive effect for the CLPS children. Those who attended the schools are 37% more likely to still be in school relative to the control group. There appears to be a strong propensity for CLPS children to graduate, and furthermore, to continue studying past grade five. Despite this overall successful picture, the study also revealed some significant issues regarding the schools' ability to reach their intended population. Finally, qualitative data from household interview transcriptions are incorporated into the results to shed light on potential underlying mechanisms or explanatory variables not captured by then quantitative results.

I. Descriptive Statistics

The goal of this first section is to provide a synopsis or overall framework of the positive and negative aspects of the Child Labour Project Schools based on correlational data, bivariate testing, and supporting qualitative anecdotes and quotes from interviews.

Overall, the data show a positive picture of the seven Rotary Club-run CLPS schools in Jalandhar, Punjab. The schools are enrolling a wide mix of child laborers. *Table 2* indicates the mix of child occupations captured amongst the currently enrolled children:

The majority (79.57%) of enrolled children work in soccer ball stitching. This is not surprising, considering that the original impetus for the expansion of the CLPS program was due to external pressure on the sporting goods industry to address child labor issues. *Table 2* also summarizes mother and father occupations. Interestingly, soccer ball stitching is far more common amongst the children than their parents. Amongst mothers, 60.00% are soccer ball stitchers, but only 17.75% of fathers are. One possible explanation for this is that the informal, home-based nature of soccer ball stitching lends itself to mothers who cannot leave the house during the workday, and children who need a more flexible, informal working style to accommodate their schooling hours. Also, note that some occupations are traditionally more urban-based industries while others are more agricultural or rural-based industries.

Table 2: Frequency of Child, Mother, and Father Occupations by Industry

Occupation	Child	Mother	Father
None	3 (1.61%)	8 (2.08%)	9 (2.35%)
Football (soccer ball) stitching	148 (79.57%)	231 (60.00%)	68 (17.75%)
Daily labor	2 (1.08%)	26 (6.75%)	121 (31.59%)

Rickshaw puller	--	--	13 (3.39%)
Brick making	2 (1.08%)	4 (1.04%)	5 (1.30%)
House sweeper/house maid	17 (9.14%)	33 (8.57%)	3 (0.52%)
House wife	-	34 (8.83%)	1 (0.26%)
Pipe fitting	--	--	2 (0.52%)
Auto puller	--	--	1 (0.26%)
Sick/ill (not working)	1 (.54%)	1 (.26%)	2 (0.52%)
Dead	--	7 (1.82%)	15 (3.92%)
Factory labor	--	11 (2.86%)	37 (9.66%)
Surgery work	--	--	22 (5.74%)
Leather work	--	--	6 (7.83%)
Miscellaneous sporting goods work	4 (2.15%)	13 (3.38%)	27 (7.04%)
Lives in village (migrant labor)	--	5 (1.30%)	--
Miscellaneous	5 (2.69%)	12 (3.12%)	40 (10.44%)
Key making	--	--	11 (2.87%)
Helps out parents	4 (2.15%)	--	--
TOTAL	186 (100%)	385 (100%)	383 (100%)

The schools are capturing a wide array of child laborers, and successfully enrolling and maintaining them in the CLPS schools. During the academic year 2005-2006, 94.23% of the enrolled children completed the academic year, with only a 4.77% drop-out rate. This drop-out rate is roughly 1/3 of that of public, government-run schools (mainstream schools)

within the same time period.⁹ Of the CLPS children who completed the year, 42.02% were girls and 57.98% were boys. The enrolled students performed academically well, with 10.42% of students receiving first division, 72.67% receiving second division, and 16.86% receiving third division.¹⁰ *Table 3* tabulates the marks received by gender.

Table 3: A Cross-Tabulations of Marks Received and Gender

MARKS	FEMALE	MALE	Total
1st (highest)	8 44.44%	10 55.56%	18 10.42 %
2nd (middle)	52 41.60%	73 58.40%	125 72.67 %
3rd (lowest)	17 58.62%	12 41.38%	29 16.86 %
Total	77 44.77%	95 55.23%	172 100 %

Another facet of the CLPS schools is that each of them is located in a different area in Jalandhar. Some areas are more rural, while others are right in the heart of the city. The cross-tabulation of school locations (*Table 4*) shows us that almost across the board, the seven schools have more than 90% of their attendees still studying, with the exception of Nari Niketan, which has only 77.46% still studying. The Nari Niketan district draws mainly from migrant workers in brick making, agriculture, and other seasonal types of labor. One hypothesis suggests that migrant laborers are the hardest population of children to keep in school due to frequent changes of location and to a lack of stable, month-to-month income. In the brick-making industry, for example, interview transcripts indicate that for six months of the year, each worker earns a consistent 100 rupees (Rs) per day making bricks. However, during the rainy season there is much less work, and the family has to borrow money from

⁹ Data was collected from the Jalandhar Ministry of Education on August 13, 2008, not as an equivalent population but purely for descriptive comparison.

¹⁰ Divisions are used in place of grades at the schools, with First Division awarded to the top students and Third Division to the lower performing students.

the kiln owner. “Our family’s life very much revolves around the kiln,” explained one father.¹¹ The children thus go to school during the rainy season, but need to work during the dry season, which is often unpredictable and not in accordance with school calendars. Although the Child Labour Project Schools accommodate the schedules of working children, when the children begin formal schooling after grade five, it is unlikely that the government school calendar allows for the same flexibility.

Table 4: Cross-Tabulation of School Location and Likelihood that the Child is Still in School

Key			
<i>frequency</i>			
<i>row percentage</i>			
school	still in school		Total
	0	1	
Bargo Camp	1 7.14	13 92.86	14 100.00
Basti Sheikh II	3 4.84	59 95.16	62 100.00
Gakhal	2 2.99	65 97.01	67 100.00
Katra Mohalla	6 9.68	56 90.32	62 100.00
Mohalla	6 7.69	72 92.31	78 100.00
Nahal	0 0.00	49 100.00	49 100.00
Nari Niketan	16 22.54	55 77.46	71 100.00
Wadala	3 4.48	64 95.52	67 100.00
Total	37 7.87	433 92.13	470 100.00

In summary, the CLPS schools show overall positive results in terms of retaining children, capturing child laborers from various areas of the region, and academic

¹¹ Interview conducted on August 7th, 2006, by Pamela Sud & translators.

performance. These accomplishments are likely in large part a result of a considerable outreach effort by the CLPS teachers in the community, the individualized and flexible style of teaching employed, focus on the child's educational attainment, small class size, and low teacher absenteeism.¹² In an interview with Ms. Sonia Singh, a teacher at CLPS Nahal for four years, she articulated the difference well. "If one of my students is absent, I ask his friends where he is. If he is absent for three days or more, I go to his family's home and check on him. The teachers develop personal relationships with each child's family. You will have difficulty finding any government school teacher who goes to visit a student's home."¹³ Also, another important reason for generally positive schooling outcomes is that the majority (76%) of parents indicated in interviews that they would do whatever necessary to ensure that their child studies "as far as he/she is capable" even if it meant financial hardship for the family. However, when pressed further, "at least to class ten" was the most common response for most parents. It is possible that teachers cultivating a personal relationship with the students' families are generating a positive side effect of emphasizing the value of education to the families of the children, and to the children themselves.

Other positive aspects of the Child Labour Project Schools that are likely contributing to their overall positive results are innate to the schools' structure, including:

- Students that are too old to start mainstream schools are allowed (and encouraged) to enroll and catch up to their peers by grade five. (The curriculum is accelerated.)
- The social atmosphere of the school seems to be a positive environment for the students.

¹² Teacher absenteeism is often cited as a reason for low quality of government-run schools in India. Data show that in parts of India, teacher absenteeism is as high as 38% (World Bank Survey 2003).

¹³ Interview conducted on August 13th, 2006, by Pamela Sud & translators.

- In some cases, the extra income generated by the monthly stipend for attending provides a necessary boost for families.
- The CLPS schools do not have any “hidden costs” or other barriers to truly free schooling. Interviews reveal that the supposedly free government-run schools in reality charge an admission fee (250 Rs), a monthly fee (50 Rs), and in some cases, payment for school books and uniforms. Although these costs are minimal, in several cases they pose a fundamental barrier to families educating their children.

Despite the overall positive picture, the study also revealed some significant issues. First and foremost, the CLPS schools are not hitting their target populations squarely. They are enrolling children who do not work (and never have), thus enrolling children who may otherwise go to government schools. Also, their focus on soccer ball stitching children appears to be misguided. Although Table 3 indicates that 79.73% of enrolled students are stitchers, the counter to that number is that more than one out of five enrolled children is not a member of the target population; in fact, some of them are not child laborers at all. Interestingly, it was concern for home-based work in the sporting goods industry, in response to external pressures from consumers and competing manufacturers, that led to the CLPS model being established in Jalandhar.¹⁴ In practice, though, these children are among the least vulnerable of the working children. Their parents have a regular source of income, the work schedule is flexible, the work takes place in the home, and interviews indicate that the income generated from stitching was often the reason the child could continue on to further study. External pressure on the sporting goods industry appears to be misguided. In reality, the most vulnerable child workers may in fact be those from industries in which there is less linkage to export markets.

¹⁴ Jalandhar is the largest sporting goods manufacturing city in India.

Another measure through which the schools seem to be missing their target population is that the students enrolled are not all “out-of-school” children. Instead, the data indicate that a substantial portion of students were already enrolled in mainstream schools prior to enrolling in the CLPS system, which suggests an opportunistic approach towards the alternative schooling model.

As summarized in *Table 5*, 36.26% of CLPS students had some prior level of schooling before enrolling in the CLPS schools, which is a reasonably accurate proxy for whether the CLPS student truly needed the non-formal education program in order to be educated. Of the students who had some prior level of schooling, the median prior level was through second grade (class 2). These “switcher” students were able to enroll in the CLPS program because they may have been out of school at a given time, most often because of family economic circumstances, and the parents were successful in convincing the sympathetic CLPS teachers to admit the child. We also see anecdotal evidence of pressure on the teachers to show full enrollment, forcing them to seek out students who could well have attended a mainstream school. Other incentives for switchers might be purely financial. Financial incentives given to CLPS students, in the form of stipends, free school books, free uniforms, no school fees, and mid-day meals are an attraction for poor families that are constantly struggling for funds.

Table 5: Cross-Tabulation of Whether CLPS Students Had Prior Schooling and To What Grade Level

Key
<i>frequency</i>
<i>row percentage</i>

prior level	prior school		Total
	0	1	
0	116 97.48	3 2.52	119 100.00
1	0 0.00	8 100.00	8 100.00
2	0 0.00	27 100.00	27 100.00
3	0 0.00	13 100.00	13 100.00
4	0 0.00	15 100.00	15 100.00
Total	116 63.74	66 36.26	182 100.00

In addition to not squarely targeting the population of out-of-school children, the CLPS program might also be preventing or postponing the mainstreaming of some children. Because CLPS captures out-of-school children of ages 8 or 9, in some cases, they are providing perverse incentives for parents to keep their children out of school until that age. Both of these concerns raise questions about the allocation of resources to children that may not need it.

Another concern with the CLPS program is an issue that repeatedly came up during the interviews: in many cases, large expenses due to a major illness in the family were the driving force that caused the family to pull the child out of school. This phenomenon recurred so frequently that in supplemental data I collected information specifically on major illnesses within the family. *Table 6* represents the results of a child's likelihood to still be

studying if the family experienced a major illness in the past year that brought a significant financial burden. Note that 38% of children experienced some major illness in their family, of which only 35.85% are still in school relative to the 64.15% of children who did not experience a major illness in their family. This suggests that in the debate about how to capture and retain working children in school, a largely omitted part of the debate is the role that major health expenses play in an environment of informal institutions, where no formal health insurance models exist in poor communities. In such a situation, one medical expense can be destabilizing enough to a family's income that the child's income becomes necessary. Or, as a second-order effect, the illness of a primary breadwinner means lost income due to their incapacity to work. This issue is likely outside the scope of the CLPS schools to address, but nonetheless important to recognize.

Table 6: Cross-Tabulation of Major Illnesses in the Child's Family And Whether the Child is Still in School

Key
<i>frequency</i>
<i>row percentage</i>

maj ill	still in school		Total
	0	1	
0	140 58.33	263 64.15	403 62.00
1	100 41.67	147 35.85	247 38.00
Total	240 100.00	410 100.00	650 100.00

Finally, a few remaining concerns about the current structure of the CLPS program in Jalandhar:

- There is not much special consideration given for the needs of migrant worker children. There are certain inflexibilities of the CLPS program that prevent migrant workers from being retained in school. (Their school calendar is often not in line with the crop season, there is a requirement that the progress of students be reported from year to year).
- Even after mainstreaming the CLPS students into the government education system, there is no emphasis placed on getting them out of child labor. But, this is not part of the mission of the program.
- There is no substantial internal evaluation being done. Once the CLPS children are done with the program and three months removed from the program, no connection is maintained. Keeping track of their graduates long-term would provide interesting insight into the long-term success of the program's efforts.

II. Empirical Results

The results of the two fixed effects models outlined in the Empirical Design section of Chapter 3 are described in detail here. The models differ in how the control group is defined, and how a successful schooling outcome is measured. *Table 7a* shows the results from Model #1, in which children of school age who attended the NFE schools are compared with siblings also of school age who did not attend the NFE schools. This group provides an effective control population under the assumptions of the family fixed effects model, which assume that children within the same family, holding age and gender constant, will receive the same educational treatment.

Table 7a: The Effects of Child Labour Project School participation on Likelihood of Still Being in School

	Coefficient	Standard Error
<i>Likelihood of Still Being in School</i>		
Attended Child Labour Project School	.405	(.075)***
Gender	.086	(.074)
Constant	.511	(.056)
<i>Model Statistics</i>		
Within R2	.218	
Between R2	.019	
N observations	236	
N Groups	123	
F	15.45	
Note: Each outcome run in a separate model to avoid multicollinearity		
*** p < .001, ** p < .01, * p < .05, + p < .1		

The results from this regression show that the “treatment” children (who attended the CLPS), are 40.5% more likely to still be studying relative to the control group.

One shortcoming of using “stillinschool” as the dependent variable is that its binary nature forces homogeneity in how much each case is weighed. One could argue that a sixteen-year-old who is still studying is a more successful schooling outcome than a nine-year-old who is still studying. But using this particular outcome of interest, these two cases are weighted the same. In order to account for this, a more nuanced model in *Table 7c* applies subjective weights to children of various ages. Cases of ages seven to twelve are discounted, while cases from twelve to sixteen are weighted more heavily. The subjective weights were assigned as listed in *Table 7b*:

Table 7b: Weights Assigned Based on Age

Age	Weight Assigned
7 <= age < 8	.5
8 <= age < 9	.6
9 <= age < 10	.7
10 <= age < 11	.8
11 <= age < 12	.9
12	1.0
12 < age <= 13	1.1
13 < age <= 14	1.2
14 < age <= 15	1.3
15 < age <= 16	1.4

The regression, now using a weighted measure of outcome, yields a very similar result. The coefficient, now .5007083, can be interpreted relative to the result in *Table 7a*:

Table 7c: The Effects of Child Labour Project School participation on Likelihood of Still Being in School, Weighted based on Age

	Coefficient	Standard Error
<i>Weighted Likelihood of Still Being in School</i>		
Attended Child Labour Project School	0.5007	(.081)***
Gender	-0.0076	(.081)+
Constant	0.5036	(.061)
<i>Model Statistics</i>		
Within R2	0.255	
Between R2	0.048	
N observations	236	
N Groups	123	
F	18.98	
Note: Each outcome run in a separate model to avoid multicollinearity		
*** p < .001, ** p < .01, * p < .05, + p < .1		

By putting more significance weight on older children still in school, the new result is .10 higher than the previous result, indicating that there are disproportionately more older children still in school rather than younger children, which is the opposite result from the initial concern. This indicates that *Table 7a* is a downwardly biased estimate, quantifying a CLPS effect that is *lower* than its actual effect!

The third and final modification on Model #1, I use the same treatment and control groups but with a different outcome measure. Instead of using the binary outcome measure of whether the child is still in school, I use a variable that measures the gap in educational attainment between how much schooling the child has had and how much they were supposed to have had by their age.¹⁵

Table 7d: The Effects of Child Labour Project School Participation on the Gap in Educational Attainment

	Coefficient	Standard Error
<i>Gap in Educational Attainment</i>		
Attended Child Labour Project School	-3.389	(.735)***
Gender	0.118	(.911)+
Age	0.782	(.163)***
Constant	-5.212	(1.930)
<i>Model Statistics</i>		
Within R2	0.746	
Between R2	0.362	
N observations	282	
N Groups	265	
F	13.71	
Note: Each outcome run in a separate model to avoid multicollinearity		
*** p < .001, ** p < .01, * p < .05, + p < .1		

¹⁵ How much schooling the child is “supposed to have had” is taken from the Indian government’s national education standards.

The results, illustrated in *Table 7d*, indicate that the control group (non-CLPS students) have a gap in educational attainment 3.38 years greater than the treatment group. In other words, holding age and gender constant and using a family fixed effects model, children who attended a CLPS are statistically significantly closer to the correct grade for their age than their counterparts who did not attend a CLPS.

The second model presented in Chapter 3 takes a different approach to defining the control group. The underlying validity threat motivating this redefinition is that the treatment and control groups in model #1 have individual-level characteristics that are not captured by family fixed effects, age, and gender. Model #2 addresses this concern by redefining the control group in such a way that takes advantages of the natural experiment setup that the CLPS have only existed since 2000. Thus, any child past age nine in 2000 was not eligible to enroll in the program, and the control group is now siblings who were of a different age cohort such that the alternative schools were not an option for them. The assumption is that the educational attainment of the CLPS child is a good proxy for what the educational attainment of an older sibling *would have been* if they had had the option to enroll in a CLPS school. This measure of the counterfactual is captured in *Table 8* below:

Table 8: The Effects of Child Labour Project School Participation on Gap in Educational Attainment (using Model #2 treatment group)

	Coefficient	Standard Error
<i>Gap in Educational Attainment</i>		
Member of Treatment Group	-1.976	(.661)**
Constant	4.437	(.475)
<i>Model Statistics</i>		
Within R2	0.145	
Between R2	0.491	
N observations	102	
N Groups	48	
F	8.96	
Note: Each outcome run in a separate model to avoid multicollinearity		
*** p < .001, ** p < .01, * p < .05, + p < .1		

The results indicate that the control group's gap in educational attainment was 1.976 years greater than the treatment group's gap in educational attainment. Compared with the result found in Model #1, the gap is .7 years less. Although these two results differ, in both cases the result is significant at a 95% confidence level and negative. The only added factor that must be accounted for is now that the control group is on average six years older than the treatment group; there could have been an overall change in gross enrollment that is an endogenous variable biasing the results. For example, between 2000 and 2006, there could have been an overall increase in primary school enrollment due to time-varying factors such as improvements in the school system, better infrastructure, more government money spent on education, or overall levels of economic development.

In order to gauge whether this underlying trend exists, I found gross city-level enrollment rates specific to Jalandhar, Punjab, and then measured against the population ratio to determine if there was indeed a trend in increased primary school enrollment as a whole. I found that there was only a marginal increase in gross enrollment relative to school-age population from 2000 to 2006: roughly a 1.79% increase.¹⁶ Although this means the treatment and control groups are slightly different on this measure, this increase in enrollment should not offset the strongly significant results.

¹⁶ Gross enrollment and population data taken from the Official Website of Punjab, <http://punjabgovt.nic.in/education/SchoolEducation.htm>

Chapter 5: Summary and Conclusions

I. Summary

The Child Labour Project Schools are serving a useful function in that they are helping poor children attend school. Even if their target population is not hit squarely, there is no doubt that the unique, supportive, and accommodating approach taken by the CLPS schools makes an important contribution. It has aided not necessarily only the child labor population, but the poor population as a whole attain educational levels otherwise unreachable. Children who are engaged in home-based work have a much higher rate of success both in completing fifth grade and continuing with further studies than children who work outside of the home in a more formal setting. Also, migrant labor children are a particularly difficult group to reach and keep in school.

The positive aspects of the CLPS include the financial incentives given to families and financial assistance that effectively eliminates the hidden costs of schooling. The Child Labour Project Schools are truly free of cost, which is an important foundation for attracting and retaining poor children. Their approach of capturing out-of-school, older children and allowing them to catch up to their peers is also a strong aspect of the program. The hands-on approach taken by the teachers, administration, and NGO appear to be an important element as well in ensuring regular attendance and a successful transition to public schooling. In addition, the CLPS program is providing children with basic nutrition and medicine (such as de-worming medication) to a population that might not otherwise have received it. The CLPS program has significantly improved a child's likelihood of still studying after the transition to mainstream schools (40.47% more likely relative to the control group, or 50.07% using age weighting). When measured in years of schooling, the CLPS program is

shown to decrease the gap in a child's educational attainment by 1.97 years, holding age, gender, and family fixed effects constant.

Despite an overall positive picture, the data also show some significant issues for improvement within the CLPS program. The CLPS aims to capture working, out-of-school children who would not have otherwise gone to school. Based on evidence from their prior schooling levels and using siblings as a measure of the counterfactual, some children are simply switching to the Child Labour Project Schools from government schools to reap the benefits they offer. In addition, not all of the children are working, and 20.43% of children who are working are not in the soccer ball stitching industry, which was the original target population.

II. Implications for Practice

Evidence from this study indicates that a multi-pronged approach is necessary in order to tailor to specific circumstances of the child labor population at hand. The already mixed approach that the Jalandhar Child Labour Project Schools use needs to be expanded and re-directed in some cases. Results indicate that even the more flexible NFE schooling schedule is only compatible with work when it is informal and home-based labor. Fundamentally, rather than aiming to create a school setting that is compatible with working, efforts should be focused on simply getting poor children in to school. Whether they are working children or not, the first priority should be school attendance and eliminating child labor should be a secondary effect.

The successful elements of this NFE program also illuminate some policy implications for the public schooling system at large. First, public schools in Jalandhar need to be truly free of cost, not nominally free, but entirely without hidden fees such as for books

and uniforms, exam fees, entrance fees, and monthly fees. Second, schools need to be accessible. The CLPS program has done a fairly good job of having schools within close proximity to people's homes. However, in some cases, even if the kilometer proximity quota was met, significant obstacles existed between the children and their supposedly accessible school: a river, a muddy road, hills or valleys, or unsafe walking conditions. In such cases, transportation provisions need to be provided. Third, there needs to be before- and after-school support for children that they cannot get at home. Poor children in Jalandhar need extra support to survive in the mainstream system, including homework help and day care for their infant siblings. Potentially, there exists a role for outside organizations to play in partnering with the formal school systems to run before and after-school support facilities. Fourth, there is a significant unmet need for special education. The data show a significant number of cases in which children with special needs are denied access to formal education. Beyond mental problems and health problems, other special needs include having migrant worker parents, for example, all of which require special attention among much of the government school population. Finally, this study shows evidence of success partially due to the role of the teacher in taking responsibility for getting children in their district into the classroom, in addition to overall good level of teaching and attendance. Why should public schools not adopt the same model of the teacher's role?

III. Suggestions for Future Research

Three aspects of the CLPS program in Jalandhar demand more rigorous attention in future research: migrant labor populations, vulnerability to external income shocks, and methods of evaluation.

Migrant laborers have shown to be a particularly difficult group of children to keep in school. Even in collecting reliable data, often with migrant labor children moving communities at least once within any given school year, it is incredibly difficult to measure their schooling outcomes, or keep track of whether they are enrolled at any given point in time. Future research directed towards understanding migrant children schooling behavior is necessary in order to make accurate policy recommendations on how to better capture these populations.

Another area that demands more research than this data set can provide is vulnerability and unpredictability in month-to-month income of families due to medical expenses incurred as a result of a major illness in the family. The data presented on children whose families incurred such expenses within the past six months and their high drop-out rates is worrisome. Furthermore, factors of vulnerability are not limited purely to medical expenses: other factors could include seasonal employment, unpredictable employment, lack of diversification of income sources, or lack of stable, formal insurance markets. Investigation into these issues of vulnerability would require this data set to be expanded to incorporate panel data over a longer time period in order to make intertemporal comparisons based on fluctuations in monthly income.

Finally, the third area that demands future attention is one in which there currently exists a dearth of research: rigorous, regularly conducted evaluation studies of the CLPS program. The overseeing NGO keeps books with limited information on the children's attendance and marks, and occasionally assessments are conducted by outside organizations. However, there is not yet a rigorous evaluation that has been conducted examining the efficacy of the Child Labour Project Schools, or more broadly, NFE schools in general.

IV. Limitations

The biggest limitation of the data set stems from the cross-sectional nature of the data: although this data is sufficient to answer the questions proposed in this thesis, longitudinal data would allow much more flexibility to answer more questions about the CLPS effectiveness. For example, the current outcome of interest used in Model #1 is a binary variable of whether the child is still in school, at that specific point in time. But with longitudinal panel data, one could use other measures for effectiveness, and in addition, track the CLPS graduates for a longer time horizon after they graduate.

Another limitation is the sample size. With 389 CLPS attendees, and 582 data points including sibling observations, running a family fixed effects model throws out a lot of observations that do not have variance within the family. This could easily be expanded even to incorporate all 27 of the Jalandhar CLP schools, rather than just the seven schools under oversight by Rotary International.

V. Conclusions

The seven Child Labour Project Schools in Jalandhar, Punjab, under the oversight of Rotary International, are doing a commendable job in providing quality primary schooling to poor families. Due to their unique, nontraditional approach to schooling and teaching, they serve an important function in that they reach children from certain areas, family circumstances, and working conditions who would otherwise slip through the cracks of the public education system. Although the study revealed some existing issues on hitting their target population and on potential perverse financial incentives attracting non-child labor students and already in school children to the program, as a whole, the CLPS is doing a commendable job and will likely continue to do so in the coming years.

Appendix A

Survey #1: Currently Enrolled Students (2006)
Information on Currently Enrolled Students

Student Information

Name of Child: _____
Birthdate (or age if birthdate not known): _____ Sex: Male / Female
Current School: _____ Current Class Level: _____
Total # of School Years Spent at Child Labor Project Schools thus far: _____
What marks did this child receive in the highest class he/she has completed? _____
Which teacher gave these marks? _____
Describe the Child's Attendance: High / Average / Unsatisfactory / Don't Know
Any additional information about this child? (<i>behavior issues, abnormal circumstances, medical conditions, learning disabilities, exceptionally bright, etc. – continue on back if necessary</i>)

Family Information

Father's name: _____	
Mother's name: _____	
Father's occupation: _____	
Mother's occupation: _____	
Current Address: _____	
No. of older brothers: _____	No. of younger brothers: _____
No. of older sisters: _____	No. of younger sisters: _____

Student Questions

What do you plan to do next school year?

- Come back to the same school
- Enroll in a Regular School
- No future plans to Attend School
- Do Not Know
- Other _____

How certain are you about your plans?

Certain
Pretty sure
Not very sure

Teacher/Administrator Questions

What do you think this child will do next school year?

Come back to the same school
Enroll in a Regular School
No future plans to attend school
Do not know
Other _____

If not continuing schooling, why?
(circle all that apply)

Family too poor to afford child not working
Parents don't value further education
Not performing well in school
Did not get admission to public school
Other _____

Appendix B

Survey #2: Former Students (2000-2006)

Information on formerly enrolled students: have either continued studying, or returned to labor force

Name of Child: _____

Birthdate (or age if birthdate not known): _____ **Sex:** Male / Female

Family Information

Father's name: _____ **Mother's name:** _____

Father's occupation: _____

Mother's occupation: _____

Current Address (if known): _____

No. of older brothers: _____ **No. of younger brothers:** _____

No. of older sisters: _____ **No. of younger sisters:** _____

Student Information

Name of School in which Child Studied: _____

Last Year of Child Labor School Attendance: _____

Up to Which Class Did This Child Study? _____

of Total Years spent at Child Labor Project Schools? _____

Did the child give the Class 5th Exam? Yes / No / Don't Know **If so, passed?** Yes / No / Don't Know

Did he/she continue with his/her studies? Yes / No / Don't Know

If yes, where? (Name of school) _____

What marks did this child receive in the highest class he/she participated in? _____

Which teacher gave these marks? _____

Describe the Child's Attendance:

High / Average / Unsatisfactory / Don't Know

If not continuing schooling, why? (circle all that apply:)

1. Failed Class 5th Exam
2. Family too poor to afford child not working
3. Parents don't value further education
4. Was not performing well in school

5. Did not get admission to public school

6. Other _____

What is this child doing now?

Appendix C

Supplemental Data of Currently Enrolled Students

Child's Name: _____ **Father's Name:** _____ **Child Labor School:** _____

Child Data:

Year first enrolled in the CLPS:	
Did the child attend any other school before coming to CLS?	Yes/No
If yes, which classes completed (including KG):	
What type of school (government, private, other)?	
Where?	
Does child work before or after school?	Yes/No
If yes, what does he/she do?	
How many hours per day does he/she work?	

Sibling Data:

No.	Age	Attended CLPS? (if yes, which one?)	Last Class? (include non-	If working, describe Work and Hours/Day worked
1				
2				
3				
4				
5				
6				
7				

Appendix D

Interview Questions for Former Students that Have Continued Studies

- Family Data:
 - For each sibling:
 - Age
 - Gender
 - Last class completed or currently enrolled in?
 - Did the child go to the child labor school?
 - Do they work? How many hours?
 - Current occupation
 - What is the parents' level of schooling?
 - What kind of work does the child do? How many hours? How much does he/she earn?
- Financial Situation:
 - What are the parents' occupations?
 - What is the income for the family?
 - Do you own/rent a house?
 - How much does it cost to send your children to school?
 - Are there or have there been any costly medical problems in your family?
- The Child Labor School Experience:
 - Why did you decide to enroll in the child labor school at age 8/9 rather than a regular school at age 5/6?
 - Did the child like going to the child labor school?
 - Did you receive a stipend from the school? In what form? Towards what did it go?
 - How much was the child able to work while attending the child labor school?
- The Future:
 - How is the child doing in the regular school?
 - Is the child able to continue working? How many hours?
 - How long do you plan to send the child to the regular school?
 - After finishing/withdrawing from school, what kind of work do you think the child will do?

Interview Questions for Former Students that Have Not Continued Studies

- Family Data:
 - For each sibling:
 - Age
 - Gender
 - Last class completed or currently enrolled in?
 - Did the child go to the child labor school?
 - Do they work? How many hours?
 - Current occupation
 - What is the parents' level of schooling?
- Financial Situation:
 - What are the parents' occupations?

- What is the income for the family?
- Do you own/rent a house?
- If there are children in the family going to school, how much does it cost to send them?
- Are there or have there been any costly medical problems in your family?
- The Child Labor School Experience:
 - Why did you decide to enroll in the child labor school at age 8/9 rather than a regular school at age 5/6?
 - Did the child like going to the child labor school?
 - Did you receive a stipend from the school? In what form? Towards what did it go?
 - How much was the child able to work while attending the child labor school?
- The Future:
 - Why did you decide to stop sending your child to school?
 - Academics?
 - Money?
 - Capability?
 - Other?
 - If the child finished class 5:
 - Would you have kept sending your child to school if the school still offered afternoon classes?
 - Would you have kept sending your child to school if the school still offered stipend?
 - What kind of work does the child do now? How many hours? How much does he/she earn?
 - What kind of work do you think the child will do in the future?

Appendix E

ORAL CONSENT SCRIPT
Pamela Sud

You are invited to participate in a **research study about the schools your children attend. The purpose of this study is to examine how effective the NFE (non-formal education) schools are compared to the Indian government schools.** You will be asked to participate in a short interview.

There are no risks associated with this interview.

Please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. You have the right to refuse to answer particular questions. Your individual privacy will be maintained in all published and written data resulting from the study. I will provide you with my contact information if you have any questions for me about this study, or anything else. The card also has the contact information for the Human Subjects Office at Stanford if you have any questions about your rights as a participant.

Please also understand that we are asking for not only your participation, but consent to allow your child to participate in the research, as well. We will ask questions about their school or why they are not currently enrolled in school, and also questions about their work. It should take roughly 20 minutes and there are no risks associated with this interview. It will take place on school grounds after or before hours in the presence of me and my liaison.

Do you wish to participate in the study and allow me to talk to your child? (ORAL CONSENT: yes/no)

Do you agree to be audio taped?

I will hand out a separate business card or contact sheet to subjects which includes the following contact information:

FOR QUESTIONS ABOUT THE STUDY

- Appointment Contact: If you need to change your appointment, please contact **Parkash Sondhi** at 91-989-109-3020.
- Questions, Concerns, or Complaints: *If you have any questions, concerns or complaints about this **research study**, its procedures, risks and benefits, or alternative courses of treatment, you should ask the Protocol Director. You may contact her, Pamela Sud, now or later at 1-703-328-2446.

- **Emergency Contact:** *If you feel you have been **hurt by being a part of this study**, or need immediate assistance please contact the school counselor at 91-985-588-880, or the Faculty Sponsor, Grant Miller, at (650) 723-6019.
- **Independent of the Research Team Contact:** *If you are not satisfied with the manner in which this study is being conducted, or if you have any concerns, complaints, or general questions about the research or your rights as a research study subject, please contact the Stanford Institutional Review Board (IRB) to speak to an informed individual who is independent of the research team at (650)-723-2480 or toll free at 1-866-680-2906. Or write the Stanford IRB, Administrative Panels Office, Stanford University, Stanford, CA 94305-5401. In addition, please call the Stanford IRB at (650)-723-2480 or toll free at 1-866-680-2906 if you wish to speak to someone other than the research team or if you cannot reach the research team.

OR if subjects are not English speaking:

Identify a local contact person to act as a liaison and translator for subjects who may want to contact the Human Subjects Office with questions or complaints. Include the following statement: "If you have questions about your rights as a study participant or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish, Mrs. Parkash Sondhi at 91-931-200-7166, who will assist you in contacting Stanford's Human Subjects Office."

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