



Understanding Children's Work Project Working Paper Series, March 2009

The impact of programs relating to child labor
prevention and children's protection:
a review of impact evaluations up to 2007

S. Paruzzolo

March 2009

The impact of programs relating to child labor prevention and children's protection: *a review of impact evaluations up to 2007*

S. Paruzzolo^{†}**

Working Paper

March 2009

Understanding Children's Work (UCW) Project

University of Rome "Tor Vergata"

Faculty of Economics

V. Columbia 2

00133 Rome Tor Vergata

Tel: +39 06.7259.5618

Fax: +39 06.2020.687

Email: info@ucw-project.org

As part of broader efforts toward durable solutions to child labor, the International Labour Organization (ILO), the United Nations Children's Fund (UNICEF), and the World Bank initiated the interagency Understanding Children's Work (UCW) project in December 2000. The project is guided by the Oslo Agenda for Action, which laid out the priorities for the international community in the fight against child labor. Through a variety of data collection, research, and assessment activities, the UCW project is broadly directed toward improving understanding of child labor, its causes and effects, how it can be measured, and effective policies for addressing it. For further information, see the project website at www.ucw-project.org.

This paper is part of the research carried out within UCW (Understanding Children's Work), a joint ILO, World Bank and UNICEF project. The views expressed here are those of the authors' and should not be attributed to the ILO, the World Bank, UNICEF or any of these agencies' member countries.

^{*} The World Bank, HDNSP

**The impact of programs relating to child labor
prevention and children's protection:
*a review of impact evaluations up to 2007***

Working Paper

March 2009

ABSTRACT

This paper will provide a review of impact evaluations of policies up to 2007 relating to child labor prevention and protection. The aim of this review is to provide a summary of these impact evaluations in an attempt to draw some best practice lessons, but also to assess the state of art in terms of the current use of rigorous impact evaluation and the actual '*evaluability*' of policies with a direct and/or indirect effect on child labor. The definition of what is considered an impact evaluation in this note will be discussed in the methodological session. The immediate output will be a detailed mapping of policy experience and impact evaluation relating to child labor prevention and protection.

**The impact of programs relating to child labor
prevention and children's protection:
*a review of impact evaluations up to 2007***

Working Paper

March 2009

CONTENTS

1. Background and introduction.....	1
2. Tackling child labor: an overview of the policy options	3
2.1 Influencing household decisions concerning children's time use	5
3. Impact evaluation: concepts and methodology.....	8
3.1 Defining impact evaluation.....	8
3.2 Elements of effective impact evaluation design.....	10
3.3 Impact evaluation methods	10
3.4 Output, outcomes and indicators	13
4. Review and mapping methodology	15
5. Evaluated policies: results with respect to the reduction of child labor	16
5.1 Previous research on the impact of conditional cash transfer and social funds	16
5.2 Impact of policies with a potential indirect effect on child labor.....	19
5.2.1 Policies that address the relative price of child labor	21
5.2.2 Policies affecting household resource constraints and vulnerability.....	28
6. Concluding remarks and directions for future research	33
References.....	37
Web Resources.....	43
Annex I.....	44

1. BACKGROUND AND INTRODUCTION

1. Impact assessments are mentioned as one of the objectives of the UCW (Understanding Children's Work) project. This component will firstly build upon the review of projects interventions, and aims at (i) identifying lessons learned, and (ii) assessing the efficiency and effectiveness of specific interventions and measures which can alleviate child labor. The lessons learnt would feed into designing "good practices" on interventions.
2. In this context, this paper will provide a review of impact evaluations of policies relating to child labor prevention and protection. The aim of this review is to provide a summary of these impact evaluations in an attempt to draw some best practice lessons, but also to assess the state of art in terms of the current use of rigorous impact evaluation and the actual '*evaluability*' of policies with a direct and/or indirect effect on child labor. The definition of what is considered an impact evaluation in this note will be discussed in the methodological session. The immediate output will be a detailed mapping of policy experience and impact evaluation relating to child labor prevention and protection.
3. The policies reviewed will be classified as preventive or protective, following the theoretical framework of analysis developed by Rosati and Lyon (2006). **Prevention measures** are needed both to reduce the flow of vulnerable children into child labor and to stop children already in work from moving up the "risk pyramid", while **protection measures** are needed to rescue or withdraw the existing stock of child labourers, facilitate their recovery and reintegration, and prevent them from re-entering work. The effective implementation of both prevention and protection measures requires reliable information, an appropriate legal and regulatory framework, functioning coordination structures, capable institutions and a mobilised society, i.e., an enabling environment.
4. Empirical evidence is indispensable to test the hypothesis of this framework of analysis. Yet, few programs have been rigorously evaluated according to the standards required by international organizations such as the World Bank. Moreover, the existing evidence hasn't been extensively studied in a systematic manner. This paper justifies the importance of doing rigorous impact evaluations and systematically examines the existing evidence on the impact of programs that could - directly and indirectly - reduce child labor. Evidence base generated by impact evaluations of both types of programs is surveyed. Some of these studies have already been summarized. For instance, the effects of conditional cash transfers (CCT) programs on child labor have been critically reviewed by Raju (2006). Yet the present work follows a different framework of analysis, and aims at providing a broader picture of programs, including also the ones that have

only potential indirect effects on child labor even if not fully explicated in the program's stated objectives, nor yet fully explored.

5. The paper will be structured as follows. The first part will define "preventive" and "protective" policies against child labor. Then the focus will turn to the power and importance of impact evaluations and the techniques to perform them. The third part of the study will present the framework of analysis developed to review the existing literature, and the findings of the studies mapped according to the framework. Recommendations for future research in this area will conclude.

6. We have included in this mapping exercise only interventions having a direct or indirect bearing on child labour and for which impact evaluations have been carried out. Several of the studies considered do not include child labour as an outcome indicator, but have a demonstrated impact on other variables, which could indirectly affect child work. For instance, if a program has proved to be effective in increasing schooling, it will be considered as it might contain useful, albeit indirect evidence.

2. TACKLING CHILD LABOR: AN OVERVIEW OF THE POLICY OPTIONS¹

7. Child labor is a complex phenomenon that cuts across policy boundaries – education, health, labour markets, capital markets, social security, economic growth and income distribution all play an important role. Achieving sustainable reductions in child labor therefore requires a policy response that is cross-sectoral in nature and targets three broad groups: (1) children at risk of involvement in child labor; (2) children already harmed by exposure to child labor; and (3) children in the worst forms of child labor requiring immediate, direct action.

8. The main burden for a sustainable reduction of child labor and increase in human capital investment rests on prevention (i.e. policies that target group (1) above). Clearly, sustainable reductions in child labor cannot be attained without addressing the factors causing children to enter work in the first place. By changing the economic and social environment, mainly of the household, preventive policies should aim at changing the “equilibrium” or long run level of child labor and school enrollment. Such policies are also the most relevant in terms of resource needed. However, given the cross sectoral nature of the phenomena, programs aimed at reducing child labor will also contribute

to other objectives and vice versa generating economies of scope in the use of the resources. These types of interventions have been more extensively evaluated and will be discussed more in detail in the following Sections. On the other hand there is no available evidence on the impact of ‘protection policies’. "Protection" measures are necessary for identifying and reducing the stock of children in child labor, facilitating their recovery and reintegration, and stopping their return to child labor. International child labor norms make clear that working children whose rights are most

Box 1.

Definition of Unconditional worst forms of CL

“Unconditional” worst forms of child labor targeted by ILO Convention No. 182 include (a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict; (b) the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances; and (c) the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties.

¹ The paragraph draws extensively on Rosati and Lyon's (2006) working paper

compromised, i.e., those facing the greatest degree of hazard and/or exploitation, should be targeted first with protection measures. This means that children in so-called “unconditional worst forms of child labor” (activities against fundamental human rights) and those in hazardous forms of work (activities compromising children’s safety, health or moral development) constitute the most urgent protection targets. “Second chance” policies targeting children already exposed to child labor, although likely less significant in resource terms, should not be neglected. They are critical to avoiding large numbers of children entering adulthood in a disadvantaged position, permanently harmed by early work experiences. Children with little or no schooling will be in a weak position in the labour market, at much greater risk of joining the ranks of the unemployed and the poor. If left alone, these children and youth are likely to be in need of other (more costly) remediation policies at a later stage of their life cycle. Examples of second chance policies are Transitional Education (TE) and Flexible Schooling (FS) programs. TE programs are aimed at smoothing the transition of child laborers and other vulnerable children into the formal school system as a key component of broader efforts to promote their constructive reintegration in society. FS programs are targeted specifically to working children, and are designed to make school more accommodating of the exigencies of work. These programs are not therefore aimed primarily at reducing child work *per se*, but rather at increasing school attendance and reducing drop-out among child laborers.

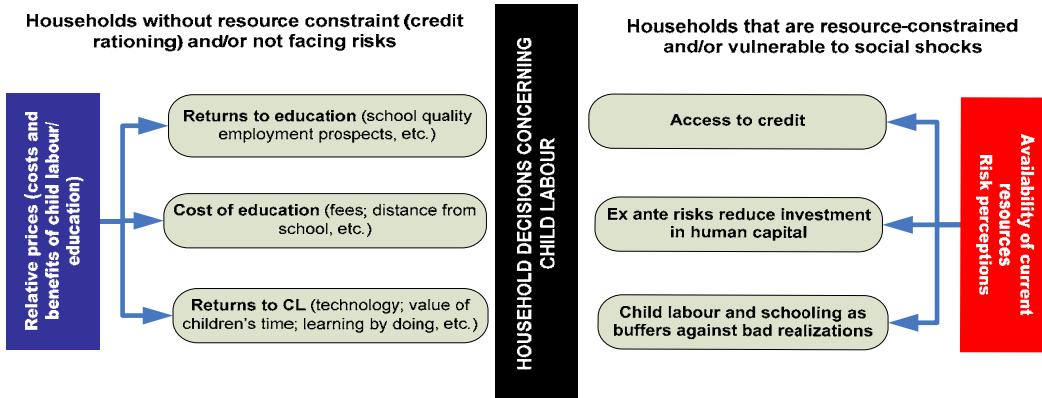
9. “Direct action”, is needed to identify and rescue laborers in forms of child labor that pose a direct threat to their health and safety or that violate fundamental human rights (see Box 1). Achieving sustainable reductions in child labor also requires a supportive national political, legal and institutional environment. Political commitment is needed to ensure that child labor is mainstreamed into broader development plans and programs. Labor legislation consistent with international child labor standards is necessary both as a statement of national intent and as legal and regulatory framework for efforts against child labor. As child labor is an issue that cuts across sectors and areas of ministerial responsibility, progress against it requires that institutional roles are clearly delineated, and that effective coordination and information-sharing structures are in place. Direct action policies include identification, removal and recovery of children from the unconditional forms of labor: strengthening enforcement and monitoring, formal and informal (i.e. community based) of child labor laws.

10. Finally, achieving sustainable reductions in child labor also requires political commitment, an appropriate legal and regulatory framework, functioning coordinating structures, capable institutions and a mobilised society, i.e., an enabling environment.

11. A selection of these policies falling into the two broad categories of prevention and protection, will be discussed more in detail in the following Sections. The focus will be on the policies that have been rigorously

evaluated, and, according to Rosati and Lyon's framework, are believed to have at least a potential indirect effect on child labor.

Figure 1. Determinants of HH decisions concerning child labor and alternative time uses



2.1 Influencing household decisions concerning children's time use

12. Effective prevention measures are the starting point to achieving sustainable reductions in child labor. As children are rarely responsible for their own choices, the design of preventive measures requires an understanding of factors influencing household decisions relating to schooling and work. If parents would have sufficient current resources and/or access to credit market and in absence of risk, the allocation of children's time would be guided by the perceived relative returns of work with respect to education. This very general statement, that hides complex relationships, allow us to draw, mainly for presentation purposes, a distinction between policies that affect relative prices and those concerned with the availability/access to resources and with the presence of risk.

13. They are summarized below highlighting the difference between the role of relative costs and benefits of child labor and that of inefficiencies due to availability of resources and market imperfection including uninsured risks. While such a distinction is obviously somehow artificial, it is a useful instrument in order to identify a structure for discussing policy options².

14. Following from this framework, addressing factors affecting the relative "price" of children's time, e.g., school access and quality, basic services access, and production techniques, is particularly important to preventing

² The table aims only to give an extreme synthesis, the interested reader can refer to Cigno and Rosati "The Economics of Child Labor", Oxford University Press and to the literature cited therein for a detailed discussion.

households from opting to involve children in work at the expense of schooling. Policies addressing household resource constraints and vulnerability to shocks, e.g., credit rationing and social insurance schemes, are also important in this context, as credit market imperfection do prevent household from exploiting “profitable” investment opportunities and child labor is often used by households as a buffer against insecurity and uncertainty.

15. It is apparent that the policies addressing child labor are cross sectoral in nature and that no single recipe is available. The particular condition and characteristics of CL and of the economy will determine the optimal policy mix.

16. Figure 2 presents in extreme synthesis a set of policies that have a bearing on child labor, using a classification that matches the explanatory framework presented above. In particular, policies are divided in to two groups:

- 1) **policies that address the relative price of child labor** with respect to the other children's possible use of time.

In the absence of resource constraints and risk, the (immediate) returns to work and the (longer-term) perceived returns to education are at the centre of parents' decisions concerning their children's time use. High returns to work raise the price of time foregone to attend school, while high perceived returns to education place a cost on school time lost for work. Addressing factors affecting the relative price of children's time is therefore particularly important to preventing households from opting to involve children in work at the expense of schooling. Policy options targeting a number of such factors are discussed below.

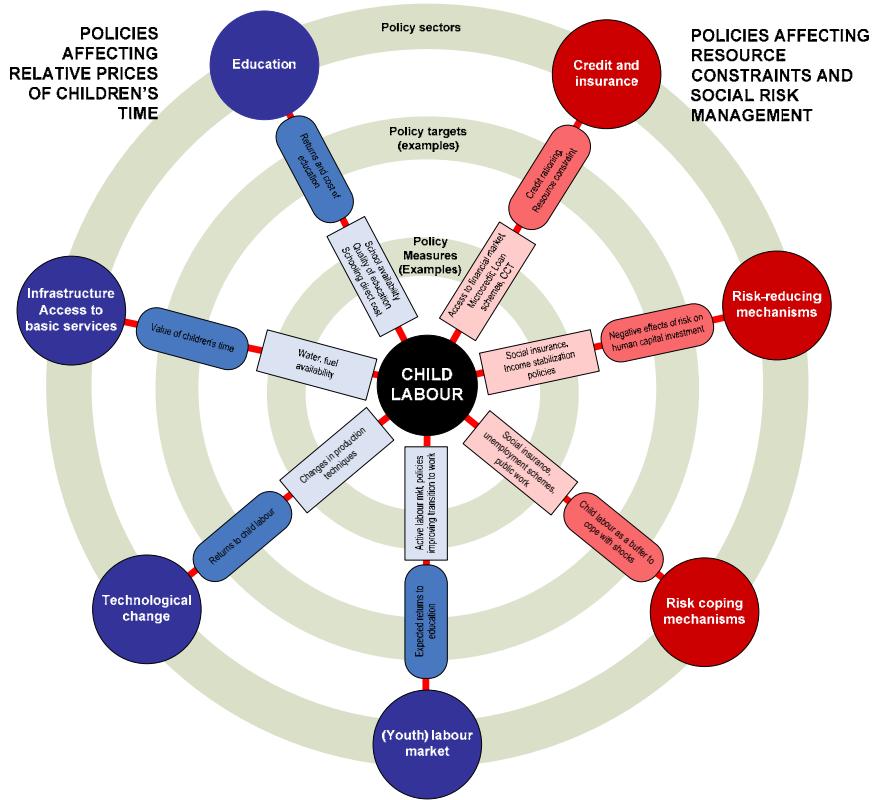
- 2) **social risk management (SRM) policies that are aimed to address the household resource constraint** and other inefficiencies of the financial and insurance markets.

Poverty is associated with child labor but is not necessarily its cause. If households do not have access to credit markets, they might be forced to give up on “profitable” investment in human capital. Moreover, there is increasing evidence that the vulnerability of household to risks is an important determinant of child labor. In absence of perfect capital and financial markets, *ex ante* income risks tend to depress investment in human capital. Uncertainty about returns to educations are also likely to generate inefficiently high level of child labor. Negative outcomes see children used as a buffer to substitute or complement for non existent (or not sufficient) coping mechanisms. SRM policies address these three issues, i.e., lack of access to resources, lack of risk reduction strategies, and lack of risk coping mechanisms. In what follows, we offer some examples of SRM policies. It is worth stressing that such policies are not directly targeted at child labor, but aim at addressing

household vulnerability in general. Hence, if well targeted, they might prove a cost efficient way to address child labor.

17. The specific policies will be discussed in the Section 5 presenting the mapping of evaluated policies.

Figure 2. Policies influencing household decisions concerning child labor



3. IMPACT EVALUATION: CONCEPTS AND METHODOLOGY

18. Few solid impact evaluations of child labor programs in developing countries unambiguously identify the causality from policy to program to effect. The impact evaluation of child labor projects poses special challenges, both conceptual and logistical, particularly if they are multi-sectoral. Child labor projects are often diffuse in nature and scope, extend over a long period of time, vary widely across applications, and have outcomes across a range of sectors. These challenges must be addressed in an impact evaluation to ensure that causality is well established and that outcomes are adequately measured. For example, when looking at the effects of an education intervention on child work, we know that reduction of the hours worked is also a function of health and schooling. Alternatively, we may want to know if affecting household resource constraints is more or less effective than affecting relative prices of children's time in discouraging parents from sending their kids to work. Thus, isolating the impact of any one component of an intervention, testing the optimal combination of interventions in different contexts, or looking at potential spillover effects becomes increasingly important in the context of child labor.

19. Yet, impact evaluations of child labor programs require a more holistic approach to selecting outcome indicators in order to capture a range of potential welfare effects. For example, interventions focusing on education as primary outcome, such as conditional cash transfers, have also been shown to reduce child work.

20. When considering the impact evaluation of child labor there are also a number of logistical considerations to keep in mind. For example, when interviewing minors, issues of parental consent are important, while at the same time providing the necessary safeguards to protect the children's privacy.

3.1 Defining Impact Evaluation

21. It is worth highlighting that a comprehensive evaluation is composed of several complementary components, each of which addresses a distinct aspect of the project. Impact evaluation is only one type of evaluation. *Monitoring* focuses on whether a project is being implemented as designed. *Process evaluation* examines how the project operates and addresses problems in service delivery. *Cost analysis* assesses project costs compared

to benefits and to alternative uses of the same resources. *Impact evaluation* seeks to determine whether the project had the desired effects on individuals, households and institutions and whether those effects are attributable to the project (Baker, 2000).

22. An impact evaluation assesses changes in the outcomes of individuals, households or communities that can be attributed to a particular project, program or policy. The power to attribute the change in outcomes to the project and not to other factors is what distinguishes impact evaluations from other types of evaluations. The central impact evaluation question is what would have happened to those receiving the intervention if they had not in fact received the program. Since we cannot observe this group both with and without the intervention, the key challenge is to develop a counterfactual – that is, a group which is as similar as possible (in observable and unobservable dimensions) to those receiving the intervention. This comparison allows for the establishment of definitive causality – attributing observed changes in welfare to the program, while removing confounding factors.

23. Impact evaluation is aimed at providing feedback to help improve the design of programs and policies. In addition to providing for improved accountability, impact evaluations are a tool for dynamic learning, allowing policymakers to improve ongoing programs and ultimately better allocate funds across programs. There are other types of program assessments including organizational reviews and process monitoring, but these do not estimate the magnitude of effects with clear causation. Such a causal analysis is essential for understanding the relative role of alternative interventions in reducing poverty.

24. Information generated by impact evaluations informs decisions on whether to expand, modify, or eliminate a particular policy or program and can be used in prioritizing public actions. In addition, impact evaluations contribute to improve the effectiveness of policies and programs by addressing the following questions:

- Does the program achieve the intended goal?
- Should this pilot program be scaled up? Should this large scale program be continued?
- Can the changes in outcomes be explained by the program, or are they the result of some other factors occurring simultaneously?
- Do program impacts vary across different groups of intended beneficiaries (males, females, indigenous people), regions, and over time?
- Are there any unintended effects of the program, either positive or negative?
- How effective is the program in comparison with alternative interventions?

3.2 Elements of effective impact evaluation design

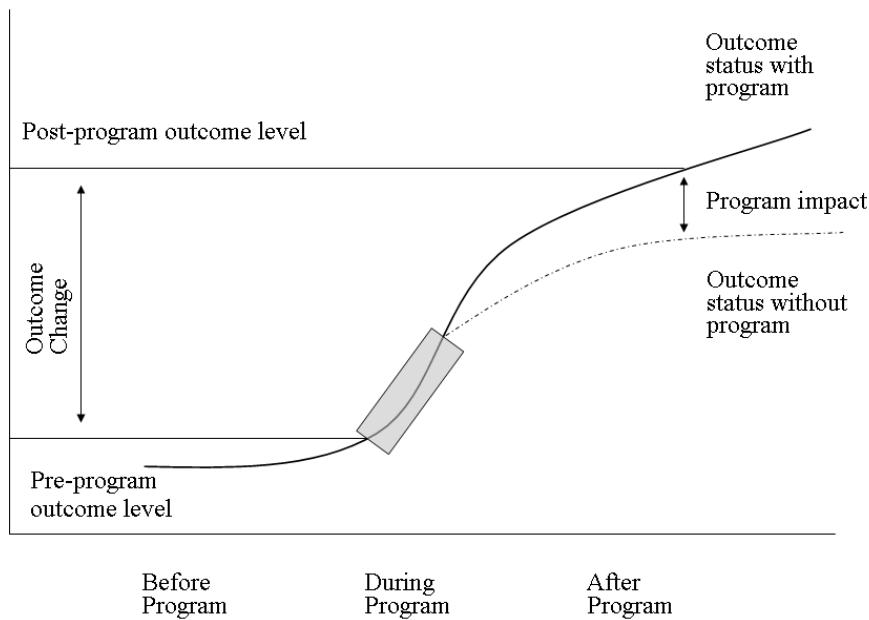
25. An impact evaluation design allows us to isolate the effect of a development program on an outcome of interest, or to test the optimal combination of interventions in different contexts. Impact evaluation helps us answer the question “what is the effect of X on Y?” For example: what is the effect of a conditional cash transfer program on the hours worked per week by children in the families that benefited from the conditional cash transfer? Conceptually, this effect is estimated by comparing the hours worked by the children in households with and without the conditional cash transfer at the same point in time. Given that we will never observe the same individual in two different states at the same time, impact evaluations attempt to reconstruct the *counterfactual*, or “what would have happened to the children in a household without the conditional cash transfer”. As depicted in Figure 3, the program impact is the difference between the observed outcome (the continuous line) and an estimate of the outcome had no program been offered (the dashed line’s trajectory – i.e. the counterfactual). Counterfactuals are estimated using comparison or *control* groups, that is, a group of individuals that do not participate in a program. Identifying a valid counterfactual is a critical aspect of good impact evaluation.

3.3 Impact evaluation methods

26. There are a variety of techniques for evaluating project impact, none is ideal and each has strengths and weaknesses³. This paper will not discuss the methodological part in detail, but present some basic distinctions in order to allow the reader to understand the concept of rigorous impact evaluation (as defined here) and to recognize the main difference among the methodologies used in the selected studies. Impact evaluation designs are determined by the methods used to identify the group of non-participants. They can be categorized as: ***experimental or quasi-experimental***. These methods also incorporate estimation strategies. As no method is perfect, rigorous impact evaluations should use a mixed method approach and a combination of techniques and triangulate results. Box 2 provides a brief description to the experimental and quasi-experimental impact evaluation techniques considered in the review.

³ See also Baker (2000), Prennushi, Rubio and Subbarao (2000), Blomquist (2003), Rao and Woolcock (2003) and Impact Evaluation Thematic Group website: www.worldbank.org/poverty/impacts.

Figure 3. Outcome level, outcome change and program impact



Source: adapted from Rossi et al. (2004)

Box 2.

Categories used to classify impact evaluation methods¹

Randomization or Experimental Design. This method applies to interventions where participants are randomly assigned to the intervention. Participants and non-participants have the same ex-ante probability of participating in the intervention. Impact can be estimated by comparing the two groups.

Propensity Score Matching. This method calculates propensity scores (probability of participating in the intervention as a function of observed characteristics) for participants and non-participants. Participants are matched to non-participants on the basis of their scores.

Pipeline Comparison. This method uses those who have applied and are eligible to receive the intervention in the future, but have not yet received it, as a comparison group. Their only difference with the current recipients is that they haven't yet received the intervention.

Simulated counterfactual. This method is used for interventions affecting the entire population, for which no comparison group can be identified. A counterfactual distribution of outcomes in the absence of the intervention is simulated on the basis of a theoretical model and information on the situation prior to the intervention.

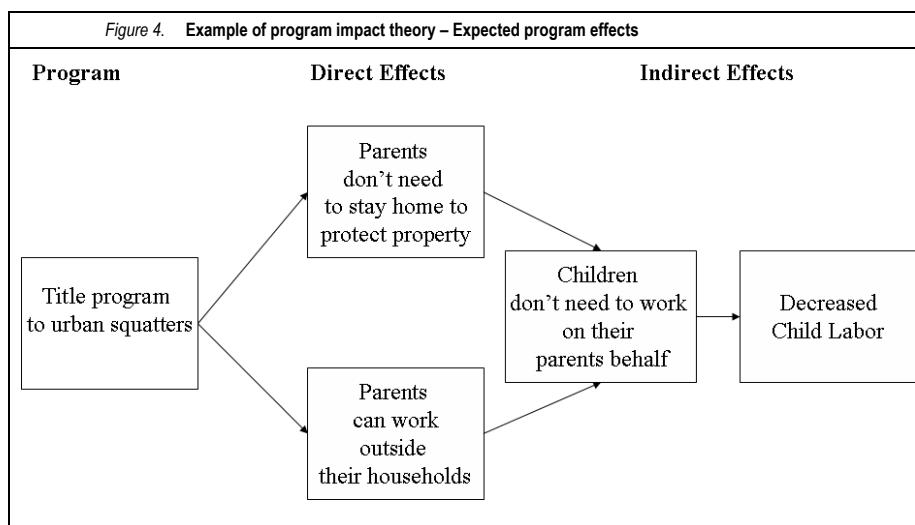
Difference in means or Single Difference. This method estimates impacts by comparing the value of the indicator of interest for the recipients and the non-recipients.

Difference-in-difference or Double Difference. This method estimates impacts by comparing the value of the indicator of interest between the recipients and non-recipients (first difference) before and after an intervention (second difference).

Instrumental Variables. This method uses instrumental variables (that affect receipt of the intervention but not the outcomes of interest) to control for selection bias when intervention placement is not random.

3.4 Output, Outcomes and Indicators

27. The identification of relevant outcome indicators is a critical step in the design of an impact evaluation, and is guided by the program's logical framework or model which connects the program activities to direct outcomes that, in turn, are expected to lead to other, more indirect outcomes (see Fig 1). Outcomes are observed characteristics of the target beneficiary, not of the program itself. A program provides an intervention to the participants, which can be measured as an *output*, but the resulting change observed in the beneficiary is the *outcome*. For example, in the case of a program aimed at increasing school quality, an output is receiving a better quality education, a direct outcome is school attainment, while an indirect outcome could be child labor. Another example of a program theory that links inputs, outputs, direct and indirect outcomes is provided in the picture below.



28. Frequently, the diversity of objectives of single interventions makes selecting valid indicators difficult. For example, projects that aim at improving school quality may have a direct impact on school attainment, or reducing dropouts, but may also have equally important indirect impacts on increasing enrollment and reducing child labor (Figure 4). Investment in school infrastructure, pedagogical and learning technologies and materials and teacher training are important investments on their own, but, by potentially raising the returns to schooling and thereby strengthening long term human capital development, will certainly reinforce the ability of

programs to encourage schooling and discourage child work (see also Raju, 2006). It is therefore useful to recognize all type of outcomes and elaborate the full theory of what is presumed to be causing those outcomes and why, and the different character of each outcome (long/short/indirect/direct/unintended), because more direct outcomes may not be the most relevant or the only desired and expected outcomes from a social or policy perspective.

Moreover it is important to select measurable outcomes; examples of common indicators in the education sector are listed in Box 3.

Box 3. Outcome indicators – Education
Years of education
Drop-out rates
Absenteeism
School participation
Class size
Enrollment
Grade progression
Completed levels of education
Attendance
Drop out rates

4. REVIEW AND MAPPING METHODOLOGY

29. In analyzing the relevance of a review of results from impact evaluations of social programs, the author made an effort to look for previous work done in this area. Systematic reviews have been made for special categories of projects such as conditional cash transfers (see Rawlings, 2003, and Raju, 2006 and Henschel, 2002), active labor market programs (Betcherman et al. 2004) and social investment funds (see Rawlings, 2004 and Henschel, 2002) or specific countries (for Peru, see Yamada and Perez, 2005), or regions (Bouillon and Tejerina, 2006). The only meta-analysis available at the date of publication of this study was done for employment programs in Chile (See Universidad de Chile. 2006b), and an on-going youth employment inventory was created by Betcherman et al. (2007). The reviews that are somehow related to child labor are discussed more in depth below.

Box 4. Categories for coding	
Country	Mechanism
Program name	Paper title
Project summary	Author / Year
Type of impact evaluation	Other
Outcome Indicators	Data on CL
Main results	Preventive/Protective

30. **The selection of projects** for the present review was concluded in 2007, and followed two main criteria: 1. the program has a direct/indirect impact on child labor, in accordance to our initial theoretical framework, and 2. the intervention's impact is assessed against an explicit counterfactual. No other criteria were used. The selection did not discriminate on the basis of quality, i.e. the minimum requirement is the existence of a control group in the evaluation design. The collection of papers is not exhaustive, but it is extensive enough to support the final conclusions in terms of body of existing knowledge per sector considered. The aim of the note was to provide a framework of analysis which allowed us to map the impact evaluations collected through a systematic review of the sources listed below.

31. **The sources of information** for the collection of the studies have been: the World Bank, UNICEF, and ILO impact evaluation databases -, plus external websites, such as the Poverty Reduction Lab, and economic and social sciences journal databases, such as *Econlit*⁴. An extract of the complete collection of papers which has been coded under the categories listed in Box 4, is provided in the Annex. The content of the database is presented in different parts of the note.

⁴ Links to the publicly accessible databases are provided in the resources section at the end of the note.

5. EVALUED POLICIES: RESULTS WITH RESPECT TO THE REDUCTION OF CHILD LABOR

32. A limited number of analyses have concentrated on estimating program impact on levels of child work. In fact, few projects, among the once evaluated have the primary objective of reducing child labor, and impact evaluation papers usually tend to focus on whether programs have made progress towards achieving their stated objectives. Nonetheless, although the key objective of some of the programs was not child labor, the promoted interventions have directly or indirectly influenced this issue.

33. Before moving on to the review results drawing on Rosati and Lyon's framework, the next Section will very briefly summarize the main findings of two review papers focused on child labor that preceded the present one.

5.1 Previous research on the impact of conditional cash transfer and Social Funds

34. The first summary paper of evidence on child labor has been assembled by Henschel (2002). The author focused mainly on case studies of programme evaluation, classified in two major categories: 'Targeted Human Development Programmes' and the 'Social Fund Programmes'. The '**Targeted Human Development Programs**' in Mexico, Colombia, Brazil and Bangladesh consisted of providing educational grants to children, specifically vouchers that covered half the cost of private secondary school, monthly stipends or monthly food rations. The success of these programs seemed to lie in conditioning these interventions on behaviours that increase human capital accumulation, e.g. children's school attendance or their academic performance. A reduction in CL and an increase of school enrollment rates were experienced after these interventions. However, there is no evidence that CL substitutes schooling. Only the Mexican study further compared the growth of school enrollment with the reduction in work participation. The study suggested that girls in particular tried to combine their time spent on domestic work with school at the expense of their leisure time. **Social Fund Programs** carried out in several countries generally had first been established as emergency responses to economic crises. With the passing years they adopted the idea of focusing on longer-term development needs, particular with respect to social sector infrastructure investments. Program interventions in the education sector consisted mainly of building and rehabilitating schools, financing, furniture and basic equipment. Empirical analyses have not addressed the issue of child labor. However, impact evaluations of the education sector interventions have found in almost all discussed Social Fund case studies an

increase in school attendance rate and a positive impact on school attainment and age-for-grade rate.

35. Building on Henschel's (2002) effort, Raju (2006) critically reviewed and analyzed the evidence on the effects of conditional cash transfers on child work. The note summarizes the evidence from a larger set of evaluation studies and examines the effects of these programs on not only the dichotomous decision of whether the child works or not but also, where possible, on finer parsings of the child work decision.

36. The studies analyzed are listed in the box below, and the main implications of Raju's work are following.

Box 5.

Program/country	Study
Red de Protección Social, Nicaragua	Maluccio and Flores 2004, Maluccio 2002
Progresa, Mexico	Skoufias and Parker 2001
Food for Education, Bangladesh	Ravallion and Wodon 2000
Programa de Erradicação do Trabalho Infantil, Brazil	Pianto and Soares 2004, Yapet al 2002
Bolsa Escola and Renda Minima, Brazil	Cardozo and Souza 2003
Familias en Acción (FA), Colombia	Attanasio et al 2006
Superémonos, Costa Rica	Duryea and Morrison 2004
Programa de Asignación Familiar, Honduras	Glewwe and Olinto 2004

37. Firstly, given that the preponderance of evidence on the effect of conditional cash transfer programs on child work is related to the extensive margin of whether the child works or not, with no clear verdict, more in-depth research is needed in order to gain a better understanding of how conditional cash transfer programs affect child work and which groups of children are affected.

38. Irrespective of whether conditional cash transfer programs have an effect on the **extensive margin of the incidence of child work**, given that school participation effectively blocks out certain hours during the day which could potentially be spent at work, it is very likely that these programs have important effects along certain intensive margins among children that continue to work such as when child work is performed during the course of the day, the number of hours of child work, the allocation of work tasks among household members (such as between adults and children and between school-going children and non-school-going children within the same household), and the types of work performed by children in terms of working conditions and remuneration.

39. Moreover, in cases where conditional cash transfer programs have failed to reduce the incidence of child work, evidently, while the incentives offered by the program were sufficiently strong to induce parents to choose to send their children to school, the same incentives were not sufficiently

strong to induce parents to remove their children from work. Also, requiring stronger *conditions for benefit eligibility* that further constrain the use of a child's time might be another strategy.

40. The author maintains that, aside from intervening on the demand-side by providing conditional cash transfers, the relative attractiveness of schooling *vis-à-vis* child work can also be altered by intervening on the supply-side. One type of supply-side intervention that could potentially sway household decisions in favor of schooling and away from child work would be improving the *quality of schooling* by, for example, investing in school infrastructure, pedagogical and learning technologies and materials, and teacher training. The local availability of schools matters in terms of whether eligible households choose to participate in conditional cash transfer programs or not.

41. The conditional cash transfer programs reviewed here have largely been implemented in *areas where a certain minimum level of school and health infrastructure was present*, with sufficient slack to absorb the additional demand for services induced by the conditional cash transfer program. These preconditions for program placement would imply that in (some remote, underdeveloped areas in) some countries the introduction of conditional cash transfer programs might need to be timed to follow the introduction of school and health facilities. Complementing the expansion of school infrastructure with conditional cash transfers to poor households could possibly generate synergistic effects from intervening on both the supply and demand side simultaneously. However, it appears, at least in the setting of rural Mexico, that the provision of conditional cash transfers is a much more cost-effective intervention than the expansion of school infrastructure.

42. With respect to *the safety net role of the conditional cash transfer programs*, the evaluation of Mexico's Progresa seems to show that the program has been effective in preventing households from withdrawing children from school in response to various kinds of adverse shocks but has been largely ineffective in preventing households from resorting to child work to cope with the negative economic consequences of the shock, even in the presence of regular transfer benefits which dampen to some extent the effects of the shock. If the unintentional social safety net role of conditional cash transfer programs is purposely incorporated into the design of the program, that is, transfer benefits are allowed to respond to, for example, covariate shocks such as widespread crop loss or natural catastrophes or idiosyncratic shocks where the potential for moral hazard problems is limited such as the death or disability of a breadwinner, it could possibly help curtail the use of child work as a risk-coping strategy.

5.2 Impact of policies with a potential indirect effect on child labor

43. As already discussed, most of the impact evaluation studies focus on the progress made by a program towards achieving the stated objectives. Rarely impact evaluation focus on indirect effects that are not initially considered in the program theory, nor long term effects that span beyond the normal project cycle. Programs that are evaluated prospectively usually focus on the collection of information strictly related to the outcome indicators listed in the logical framework. Having said this, a sizeable amount of evidence on the impact of different programs on child work could be produced using available data from different sources, granted that the credibility of the evidence produced relies on the existence of a reliable counterfactual, and a program theory that hypothetically states the causal links among the outputs and direct/indirect outcomes of the program. Rosati and Lyon's framework provides different hypothesis on how different policies and programs could affect child labor. In other words, the authors offer program theories (see program theory **Figure 4**) whose validity can be tested through the use of impact evaluation techniques. The present note is the first step towards that goal. The programs selected according to the criteria described in Section 4 are presented in **Table 1**.

Table 1. Programs evaluated by type of intervention

Sector	Country	Intervention	Social Outcome		
			CL	Schooling	Other
Infrastructure	Argentina	Land reform	✗	✓	✗
	Peru	Titling program to urban squatters	✓	✗	✗
	Peru	Rural Road Rehabilitation and Maintenance Program (PCR)	✗	✗	✓
Education	India	District Primary Education Program (DPEP)	✗	✓	✗
	India	Balsakhi Program and Computer Assisted Learning (CAL)	✗	✓	✓
	Indonesia	Jaring Pengamanan Sosial (JPS)	✗	✓	✓
	Indonesia	Sekolah Dasar INPRES	✗	✓	✓
	Kenya	CSP (Child Sponsorship Program) / Education	✗	✓	✗
	Kenya	Distribution free uniforms	✗	✓	✗
	Kenya	Merit scholarship program	✗	✓	✗
	Kenya	Subsidized school meals	✗	✓	✗
	Kenya	Subsidized School Inputs	✗	✓	✗
	Philippines	Dropout Intervention Program (DIP)	✗	✓	✗
Youth Labor	Argentina	Pro Jovenes	✗	✓	✗
Risk coping Risk reducing	Argentina	Plan Jefes y Jefas	✗	✓	✓
	Argentina	Proempleo	✗	✗	✓
	China	Southwest Poverty Reduction Project (SWPRP)	✗	✗	✓
	Honduras	Programa de Asignacion Familiar - Phase II (PRAF II)	✗	✗	✓
Micro credit	Bangladesh	Group-based credit schemes targeted to women and the poor	✗	✓	✗
	India	Self Employed Womens Association (SEWA)	✗	✓	✗
	Uganda	Microcredit programs	✗	✓	✗
	Zimbabwe	Zambuko Trust	✗	✓	✗
Community based	El Salvador	EDUCO	✗	✓	✗
	Mexico	Apoyo a la Gestión Escolar (AGEs)	✗	✓	✗
	Pakistan	Community Support Process (CPS) Program	✗	✓	✗
	Uganda	Nutrition and ECD / Child Nutrition			
		Early Childhood Development	✗	✓	✓
		Intestinal Diseases			
		Primary Education			

44. The existing evidence will be presented, and the possibility of further analysis of the impact on child labor will be critically discussed.

45. Our major concern is to highlight the evidence of the causal contribution of these programs to education outcomes, when the link with CL is not analyzed.

46. Using a classification that matches the explanatory framework developed by Rosati and Lyon, the prevention policies that influence household decisions concerning children's time use, are divided into two groups:

- 1) *policies that address the relative price of child labor* with respect to the other children's possible use of time (e.g. on education and infrastructure policies).
- 2) social risk management policies that are aimed to *address the household resource constraint and vulnerability* due to other inefficiencies of the financial and insurance markets (e.g. micro-credit and risk coping/reducing policies).

The rationale and available evidence of these types of policies is discussed below.

5.2.1 Policies that address the relative price of child labor

A. Education policies: rationale & evidence

47. There is broad consensus that the single most effective way to stem the flow of school-aged children into work is to extend and improve schooling, so that families have the opportunity to invest in their children's education and the returns to schooling make it worthwhile for them to do so. This in return requires measures aimed at reducing the (direct and indirect) costs of schooling, expanding school access and improving school quality. Investment in early childhood and adult education is also relevant in this context.

48. The costs associated with attending school instead of working need to be reduced. Returns from child labor may constitute a substantial contribution to household income. Albeit difficult to measure, evidence from several countries (e.g. Menon, *et al.*, 2005), indicates that child labor income can represent as much as 20 per cent of total household income. For the poorer to give up on children's work might entail to fall below the poverty line. Several policies measures can address this issue.

49. In terms of addressing school costs, incentive schemes that provide cash or in kind subsidies to poor children conditional on school attendance offer one promising route. These schemes can increase schooling directly by providing poor families with additional resources (i.e. income effect), as well as indirectly by compensating parents for the foregone economic product from their children's labour and thus reducing child labor (i.e. substitution effect). Such schemes have proved effective in several countries in increasing enrolment and especially continuation in school. They have also helped to reduce child labor supply, although more evidence is required concerning their effect on child labor.

50. Of particular relevance in the area are conditional cash transfers. Such schemes have proved effective (Raju, 2006) in several countries in increasing enrolment and especially continuation in school. They have also

helped to reduce child labor supply, albeit more evidence needs to be gathered about the effects of conditional cash transfer on child labor.

51. Proving other types of direct subsidies has been demonstrated to be effective in the following case:

- Vermeersch and Kremer (2004) examined the impact of providing free school meals at community run Kenyan preschools:
 - School participation 30% higher in program preschools
- More recent impact evaluations demonstrated the following impacts of reducing the direct costs of school by providing pupils with free school uniforms:
 - Reduced absence rate by 26% for young pupils (Evans and Kremer, 2005) - Stronger for girls
 - Reduced dropout rate by 15% for older pupils (Duflo, Dupas, Kremer and Sinei, 2006) - Girls and boys similar.
- Michael Kremer , Sylvie Moulin, Robert Namunyu (2003) studied an intervention that randomly provided uniforms, textbooks and new classrooms. The impact has been:
 - increased average class size by 8.9 students, due to a large influx of pupils into program schools from neighboring schools. The results suggest that parents were willing to accept an increase in class size of at least 8.9 students in exchange for lower costs and extra non-teacher inputs.
 - Students in the seven treatment schools remained enrolled in school an average of 0.5 years longer than those in comparison schools
 - Students in the seven treatment schools advanced an average of 0.3 grades further than their counterparts in seven comparison schools.
- A study by Michael Kremer, Edward Miguel and Rebecca Thornton (2004) examines the impact of a merit scholarship program, which provided awards for 13-15 year old girls. The impact has been:
 - 30% reduction in student absenteeism. The program increased the average likelihood of school attendance by 6 percentage points among girls in cohort 1 in 2001, and by 10 percentage points among cohort 2 in 2001 (a pre-program effect), and estimated gains in 2002 are also positive but smaller.
- Lisa Cameron (2002) studied the effects of a scholarship program in Indonesia for primary, lower secondary and upper secondary school students. The amounts generally covered the cost of school fees and can be used for that purpose or to cover other expenses. The effects:
 - a lower-secondary school student in a household that received scholarship has a significantly lower probability of dropping out

than a similar student in a household that received no funding. The difference is equal to 3.5 percentage points.

- a significant difference between participants and non-participants in lower secondary school. The difference ranges from 3.8 to 3.3 percentage points. Reduced lower secondary school dropouts by 2.35 percentage points, or 24 percent.

52. **School accessibility** represents part of the indirect cost of schooling and it affects household decisions concerning children's time use. Targeted school expansion is a necessary condition to reduce child labor. Secondary school availability is also relevant in determining parent's decisions about time use of primary school age children.

- An impact evaluation of a school construction program in Indonesia showed the following results (Duflo, 2001):
 - Increase in the years of education for children aged 2 to 6 0.19 years for the whole sample and 0.26 for the sample of wage earners.
 - The program had no effect in densely populated regions and a large effect in sparsely populated regions. This is because in the latter, each additional school reduces the distance to school.

53. The importance of improving **school quality** is theoretically well established, but the empirical evidence linking school quality to child labor is far from robust. Emerging evidence points to the fact that it is not so much the level of school inputs, but the way they are utilized to cope with children's need that are likely to influence schooling decision. More work is needed in this area, before a substantive claim can be made about the use of policies aiming to improve school quality as an instrument to combat child labor.

- A primary education program in India has been evaluated by Jalan et al. (2004). Under the scheme, different districts with poor educational indicators have been selected to receive financial assistance towards improvement of school infrastructure, teacher training, textbook improvement, etc. The results show:
 - an increase of 0.95 percentage points in the attendance rates among 6-10 year olds. In Madhya Pradesh the increase was 1.21 percentage points.
 - a positive and significant on the highest level of education achieved. The impact was larger for the children in the age-group 11-13. The estimates show that the proportion of children reporting "no-education" or "incomplete primary education" have gone down while those reporting "completed primary school" education have increased significantly.

- a significant increase in the proportion of children aged 6-7 and 8-9 who progress to middle school. The impact was larger for the 6-7 year old cohort.
- There is evidence from India that adding an extra teacher to non-formal schools in Rajasthan Increased girls attendance by 50% from low base (Banerjee et al., 2005)
- The Balochistan's Community Support Process (CPS) Program was evaluated by Kim, Jooseop; Alderman, Harold; Orazem, Peter (1998). The program established segregated girls' primary schools taught by local female teachers. The program was based on a partnership between the government and the community. A village education committee, composed of parents of daughters, was responsible for identifying the teacher, motivating parents to send daughters to the school, and monitoring the progress of the school, the children and the teacher.
 - The program caused a significant increase in girls' primary enrollment equal to 20.8-21.8 percentage points. Boys' primary enrollment also increased significantly by 9.5-12.9 percentage points
- Gertler, Patrinos and Rubio-Codina (2006) evaluated Mexico's School Based Management (SBM) component of a Compensatory Education Program – the Support to School Management (Apoyo a la Gestión Escolar) or AGEs, which started only in 1996 and consists of monetary support and training to Parent Associations. AGEs increase school autonomy through improved mechanisms for participation of directors, teachers and parents' associations in the management of the schools. In 2005 more than 45 percent of primary schools in Mexico had an AGE. The results show that:
 - Intra-year dropout is 0.4 points lower in treatment schools (3.8 percent in treatment schools versus 4.2 percent in control schools).
- Jimenez and Sawada (1998) evaluated El Salvador's EDUCO, a program for pre-primary and primary education, which aims at decentralizing education by strengthening direct involvement and participation of parents and community groups. The government targeted the municipalities that were most in need. The key variables in the targeting are incidence of severe malnutrition and current access to social services. EDUCO schools are managed autonomously by an elected Community Education Association (Asociacion Comunal para la Educacion, ACE) drawn from the parents of the students. In EDUCO schools, ACEs take a central role of administration and management. ACEs are contracted by MINED to deliver a given curriculum to an agreed number of students. The ACEs are then responsible for contracting and removing teachers, closely monitoring their performance, and equipping and maintaining the schools. The evaluation shows that:

- EDUCO significantly improves student attendance. EDUCO students in schools that entered the program in 1995 and 1996 miss less school days due to teacher absences than traditional school students.
- Four experimental interventions were evaluated by Jee-Peng Tan et al. (1999) in the Philippines: (1) school feeding, (2) multilevel learning materials, which are pedagogical materials for teachers, (3) school feeding combined with parent-teacher partnerships, and (4) multi-level learning materials combined with parent-teacher partnerships. The results show interesting impact:
 - Dropout rates significantly decreased only in the schools that received multi-level learning material. The effect on schools with parent-teacher partnership was 5.2 percentage points, and the effect on those without was 3.6 percentage points, although the impact was still statistically significant at the 10% level.
 - School feeding and school feeding with parent-teacher partnerships had a positive and significant impact on math test scores. School feeding, multi-level materials and multi-level materials with parent-teacher partnerships had a positive and significant effect on test score in Filipino.

54. Investment in ***early childhood education (ECD)*** appears to substantially lower the risk of child labor and increase the likelihood of school attendance at later ages. This seems to indicate that the possibility of beginning to invest on children's human capital when they are very young, spills over also to later age investment. Many reasons can be behind these effects. Early investment have high productivity and increase productivity of human capital investment at later ages, pre-school might contribute to raised parental awareness of the benefit of education. That is, learning begets learning and skills acquired early on make later learning easier.

- An evaluation of an ECD/Nutrition project was carried out by Alderman, Harold; Britto, Pia; Siddiqi, Arjumand (2004). The project aimed to enhance communities' capacity to provide for their children. Project activities included: (1) growth monitoring and promotion for children under 6 years old (2) community grants of up to US\$1,500 to establish food security projects or Early Childcare and Education (ECE) facilities (3) 6-monthly child days which provided an opportunity to communities to access integrated health services including vaccinations, vitamin tablets and nutrient tablets. The project had the following impacts:
 - positive and significant effect on school enrollment for children 3-5 years old;
 - a positive and significant effect on the highest grade attended. By age 12.5, the average child in the project sites will have higher school attainment;

- there are significant differences between communities only in the early numeracy skills of young children. The scores on the early number concept sub-test for the children of the parent education group were significantly higher than those children from the control group;
- significantly more parents in the project group reported that their child: played with other children, spent time in an early childhood education center, spent time in learning activities, went out the village, and that the house has a special place for the child to play.

55. The evidence supporting the role of ***mothers' education*** in promoting school attendance and reducing child labor supply is also very strong. A possible explanation of these findings is that education confers on the mother greater weight (moral authority or, if education translates into income, bargaining power) in family decisions. Another possibility is that the mother's time is an input into the education (production of human capital) of their children, and that the mother's own level of education raises the productivity of this input. Finally, more educated parents might have a better knowledge of the returns to education and/or be in a position to help their children exploit the earning potential acquired through education.

B. Infrastructure: rationale & evidence

56. The availability of basic services can affect the value of children's time and, consequently, household decisions concerning how this time is allocated between school and work. A lack of access to water networks, for example, can raise the value of children's time in non-schooling activities, as children are needed to undertake responsibility for water collection, or to help cover the cost of purchasing water. In addition to its health and other social benefits, therefore, expanding access to basic services is an important strategy for getting children, and particularly girls, into school and out of work. No program impact evaluation has currently examined this link.

57. The indirect impact on child labor has been explored in another type of infrastructure programs.

- Erica Field (2006) looked at the effect of a titling program for urban squatters, on the necessity for adults to physically protect their household, and thus the need to send children to work.
 - Mean program effect on the problem of child labor small and insignificant, BUT large and significant effect on the 11% of the sample living in single-parent HH.
- In 1981, about 1,800 families occupied a piece of privately owned land in the locality of San Francisco Solano, County of Quilmes, Province of Buenos Aires, Argentina. The Congress of the Province of Buenos Aires passed Law No. 10.239 in October of 1984 expropriating this

land from the former owners to allocate it to the new occupants. Galiani, Sebastian, and Ernesto Schargrodsky (2004) studied the effects on children's schooling, among other:

- children in titled parcels reach an additional 0.4 years of schooling. The effect is significant only for the children in early-treated parcels.
- a significant reduction of 0.4 days in the number of days the child missed school out of the last five days associated to titling status.

58. Other infrastructure programs show an impact on income, and could fall under the category of policies affecting household resource constraints described below, but could also directly affect school (e.g. increasing accessibility to schools by improving road and possibility to move)

➤ The Rural Road Rehabilitation and Maintenance Program (PCR) is part of a national project of road infrastructure rehabilitation (Proyecto Especial de Rehabilitacion de la Infraestructura de Transporte), which was implemented in 1996. Although PCR's program activities essentially involved the rehabilitation of rural roads - non-motorized and motorized -, complementary activities included strengthening the organizational and management capacities of local micro-scale enterprises responsible for the maintenance of the rehabilitated motorized rural roads. The results show that:

- in the case of motorized roads, the rehabilitation allowed beneficiaries to get over a US\$ 120 increase in annual per capita income, which amounts to more than 35% of the control households' average income.
- significant decrease in non-agricultural self-employment income in the case of non-motorized roads.
- significant increase in non-agricultural wage income for both motorized and non-motorized roads.
- significant (at 10%) effect on the appearance of new job opportunities in non-agricultural wage employment in the case of motorized roads.
- increase in livestock value in the case of motorized roads, which represents a 65% increase over the livestock that those household would have had if the roads they have access to, had not been rehabilitated. This change in assets is equivalent to 56% of the annual per capita income that a treated household accrues in average.

C. Youth Labor Market: rationale & evidence

59. Returns to education are an important determinant of human capital investment decisions. The decision to enter and to remain in school depends

on the expected benefits. If chances of employment after “graduation” are low or transition from school to work is difficult and lengthy, it is likely that children, especially from poor households, will decide to leave school early and begin to work. Policies aimed at improving youth employment outcomes are likely to reduce child labor and early drop out.

- Since 1994, the Labor Ministry of Argentina, with funding from the Inter-American Development Bank, has been offering intensive training and providing internships to young men and women in order to facilitate labor force participation in the formal sector through the Programa Joven (Youth Program). The program consists of two phases: a technical knowledge phase (6-12 weeks of classroom training) and an internship phase (8 weeks of applied work in firms). The results of a study by Aedo and Nuñez (2001) show that:
 - the training program increased income by (depending on the dataset considered) US \$19-23.75 for young males and by US \$25.49-\$31 for young females
 - the training program increased the probability of employment among adult females by 10-13% (according to the analysis of the different data sources).

60. ***Other policies***, such as technical change are believed to have an indirect effect on child labor, by affecting the relative price of children's time. Yet, they haven't been considered in the present note since there is no impact evaluation that establishes their impact according to the selected criteria.

5.2.2 Policies affecting household resource constraints and vulnerability

61. Social risks management policies address three issues, namely i) lack of access to resources, ii) lack of risk reduction strategies and iii) lack of risk coping mechanism.

62. In what follows we offer some examples of social risks management policies. It is worth stressing that such policies are not targeted only to reduce child labor, but also to address the household vulnerability in general. Hence, if well targeted, they might prove a cost efficient way to address child labor.

A. Credit and insurance: rationale & evidence

63. Policies aiming at favouring household access to credit and financial markets and/or to relax the current budget constraint are relevant. conditional cash transfers are a very relevant intervention as it eases the resource constraint of the household and also change the relative prices. conditional cash transfer have proved effective in increasing school attendance, further evidence on their effects on child labor needs to be

gathered. Moreover, more in depth analysis of the relative efficacy and costs of contingent and non contingent transfers is necessary. Finally, as transfer programs tends to be very large, it is necessary to evaluate them within the overall public finance setting of a country. Other policies in this area include loan schemes, micro credit, community based saving groups, improving accessibility of banking or other financial institutions.

- Monique Cohen, Martha A. Chen, and Donald Snodgrass (2001) studied the impact of financial services, including savings, credit, and insurance the credit and saving offered by Self Employed Women's Association (SEWA) Bank. The result show that:
 - borrowing and saving increases school enrolment, especially of boys of all ages. While school enrollment among working class children in Ahmedabad is gradually increasing, the relationship to participation in SEWA appears to be relatively weak where the education of girls is concerned.
 - borrowing from SEWA increases enrolment ratios for boys, especially at the secondary level. Among 5-10 year olds, enrolment inched up from 88 per cent to 89 per cent. For 11-17 year olds, it rose from 65 to 70 per cent.
- Shahidur R.Khandker (1998) evaluated the use of group-based credit schemes (RD-12 and Grameen Bank) to target women and the poor accompanied by a functional education program for its many illiterate members and a non-formal primary education directed at school-age children who are out of school or have never attended school primarily for economic reasons. The benefits of program participation are also measured indirectly, by measuring changes in socioeconomic outcomes such as contraceptive use, fertility, and children's schooling. Wages of adult labor represent opportunities for employment and unambiguously lowered the program participation rate. In contrast, higher child wages increased program participation, indicating that microcredit-induced self-employment is a complement to child labor and that self-employed activity financed by a microcredit program may facilitate child employment. The results show:
 - a significant impact on children's schooling, especially for boys. The increase in boys' schooling was statistically significant for three credit variables (female credit from RD-12, female and male credit from Grameen Bank).
 - For girls' schooling a statistically significant increase was shown for one only (female credit from Grameen Bank).
- Thus for both Grameen Bank and RD-12, female credit seems to benefit boys more than girls in terms of school enrollment. The relatively smaller effect of women's credit on their daughters' schooling seems to reflect the close substitution of women's and girls' time in both

household nonmarket production and self-employment activity financed by microcredit programs.

- Group co-guaranteed loans and individual loans backed by guarantors to individuals who have a microenterprise deemed to be financially viable and are not employed fulltime elsewhere were evaluated in Zimbabwe. Microcredit is accompanied by an orientation session that teaches sound business management practices and loan officers provide business management advice. The findings show:
 - an impact on the schooling of boys aged 6 to 16 in the client households. The results imply that in the 6 to 16 age range, the households tended to send more boys than girls to school. No significant relationship with schooling of girls aged 6 to 16.
 - a marginally significant impact on the schooling of children aged 6-21 in the repeat continuing client households "those clients that had received more than one loan at the time of the 1997". This implies that several loans increase the likelihood that the household would send more of its members aged 6 to 21 to school. Proportion of Household's Boys and Girls Aged 6 to 21 in School 74 to 83 gain score 8 points.
- Carolyn Barnes, Gary Gaile, and Richard Kibombo (2001) evaluated three Ugandan microfinance institutions. Two programs serve women, while the third has the objective of providing financial services to both female and male microentrepreneurs who operate businesses in predominantly urban areas. Common strategies among these three MFIs are (1) the formation of a credit group consisting of individual members, each of whom owns and operates a business that produces at least a weekly cash flow; (2) the entire group's guarantee of the loan made to each member of the group; (3) the use of an interest rate that supports the administrative costs of the MFI; (4) a mandatory savings requirement; and (5) a mandatory weekly group meeting for loan repayment. Irrespective of the reasons, the findings show that client households are more involved than non-client households in investing in education of non-household members. In particular:
 - 23% of the client households and 15% of the non-client households were unable to pay school charges for one or more household members during this period, and hence, the children had to drop out of school.
 - Among those who dropped out, there was a slightly larger proportion of boys (54%) than girls (46%). The average number of students in a household who dropped out was 1.31 among client and 1.43 among non-client households: In most of the households with dropouts, however, this situation was temporary and all the children who dropped out returned to school.

- In more than half of the households, microenterprises play an important role in financing the education of household members.
- Clients were significantly more likely than non-clients to pay school charges for a non-household member, to pay for someone who was not an offspring, and to pay a larger amount last term.

B. Risk reducing policies: rationale & evidence

64. We consider two groups of risks. The income (or resource) risk that the household faces while its children are in school and the risks associated with uncertain return to human capital investment. For the first category of risk social security policies, health insurance, income support schemes and, to a certain extent, also conditional cash transfer programs are all examples of relevant policies. The risks associated with uncertain return to human capital are more difficult to tackle; policies improving a smooth school to work transition or a better functioning of the matching mechanisms of the labour markets are also relevant in this case. See Point C above on Youth Labor Market. A lot of work is currently on going on the theme of school to work transition, but not much evidence on relevant policies in the development countries has been evaluated yet⁵(see Betcherman et al, 2007).

C. Risk coping policies: rationale & evidence

65. There is a growing evidence that child labor is used as buffer against bad realizations. Policies that helps household coping with shocks will substantially increases that chances that children are not sent to work and kept in school. Insurance policies, public works, support of formal or informal community networks are examples of interventions that can have a strong impact in protecting children from vulnerable households from child labor and/or early school drop out.

- A paper by Galasso and Ravallion (2001) reviews the impact of ‘Proempleo Experiment’ in Argentina in 1998-2000. Under the experiment, one random sample received a voucher that entitled a private-sector employer to a wage subsidy covering part of the total wage paid. A second sample was offered limited training as well. A third random sample formed the control group. The training had two

⁵ The World Bank is currently managing a cluster of impact evaluations in youth school to work interventions aims to build evidence of what works in assisting poor youth in low income countries to make a successful transition from school to work by measuring the impact of promising cross-sectoral interventions across a range of countries. For more information go to the following link <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTCY/0,,contentMDK:21532601~menuPK:2644077~pagePK:64020865~piPK:51164185~theSitePK:396445,00.html>

components: (1) The first component was a voucher that entitled a hiring employer to a wage subsidy (2) The second component was training, which had two elements-.The first was a three-day "labor market orientation" workshop which included presentations on labor demand in the area, how to look for work, and how to become self-employed. This component was mandatory. Once this workshop was completed, training coupons were issued for the second component, which provided training in a specific skill and required 200-300 hours of attendance. In this second part, the participants were given working materials and had to fulfill labor practices. They also received economic support benefits, paid at a 10% lower rate than that of the Trabajar program. Results show:

- Compared with the control group, voucher recipients had a significantly higher probability of employment, though their current incomes were no higher;
 - a significant effect (6 percentage points) for participants of either treatment group (voucher or voucher plus training) on the probability of becoming employed in the private sector. When the sample is split by gender and age, the significant impacts are confined to the wage employment of women and those under 30. The 2SLS estimates give a higher impact - a gain of 7.5 percentage points. The effect was significant at the 10% level. The results are the same when using the DD approach
 - a positive and significant effect on self-employment for men and workers over 30, when using the 2SLS estimation. The program has a positive and significant effect on self-employment when using DD estimates.
 - Training had no significant impact;
- The Plan Jefes y Jefas was a public safety net introduced by the Government in January 2002 in response to the economic and political crisis that hit Argentina at the end of 2001. The program provided a cash transfer to each eligible individual (about half the mean per capita income). Those eligible to participate were unemployed household heads with dependents (children aged less than 18 or incapacitated). To select the most needy the program included a counterpart work requirement. Participants were required to do 20 hours of basic community work, training activities, school attendance or employment in a private company (which was provided with a wage subsidy for six months). According to Galasso and Ravallion (2003):
- The program has a positive and significant impact on household income. The comparison group experienced a mean drop in real income of about 250 pesos per month while Jefes participants experienced a 150-peso decline. This suggests that Jefes acted as a partial safety net and attenuated the drop in income.

- Ravallion and Chen (2004) evaluated a poverty reduction program in China which aimed to reduce poverty by augmenting the private and (local) public capital stock of farm-households in poor areas. The program comprised a range of income-generating activities including methods for raising grain yields, animal husbandry, and reforestation. There was also a component for off farm employment, including voluntary rural labor mobility and support for township-village enterprises. The SWPRP also included local social services and rural infrastructure initiatives, including tuition assistance to children from poor families, upgrading village schools and health clinics, the construction of rural roads and piped water supply systems. The program provided capital and technical assistance, but it did not provide insurance. The results show that:
- income significantly rose by 17-21%.
 - a positive and significant effect on savings.
 - a negative and significant effect on poverty. All the indicators are significant, pointing to an impact on income poverty of 11.5 percentage points for the unmatched difference-in-difference,

6. CONCLUDING REMARKS AND DIRECTIONS FOR FUTURE RESEARCH

66. Even if not exhaustive, the present review provides evidence of the very limited number of impact evaluations (as per the definition adopted in the note), in the context of child labor.

67. Excluding the conditional cash transfers programs, no impact evaluation has been found of programs explicitly designed to tackle child labor. Out of 26 of the evaluations considered in this note, only one considered child labor as an indirect outcome (the titling program evaluated by Erica Field). Most of the programs evaluated with a counterfactual are in the education sector. This is also due to the availability of school administrative systems that facilitate this type of analysis. Yet the existence of impact evaluations in other sectors potentially related to child labor, as per the framework elaborated by Rosati and Scott (2007) calls for further research in this area.

68. Two possible paths are envisioned in order to advance the work on impact evaluations of child labor programs.

69. On the one side, the exploitation of the growing number of impact evaluations of programs “related to child labor”, i.e. that can indirectly affect child labor. As suggested in the note, and demonstrated in few examples, the impact on child labor can, and should be analyzed, even when not explicitly stated as a program objective. In other words, one of the possibilities is to take child labor into consideration as a possible unintended/indirect effect of policies and programs according to the theoretical framework presented in section two, and add it as an outcome.

This would require adding the child labor dimension to existing data collection instruments, were possible, or just exploiting datasets that already contain data on child labor, and that haven't been taken into consideration yet.

70. Simultaneously timely and well-designed impact evaluations of key child labor interventions are indispensable to inform policy. Given the limited existing evidence, the choice of programs to be prospectively evaluated should be based on a strategic choice. The decision should not be based on a preferred method or opportunistic reasons such as the government buy-in only, but should also be strategic in terms of filling the knowledge gap selecting the most innovative and broadly adopted programs. The evaluation results should provide empirical evidence of program efficiency and effectiveness allowing for programs to be scaled up geographically and expanded to new population groups and for policy design adjustments to be implemented.

71. As highlighted in this working paper, the challenge of evaluating the impact of programs and policies on child labor is related to the nature of the problem itself and to the specific requirements of impact evaluation techniques. As mentioned, the multi-sectoral nature of programs tackling child labor and the complex dynamics related to the determinants of child labor call for very rigorous impact evaluation designs that can account for un-observables and infer with statistical rigor the merit or worth of different alternative program options. Prospective experimental or quasi-experimental designs will allow us to test the hypothesis outlined in the conceptual framework used in this note, and confirm or reject the possible causal links between the outlined interventions and possible effects on child labor.

72. Finally some recommendations on how to conduct successful and meaningful impact evaluations.

73. The success of an impact evaluation depends on many technical aspects, such as the theoretical design, the sampling strategy, the actual data collection, attrition rates, etc, but also on its operational feasibility which heavily depends on the buy-in of the program implementation team, and other relevant stakeholders involved. In fact, implementing impact evaluations correctly can be challenging and requires a substantial effort from the evaluation experts, but also other actors, such as the team that implements the project to assure compliance to the evaluation plan. Moreover, the success on evaluation depends on the clarity of the program and/or evaluation objectives. It is extremely important to analyze the impact of programs through theory based⁶ impact evaluations and cross country

⁶ The theory-based evaluation approach documents the assumptions implicit in program design and points to the data required to test these assumptions. Collecting and analyzing such data through quantitative and qualitative techniques enhances understanding of the validity of the assumptions and the relevance of key program processes, in determining a program's impact.

benchmarking. Decision makers are not only interested in measuring the impact of their decisions, but also on how exactly that impact has been achieved and how a given program can be improved through changes in the design/implementation, or by changing the influence of factors outside the intervention itself (i.e. external validity). Therefore, findings from an impact evaluation which uses empirical evidence to verify the logic behind a program is theory based, and could be used to validate the original assumptions used for decision making, not only the final worth or merit of a single program. In other words, these evaluations produce truly general knowledge, in the sense that they allow us to understand how the effects of a given program would change if a set of external conditions would also change. Theory based evaluation go beyond the so called “black box” IEs., i.e. those which give a finding on impact, but no indication as to why the intervention is, or is not, producing the expected impacts and which give policy effects in specific settings, but no structural parameters (as relevant to other settings). Ultimately, impact evaluation should be one component of a comprehensive system of M&E which studies the end result on the basis of an in-depth understanding of the program implementation and context. Furthermore, when conducted in comparable and consistent ways across countries, IEs can provide useful benchmarks for program design and monitoring.

74. What is measured (the outcome and related indicators) and how (measurement instrument), are extremely relevant decisions and need to be taken into careful consideration. Even the most rigorous design and estimation technique will not solve the ambiguity of results due to an unclear explanation of what is intended for child labor (which age, which type of work, under which conditions...). And ambiguity of the definition will reduce the informative power of the evaluation results. The “operationalization” of the outcomes does not need to be universally accepted, since the program will be evaluated according to its stated objectives, and/or on the basis of explicit decisions made by the evaluation team (such as availability of data on a specific category of child labor). Outcome indicators need to be well defined and measurable. As discussed by Raju (2006) “...the approach of examining the impact of programs on the incidence of child work disaggregating the child sample by, for example, age groups, gender, location (urban vs. rural), household income or consumption expenditure groups and type of employment activity (e.g., child work in domestic activities vs. child work in income-generating activities) appears to be a fruitful one, revealing which groups of children are affected by program participation and to what extent”.

75. A better understanding of the determinants of child labor will be achieved compiling evidence using a mix methods approach. The quality of the data collection process is key in producing useful and meaningful evaluations. Qualitative data can be used to explain the can help explain the “pathways” to outcomes (ie, why some parents didn’t participate in school

councils). Finally, for the purpose of informing policy decisions, an evaluation is not complete until one considers the costs of the program. Impact is only one criterion for program selection.

REFERENCES

- Alderman, H., Britto, P., and Siddiqi, A. (2004), "Longitudinal Evaluation of Uganda Nutrition and Early Child Development Program", Unpublished manuscript, Washington, DC: The World Bank
- Aedo, C., and Nuñez, S., (2001) "Argentina: The Impact of Training Policies in Latin America and the Caribbean: The Case of ""Programa Joven"" *Research Network Paper*, IADB, 2001
- Abhijit, B., Cole, S., Duflo, E., and Linden, L. (2004), "Remedying Education: Evidence from Two Randomized Experiments in India", *The Quarterly Journal of Economics*, Vol. 122 (3) - MIT Press
- Bouillon C.P. and Tejerina L. (2006), "Do We Know What Works? A Systematic Review of Impact Evaluations of Social Programs in Latin America and the Caribbean", *Draft LADB Report*
- Baker J. (2000), "Evaluating the Impacts of Development Projects on Poverty: A Handbook for Practitioners". Washington, D.C.: The World Bank.
- Banerjee et al. (2006), "Remedying Education: Evidence from Two Randomized Experiments in India", *CEPR Discussion Paper*, Issue 5446 , pp 1-35
- Barnes, C., Gaile, G., and Richard Kimbombo, R.. , (2001). "Impact of Three Microfinance Programs in Uganda", *USAID-AIMS Paper*. Washington, D.C.: Management of Systems International
- Cameron, L. A. (2002), "Did Social Safety Net Scholarships Reduce Drop-Out Rates during the Indonesian Economic Crisis?", *World Bank Policy Research Working Paper No. 2800*

Chase, R., Sherburne-Benz, L. (2001), "Household Effects of African Community Initiatives: Evaluating the Impact of the Zambia Social Fund", Poverty Net Manuscript. Washington, D.C.: World Bank.

Cohen, M., Barnes C., Keogh E., and Nemarundwe, N. (2001), "Microfinance program clients and impact. An assessment of Zambuko Trust, Zimbabwe", *AIMS Publication*

Cohen, M. , Chen, M. and Snodgrass, D. (2001) "Managing resources, activities, and risk in urban India: the impact of SEWA Bank", *AIMS Publication*

Betcherman, G., Olivas, K., and Dar, A. (2004), "Impact of Active Labor Market Programs: New Evidence from Evaluations with Particular Attention to Developing and transition Countries." Washington, D.C.: World Bank, *Social Protection Discussion Paper Series*

Dar A. and Tzannatos Z. (1999), "Active Labor Market Programs: a review of the evidence from evaluations", *Social Protection Discussion Paper Series*, World Bank, Washington, D.C.

Raju, D. (2006). "The effects of conditional cash transfer programs on child work: A critical review and analysis of the evidence". *Working paper*, World Bank, Washington DC.

Evans, D. and Kremer M. (2005). "The impact of distributing school uniforms on children's education in Kenya"

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

Duflo, E., Dupas, P., Kremer, M., and Sinei, S. (2006). "Education and HIV/AIDS Prevention: Evidence from a randomized evaluation in Western Kenya"

Duflo et al. (2006) World Bank Policy Research Working Paper 4024, October 2006

Duflo E., Glennerster R., Kremer M. 2006. "Using Randomization in Development Economics Research: A Toolkit".

Duflo, E., (2001), "Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment"

Field, E. (2006). "Entitled to work: Urban Poverty Rights and Labor Supply in Peru"

Galasso, E., Ravallion, M. (2004). "Social Protection in a Crisis: Argentina's Plan Jefes y Jefas", Oxford University Press, vol. 18(3), pages 367-399

Galasso, E., Ravallion, M., and Salvia, A. (2004). "Assisting the transition from workfare to work: A randomized experiment", Industrial and Labor Relations Review, ILR Review, ILR School, Cornell University, vol. 58(1), pages 128-142, October.

Galiani, S., and Schargrodsky, E. (2004), "The health effects of land titling", Economics and Human Biology, Volume 2, 2004, pages 353-72

Gertler, P., Patrinos, H., and Rubio-Codina, M. (2006), "Empowering parents to improve education evidence from rural Mexico", Policy Research Working Paper Series 3935, The World Bank.

Henschel, B. (2002). "Child labour related programmes: a review of Impact evaluations", *Understanding Child Work Working Paper*.

Jimenez, E., and Savada, Y. (1998, 2003). "Do Community-Managed Schools Work? An Evaluation of El Salvador's EDUCO Program", The World Bank Economic Review, vol.13, pages 415-41

Jyotsna, J., and Elena Glinskaya, E., (2004), "Improving primary school education in India: An impact assessment of DPEP-Phase I"

Khandker, S. R. (1998), "Fighting poverty with micro credit: Experience in Bangladesh", World Bank Publication

Kim, J., Alderman, H., Orazem, P. (1998). "Pakistan: Can Cultural Barriers Be Overcome in Girls' Schooling?: The Community Support Program in Rural Balochistan"

Kremer, M., Miguel, E., and Thornton, R. (2004). "Incentives to learn", NBER Working Paper No. 10971

Evans, D., Kremer , M., Ngatia, M., (2008) "The Impact of Distributing School Uniforms on Children's Education in Kenya", *Unpublished draft*. Available at <http://www.csae.ox.ac.uk/conferences/2008-EDiA/papers/297-Ngatia.pdf>

Kremer , M., Moulin, S., and Namunyu R., (2003), "Decentralization: A Cautionary Tale" , *Poverty Action Lab Paper* No. 10

Lokshin, M., Yemtsov, R, (2003). "Evaluating the Impact of Infrastructure Rehabilitation Projects on Household Welfare in Rural Georgia", Policy Research working paper, no. WPS 3155, The World Bank

Menon, M, Perali, M., Rosati (2005), "The shadow wage of child labour: an application to Nepal", *UCW Working paper*

Pritchett, L., (2003) "Who is not Poor? Proposing a Higher International Standard for Poverty," *Working Papers 33*, Center for Global Development

Raju, Dhushyanth. 2006. "The Effect of Conditional Cash Transfers on Child Work: A Critical Review and Analysis of the Evidence" HDNNSP. The World Bank. Washington DC.

Ravallion, M., and Chen, S. (2005) "Hidden Impact? Household Saving in Response to a Poor-Area Development Project", *Journal of Public Economics*, vol. 89, Pages 2183-2204

Rawlings, L., Sherburne-Benz, L., and Van Domelen, J. (2004). "Evaluating Social Fund Performance: A Cross-Country Analysis of Community Investments." Washington, D.C.: The World Bank.

Rawlings, L. B. and Rubio, G. M. (2003). "Evaluating the Impact of Conditional Cash Transfer Programs. Lessons from Latin America", *Policy Research Working Paper Series*, N°3119. Washington, D.C.: The World Bank.

Rosati F., Lyon S. 2007. "Tackling Child Labor - Policy options for achieving sustainable reductions in children at work". *Understanding Child Work (UCW) Working Paper*

Rosati, F., and Rossi, M.C., (2007) "Impact of school quality on child labor and school attendance: the case of CONAFE Compensatory Education Program in Mexico", *Understanding Child Work (UCW) Working Paper*

Rossi, P.H., Lipsey, M.W., Freeman, H.E. (2004). "Evaluation – A systematic approach" (7th ed.), Thousand Oaks, Calif.: SAGE Publications.

Tan, J., Lane, J., and Lassibile, G. (1999). "Student Outcomes in Philippine Elementary Schools: An Evaluation of Four Experiments", The World Bank Economic Review, Vol 13 (3): 493-508

Yamada, G., and Perez, P. (2005). "Evaluación de Impacto de Proyecto de Desarrollo en el Perú", Serie Apuntes de Estudio, Numero 61, Centro de Investigación de la Universidad del Pacífico. Peru: Universidad del Pacífico.

Universidad de Chile. (2006). "Informe Final de Evaluación de Impacto". Programas de Empleo con apoyo Fiscal. Ministerio del Interior-Ministerio de Agricultura-Ministerio de trabajo y Previsión Social-Ministerio de Planificación y Cooperación. Santiago, Chile.

Vermeersch, C., and Kremer, M. (2004). "School Meals, Educational Achievement and School Competition: Evidence from a Randomized Evaluation", World Bank Policy Research Working Paper No. 3523

WEB RESOURCES

[Inter-America Development Bank](#)

[International Labor Organization, Evaluation Unit](#)

[Poverty Action Lab](#)

[UNICEF, Evaluation and good practices](#)

[The World Bank, Poverty Net, Impact Evaluation](#)

ANNEX I.

Country	Program	Program Summary	Outcome Indicators	Paper title	Author	Year
Infrastructure						
Argentina	Land reform	In 1981, about 1,800 families occupied a piece of privately owned land in the locality of San Francisco Solano, County of Quilmes, Province of Buenos Aires, Argentina. The Congress of the Province of Buenos Aires passed Law No. 10.239 in October of 1984 expropriating this land from the former owners to allocate it to the new occupants. The government would pay a monetary compensation to the former owners and, then allocate those lands to the squatters. The government offered to each owner a payment proportional to the official valuation of the piece of land, indexed by inflation. This official valuation, utilized to calculate property taxes, had been set before the land occupation. The occupied area was composed of thirteen pieces of land belonging to different owners. Each owner or group of owners had to decide whether to surrender the land or to start a legal dispute. In 1986, eight former owners accepted the compensation offered by the government. Their lands were transferred to the occupants together with formal land titles that secured the property of the parcels.	1) Housing investments, (2) Household size (number of household members), (3) School performance: (a) School achievement (measured by the difference between the school grade each child is currently attending or the maximum grade attained - if not attending school - minus the grade corresponding to the child age), (b) school absenteeism (number of days the child missed school out of the last five days in class), (4) Access to credit, (5) Labor market performance	<i>Effects of Land Titling</i>	Galiani, Sebastian, and Ernesto Schargrodsky	2004
Peru	Titling program to urban squatters / Infrastructure	In 1996, the Peruvian government issued a series of legal, administrative and regulatory reforms aimed at promoting a formal property market in urban squatter settlements in eight cities. In accordance with Decree 424: Law for the Formalization of Informal Properties, the new public agency COFOPRI (Committee for the Formalization of Private Property) embarked on "the rapid conversion of informal property into securely delineated land holdings by the issuing and registering of property titles" into a newly created national registry (World Bank, 1998b). While the old process of acquiring a title was expensive and slow, the new process was virtually free and extremely rapid.	Binary indicator of whether child age 5-15 works more than 5 hours per week	<i>Entitled to work: Urban Poverty Rights and Labor Supply in Peru</i>	Erica Field	2006
Peru	Rural Road Rehabilitation and Maintenance Program (PCR)	The Rural Road Rehabilitation and Maintenance Program (PCR) is part of a national project of road infrastructure rehabilitation (<i>Proyecto Especial de Rehabilitación de la Infraestructura de Transporte</i>), which was implemented in 1996. Although PCR's program activities essentially involved the rehabilitation of rural roads - non-motorized and motorized -, complementary activities included strengthening the organizational and management capacities of local micro-scale enterprises responsible for the maintenance of the rehabilitated motorized rural roads. The area of influence of the program includes rural areas of 314 districts with high poverty rates, belonging to 12 from the 24 departments in Peru. These 12 departments continue to be served at present by the second phase of the program, which started at the end of 2001, with the aim of ensuring the institutional and financial sustainability of maintenance activities, which will gradually become a responsibility of the respective local governments.	The impact is measured for motorized and non-motorized roads: (1) Per capita income, (2) Income composition: (a) Agricultural self-employment income, (b) agricultural wage income, (c) non-agricultural self-employment income, (d) non-agricultural wage income, (3) Accessibility to labor market: (a) Agricultural self-employment, (b) agricultural wage employment, (c) non-agricultural self-employment, (d) non-agricultural wage employment, (4) consumption, (5) livestock.	<i>The Benefits of Rural Roads: Enhancing Income Opportunities for the Rural Poor</i>	Escobal, Javier, and Carmen Ponce	2002