



# **The effects of income changes on child labour**

**A review of evidence from smallholder agriculture**

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The study was written by Chiara Ravetti. Preliminary research assistance was provided by Isabel Heidler from Barry Callebaut. The study was supervised by Anna Brüderle (ICI).

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## EXECUTIVE SUMMARY

This desk study reviews the literature on the relationship between income changes and child labour, focusing on smallholder agriculture in developing countries. While the initial aim was to understand this relationship in the specific context of cocoa-farming in West Africa, limited data availability led the scope to be broadened.

The study seeks to answer the following questions:

- How does the use of child labour respond to changes in farmers' income?
- What are some of the factors that shape this relationship? (eg. the gender and age of the children, baseline income levels, and asset ownership)

Understanding these linkages can inform policy making and the design of interventions aiming to strengthen smallholder farmers' incomes, to ensure they support the reduction of, or at least avoid increases in, child labour.

This study selects peer-reviewed publications that apply sound methodologies to identify the causal effect of changes in income on child labour. Out of more than 400 published articles on income and child labour in developing countries, some 50 "core" studies meet minimum quality criteria and are summarized in this review.

The review looks at effects of two broad categories of income changes:

- (i) **income increases or decreases due to unexpected shocks**, such as price changes, crop losses, unpredictable weather fluctuations, illness or death in the household, and international impacts such as unexpected changes in trade flows, foreign direct investment or remittances
- (ii) **income increases resulting from policies or programmes**, such as cash transfers, in-kind transfers, school subsidies, financial support and public works.

**This review of the literature shows that the relationship between income changes and child labour is complex.** While income increases are associated with *reductions* in child labour in some situations, in other situations, they can result in *increases* in child labour. The latter situation is often due to enhanced earning opportunities that also increase the value of children's time spent on work.

## Key findings

The **relationship between income changes and child labour is complex and the effects are not unidirectional.**

Overall, the results from the price shocks literature are quite nuanced: a **negative shock** that reduces the earning capacity of small farmers tends to **increase child labour**, indicating that unexpected income loss can pose a particular risk as children may act as a "buffer" against shocks. Out of 16 studies that examined negative shocks, 13 found unambiguous increases in child labour. Examples from Tanzania and India show that if earning opportunities decrease, for example in times of droughts, or due to the absence of adult supervision, even if there is more poverty, child labour can also fall.

The **effect of a positive shock depends on the context and mediating factors such as asset ownership.** Out of 11 studies that examined positive shocks, only four found unambiguous reductions in child labour. Studies in which positive shocks caused child labour to increase include two of price rises in Brazil and two examples of increased rainfall in India and Tanzania. **Overall, the findings concerning positive income shocks indicate that whenever the value of**

agricultural activities increases, there is a potential risk that child labour will increase as well.

**Programmes and policies that aim to increase household income also show nuanced effects on child labour.** Out of 22 programmes for income support, 12 resulted in unambiguous reductions in child labour.

**Cash transfers**, the type of intervention for which the most evidence is available, **are generally effective to reduce child work, especially children's paid work, but some caveats still apply.** This review identified 10 different cash transfer programmes that were rigorously evaluated for their impact on child labour. The majority (6/10) found unambiguous decreases in child labour. A further three found mixed results, with some reductions in child work but instances of increased work as well. **Both conditional and unconditional cash transfers typically reduce child work for pay outside of the home, even though some studies have found that they can increase children's participation in work on family farms, in family businesses and on household chores.** The evidence suggests that cash transfers tend to work better if they provide a sufficiently large increase in income to make up for the lost income provided by children. The effects of cash transfers differ by gender: **reductions in child labour are generally more significant for boys, in some cases, no improvements were observed for girls.**

**Evidence on in-kind transfers is still limited, showing mixed results.** In two studies out of three, these programmes effectively reduced child labour, but in the remaining two, child labour increased. School subsidies, school construction and direct incentives for pupils to attend school appear more effective in increasing school attendance than reducing child labour – such measures might be ineffective or even backfire if they substantially free up children's time.

**Microfinance support do not seem to be the most effective instrument to reduce child labour, but they do not have adverse effects.** Out of four studies, two showed reductions in child labour (Pakistan and Morocco), one showed no effect (Mexico), and one found mixed results with only some reductions in child labour for girls (Ethiopia). All studies focused on microcredit, except for the study from Pakistan, which shows that health insurance decreases child work (in line with the literature showing that health shocks can enhance child labour).

Overall, the **effects of active labour market interventions**, such as public works programmes to generate employment opportunities, or business trainings to support micro-entrepreneurship, **on child labour have not been sufficiently studied to date. The three identified studies yield mixed results:** one case where new employment opportunities for adults decreased child labour (Ethiopia), one where child labour stayed the same (Nicaragua), and one when child labour increased due to a public works programme, since adults shifted to the works programme and older children substituted for adults in their previous work (India).

This review highlights several significant knowledge gaps about the interventions that work best in specific contexts to enhance farmers' livelihoods while reducing child labour. While for most types of interventions the existing evidence is not conclusive, an important take-away from the literature is that under certain circumstances, income increases are associated with *a risk of increased child labour*. Multiple studies show that child labour is driven not only by poverty, but also by earning opportunities, supported by the finding that in some situations, child labour increases with income. Overall, various types of activities to increase smallholder farmer incomes have not been rigorously evaluated with respect to their effects on child labour: more research on these interventions is needed, as is more research specific to the cocoa sector.

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## INTRODUCTION

According to recent estimates by the International Labour Organization, child labour affected more than 150 million children aged 5–17 around the world in 2016, mostly in developing countries and primarily in agricultural activities (ILO 2017). Most of these child workers are employed by their parents on the family farm or within the family enterprise (Edmonds 2008; de Buhr and Gordon 2018). Fluctuations in the income-generating capability of rural households can therefore affect the likelihood that children engage in working activities.

This report reviews the existing literature on the relationship between child labour and changes in household income, focusing particularly on smallholder agricultural communities in developing countries, with special attention to the cocoa sector.

### Context: the cocoa industry and the living income debate

Cocoa production is characterized by a set of features which make it particularly relevant for a study on the income–child labour nexus. First of all, child labour is pervasive in the cocoa sector, and work done by children in cocoa production often involves hazardous tasks such as spraying pesticides, carrying heavy loads, climbing cocoa trees for harvesting, or opening cocoa pods with sharp tools like machetes (Payson Center 2015). Second, like many other agricultural commodities, cocoa requires labour inputs seasonally, and households tend to rely on child work at times of labour scarcity. Lastly, the cocoa sectors in the producing countries are highly exposed to international shocks, since cocoa is mostly traded and not consumed by these countries, differently from other crops that are also staple foods, such as rice or wheat. Hence, farmers cannot substitute their sales for domestic consumption and are exposed to the volatility of international markets.

In the face of low and volatile agricultural commodity prices over the last decades, a trend to which cocoa has not been immune, the concept of a “living income” as a key benchmark for farmers’ well-being has received growing attention by various stakeholders in the industry (Fairtrade 2017, 2018a, 2018b; Cocoa Barometer 2018; Tyszler et al. 2018). A few theoretical and empirical research contributions have recently taken up and substantiated the concept of a living income, including case studies on the specific context of cocoa production in Côte d’Ivoire and Ghana<sup>1</sup> (Lambert 2014; Boles 2017; Luckstead et al. 2019; Findeisen 2014; Molenaar and Short 2018).

**There are substantial hopes that ensuring a living income might lead to more sustainable human capital investments in children, reducing the use of child labour and increasing school attendance rates** (Fairtrade 2018a). However, the interplay of income and child labour is complex, and there are numerous other factors to be considered when trying to enhance farmer incomes in order to address child labour. The current policy interest in the topic suggests the need for a careful analysis of the existing literature, to help stakeholders understand these complexities and inform the design of interventions affecting farmer income.

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<sup>1</sup> For an exhaustive characterization of these countries’ cocoa economies, and the use of child labour, see Altenburg and Dietz 2008, Afriyie et al. 2019, KIT 2017 and Nkamleu 2009; Krauss 2013; Understanding Children’s Work 2017.

## Research questions

This review focuses on the following questions:

- What evidence already exists regarding the relationship between child labour and changes in income and in particular around the poverty thresholds defined in the living income debate?
- What does the evidence reveal about factors interacting in the relationship between child labour and income changes, including household and child characteristics, as well as aspects of the enabling environment such as access to credit, social services, and labour markets?
- What can policy makers and the private sector learn from existing studies, and what knowledge gaps still exist?

The review is structured along **different channels and mechanisms linking farmers' income and child labour**, considering that this relationship is far from linear. As noted in numerous studies, it is crucial to be aware of the multifaceted dynamics linking income and child labour because otherwise “a well-meaning but poorly designed policy can exacerbate the poverty in which these laboring children live [...]” (Basu and Tzannatos 2003).

## THE LINK BETWEEN CHILD LABOUR AND INCOME: A THEORETICAL PERSPECTIVE

Child labour is determined by a complex array of factors at the individual, household, community, and broader economic and societal level. A number of studies provide a comprehensive review of the large literature on the various determinants of child labour, where poverty features most prominently, next to other important determinants such as uncertainty, market failures, net returns to schooling, local labour market conditions, family interactions, and cultural context (Basu and Tzannatos 2003; Cigno and Rosati 2005; Edmonds 2008; Fors 2012).

Even focusing exclusively on income, the mechanisms linking a change in income towards a living income threshold and families' choice to involve their children in working activities are numerous.<sup>2</sup> In fact, a change in economic conditions can result in intricate patterns of substitution in the time allocation of all family members, depending on the specific circumstances of the household (Dammert et al. 2018).

Before analysing the empirical evidence that currently exists on the response in child labour supply to income changes, it is useful to understand the possible channels from a theoretical perspective. A **rich theoretical literature models the key mechanisms through which income can affect child labour**, especially in rural contexts (Basu 1999; Basu and Van 1998; Bhalotra and Heady 2003). This literature generally indicates that the **effect needs not be unidirectional**, but there can be positive and negative forces at play. While a reduction in child labour in response to an income increase is intuitive and also substantiated theoretically, some models hypothesize that in certain circumstances an increase in income could *raise* child labour (Roger and Swinnerton 2004). The main channels linking

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<sup>2</sup> A recent study by the Walk Free Foundation found that in Ghana and Côte d'Ivoire less than one per cent of working children are forced to work by someone other than a parent, and only 0.15% of children were forced to work by someone outside of the extended family (de Buhr and Gordon 2018). For this reason, the focus of this report is on household income and child work within the family.

income and child labour can be broadly summarized as “income effects” and “substitution effects”, as explained in the following sections.

## Income effects

Foregoing child labour can be thought of as a luxury good, or an item that can be afforded only after other needs are met (Basu and Van 1998). Therefore, higher income should lower child labour through this mechanism: as income rises, families are enabled to purchase most of their necessities without having to resort to the revenue generated by the children. The key hypothesis behind this mechanism is that parents would prefer to send their children to school, and to minimize the use of child labour. However, due to their income constraints, they cannot afford to express this preference if income is below a given threshold.<sup>3</sup> This “poverty hypothesis” implies that child work will be abandoned as soon as the household income rises sufficiently (Basu and Van 1998). Such assumption on parents’ preferences is of course debatable (Dumas 2006), for instance because benevolent parents could also desire some degree of child work, if for example they think this could provide valuable skills or job training to their children.

## Intra-household substitution effects

The choice of how to allocate activities and tasks inside a household is not only a matter of total income, but also of relative productivity of each family member (Doran 2013; Ray 2000b). Parents may choose to invest in the child’s schooling if the costs of schooling (including foregone earnings from work) is smaller than the benefits (e.g. the present value of future income). These relative costs and benefits depend on several factors, such as:

- (perceived) returns to education
- direct and indirect costs of schooling (school fees, transport fees, books, stationery, school uniform, etc.)
- demand for child labour or unskilled workers in the local labour market
- (perceived) learning of useful skills in productive activities
- returns to work (e.g. income from agricultural production)

Therefore, any intervention that raises the income-generating opportunities for a household could potentially increase child labour by making it relatively more valuable. As for the case of income effects, substitution effects depend highly on the specific characteristics of the household and its surrounding economy: for instance, credit-constrained households can be expected to substitute schooling for child labour frequently because they cannot borrow against future earnings of their children to cover foregone earnings and school-related expenses. Similarly, even if parents prefer to send their children to school, they are more likely to rely on children for income generation in the face of uncertainty, if they have no other buffer (insurance, social networks, etc.) to absorb negative shocks. In these cases, raising average income without providing more liquidity, access to credit or insurance opportunities could be ineffective to reduce child labour.

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<sup>3</sup> The hypothetical poverty thresholds proposed in these theoretical papers are broadly in line with the concept of a « living income » threshold, even though none of the existing theoretical papers make that link explicitly.

## Mediating factors

Beyond the income and substitution effects, theoretical models of child labour consider how the effect of income changes is influenced by a range of mediating factors. These factors include household and family characteristics, and aspects of the economic, social and cultural environment.

First, the power dynamics within a household can impact how much of an income rise is transferred to children, and how much is consumed by parents. Some models hypothesize that women could have a higher preference for children's well-being than men, and thus if the female head of the household has a say in the allocation of expenditures (for example if she is the main recipient of a programme that increases earning capacity), then the benefits for children could be greater (Hoop et al. 2018).

Second, child labour is inextricably linked with some long term, irreversible decisions about fertility, which are a function of income (Strulik 2004). Higher income or expected income can increase or decrease the number of children a couple chooses to have, again depending on the income-generating opportunities for each child and the desire and possibility to educate them.

The household's economic conditions and market structure also matters in mediating the relationship between income and child labour: ownership of land and other assets, or the flexibility of the labour market and availability of adult workers are important elements that affect how a household's income relates to child labour use (Basu et al. 2010). Not all these theoretical mechanisms are well studied empirically, though. Section 5 summarizes the findings of the empirical literature regarding some of these mediating factors.

## DEFINITIONS OF INCOME AND CHILD LABOUR APPLIED IN EMPIRICAL RESEARCH

The previous section argued that from a theoretical perspective, the effect of an income change on child labour use is driven by opposing mechanisms and mediated by various factors. However, ultimately, the net effect needs to be estimated empirically. The rest of this report will focus on empirical estimates of this relationship. First, it presents some of the key definitions and empirical measures for income and for child labour. This section highlights some of the challenges in measuring income and applying the living income concept, and in choosing an operationalizable definition of child labour.

### Income and living income

A standard approach in the empirical literature on rural livelihoods in developing countries is to consider expenditure as a proxy for income. In agricultural contexts, in fact, it is much easier to measure detailed household spending on goods and services rather than trying to account for all sources of income, part of which are earned and consumed in-kind (including agricultural production and transfers within networks of relatives and friends, is partly in-kind).

Recently, the concept of 'living income' has become an important benchmark in agriculture to measure an income threshold at which farmers' basic needs are satisfied. This idea reflects closely the basic right to an adequate standard of living established in the 1948 Universal Declaration of Human Rights (art. 25). The Living

Income Community of Practice<sup>4</sup> provides a definition and method for calculation of the living income threshold depending on the geographical context. A living income is defined as “the net annual income required for a family in a place to afford a decent standard of living for all members of that family. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing, and other essential needs including provision for unexpected events”. A classic calculation methodology for living income, the Anker method, is based on household expenditures, accounting for challenges related to income measurement as mentioned above (Grillo 2018).<sup>5</sup> Living income is an adaptation of the older concept of a living wage, but applies to people – like smallholder cocoa farmers – who don’t necessarily receive a salary from an employer but undertake activities like farming to sell their produce to earn a livelihood.

Unfortunately, despite its relevance for the analysis of the income - child labour nexus, most of the existing empirical studies of child labour apply measures of income that cannot easily be put into relation with “living income” thresholds. Some specific applications to Ghana and Côte d’Ivoire can be found in the studies by Hütz-Adams et al. (2017), Smith and Sarpong (2018), and the Ivorian Center for Socio Economic Research (2018), and the two benchmark studies of the cocoa sector by KIT and Fairtrade (KIT Royal Tropical Institute 2018, 2019). The benchmark studies estimated a living income value and a living income gap based on data from a sample of around 3000 representative households collected in 2016-2017. They found that for a typical male-headed household of 3.5 adults and 3.5 children and no more than 4 hectares of productive land in Ghana the living income threshold was at about GHS21,000 (\$4,700)/year, compared to an average income of just \$2,450/year. In Côte d’Ivoire the benchmark was around CFA 3,700,000 (\$6,500)/year, compared to an average income of \$4,000/year. In addition, Fairtrade calculated a Living Income Reference Price for cocoa from Ghana and Côte d’Ivoire (US \$2,301 and US \$2,668 per metric tonne at farm gate, respectively). A Living Income Reference Price indicates the price needed for an average farming household with a viable farm size and an adequate productivity level to make a living income from the sales of their crop.

These studies are paving the way for more rigorous research on the effects of income changes around the living income threshold. However, to date, the **most reliable published studies on income and child labour do not refer specifically to living income**,<sup>6</sup> but most of the studies identified estimate the relationship between income and child labour.

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<sup>4</sup> The community builds on the partnership between the Sustainable Food Lab, GIZ and the ISEAL Alliance.

<sup>5</sup> The Anker method uses mixed methods to estimate a living income as the sum of estimates of: (i) a low-cost nutritious diet; (ii) basic decent healthy housing; (iii) all other essential needs, including education of children through secondary school, decent health care, transportation, clothing, furniture, recreation, personal care, etc. A small margin is added to provide for unforeseen events such as illnesses and accidents, or special occasions like marriages and funerals, to ensure families do not easily fall into poverty. Then actual income (farm income plus non-farm income plus remittances) is used to calculate the living income gap.

<sup>6</sup> Amongst the relevant empirical studies identified for this review, only two recent working papers examine income thresholds (Hoop et al. 2017; Pellerano et al. 2019), but do not state how these thresholds relate to « living income » thresholds.

## Child labour

**Measurements of child labour in the empirical literature are often heterogeneous** (Dammert et al. 2018). Even following the official definition in ILO and UN conventions (ILO Convention No 138 on the legal minimum age, the ILO Convention No 182 on the worst forms of child labour, and the UN Convention on the Rights of the Child) there remains a margin of discretion for each country's national authority on exact legal definitions, so that there is no single classification of child labour across countries and, as a consequence, there is no single statistical measure of child labour.

The International Conference of Labour Statisticians notes that children involved in productive activities are not automatically child labourers. Child labour exists in the presence of (i) economically active child under the age of 12, or (ii) children in the 12–14 age category engaged in productive activities that do not fall under permissible light work, or (iii) children aged 17 and younger engaged in “hazardous” activities (affecting the child's safety, physical and mental development) or in the “worst forms of child labour” (e.g. children in bondage or forced labour, commercial sexual exploitation, illicit activities and armed conflict, etc.).

However, empirical research rarely distinguishes these legal nuances and uses simplified definitions which are more easily translated into survey tools. Some researchers apply specific legislative frameworks in place in the country studied, making comparison of child labour rates across countries difficult. A few studies include household chores when measuring child labour, thereby deviating from the ILO conventions. All these differences derive from a practical difficulty in drawing strong demarcation lines between work in the farm, work in the home, light and heavy activities and so on.

In addition, there are several other challenges when considering the results of different studies on child labour. First, child labour research uses many possible reference periods: some studies consider child labour in the days prior to a household survey, while other studies focus on child work in the past month or year. Second, many child labour surveys rely on proxy respondents (adults). While using information from proxy respondents may be preferable to self-reported information from children for ethical and data quality reasons, especially on young children, proxy respondents are prone to underreport the time spent by children working (Dammert and Galdo 2013), especially for girls (Galdo et al. 2019). Lastly, while most studies use some binary measure of whether children work (extensive margin), in recent studies is becoming more common to explore also measures of how much they work (intensive margin) (de Hoop et al. 2018).

Keeping in mind all these issues in the definition and measurement of income and child labour, the next section mentions some important methodological considerations regarding the empirical analysis of how income changes relate to child labour.

## KEY CONSIDERATIONS ON EMPIRICAL METHODS

This section presents the key methodological considerations for this study. First, it discusses the criteria applied for the literature search. Next it comments on the **methodologies used to solve the most challenging issue for these studies: establishing a causal relationship** between income and child labour. To illustrate these challenges, it offers some examples of simple statistical correlations between income and child labour, which cannot clearly establish causality. The main goal of

this section is to highlight the **caveats that policy makers, private sector actors and practitioners should understand when presented with evidence on child labour and income.**

## Inclusion criteria for the literature search

This review focuses primarily on peer-reviewed articles which examine the relationship between income and child labour. It also draws contextual information on the cocoa sector and child labour in Ghana and Côte d'Ivoire, and on living income debate, from relevant reports and policy briefs. The amount of existing material on child labour and income calls for some further selection criteria to ensure that the results considered are relevant. The selection of articles gives priority to child labour studies in:

- Rural contexts, and smallholder agriculture, rather than large farms. Most studies in developing countries' agricultural settings take this focus.
- Production of cash crops, with special attention to cocoa, but also including other smallholder-produced cash crops such as coffee, rice, wheat, rubber, etc. No geographic restrictions were imposed on studies from these contexts.

The search was performed mostly through Elsevier's Scopus, one of the largest abstracts and citation database of peer-reviewed literature, and cross-checked with Google Scholar, the National Bureau of Economics and Statistics (NBER), the Centre for Economic Policy Research (CEPR), the Social Science Research Network (SSRN) and the Research Papers in Economics (RePEc) for high-quality working papers.<sup>7</sup>

Then the selection focuses on the most recent literature (after 1990 and ideally after 2000), because of the important methodological advancements and stricter requirements for causal identification in the peer-reviewed development literature. The choice of the studies to present was then based on the methodological quality of the study, as discussed below. The initial set of more than 400 relevant studies identified was restricted to 128 relevant articles which met the minimum criteria, with around 50 core studies with particularly strong and relevant results.

## Establishing causality

Not all the studies on the relationship between income and child labour establish a causal effect running from income changes to the resulting level of child labour. Studies that do establish a causal relationship are the most relevant, because they provide rigorous evidence that the reason behind the observed increase or decrease in child labour is indeed a change in income and not other factors. This section presents some of the necessary requirements for a study to claim to have uncovered a causal relationship between income and child labour. Generally, **it is not enough to measure the two variables and trace how they vary in the same period: their observed correlation could be due to other causes.**

First, when we observe that households with higher income use on average less child labour, this may be due to **third unobserved factors**, which determine child labour and income simultaneously: for example, individual or family conditions that

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<sup>7</sup> The search consisted of combinations of the keywords “child lab\*r”- with a wildcard for British or American spelling – and various possible synonyms of income, earnings, shock, and so on. The query for “child lab\*r” AND income yielded as a result 462 articles.

make children less likely to thrive in school could also drive low family income (e.g. education levels of adult household members, or health conditions). Second, income and the use of child labour are often determined jointly and at the same time: If the household has a low income it might need to send children to work more but, simultaneously, if the household expects higher returns from working in the fields, it will send the children to work to capture the earning opportunity. This would lead to a **reverse causality concern**, as income determines the labour supply, but also depends on it (Maitra and Ray 2002). Third, if we observe households over time and see that increases in income are accompanied by reductions in child labour use, we again must be cautious on causal interpretation. For instance, in the context of a programme intended to enhance household income, households that are already likely to reduce their use of child labour might be the ones that most successfully select into the programme. In such cases, we observe a **selection effect**, rather than true policy impacts, as child labour decreases among households that participate in the programme, but it would have decreased within that specific group even without the intervention.

For a solid proof that income is truly an important driver of child labour, we need a *counterfactual*, namely a way to know what would have happened if the income change had not occurred. In experimental terms, a control group is required. Most recent studies in development economics try to rigorously provide a counterfactual or at least an explicit discussion of how they address potential bias from the issues described above. However, for macro-interventions (like child labour regulation and bans) it is hard to tell what would have happened without the policy, since they are implemented at the national level and impact everyone, without any control group. Most studies examined below rely on one of two methods to identify a causal relationship. **The first is to rely on a quasi-experimental setting, exploiting “exogenous” shocks that clearly cannot be related to other socio-economic choices made by individuals**, such as weather, international prices, natural catastrophes, etc. **The second is to rely on policy design that explicitly creates a counterfactual (control group) for comparison.** This is sometimes done by comparing beneficiaries of a policy or programme to non-beneficiaries who are almost equal in terms of their eligibility criteria; or by exploiting phasing in the date the policy or programme reached different groups of beneficiaries. The gold standard is to randomly assign an intervention amongst households or individuals with the same characteristics, so-called Randomized Control Trials (RCT). The basic idea of these different research designs is to establish a treatment and a control group such that the **researcher can expect that the treatment group would have behaved like the control group in the absence of the treatment.** Such a setting then allows for valid impact evaluations of the effect of an income-enhancing programme on child labour.

## Simple correlations: some examples

Numerous studies examine the correlation between child labour, income and other variables in simple regression models, without establishing a causal relation. In the agricultural sector such studies are very common (Jensen and Nielsen 1997; Ray 2000a; Afriyie et al. 2019; Amin et al. 2004; Wahba 2006). For Ghana, see for instance Blunch and Verner (2000) and Owusu and Kwarteye (2008). Consider for example the correlation between local economic growth and child labour (Kambhampati and Rajan 2006): without any correction for possible sources of bias, it is impossible to know whether economic growth drives reduction in child labour, or child labour reduction enhances economic growth, or a third factor determines child labour and economic growth.

These studies can sometimes provide an interesting starting point for further research, by highlighting some puzzling stylized facts. Bhalotra and Heady (2003), for example, challenge the common presumption that child labour emerges from the poorest households. They show evidence that children of land-rich families tend to work more than those in land-poor households, using survey data from rural Pakistan and Ghana. This “wealth paradox” exists especially for girls in both countries, whereas for boys it disappears after controlling for other characteristics of the family. As discussed before, such studies do not provide causal evidence that more wealth causes higher child labour but do provide an interesting starting point for discussion and for further empirical analyses.

## FINDINGS

This section presents the key findings of the literature on child labour and income. We differentiate the possible sources of income changes between

- (i) **income shocks due to unpredictable “exogenous” events** - market price shocks, crop loss due to weather or other exogenous factors, health shocks, and transnational shocks (via trade, foreign direct investment, remittances)
- (ii) **policies for income support** - cash transfers, in-kind transfers, school subsidies, financial support, and public works. Both types of studies provide useful insights in the income-child labour debate.

### Income shocks due to unpredictable events

Even if the income shock does not derive from a targeted government policy, but rather from changes in the weather, in the international economy or in other unforeseeable events, we can use these shocks to draw conclusions on household’s behavioural reactions. Methodologically, if the shock is unexpected and affects all households independently of other factors that determine child labour, it is usually appropriate to consider its effect on child labour **causal**.<sup>8</sup> For this reason, such income shocks are particularly useful for helping us understand the dynamics of the relationship between income change and child labour outcomes.

Exogenous income shocks coming from unexpected events are also important to understand how child labour responds to *negative* income changes. This is important to draw a complete picture of the child labour-income link, given that it is not possible to have randomly administered interventions that *reduce* income.

### Price shocks

The first important change that can impact farmer’s income is a change in the price of the commodity they cultivate.<sup>9</sup> Policy makers, companies and practitioners might be particularly interested in the role of prices in agricultural contexts,

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<sup>8</sup> Nonetheless, the likelihood and magnitude of these income shocks can still depend on endogenous household characteristics that also affect the likelihood of using child labour, such as the ex-ante adaptation strategies used to mitigate the shocks. So, the reader should always be sceptical when considering the results of these studies. Furthermore, when converting the results of these studies into policies, further caution should be applied (as discussed in Section 7), because even the strongest empirical evidence from this literature is not a direct test of specific policies and their effectiveness.

<sup>9</sup> Other prices can also be relevant for living income: input prices, or the price of other consumption goods.

especially if they are considering policies for price regulation. In the cocoa industry, this issue is particularly topical. Aidenvironment (2018) reviews the sectoral price policies implemented in Côte d'Ivoire and Ghana to shelter farmers from excessive price volatility. In July 2019, the two countries, which together produce more than 60% of the world's cocoa, introduced a USD 400 "living income differential" to be paid on all cocoa sales for the 2020/21 season. The governments have argued that this new price regulation will help ease pervasive poverty amongst cocoa farmers, and several stakeholders in the sector expect the policy to help address child labour.<sup>10</sup> Such price regulations at the country level, however, are hard to assess in terms of their effects on socio-economic outcomes, because they affect all cocoa farmers. Thus, without a comparison/control group, it is hard to know what would have happened in the absence of the price regulation. This section focuses on studies that exploit the fact that price changes affect different groups of farmers differently, hence trying to establish a comparison group of farmers that are less affected or not affected.

The key reference for the cocoa sector is the study of Cogneau and Jedwab (2012), who look at the drop in **cocoa producer price in 1990 Côte d'Ivoire**: using a difference-in-difference strategy with pre-crisis (1985–88) and post-crisis (1993) data, they compare children of cocoa-producing households and children of other farmers living in the same district or same village. **They find that a 10% fall in income leads to more than 3 percentage points decrease in school enrolment, and more than 5 percentage points increase in child labour.**

Kruger (2007) uses variation in county-level value of **coffee production in Brazil** to capture indirectly the value of children's time. **Increases in the value of coffee led to more work among middle-income boys and girls (a 4% increase in the probability of child labour following a 10% increase in coffee prices), while poorer children were mostly withdrawn from school. Richer children instead were not affected.** These results indicate that children substitute activities depending on the relative returns from these activities, and income effects of higher coffee prices were not strong enough to reduce child labour.

Soares et al. (2012) also examine **local coffee prices in Brazil** and disentangle more precisely income effects from substitution effects. When household **wealth rises** (due to higher wage and job tenure of the head of the household, non-labour income, and ownership of durables), **child labour falls**. When instead a **temporary local economic boom increases the demand for child labour**, thus increasing the opportunity cost of not working, the substitution effect dominates and **child labour increases**, in line with the previous study. A 100% increase in the value of coffee production leads to 1.2% increase in the probability of a child working exclusively, a 0.9% increase in the probability of working and going to school, and a 0.25% decrease in the probability of schooling only.

Conversely, Edmonds and Pavcnik (2005) relate child labour to regional and intertemporal variation in the **real price of rice in rural Vietnam** and find that **higher rice prices** are associated with **declines in child labour**. The observed 30% increase in the price of rice was associated with a 9 percentage points decline in child labour. Income effects thus dominate in this relationship: in fact, increases in

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<sup>10</sup> See for example <https://www.washingtonpost.com/business/2019/07/02/west-african-countries-plan-hike-cocoa-prices-citing-injustice-chocolate-industry-can-they-reduce-child-labor/>.

rice price cause the largest declines in child labour in households that are large net producers of rice.

A couple of studies (Hou et al. 2016 and Frempong and Stadelmann 2019) look at price shocks affecting not only producers, but also consumers in the same country, and find that effects differ with factors such as land ownership.

Hou et al. (2016) examine the **local increases in food prices driven by a wheat price boom in Pakistan** in 2008-2010, which caused a general food crisis but in many farming households was a source of extra income. They find that this food price increase had negative impacts on school enrolment, which however do **not directly correspond to an increase in child labour** for 10-14 year olds. For **girls** in the lowest quartile of asset ownership, a 100% increase in wheat price leads to a 24 percentage points increase in the probability of working. However, importantly, they note that higher food prices do not affect children in households with access to agricultural land.

Frempong and Stadelmann (2019) do not look at the price of a single commodity, but at prices for the most relevant goods consumed (including agricultural crops produced in rural areas). This study measures how changes in the consumer price index of **multiple goods** affects child labour in **Uganda**. The authors note that changes in food prices affect both farmers' revenues and agricultural profits, and their food expenditure.<sup>11</sup> They find that price increases cause a rise in the probability and the intensity of child labour. As in the study of Hou et al. (2016), however, landowners are less affected by the price fluctuations.

Overall, the results from the price shocks literature are quite nuanced: **a negative price shock that reduces the earning capacity of small farmers tends to unambiguously increase child labour, but the effect of positive shocks depend on the context and mediating factors like asset ownership.** There are examples, especially from coffee in Brazil, that show that temporarily higher crop prices increase child labour.

### **Shocks to agricultural production (crop loss) due to pests, insects, etc.**

The second key element for farmers' revenue beyond the price for their agricultural commodity is the amount of crop that they produce for sale. The literature on crop loss is then useful to understand the effects of these types of quantity shocks on child labour.<sup>12</sup>

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<sup>11</sup> Since cocoa is exclusively a cash crop and is not consumed by the farmers themselves (differently, for example, from rice or wheat), this issue is less relevant in the cocoa sector. Farmers cannot adapt to fluctuating prices by trading home consumption for sales on commodity markets. Cocoa price fluctuations mostly affect their revenues directly, not their consumption expenditures.

<sup>12</sup> While production shocks generally are a suitable context to study casual effects on child labour, there are conditions which invalidate causal conclusions. This is the case, notably, when some households mitigate the expected adverse risks ex ante, and thereby influence the severity of the shock, and these mitigation decisions are correlated with child labour use. Beegle et al. 2006 suggest testing if the probability that a household reports a shock increases with observable household characteristics (assets, education, etc.).

Beegle et al. (2006) find that **accidental crop loss, due to pests, fires, and other natural events, leads to a 50% increase in child labour hours in Tanzania.**<sup>13</sup>

Households in this context rarely purchase agricultural inputs and use rudimentary technology (for example they seldom own tractors). Also, availability of wage labour is limited. When hit by a shock, households tend to increase their use of child labour. Assets owned by the household serve as buffer stocks and as collateral for borrowing and can absorb almost 90% of the negative effect on child labour. Again in Tanzania, Bandara et al. (2015) confirm a significant **increase in children's overall work hours and agricultural work hours, especially for boys,** following a crop shocks (loss due to rodents, insects, or pests). **Girls instead are mostly withdrawn from school in response to such shocks.** Having access to a bank account is associated both with lower probability of child labour, but only acts as a shock buffer against child hunger, not on the increase in child labour.

In Mali, Dillon (2013) looks at **crop loss due to insect or animal infestations** (and also rainfall, discussed in the next section), and **finds that these events increase school withdrawals by 11% and increase participation in farm work by 24%,** but have no effect on hours worked. The study argues that this result derives from the fact that **children are complementary to adult workers in agriculture.**

There is **limited evidence on the effect of technological or productivity shocks** that increase the quantity of agricultural produce on child labour: Takahashi and Barrett (2014) use data from **Indonesia in 2009,** and find that **adopting improved rice varieties** generates significant estimated yield gains, but **no household income gains** because of a reallocation of family labour from non-farm to farm activities. Despite the increased labour demand for farming, they find **no changes in child labour.**<sup>14</sup>

These studies demonstrate that negative shocks on agricultural production (crop loss) tend to result in increased use of child labour in various contexts. In the face of adverse shocks to their harvest households tend to use child labour as a buffer.

## Weather events

The use of meteorological shocks to study income variation, especially rainfall shocks in rain-fed agricultural contexts, is a well-established technique to identify the effect of exogenous income changes on various outcomes. Its application to child labour, however, is relatively more recent, as the older studies tended to focus exclusively on education as the key outcome. For example, Jacoby and Skoufias (1997) found that an unanticipated rainfall shock<sup>15</sup> in rural India reduced schooling. Kazianga (2012) use rainfall as a measure of income volatility in Burkina Faso and find that households exposed to more volatile incomes have a greater incentive to use non-enrolment in school to have an “insurance” against unforeseen events. Other recent studies distinguish the impacts of rainfall-driven income shocks on children by gender: Björkman-Nyqvist (2013) uses exogenous variation in rainfall

<sup>13</sup> To ensure that crop shock is exogenous to child labour, they check that lagged child labour does not predict crop shocks.

<sup>14</sup> The causal link from improved rice varieties to child labour is hard to establish in this context, because adoption of better agricultural technologies is not random, but the study uses propensity scores to match similar households to predict the choice to use improved rice varieties.

<sup>15</sup> Deviation from long run village mean in that season. Jacoby and Skoufias 1997., pp. 322.

across districts in Uganda to find that negative rainfall shocks have negative effects on female enrolment in primary schools, but not for boys and the youngest girls.

One of the most prominent studies of **rainfall-led income shocks and child labour** is the work of Shah and Steinberg (2017) in **India**. They have evidence on long-term impacts over the whole lifecycle of each child, from in-utero to age 16, and they find that these shocks have permanent and cumulative effects on children's human capital. They show that children aged 5 to 16 switch out of school into productive work when rainfall is higher, indicating that a **positive production shock increases child labour and decreases educational attainments** (math test scores fall by 2-5% of a standard deviation, school attendance falls by 2 percentage points, and the probability that a child is enrolled in school falls by 1 percentage point). **These results are long-lasting: adults complete 0.2 fewer total years of schooling for each year of exposure to a positive rainfall shock when they were aged 11-13.** Children and mothers are 20% less likely to work in drought years relative to heavy rainfall years, and children are more likely to attend school. The **substitution effect seems to dominate the negative income effect** here, in a context of relatively low child labour productivity and reality low schooling costs.

Dumas (2015) also finds evidence from Tanzania that rainfall shocks have asymmetric effects: in a panel of agricultural households, child labour (for children aged 6-13) *increases* with increases in rainfall (an increase in rainfall by one standard deviation increases child labour by 4.6 days per year) due to higher agricultural productivity but is not affected by decreases in rainfall. Importantly, child labour increases less if households have access to a labour market where they can hire wage workers. The author also notes that the agricultural labour market can smooth the shocks better than the credit market in the context of rural Tanzania.

Another body of empirical studies exploit extreme weather events, like typhoons and hurricanes, to examine responses to unexpected variations in income. Baez et al. (2017) use a **tropical storm in Guatemala** which affected food prices due to its unfavourable timing with respect to local harvest cycles and thus cut households' income by about 10%. They show that households attempted to cope by **increasing their adult and child labour supply**. Children 7-15 years old were 12.8% more likely to engage in paid and non-paid work activities in rural areas hit by the shock. Similarly, Cook and Beachy (2018) study the effect of a **hurricane in an agricultural community in rural Haiti**. 46% of the children enrolled in school stopped attending because of the hurricane. Parents identified that the primary causes for their **children leaving school was that children labour was needed on the family farm** given the loss of income due to crop damage and livestock deaths.

In sum, the literature on weather shocks demonstrates again that **the effect of income shocks on child labour is not unidirectional**: when the **returns to child labour are lower**, because of droughts, **children may go to school more and work less, despite their family's lower income**. However, when extreme weather events profoundly disrupt the income of the family, children may be called to do more work. **Conversely, when agricultural productivity increases thanks to more rainfall, and thus expected income is higher, children may end up working more.**

## Health shocks and death of income earners

A sudden illness for any adult member of the family is not a direct income shock, but affects the household's time allocation, budget and income-generating capacity. The literature notes that the effects on child labour depend on which member of the family is hit by the disease.<sup>16</sup> The most solid studies have employed surveys from multiple years (at least two waves) to find in different contexts that **if the mother in an agricultural household falls ill**, this event leads to **increased child work, as children substitute for the mother's household chores**, child care for siblings, and at the market (see Alam 2015, Dhanaraj 2016, Dillon 2013, Dinku 2019 and Mendolia et al. 2019 for **Tanzania, India, Mali, Ethiopia and Vietnam** respectively). This effect seems more relevant for younger cohorts (Dhanaraj 2016).

**Paternal illness**, instead, even if the financial implications may be more significant, has **not been found to have an effect** on child labour amongst younger children, at least in the short run, because the father cannot supervise these children's work on the farm (Alam 2015; Dillon 2013). For **older children**, however, who can independently substitute for the father's work, **child labour increases following paternal illness** (Dhanaraj 2016; Dinku 2019). Moreover, **maternal illness has a larger effect on daughters** (13 percentage points higher chances of working) while **paternal illness has a larger effect on sons** (7 percentage points higher chances of working) (Dinku 2019).

The sudden **death of a parent** also acts as an indirect shock to income and, differently from illness, is by definition a permanent shock. Bandara et al. (2015) summarize previous studies that document the adverse effect of a parent's death on schooling, and also estimate the impact of serious illness/death of a parent on child labour: they find that **in Tanzania boys' work hours in agriculture significantly increase by 36% following the death of any parent** (but they find no significant change for girls).

In summary, the literature on morbidity shocks and deaths of parents demonstrates that **in most cases child work is used as a buffer** against temporary (illnesses) and permanent (deaths) income shocks. In this context, **the gender of the child is particularly relevant**, with girls systematically shifting into more household chores and boys into agricultural work.

## Transnational shocks (trade, foreign direct investment, remittances)

The local income of households can also be affected by international inflows of money. This section considers the role of trade, foreign direct investment (FDI) and remittances from relatives residing abroad as possible sources of variation in the income of a family.

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<sup>16</sup> Even if illness may seem an exogenous and unpredictable event, self-reported health shocks may not be a reliable measure of health if reporting is correlated with unobserved household characteristics, such as wealth and education. To check that the shocks are indeed exogenous, studies should estimate the probability that a household reports a shock, controlling for observable household characteristics that may likely be correlated with the reporting itself Dillon 2013.

For these transnational factors, establishing a causal relationship between income effects and child labour is challenging because they are typically correlated with overall economic development and quality of governance – both of which are elements that also affect child labour independently of the household income channel.

From a theoretical perspective, globalization in the form of more free trade and FDI could be helpful to increase local incomes and, as families can graduate out of poverty, to help reduce child labour to the degree that child labour is driven by poverty. On the other hand, however, if trade and FDI projects increase the demand for cheap unskilled labour, they could increase the prevalence of child labour.

**Cross country evidence shows that trade openness and FDI are negatively associated with child labour** (see Edmonds and Pavcnik 2006 and Davies and Voy 2009 respectively), and the effect is mostly driven by their positive impact on countries' income. Both studies predict trade and FDI patterns using exogenous variations in geographic characteristics, in order to claim that the effects are causal.<sup>17</sup> **Trade liberalization, furthermore, reduces child labour if it induces higher prices for exported commodities**, as noted in the study by Edmonds and Pavcnik (2005) for **Vietnam**, already discussed in the price shocks section. Similarly in rural India, Ajefu 2018 notes that a **one percentage point increase in parental income due to the trade liberalization led to one percentage point fall in the probability of child labour for children that worked only**. The effect is more marked on **older children**: for 5–9-year-old children the trade liberalization reduces domestic work by 0.4 percentage points, but for the 10–14 years age group it led to a 1.6 percentage points reduction in domestic work and 4.4 percentage points reduction in child labour. However, in the case of the Indian trade liberalization, Edmonds et al. (2010) note that **regions losing tariff protection experienced a rise in poverty of 2.7 percentage points and lower agricultural wages, and girls were disproportionately affected by this negative shock in terms of increasing child labour (especially house work) and education dropouts**.

Remittances from abroad are another important source of household income and liquidity in many developing countries. Calero et al. (2009) note that in **Ecuador more remittances are linked to higher school enrolment and lower levels of child work** for children aged 10–17 (a 1\$ increase in remittances per month leads to a fall of 0.27 percentage points in child labour), **especially for girls**. The effect on child labour is however not significant for the poorest households: in their case, schooling increases with remittances, but these are not enough to reduce the need for some form of child work. Conversely, Alcaraz et al. (2012) provide excellent evidence that **a fall in remittances causes more child labour**: they use a shock to remittances in **Mexico**, the 2008–2009 U.S. recession, to observe how households that experienced this drop in income adapted child labour and schooling decisions.<sup>18</sup> They find that the **negative shock on remittance receipts caused a**

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<sup>17</sup> The geographic characteristics of a country (climate, mountain areas, access to sea, etc.) are not determined by socio-economic factors that could be linked to child labour and economic activities simultaneously (e.g. cultural values or market structures). Therefore, the direction of causality from trade to income changes to child labour is well identified if the amount of trade or FDI is predicted on the basis of geographic conditions.

<sup>18</sup> They compare remittance-recipient households before and after the crisis with never-recipients. Since the families that become remittance recipients could be a selected group with peculiar characteristics, the authors use old railway lines as an instrument to predict which families were more likely to have migrant ancestors and, since migration is highly path-dependent, current membership in the remittance-recipient group.

**9.8 percentage point increase in child labour** and a significant reduction in school attendance among 12-16 year old children. Lastly, Yang (2008) finds that **a positive shock to the value of remittances in the Philippines, in the form of the 1997 Asian financial crisis that suddenly increased the exchange rate, led to 25% higher household income and to lower hours worked** and higher educational investments for children 10-17 years old.

The existing evidence on transnational income shocks shows that when trade or remittances act to increase income, child labour falls, while when they reduce income, child labour increases. These results are particularly relevant for the cocoa industry, a sector highly exposed to international trade markets. Globalization can lead to positive aggregate income shocks, but not all households may benefit. On the other hand, globalization can expose households to more volatility, and worsening of international conditions is associated with risk of increases in child labour, but more evidence is needed on this latter point.

## Policies for income support

Development programmes are often intended to tackle several indicators of vulnerability and well-being through comprehensive income-support policies. There are multiple policy options to achieve this goal and they may differ in how they affect child labour. For a comprehensive review of policies that are effective at raising smallholder farmers' incomes (but without any specific considerations on how they affect children), see a recent report by the Farmer Income Lab (2018). This section focuses exclusively on those income-supporting policies that allow for a solid impact evaluation, such that their effects on child labour can be meaningfully assessed.

### Cash transfers

Cash transfers are one of the most popular and well-studied policies to alleviate poverty. De Hoop and Rosati (2014a) and Dammert et al. (2018) provide two comprehensive reviews of the relevant studies linking cash transfers and child labour in developing countries. This section focuses on cash transfer studies in rural contexts, to extrapolate policy recommendations most relevant for the cocoa industry. Most policies for cash transfer in recent years have been designed to allow for proper impact evaluation. However, note that since cash transfer programmes typically do not have as a primary objective the reduction of child labour, child labour outcomes have been measured in only a limited number of evaluations.

Considering only those cash transfer programmes that included some evaluation component based on random assignment, there is large variability across programmes. Cash transfers differ widely in their delivery modalities, and are often paired with further interventions (trainings, in-kind transfers, awareness campaigns, etc.), so that drawing overall conclusions from a range of schemes is difficult. The results from the specific studies mentioned below should then be interpreted in light of the local context and the specific design of each intervention.

Existing studies do not provide univocal evidence of whether *unconditional* cash transfers (UCT) with no strings attached have higher or lower effects in child labour use as compared to *conditional* cash transfers (CCT), which impose requirements on recipients, such as attending school, health-care appointments, or

participation in awareness-raising sessions. Edmonds and Schady (2012) offer an interesting case study of a **UCT for poor women with children in Ecuador**, which resulted in a **decrease in children's paid employment by 78%** and a **fall in unpaid economic activity inside the house by 32%**. The cash transfer was used to postpone the child's entry into the labour force. Some households believed that the UCT was conditional on school attendance, but the authors find no significant difference in the behaviour of those who perceived it as a CCT and those who knew it was a UCT.

Haushofer and Shapiro (2016) confirm this idea that unconditional transfers, at least in the short run, do not have any "negative" effects. Unfortunately, their very detailed study does not measure the labour supply of children; they find more generally that **unconditional transfers in Kenya improve** a variety of household welfare measures, including **children's education, especially when the female head of the household was the main recipient**.

Analogously, Handa et al. (2016) examine an **UCT in Zambia** targeted to families with children younger than 3 years old and randomized across villages. They find **significant reduction in child labour (lowering the probability of paid work by 4-5 percentage points)** among children aged 11-14 in the recipient households. Despite the lack of any schooling requirement, part of the cash transfer was spent to face schooling costs (uniforms, schools). Conversely, the study of Hoop et al. (2019) examines another Zambian UCT finding that the programme lead to an increase of 5-6 percentage points in excessive working hours (defined following the ILO standard age-based definition). However, despite the increase in excessive work hours, schooling still increased for children exposed to the programme.

Covarrubias et al. (2012) show that cash transfers have different effects on different forms of child labour: even if **child labour outside the house decreased by 7%**, **children's participation in household chores and hours worked in the family farm/business increased by 0.16 hours per week following an unconditional cash transfer for Malawi's poorest fraction of the population**. Families invested the cash transfer in agricultural productive assets (tools, livestock), which might explain this result. Note that the UCT was coupled with a school bonus, which did not raise enrolment, but significantly reduced missed days of school. A further evaluation of the programme and the study of Hoop et al. (2019) found that **hazardous activities** - exposure to dust, fumes, or gas, and exposure to extreme heat, cold or humidity - increased for both girls and boys (Carolina Population Center 2016, Hoop et al. 2019).

Unconditional cash transfers can take also indirect forms: for example, Edmonds (2006) documents large increases in schooling and **declines in hours worked when South African households received fully anticipatable social pension income**. Having a male adult eligible for the pension scheme reduced by 0.7 hours per day the market work of rural boys aged 13-17, while results for girls are not statistically significant. This type of cash transfer is different from UCTs in that the income change is permanent, rather than limited to the duration of the development programme.

For conditional cash transfers, a large body of evidence from Latin American programmes finds encouraging results on child labour reductions. Dammert (2009) in **Nicaragua finds a reduction in children's economic activity** by 3-5 percentage points for children aged 7-13, significant only for boys. Galiani and McEwan (2013) in **Honduras find similar results, with larger effects in the two poorest strata of the treatment population** -they consider children aged 6-12.

Again in **Nicaragua**, Del Carpio et al. (2016) examine a cash transfer coupled (for some households) with a business grant to start a non-agricultural activity. They find **an overall decrease in child labour, driven by a decrease in household chores and farming**, but for households that also received the business grant the reduction was smaller (1.8 and 0.9 fewer hours per week in the baseline and business grant groups, respectively, compared to the control group). This difference derived from a transition of children into non-traditional activities related to commerce and retail, due to the **additional transfer to start-up a family business**. They argue that this creates a move to ‘better’ forms of child labour, because working in commerce and retail requires the development of basic skills in reading, writing, arithmetic, and interpersonal relationships. In both “basic” and “business”-treated households, **boys reduce their farm work more than girls do, and girls decrease their household chores more than boys do**.

One of the most studied conditional cash transfers is the **Mexican PROGRESA programme**. Skoufias and Parker (2001) find that this CCT **reduced children’s economic activity** by few 3-5 percentage points among boys and by 2 percentage points among girls aged 12-17. Janvry et al. (2006) also show that this programme reduced child labour by 2-7%, however it was not successful as a **buffer against shocks: when households faced illnesses or natural disasters, child labour increased both in PROGRESA recipients and in the control group** (even though the CCT prevented school dropouts in case of shocks).<sup>19</sup> In the long run, Behrman et al. (2011) find that **after five years** while the CCT **reduced by almost 30% the probability of employment for boys** who were aged 9-10 before the transfer (both in wage work and agriculture), **young girls of that age group did not work significantly less**. These results could indicate that older girls were substituting for their younger brothers staying in school.<sup>20</sup>

An interesting policy question is whether the size of the cash transfer matters, especially in relation to schooling costs. The study of Hoop et al. (2017) argues that it does: they demonstrate that a **conditional cash transfer program in the Philippines** increased school participation, but also **increased paid work for children (10-14 years old) by five percentage points**. This effect was driven by the children that were **neither in school nor at work** (a status that decreased by four percentage points following the programme) **moving into both education and work** (by six percentage points more). They suggest that children worked because the cash transfer only provided a partial schooling subsidy, and thus children needed to work to cover the remaining school fees. If a cash transfer is not large enough, it could increase child labour. This point is particularly interesting for the living income debate, which argues that it is not enough to raise income, but that it should be above the benchmark for decent living standards. Only recent works started exploring this idea: the working paper by Pellerano et al. (2019) finds evidence for **threshold effects of a conditional cash transfer in Lesotho, with a minimum level of income below which the transfer has no effect on increasing schooling or reducing child labour**. Only the richest quartile of their CCT recipients (out of a sample of the poorest households in Lesotho) experienced a

<sup>19</sup> Note that, similarly to Shah and Steinberg 2017, the authors find that during droughts child labour in control villages decreases, probably because the opportunities for child work diminished. In PROGRESA villages, instead, there was no significant effect.

<sup>20</sup> Edmonds and Shrestha 2012 also consider whether the benefits of conditional cash transfers last over time and find that they are mostly confined at the time of intervention: a CCT in Nepal reduced child involvement in carpet weaving, thus lowering one of the worst forms of child labour, in particular for girls. However, the effects of the cash transfer disappeared after the program ended.

significant fall in child labour – by 17 percentage points in participation, 3 hours and almost one day per week).

Overall, the evidence shows that **cash transfers are generally effective to reduce child work, especially children's *paid* work, but some caveats still apply.** Cash transfers have been shown to **reduce child labour more amongst boys than girls, but at the same time to increase unpaid activities** (household chores). Cash transfers with a business support component have been shown to be less effective against child labour because they generate more labour needs in the family enterprise. Lastly, if the transfer leads to increased school enrolment but the transfer amount is not high enough to cover all school costs, children may start working (more) to compensate for the extra costs incurred.

### In-kind transfers

The number of studies on in-kind transfers is much more limited compared to cash transfers. Ravallion and Wodon (2000) examine a **food-for-education scheme in Bangladesh**, conditional on school attendance. They find evidence of **reduced child work inside and outside the household** - 100 kg. of rice reduced the incidence of child labour by 0.04 percentage points (31% of mean child-labour incidence) for boys and 0.02 (18%) for girls- **but the effects are much lower than the increases in education.**

Kazianga et al. (2012) also provide evidence on the food-for-education component of the BRIGHT programme in rural **Burkina Faso**, which comprised two in-kind transfers: one in which girls received **take-home rations** from school (conditional on 90% attendance rates), and another in which **all pupils** (male and female) received **school meals**. In both groups school enrolment increased and especially girls improved their math scores. **Child labour fell more for girls in the home rations treatment, both for farm and non-farm economic activities.**<sup>21</sup>

Bandiera et al. (2017) study a transfer of **livestock assets to poor women in Bangladesh (coupled with some business training)** and find that **child work in non-wage activities increased slightly for 15 years old and younger.** The programme included entrepreneurial training for the women recipients, who were targeted, among other criteria, on the basis of having children who worked to be eligible. However, even if all household members devoted some more hours to livestock rearing, the effect was about 1/10th of the size of that on women recipients of the animals and **did not crowd out schooling.**

The evidence on in-kind transfers and child labour is still limited, but overall, **food-for-education programmes or livestock transfers seem to be more effective in improving education than in lowering child labour.** If policymakers decide to offer in-kind rather than cash transfers, thus helping the income of the family in a more restrictive fashion, they should expect smaller effects on child labour, based on these studies.

<sup>21</sup> Possibly the value and flexibility of use of the school meals was smaller than the take-home rations (10kg of flour per month), which could partly explain the observed difference in results.

## School subsidies

Alternatively, interventions to lower the cost of schooling can alleviate the budget constraints faced by poor families.

Angrist et al. (2002) **show that secondary school vouchers allocated through lotteries in Colombia had a large impact on schooling** (recipients were 10 percentage points more likely to have finished 8th grade and had higher test scores) **an reduced work by 1.2 hours per week**, with larger effects on girls, for whom working hours fell by about 1.5h a week because of the programme.

Hoop and Rosati (2014b) find that the overall impact of the BRIGHT programme in **Burkina Faso**, which included **school constructions, various direct incentives in the form of school kits and textbooks, and the food transfers** discussed by Kazianga et al. 2012. The overall intervention was aimed at reducing the cost of education and increasing access to schools, but it **did not reduce child labour outside the home**, and instead increased by 14 percentage point the probability of children being involved both in work and school. Child labour *increased* boy's participation in some household activities by 14 percentage points for those who did not have a female sibling (thus unaffected by higher school participation of female siblings and not affected by take-home rations), possibly because they had more time available due to the shorter distance to school.

Reducing the cost of schooling through **school subsidies, school construction or provision of direct incentives for pupils to attend school can help reduce child labour, but these measures might be ineffective or even backfire if they substantially free up children's time**. More evidence is needed to better understand the child labour effects of these types of interventions.

## Credit, microcredit, and insurance

One of the most commonly discussed determinants of child labour beyond low income is the volatility of earnings and the inability of households to cope with fluctuations in their income level. Additionally, there is an argument that in many developing countries poverty is tightly linked with liquidity constraints, the lack of access to financial services and the lack of credit and insurance markets. Therefore, it is important to consider other policies beyond direct transfers, that can increase the earning opportunities for households, in the form of various financial services. When households do not have access to savings options, credit, insurance, etc., the probability of using child labour as a source of extra income and as a buffer against adversities increases. Therefore, theoretically, policy interventions that provide financial services to households should significantly change their decisions regarding time use for children. However, the literature on this topic finds that frequently these measures are not so effective on child labour.

For instance, Tarozzi et al. (2015) in rural Ethiopia find that **microcredit did not significantly affect children's labour supply, except for a reduction in teenage girls' (13-19 years old) in non-farm self-employment working hours by 2.6 percentage points**.<sup>22</sup> Crépon et al. (2015) in rural Morocco find that the borrowing led to no gain in income or consumption, but to investments in assets for self-employment activities, and an increase in profit. Nonetheless, **children (6-15 years**

<sup>22</sup> In fact, despite significant borrowing in the treated regions, they find almost no effect in a whole range of indicators such as income from agriculture, animal husbandry, nonfarm self-employment, labour supply, schooling and indicators of women's empowerment.

old) displayed a reduction in time spent on household chores by 1.3 percentage points. Angelucci et al. (2015) document in Mexico no significant impacts of loans to female entrepreneurs on income, and no effect on child labour.

There is then a wealth of other studies that find that microcredit could even backfire, by creating better income-generating opportunities for the family, and thus increasing child labour by making it relatively more valuable. Most of these studies, however, do not use randomized interventions, so these results should be taken with caution and interpreted only as correlations.<sup>23</sup> The selection into the credit programmes is very likely to be driven by unobservable characteristics that also determine higher child labour, so these studies cannot provide solid evidence that microcredit increases child labour.

To conclude this section on financial interventions, Landmann and Frölich (2015) is one of the rare studies looking at insurance: they find that **extending health insurance in rural Pakistan reduced participation in child labour and hazardous work** (by 0.03 and 0.05 percentage points, respectively) **and hours worked particularly for boys** (by 4.4 percentage points).

Overall, **microfinance interventions do not seem to be the most effective instrument to reduce child labour, but they also do not have adverse effects** (contrary to what some studies based on simple correlations have indicated). While financial support can encourage investments in productive activities, which in turn might induce child labour as seen in other contexts, no rigorous evaluation of a micro-credit scheme has actually confirmed such a chain of effects. More research is also needed on the role of insurance, which seems a promising avenue for intervention, but currently has been considered only in one study.

## Public works/employment opportunities

Another local intervention that governments can implement to support household income is to enhance employment opportunities for adults, for example through public works, especially after adverse economic or natural shocks. A couple of studies evaluate the impact of these policies on child labour: in Ethiopia, following a public works' programme (the Productive Safety Net Programme), Dinku (2019) finds that **children in eligible households were 10.7 percentage points less likely to be involved in child labour than non-beneficiaries**. Instead in India there has been evidence of an **increase in child work by 4 percentage points due to a public works programme, especially for girls in household chores**, as older children substituted adults without yet being eligible for the public works (Shah and Steinberg 2015).

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<sup>23</sup> Hazarika and Sarangi 2008 for example find in Malawi that in the season of peak labour demand, access to microcredit (measured as self-assessed credit limits) is linked to higher child work in households with average landholdings and retail sales enterprises. Similar results again for Malawi have been found by Shimamura and Lastarria-Cornhiel 2010. Similarly, in rural Bangladesh, Asadul, Islam and Chongwoo Choe 2013 documents that participation in a microcredit program is linked with higher child labour and lower school enrolment, with this adverse relationship more pronounced for girls than boys, for younger siblings, and for poorer households. Similar results, and same concerns over the validity of the results, in the study of Pakistan for Menon 2010. Same for Bolivia Maldonado and González-Vega 2008.

Training and skill development programmes to support the income generating capacity of a family are mostly targeted at micro-enterprise owners and typically focus on urban areas, thus they are considered beyond of the scope of this review (for a short review, see Dammert et al. 2018). One exception is the aforementioned study of Bandiera et al. (2017) for **Bangladesh, which found that children spent more hours rearing livestock, which did however not crowd out schooling**. Similarly for **Nicaragua**, training and capital transfers<sup>24</sup> to women have been found to be effective in **increasing education but not to affect child labour** (Hoop et al. 2018). The authors note that an increase in women's decision power within the household might have contributed to the observed increase in school attendance.

Overall, **the effects of active labour market interventions**, such as public works programmes to generate employment opportunities, or business trainings to support micro-entrepreneurship, on child labour **have not been sufficiently studied to date**. The few pieces of existing evidence suggest however that such programmes risk to increase child labour under certain conditions.

## MEDIATING FACTORS

Most of the studies mentioned above find that the relationship between income changes deriving from exogenous shocks or policies and child labour depends on specific characteristics of the child, household, and socio-economic context. This section summarizes the main conditions mentioned in the literature that mediate the above results on how changes in income translate into changes in child labour use.

At the child level, the most frequently cited factors are the **gender** of the child and the age group. The most frequent distinction is between boys and girls. Girls have been found in multiple contexts to benefit less from positive income changes and suffer more during negative income shocks. The key distinction is that boys tend to be involved less in household chores, and thus the tasks assigned to the two genders in response to income changes are different. Cash transfers, even if designed to be equal for families with boys and girls, have shown segmented gender impacts, for instance in Nicaragua, where they significantly reduce child labour only for boys (Dammert 2009). They have been found to induce a larger reduction in farm work for boys than for girls, while decreasing household chores for girls more than for boys (Del Carpio et al. 2016). The gender of the parents receiving income support could theoretically matter, and mothers receiving business training and capital have been shown to increase more children's education than men, but to date there is no strong evidence on the effects on child labour (Hoop et al. 2018).

Additionally, the **age** of the child matters: older children can work without adult supervision, so they can substitute adult labour more easily, and they are at higher risk of dropping out of school to work. This problem is highlighted by the health shocks literature, which finds that paternal illness leads to less work in the field for

<sup>24</sup> The programme package included (i) training on community organization and gender awareness, (ii) training in technical or business skills to develop or expand small-scale household enterprises, livestock, or agricultural activities, (iii) capital transfers in the form of cash, seeds, or livestock, and (iv) follow-up technical assistance.

younger children who cannot be supervised (Alam 2015). Young children might instead be involved in household chores and taking care of siblings, which requires less supervision (Dhanaraj 2016). Conversely, income effects that reduce child labour are often more marked for the older children, while younger children just reduce their share of household chores (Ajefu 2018). This has been noticed also in cash transfers, which have been shown to reduce child labour more in secondary school aged children, for example in Zambia (Handa et al. 2016).

At the household level, family characteristics that are relevant in shifting the income-child labour nexus are the **education level of the parents**, which has been found to operate as a buffer against adverse shocks, and thus might prevent the use of child labour to deal with adversities (Bandara et al. 2015). Moreover, the presence of **siblings** affects the income-child labour dynamics, because for instance older girls might drop out of school following a cash transfer if their brothers are going more to school and working less, as seen in the Mexican PROGRESA programme (Behrman et al. 2011). If one of the siblings is eligible for some income support, moreover, this could have spillover effects on the whole family, as identified in Burkina Faso (Hoop and Rosati 2014b).

Other household characteristics also matter. **Asset ownership** is repeatedly mentioned as an important source of variation (Edmonds and Pavcnik 2005; Bacolod and Ranjan 2008). Assets can act as a buffer during negative economic downturns for the family, but they could also amplify child labour effects, as in the case of the death of an adult in the family – as found in Tanzania for boys who were already more likely to work following the death shock, and even more so in the presence of more household assets (Bandara et al. 2015). Assets can also be used as collateral to borrow in times of reduced liquidity, determining whether the household is **credit-constrained** (Ranjan 2001). **Having some collateral has been shown to absorb up to 90% of the negative effect on child labour of crop loss (Beegle et al. 2006).** **Land ownership** is one of the most relevant assets to buffer negative shocks, because it further allows for some home production of food (Hou et al. 2016; Frempong and Stadelmann 2019).

At the community level, many socio-economic factors mediate the effect of income changes on child labour. The existence and liquidity of local markets can reduce the use of child labour: **local labour markets** for instance determine the possibility to hire wage labour during the harvest season instead of using children during more productive year (Dumas 2015). Similarly, **credit and financial markets** can afford alternative financial instruments to cope with economic downturns without withdrawing children from school and putting them to work (Dehejia and Gatti 2005; Beegle et al. 2006; Edmonds 2006). There is still relatively little rigorous evidence on how **socio-cultural factors** and **historical** elements could also mediate the child labour-income nexus. For some suggestive evidence on this last factor, see the work of Berlan (2013), an anthropological study on child labour in cocoa production in Ghana that traces the long history of cocoa production and the norms and beliefs surrounding this industry.<sup>25</sup>

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<sup>25</sup> This study emphasizes that for farmers some forms of child work are seen as having a formative value. There is qualitative evidence that child labour in its worst forms arises frequently from necessity after a family divorce. However, these studies provide micro-evidence for a very small sample and offer more testable hypotheses for future research than solid evidence on mechanisms of causality.

## SUMMARY OF FINDINGS

The following tables summarize the findings of the core studies. Red circles indicate a substantial rise in child labour, green circles an unambiguous fall, grey circles no significant change, and yellow circles ambiguous results, with some reductions in child labour, but also some worsening conditions for children (either for specific sub-groups, or for certain types of labour – like housework, or enterprise work).

The evidence is split in three tables: Table 1 considers negative income shocks, Table 2, positive income shocks, and Table 3, policies to increase income.

Table 1: The effect on child labour of shocks that decrease income

Shock	Evidence
Prices	● Cogneau and Jedwab (2012). Cocoa, Côte d'Ivoire 10%↓ income = 5pp↑ child labour
Agricultural output	● Beegle et al. (2006) Tanzania. Crop shock 50% = ↑ child labour (hours) ● Bandara et al. (2015) Tanzania. Crop shock = 12%↑ child labour ● Dillon (2013) Mali. Crop loss = 24%↑ child labour (farm work)
Climatic events	● Shah and Steinberg (2017) India. Rainfall below the 20th percentile = ↓ child labour ● Dumas (2015) Tanzania. ↓ rainfall (one s.d.) = ↔ child labour ● Baez et al. (2017) Guatemala. 10%↓ income = 12.8%↑ child labour ● Cook and Beachy (2018) Haiti. Post-hurricane = ↓46% school attendance
Illness / death	● Alam (2015), Tanzania. Mother ill = 11%↑ child labour; father ill = ↔ child labour ● Dhanaraj (2016), India. Mother ill = ↑ chores; father ill = ↑ child labour (older cohorts) ● Dillon (2013), Mali. Mother ill = 1.8h↑ childcare; father ill = 2.6h↑ enterprise work ● Mendolia et al. (2019), Vietnam. Mother ill = ↑ child labour (especially girls) ● Dinku et al. (2018), Ethiopia. Mother ill = girls 13pp↑ child labour, father ill = boys 7pp↑ child labour ● Bandara (2015) Tanzania. Death adult = 36%↑ child labour boys (agriculture work)
Trade, remittances	● Alcazar et al. (2012), Mexico. ↓ remittances = 9.8pp↑ child labour ● Edmonds et al. (2010), India. Loss of tariff protection = 2.7pp↑ poverty = ↑ child labour

● child labour increased    ● child labour decreased    ● no effect on child labour    ● mixed results

**Notes:** For brevity, hours, days or probability of work is not indicated. ↑ indicates a significant positive coefficient (increase), ↓ a significant negative coefficient (decrease) and ↔ no effect significantly distinguishable from zero. The abbreviation “pp” refers to percentage points. The abbreviation “s.d.” refers to standard deviations.

Table 2: The effect on child labour of shocks that **increase** income

Shock	Evidence
Prices	<ul style="list-style-type: none"> <li>● Kruger (2007) coffee, Brazil. 10%↑ coffee prices = 4%↑ child labour</li> <li>● Soares et al. (2012) coffee, Brazil. 100%↑ value of coffee = 1.2%↑ child labour only, 0.9%↑ child labour &amp; school, 0.25%↓ school only</li> <li>● Edmonds and Pavcnik (2005) rice, Vietnam. 30%↑ price of rice = 9pp↓ child labour</li> <li>● Hou et al. (2016), wheat Pakistan. ↔ child labour for producers/ landowners</li> <li>● Frempong and Stadelmann (2019), Uganda. ↔ child labour, ↑ probability and intensity of child labour</li> </ul>
Agricultural output	<ul style="list-style-type: none"> <li>● Takahashi and Barrett (2014), rice Vietnam. Improved varieties = ↑yield but ↔ income and ↔ child labour</li> </ul>
Climatic events	<ul style="list-style-type: none"> <li>● Shah and Steinberg (2017), India. Rainfall above the 80th percentile = 2%↑ wages, 20%↑ child labour</li> <li>● Dumas (2013), Tanzania ↑ rainfall (one s.d.) ↑ child labour by 4.6 days</li> </ul>
Trade, remittances	<ul style="list-style-type: none"> <li>● Ajefu (2018), India. Trade liberalization = 1pp↑ income= 1pp↓ child labour, especially older children</li> <li>● Calero (2009), Ecuador. ↑1\$/month remittances = 0.27pp↓ child labour</li> <li>● Yang (2008), Philippines. 25%↑ income from exchange rate shock on remittances = ↓ child labour</li> </ul>

● child labour increased    ● child labour decreased    ● no effect on child labour    ● mixed results

**Notes:** For brevity, hours, days or probability of work is not indicated. ↑ indicates a significant positive coefficient (increase), ↓ a significant negative coefficient (decrease) and ↔ no effect significantly distinguishable from zero. The abbreviation “pp” refers to percentage points. The abbreviation “s.d.” refers to standard deviations.

Table 3: The effect on child labour of policies and programmes to increase income

Policy	Evidence
Unconditional cash transfer (UCT)	<ul style="list-style-type: none"> <li>● Edmonds &amp; Schady (2012), Ecuador. UCT= ↓78% paid child labour, ↓32% unpaid, small ↑chores</li> <li>● Handa et al. (2016), De Hoop et al. (2019) Zambia. UCT= ↓4-5 pp child labour (esp. older children). Another UCT = ↑excessive work hours</li> <li>● Covarrubias et al. (2012), Endline Impact Report (2016), Hoop et al. (2019) Malawi. ↓7% child labour outside home, ↑0.16 hours/week housework, ↑hazardous activities</li> <li>● Edmonds (2006) South Africa. Unconditional pension = ↓0.7 h/day market work for boys</li> <li>● Pellerano et al. (2019), Lesotho. UCT = ↓17pp child labour, only for less poor households</li> </ul>
Conditional cash transfer (CCT)	<ul style="list-style-type: none"> <li>● Dammert (2009) Nicaragua. CCT = ↓4 pp child labour (boys)</li> <li>● Galiani and McEwan (2013) Honduras. CCT = ↓3pp child labour</li> <li>● Del Carpio et al. (2016) Nicaragua. CCT = ↓1.8h/week child labour (housework, farming), only = ↓0.9h/week if CCT + business grant, because ↑ in enterprise work</li> <li>● Skoufias and Parker 2001, Janvry et al. (2006), Behrman et al. (2011) Mexico. CCT = ↓3-5pp child labour (boys), ↓2pp child labour (girls). ↓2-7% child labour, but no protection from shocks. Long run: ↓30% CL (boys), not for girls</li> <li>● De Hoop et al. (2017), Philippines. CCT = ↑CL 5pp. ↓4pp neither in school nor at work, ↑6pp both in school and working. CCT was lower than cost of schooling.</li> </ul>
In-kind transfer	<ul style="list-style-type: none"> <li>● Ravallion &amp; Wodon (2000) Bangladesh. 100kg rice = ↓31% child labour (boys) 18% ↓(girls)</li> <li>● Kazianga et al. (2012) Burkina Faso. Take-home rations for girls = ↓9pp child labour (girls)</li> <li>● Bandiera et al. (2017) Bangladesh. Livestock transfer to women + business training = ↑ child labour (small, not at the expenses of schooling)</li> </ul>
School subsidies	<ul style="list-style-type: none"> <li>● Angrist et al (2002) Colombia. School vouchers = ↓1.2-1.5h/wk child labour, higher for girls</li> <li>● De Hoop et al. (2014b). Burkina Faso. School construction + food incentives = ↔ child labour, ↑14pp child labour for boys without sisters eligible for food</li> </ul>
Financial services	<ul style="list-style-type: none"> <li>● Tarozzi et al. (2015) Ethiopia. Microcredit = ↔ child labour, ↓2.6pp self-employment, girls, ↑1pp outside employment (13-19 year olds)</li> <li>● Crepon et al. 2015 Morocco. Microcredit = ↓1.3pp chores</li> <li>● Angelucci et al. (2015), Mexico. Microcredit = ↔ income, ↔ child labour</li> <li>● Landmann and Frölich (2015), Pakistan. Health insurance = ↓0.03pp child labour, ↓0.04 hazardous work, ↓4.4pp hours worked for boys</li> </ul>
Employment opportunities	<ul style="list-style-type: none"> <li>● Dinku et al. (2019) Ethiopia. Public works = ↓10.7pp child labour</li> <li>● Shah and Steinberg (2015) India. = ↑4pp child labour (esp. older children, girls and chores)</li> <li>● De Hoop et al. (2018) Nicaragua. Training + capital transfer to women = ↔ child labour</li> </ul>

● child labour increased    ● child labour decreased    ● no effect on child labour    ● mixed results

**Notes:** For brevity, hours, days or probability of work is not indicated. ↑ indicates a significant positive coefficient (increase), ↓ a significant negative coefficient (decrease) and ↔ no effect significantly distinguishable from zero. The abbreviation “pp” refers to percentage points. The abbreviation “s.d.” refers to standard deviations.

## CONCLUSIONS

What are some of the overall conclusions that can be extrapolated from this body of knowledge?

*The relationship between income changes and child labour is generally not linear, and not even unidirectional, and is affected by a large array of complex factors.*

Income increases are not always enough for smallholder agricultural farmers to reduce their use of child labour. This review has identified several instances of evidence where child labour even *increased* following an income rise, as in the rainfall-drought literature. While these results may seem counterintuitive, they are well understood in the context of a tension between pure income effects - rising incomes lift families out of poverty, making child labour no longer a necessity- versus substitution effects - the value of child labour increasing with income opportunities. The source of the income change is a relevant factor in determining which channel dominates: income surges deriving from a rise in the value of (agricultural) work can encourage more child labour. This has been a result also of programmes for income support: for instance, in the case of Nicaragua, a cash transfer that included a business-support loan enhanced children's earning potential, and thus increased child labour (Del Carpio et al. 2016). Intervention design should carefully consider the interplay of income and substitution effects, if the main goal is to reduce child labour. Another element adding complexity is that income changes have heterogeneous effects on boys and girls, children of different age groups, and families with different amounts of wealth and assets. Future programmes to increase farmers' livelihood and decrease child labour will need to examine further how to tailor each intervention to the specific local context, so to have more balanced gender impacts, to target the cohorts of children most at risk of abandoning school and to maximize effects even for the poorest households.

*Child labour and education are intertemporal decisions, so that the problem is not just about current income*

Education pays off in the future, while child labour is useful immediately. Thus, households must deal with long-term trade-offs when choosing how family members allocate their time (Dehejia and Gatti 2005). When households face shocks and have no other options, they tend to adjust children's supply of labour and household chores. Therefore, a temporary shock, like the invasion of an agricultural pest, can have long-lasting consequences on children's development if their labour is used as a buffer, missing out on education in crucial years (Shah and Steinberg 2017).

*The relationship between child labour and schooling is not straightforward.*

The two activities are not perfect substitutes. Many programmes result in substantial improvements in education that are not coupled with equivalent reductions in child labour, and indeed some caused increasing participation in both schooling and child labour. Education costs could push children to work more once they start attending school. **Hence, increases in school participation and reduction of child labour should be viewed as two objectives to be pursued independently, with synergies between the two being possible but not to be taken for granted.**

*Among the policy interventions examined to tackle child labour, cash transfers are one of the most rigorously studied type of intervention and the evidence so far suggests that they can be a successful option to reduce child labour, especially child labour outside the house, but with some important caveats.*

So far, there has been evidence of some side-effects, such as increases in reported hazardous work (Malawi) and in long working hours (Zambia); moreover, cash transfers had limited effectiveness in reducing girls' engagement in household chores, and they can even increase child labour if the amounts transferred are not sufficiently large (Philippines). Other income supporting policies, such as in-kind transfers, school subsidies and employment opportunities, have been shown to help reducing some forms of child labour, but there is only a limited number of studies on these kind of interventions, and there has been evidence of some drawbacks and risks in terms of child labour, for example if school subsidies do not cover the whole cost of schooling and children must work to compensate for the remaining costs of education (Hoop et al. 2017).

*Macro interventions at the country level are generally challenging to evaluate, given the absence of valid control groups.*

Nevertheless, studies that have exploited **price** increases from exogenous shocks offer some relevant lessons on the potential impacts of such macro interventions. For instance, in the past, an upsurge in coffee prices in Brazil has been linked to more child labour. It is hard to extrapolate from these studies the expected effects in other countries and different agricultural settings, but overall, in line with the general take-away from the literature, these studies warn that the effect on child labour would depend on whether the income effect (families earning more money, hence using less child labour) surpasses the substitution effect (child work becoming more valuable given the higher price of the commodities they work with, thus increasing child labour).

*Literature on unexpected income shocks, both positive and negative, provides some, albeit limited, conclusions regarding the design of interventions for increased agricultural output and productivity.*

On the one hand, **adverse shocks to agricultural production** (such as crop loss, weather conditions, etc.) **typically increase child labour**, so limiting the damages from such shocks might be an effective strategy against child labour. On the other hand, it has been demonstrated that abundance of rainfall, which can increase productivity in rain-fed agriculture, can cause more child labour even though it also raises farmers' incomes. Hence, programmes targeting agricultural output and productivity should consider carefully possible side-effects as increased productivity also increases the value of child work.

*Significant knowledge gaps remain in the literature.*

For example, the evidence shows that unexpected negative income shocks due to crop loss, weather, price shocks etc. tend to increase child labour because farmers use children as a buffer against such unpredictable events. This suggests that interventions that enhance farmers' resilience (such as income diversification, savings opportunities, insurance, etc.) may be an important part of effective strategies to fight child labour. However, no longer-term well-designed studies have been conducted to date to substantiate the effectiveness of such interventions.

*Another gap in the evidence is the relationship between living income and child labour*

How do farmers' child labour use respond when they cross the living income threshold? And what is the impact on child labour of complementary agriculture-related interventions for living income support (promotion of agro-forestry, technical trainings, etc.)? The recent work on threshold effects by Pellerano et al. (2019) indicates that the level of income is indeed a significant source of variation in child labour outcomes, but more research is needed to link this evidence to living income benchmarks.

*Even for those types of interventions for which some rigorous evidence exists, more replications are needed in different contexts*

Replication is needed in different countries and sectors, with different modalities, and in combination with complementary measures (e.g. recent trials of “Cash+” interventions). Moreover, most existing studies focus on short-term effects, while medium- and long-term effects of any type of intervention remain poorly understood. **Practitioners and researchers should partner to integrate primary data collection on labour use practices in their programmes, to allow for sound evaluation of impacts on child labour.**<sup>26</sup> Moreover, rigorous evaluation often requires that the design of the intervention is adjusted to ensure **observation of a valid counterfactual**. One option for a low-cost rigorous evaluation methodology built into the design of an intervention is delayed phase-in of a programme: some farmers are “treated” in a first wave, and then a second set of beneficiaries would receive the intervention only after some time. Random assignment of farmers (or geographic units like villages) to either wave should ensure the comparability of the two groups, and the second wave would act as a valid counterfactual (control group) when performing the impact evaluation. However, that this design only allows for evaluation of short-term effects.

**Overall, the complexity in the relationship between income and child labour that emerges from the literature calls for careful design, and rigorous evaluation, of future income-enhancing strategies, to ensure that their effects on child labour are properly understood and strategies adjusted, if needed.**

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<sup>26</sup> Some programmes already recommend such an approach: the first pillar of the Alliances for Action (A4A) approach developed by the International Trade Centre (ITC), for example, is dedicated to *understanding* the dynamics of these integrated sets of measures in the local and global context. The last pillar of the methodology is then based on assessing *impacts* for transparency, communication and learning, also with the objective to build further understanding.

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